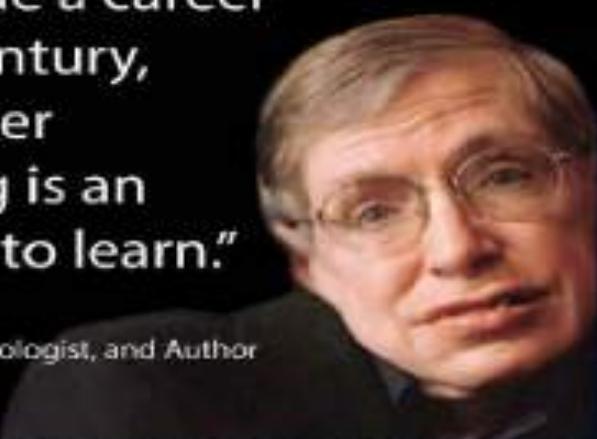


# C, C++, Java, Javascript & Android for dummies

"Whether you want to uncover the secrets of the universe, or you want to pursue a career in the 21st century, basic computer programming is an essential skill to learn."

Stephen Hawking  
Theoretical Physicist, Cosmologist, and Author



Manjunath.R

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## C, C++, Java, Javascript & Android

- Educational institutions are teaching it
- Corporate societies are employing it
  - Pupils need it
- (Pedagogues desire it... ;)
- (Coders perceive it... :)



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**Understanding C, C++, Java, Javascript & Android for dummies**  
**An Comprehensive Guide For All Programmers**  
**(Start programming in C, C++, Java , Javascript & Android – no experience required...)**

Manjunath R  
[manjunath5496@gmail.com](mailto:manjunath5496@gmail.com) , [manjunathr1988@yahoo.in](mailto:manjunathr1988@yahoo.in)

“Talk is cheap. Show me the code.”

: Linus Torvalds

**Abstract:** This BOOK provides a precise description of the open source and Linux-based operating system for mobile devices such as smartphones and tablet computers i.e., the world's most popular operating system-- the Android which was developed by the Open Handset Alliance, led by Google, and other companies – and has now garnered the interest of a million smartphone users -- and also highlights some basic knowledge of artificial intelligence formal constructed programming languages (like C, C++, Java & XML) designed to interact with the hardware in a more powerful way and to communicate instructions to a machine, particularly an electronic device which is capable of receiving information (data) in a particular form and of performing a sequence of operations in accordance with a predetermined but variable set of procedural instructions (program) to produce a result in the form of information or signals. If you read this book in a public place (on a commuter train, at the beach, or on the dance floor at the Restaurants, for example), you can read proudly, with a chip on your shoulder and with your head held high. C, C++, Java, Javascript and Android is hot stuff, and you're cool because you're reading about it. If you are just learning what kind of animals C, C++, Java, Javascript and Android are, this BOOK will make an excellent companion to any tutorial and serve as a source of knowledge to your specific questions. And, by reading this BOOK, you'll have a broad, basic knowledge of C, C++, Java, Javascript [scripting language used in millions of Web pages such as Internet Explorer, Firefox, Chrome, Opera, and Safari] and Android. This article is for all programmers, whether you are a novice or an experienced pro. The beginner will find its carefully paced discussions and many examples especially helpful. Of course those who have already familiar with programming are likely to derive more benefits from this book. After completing this book you will find yourself at a moderate level of expertise in C, C++, Java, Javascript and Android programming from where you can take yourself to next levels.

**Keywords:** C; C++; Java; XML; Android programming; Language; Javascript; HTML; LINUX.

**“What Will Understanding C, C++, Java, Javascript (the world's most popular case-sensitive object oriented scripting language introduced to create dynamic web pages) & ANDROID (which run on 53 percent of all smartphones in the United States and on 80 percent of all smartphones worldwide) Do for Me?”**

C, C++ & Java programs are commonly referred to as software and this software is essential to a fast and obedient, smart processing unit called computer because it controls everything the computer does (i.e., performance of a suite of computer operations and storage of the results in its memory can be manipulated by using notable programming languages in existence such as C, C++ & Java). Contemplating Android application development is a great choice as per current market scenario and the importance of Android application development for businesses of today cannot be emphasized on enough. Android is everywhere. In a study that spans the Americas, Europe, Asia, and the Middle East, GlobalWebIndex reports that Android tablets outnumber iPads by more than 34 million. More than a million apps are available for download at the digital distribution platform operated by Google (double the number of apps that were available in the last few years). And more than 9 million developers write code using Java, XML-- the

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languages that empowers an array of software intended for mobile devices that features an operating system, core applications and middleware. Nowadays, website is considered as the window to the world of internet and no company can think about making its business and marketing requirements big without having its very own website to get in touch with millions of web surfers all over the world including their potential customer and the global client base and moreover website serves as the primary step towards having better business sensibility and drives the company to market the services and products they offer. Javascript is a full-fledged dynamic scripting programming language, integrated with HTML document, to provide dynamic interactivity on websites (without which there is no fastest and most efficient way to deliver the content of the website).

**ENIAC was the world's first completely electronic computer, conceived and constructed on Penn's campus in 1946.**

## I

**Operating system:** A well-defined set of instructions in the form of statements that is installed into the computer which provide instructions for computer how to operate (i.e., how to receive the raw data through input devices (like key board, mouse etc.), process the input data through processing device called CPU (Central Processing Unit) and store the processed data (in information storage devices like hard disks) and display the processed data through output devices (like monitor, printer etc.)). A well-defined instruction is called a code and a well-defined set of instructions constitute a program (i.e., compilation of codes gives a program). For example: word is a code and a paragraph is a program (i.e., compilation of words gives a paragraph).

Examples of Operating system (a well-defined set of instructions that is installed into the computer which provide instructions for computer how to operate) are: DOS (Disk operating system developed by Bill Gates and Paul Allen in 1980 for IBM PCs), Linux (operating system developed by Linus Torvalds at the University of Helsinki with the assistance of developers around the world), Windows NT, 95 & 2000 (developed by Microsoft corporation for PC), UNIX (developed by AT&T Bell Laboratories, Murray Hill, New Jersey) etc.

## II

**Drivers:** A well-defined set of instructions (what we call programs or software) that is installed into computer and stored in the form of files in the computer that allows the computer to communicate with its hardware components (i.e., hardware components like mouse, key board, printer etc.). Without drivers, the computer cannot communicate with its hardware components – as a result a mouse, keyboard, or a printer won't work properly.

## III

**Server:** If we type a request (a request to search information about computer) in the search engine websites (like Google or Firefox) in the web browser – the request is sent from the browser to the server – a system that acts like a data center from where the required information is taken and sent to the browser and is displayed in the web browser. Examples of server are: IIS (Internet Information server LATTER NAMED Internet Information service) – a web server developed by Microsoft corporation, Apache HTTP (HTTP mean Hyper Text Transfer Protocol) – a web server developed by Robert McCool at the national center for supercomputing applications (university of Illinois, Urbana-Champaign) – to provide web hosting service.

## IV

**Hosting:** Host is a system that contains information and this information can be accessed by computer users by a means of internet. This process is called hosting.

## V

**IP address or Internet Protocol address:** Just like every house on a street has a postal address which helps the post man to find that house on a street, every computer connected to internet has an Internet Protocol address or IP address which helps the other computers to find that computer on the network.

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Suppose A B, C, D, E, F and G – are the computers connected to each other by means of internet (i.e., they are on the network). If computer A has not assigned any IP address, then users at computers B, C, D, E, F and G cannot send any email or other data to user at computer A or user at computer A cannot receive any email or other data from the users at computers B, C, D, E, F and G by a means of internet.

IP address is of four types:

Public IP address and Private IP address

Static and dynamic IP address

Static IP address → permanent IP address

Dynamic IP address → temporary IP address (exist only for a limited time i.e., IP address leased for a limited time).

Public and Private IP address:

Amazon organization is assigned an IP address  $IP_A$  and Google organization is assigned an IP address  $IP_G$ . And the systems (1, 2, 3, 4, 5.....etc.) within the Amazon or the Google organization are assigned an IP addresses  $IP_1, IP_2, IP_3 \dots$  etc.

$IP_A$  and  $IP_G$  imply public IP addresses

$IP_1, IP_2, IP_3 \dots$  etc. implies private IP addresses

Which means: Public IP address is used for external communication (i.e., used for the communication between the Amazon and the Google organization) and Private IP address is used for internal communication (i.e., used for communication between the systems within the Amazon or the Google organization).

## VI

**Domain name:** If we type [www.google.com](http://www.google.com) (which is called the domain name) in the browser, then the domain name is sent to DNS (domain name system) where the domain name [www.google.com](http://www.google.com) is converted to IP address 74.125.224.72 (because website / web pages are only identified by their IP address in the server) and this IP Address is sent to the web server (a system that acts like a data center from where the required information (i.e., web page of [google.com](http://google.com)) is taken and sent to the browser and the [www.google.com](http://www.google.com) web page is displayed in the web browser). If you type the IP address in the browser, then DNS is not required. For human convenience (difficult remember numbers, for example: [www.google.com](http://www.google.com) is domain name, IP address is 74.125.224.72. Because it is difficult to remember 74.125.224.72 so [www.google.com](http://www.google.com) is preferred).

## VII

### ASP.NET:

ASP → Active Server Page

ASP.NET (Active Server Page Network Enabled Technology) is a technology developed by Microsoft corporation using the languages -- C#, Visual Basic. Net, J script & J# -- to build dynamic web pages / websites and web applications.

Dynamic web page contains information (say date, month or year or time zone of the day) change automatically daily without a developer editing its source codes while static web page contains information (say date, month or year or time zone of the day) cannot change automatically daily without a developer editing its source codes.

**Virtual Memory:** If the RAM (i.e., Random Access Memory) is full and it is running out of space available for storage of further information and there is no access to store further information, the idea of extending memory by using disk is called virtual memory (i.e., the further information is stored in disk and retrieved when required). This process is called paging or swapping.

## VIII

### C

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A high level language (which uses alphabets, digits, punctuations and some special symbols and cannot be executed directly without being converted into machine level language (the language which uses only 0 and 1)) developed by a man named Dennis Ritchie (in 1970s at Bell Telephone laboratories (now named AT & T Bell laboratories), Murray Hill, New Jersey, using the two early programming languages-- Basic combined programming language and BASIC (Beginner's All-purpose Symbolic Instruction Code) language), used in the development of operating systems like LINUX, UNIX, because of its reliability, simplicity and easy to understand, easy to use, write, modify and debug and quick to learn.

Process of C program execution: A C program:

```
#include<stdio.h>
main()
{
printf("Hello, crazy world!");
}
```

is written in C editor and is saved as source program and this source program is sent to the C compiler where the source program is compiled (i.e., the program is entirely read and translated to instructions the computer can understand i.e., machine understandable/ readable language i.e., to machine code sequence of 0's and 1's). If the C compiler finds any error during compilation, it provides information about the error to the user. The programmer has to review code and check for the solution. And if there are no errors the translated program is stored in computers main memory as object file and the program is executed and

Hello, crazy world!

is displayed on the screen. C is case sensitive language: only lower case letters (or small letters) must be used. Capital letters (or upper case letters) must be avoided to prevent the display of error on the screen (For example: If the statement PRINTF("Hello, crazy world!"); is written instead of printf("Hello, crazy world!"); or MAIN() is written instead of main(), compilation Error will be displayed on the screen). And if we forget to end each statement within the curly braces{} or each statement within the body of the main function

```
main()
```

```
{
```

} with a semicolon (;), then the compilation Error will be displayed on the screen. There should be no space between main and the parentheses () and no space inside the parentheses () to prevent the display of compilation error on the screen.

#include <stdio.h> → if we type a program (a well-defined set of instructions in the form of statements) in C editor, (as said earlier) the program is saved as source program and this source program is sent to the C compiler where the source program is compiled i.e., it is translated into machine level language i.e., into a machine code sequence of 0's and 1's (because computer can understand only machine level language). The statement #include<stdio.h> tells the compiler to include the text from the file stdio.h (which is already present in the operating system) before it translates or compiles the program into a sequence of 0's and 1's. stdio means standard input output and stdio.h means standard input output header file (stdio.h comprises standard input output functions like scanf, printf etc. — note: scanf is an input function and printf is an output function and it is included into the C program by writing the statement #include <stdio.h>). #include tell the compiler to include the contents of the file stdio.h before compilation. If a program is written without the statement #include<stdio.h>, then the C compiler can't compile and a compilation error is displayed on the screen.

Note: We can also write #include "stdio.h" instead of #include <stdio.h> but sometimes compiler will flag error message. So the statement #include <stdio.h> is generally preferred.

main() → After the compilation of the source program, the translated (or the complied) program is stored in the computer's memory as object file and the program is executed. The program begins its execution with the function main() (which is called the user defined function (function defined by the user) – the main function -- the entry point of the program execution i.e., the function from where the execution of C program begins) . The left curly brace "{" implies the beginning of the main function and the right curly brace "}" implies the end of the main function

---

```
main() → main function
```

```
main()  
{
```

} → body of the main function within which the sequence of instructions in the form of statements i.e., the program is written and executed.

Note: if a program begins its execution with main function “main()”, it takes the control of the computer from the operating system. And after the complete execution of the program, the execution is terminated and the function main() returns back the control to the operating system. Semicolon: program is a well-defined set of instructions and each well-defined instruction (in the form of a statement) is ended by a semicolon (which is C language punctuation — like a period in English i.e., in an English paragraph each sentence is ended by a full stop which tells that one sentence ends and another begins, semicolon implies that one instruction (or statement) ends and another begins).

printf → output function of the C language which make provision to print the output on the screen. The letter f in the word printf stands for formatted.

The sentence / text Hello, crazy world! should be enclosed by the double quotation marks (" ") and should be written inside the parentheses of the printf function i.e.,

```
printf("Hello, crazy world!")
```

otherwise the compilation error will be displayed on the screen.

The statement

```
printf("Hello, crazy world!");
```

make provision to display the output:

```
Hello, crazy world!
```

on the screen.

Note: if “ ” is used instead of " ", Error will be displayed on the screen

The statement printf("Hello, crazy world!"); will not display any error on the screen.

The statement printf("Hello, crazy world!"); will display error on the screen.

Past few years back, the statement return(0); was included in the body of the main function i.e.,

```
{  
printf("Hello, crazy world!");  
return(0);  
}
```

But now due to the advancement of technology and emergence of advanced online compilers like CodeChef

([www.codechef.com/](http://www.codechef.com/))

&

Coding Ground – TutorialsPoint ([www.tutorialspoint.com/codingground.htm](http://www.tutorialspoint.com/codingground.htm))

-- without the statement return(0); the program is compiled and executed without flag of any error on the screen. However, as the execution encounters the statement return (0); the execution stops and the main function ends at “}” and the main function returns back the control to the operating system.

Note:

If the statement return (0); is replaced by the statement

```
return 0;
```

or

```
return (1);
```

or

---

```
return(-2);
or
return;
```

there will be no change in the output on the screen (and no error will be flagged or displayed on the screen) i.e., for the programs

- (a) 

```
#include<stdio.h>
main()
{
    printf("Hello, crazy world!");
    return 0;
}
```
- (b) 

```
#include<stdio.h>
main()
{
    printf("Hello, crazy world!");
    return (1);
}
```
- (c) 

```
#include<stdio.h>
main()
{
    printf("Hello, crazy world!");
    return (-2);
}
```
- (d) 

```
#include<stdio.h>
main()
{
    printf("Hello, crazy world!");
    return;
}
```

The output on the screen is:

Hello, crazy world!

i.e., there will be no change in the output on the screen.

### Program 1.1

C program to print the word “hello Bill Gates” on screen

```
#include<stdio.h>
main()
{
    printf("hello Bill Gates");
}
```

---

The output on the screen:

hello Bill Gates

Even if

main(void) is written instead of main()  
int main is written instead of main()  
void main is written instead of main()  
main(computer) is written instead of main()  
main(comp2016) is written instead of main()

No error will be displayed on the screen.

hello Bill Gates will be outputted on the screen.

But if

main(2016comp) is written instead of main(comp2016)

Error will flagged on the console screen.

## Program 1.2

C program to print

\*  
\*\*\*\*\*  
\*\*\*\*\*  
\*\*\*\*\*  
\*\*\*\*\*

on screen

```
#include<stdio.h>
main()
{
printf("\n    *    ");
printf("\n **** ");
printf("\n **** ");
printf("\n **** ");
printf("\n **** ");
}
```

The output on the screen:

\*  
\*\*\*\*\*  
\*\*\*\*\*  
\*\*\*\*\*  
\*\*\*\*\*

If new line \n is not included in the above program then the output on the screen is:

\*\*\*\*\*

Write a program to print the following outputs:

---

(a)

```
*  
****  
*****  
****  
*
```

(b)

```
*****  
* *  
* Hello World! *  
* *  
*****
```

(c)

Braces come in pairs!  
Comments come in pairs!  
All statements end with a semicolon!  
Spaces are optional!  
Must have a main function!  
C is done mostly in lowercase. It's a case-sensitive language

Answers:

```
#include<stdio.h>  
main()  
{  
printf("\n      *      ");  
printf("\n      ***   ");  
printf("\n      ***** ");  
printf("\n      ***   ");  
printf("\n      *      ");  
}
```

```
#include<stdio.h>  
main()  
{  
printf("\n      *****      ");  
printf("\n          *      ");  
printf("\n          * Hello World! *      ");  
printf("\n          *      ");  
printf("\n      *****\n");  
}
```

---

```
#include<stdio.h>
main()
{
printf("\n Braces come in pairs!");
printf("\n Comments come in pairs!");
printf("\n All statements end with a semicolon!");
printf("\n Spaces are optional!");
printf("\n Must have a main function!");
printf("\n C is done mostly in lowercase. It's a case-sensitive language");
}
```

### Program 1.3

C program to find the area of a circle

```
#include<stdio.h>
main()
{
int r, area;
r = 2;
area = 4 * 3.14 * r * r;
printf("The area of the circle = %d", area);
}
```

The output on the screen:

The area of the circle = 50

int means the data type is integer.

Note: An integer is a whole number — no fractions, decimal parts, or funny stuff.

The statement

int r, area; imply that we are creating the integer variables r , area.

The statements

```
r = 2;
area = 4 * 3.14 * r * r;
```

imply that we are assigning the values to the created variables (i.e., we are assigning the value 2 for r and  $4 * 3.14 * r * r$  for area).

Comma in the statement int r, area; imply variable separator.

If multiplication sign  $\times$  is used instead of multiplication operator  $*$  i.e.,

The statement area =  $4 \times 3.14 \times r \times r$ ; is written instead of area =  $4 * 3.14 * r * r$

then the compilation error is displayed on the screen.

The statement

```
printf("The area of the circle = %d", area);
```

make provision to print the output:

The area of the circle = 50

on the screen.

---

In the statement

```
printf("The area of the circle = %d", area);
```

format string %d indicates that the integer value to be displayed at that point in the string i.e., after the statement The area of the circle = enclosed by double quotes needs to be taken from a variable area and %d tells the printf function to print an integer. Since the statement "The area of the circle = %d" is followed by , area -- %d tells the printf function to print an integer which is area.

The area of the circle is 50. 24 (for r = 2) but The area of the circle = 50 is displayed on the screen because data type int is used instead of float and format specifier %d is used instead of %f.

If float r, area; is used instead of int r, area;

and

If the statement

```
printf("The area of the circle = %f", area);
```

is written instead of

```
printf("The area of the circle = %d", area);
```

i.e.,

```
#include<stdio.h>
main()
{
float r, area;
r = 2;
area = 4 * 3.14 * r * r;
printf("The area of the circle = %f", area);
}
```

Then the output on the screen:

```
The area of the circle = 50.24
```

float means the data type is float.

The statement

```
float r, area;
```

imply that we are creating the floating variables r, area.  
(floating point variable means fractional variable or decimal number (for example: 1.5, 2.5, 3.5, 4.7...etc.) whereas integer means non-fractional variable or whole number (for example: 1, 2, 3, 4...etc.))

data type float is used instead of int (and format string %f is used instead of %d) because if the data type int is used instead of float then the result will not be clearly outputted i.e., instead of 50.24 the computer displays only 50.

If the statement

```
printf("The area of the circle = %2f", area);
```

is written instead of the statement printf("The area of the circle = %f", area);

Then the output on the screen is:

```
The area of the circle =      50.24
```

i.e., the statement

```
printf("The area of the circle = %f", area);
```

yields the output:

```
The area of the circle = 50.24
```

whereas the statement

---

```
printf("The area of the circle = %2f", area); yields the output:  
The area of the circle = 50.24
```

If you want to supply the value for r through the key board, then the statement

r =2;

should be replaced by the statements

```
printf("Enter any number:");  
scanf("%d", &r);
```

i.e., the program is rewritten as:

```
#include<stdio.h>  
main()  
{  
float r, area;  
printf("Enter any number:");  
scanf("%d", &r);  
area = 4 * 3.14 * r * r;  
printf("The area of the circle = %f", area);  
}
```

The output on the screen:

Enter any number:

If you enter the number 2

The area of the circle = 50.24 will be outputted on the screen.

The statement printf("Enter any number:"); make provision to print the sentence / text

Enter any number:

on the screen.

& imply the address and &r imply the address of r in the computer memory. The statement float r, area; imply that we are creating the float variables r and area and these variables are stored in the computer memory and they are assigned an address to locate their position in the computer memory (like houses in a street are assigned an address to locate their position in the street). The statement scanf("%d", &r); make provision to enter a number for r through the keyboard and store the number entered for r through the keyboard in the address of r in the computer memory. Format string %d in the statement scanf("%d", &r); tells the input function scanf to read the number entered through the keyboard (which is a integer) and since " %d" is followed by , &r -- %d tells the scanf function to read the integer entered through the keyboard for r and store it in the address of r in the computer memory (i.e., store the number in &r).

Note: Like the letter f in printf(), the letter f in scanf() means formatted.

printf and scanf function are not part of C language but they are part of standard input output file i.e., (stdio.h file) so the statement #include<stdio.h> should be included in the C program otherwise printf and scanf function will not work and the compilation error will be displayed on the screen.

If you write area = 4 \* 3.14 \* r ^ 2; instead of area = 4 \* 3.14 \* r \* r; (where r ^ 2 implies r to the power of 2 or r square), then the compilation error is displayed on the screen because unlike other high level languages – there is no operator for performing exponentiation operation i.e., there is no operator for performing r ^ 2 operation so the statement area = 4 \* 3.14 \* r ^ 2; is invalid.

---

Note: As told earlier: when you enter an integer for x through the keyboard, this integer will be stored in the computer memory. If you yearn to know the storage size of the integer in computer memory (i.e., space occupied by the entered integer in the computer memory), you need to appeal to the following program:

```
#include <stdio.h>
main()
{
int x;
x=10;
printf("size of x = %d", sizeof(x));
}
```

The output on the screen:

size of x = 4

i.e., integer entered for x i.e., 10 has occupied a space of 4 bytes in the computer memory.

Write a program to print the circumference of the circle (given r = 2.5)

Answer:

```
#include<stdio.h>
main()
{
float r, area;
r = 2.5;
circumference = 3.14 * r * r;
printf("The circumference of the circle = %f", circumference);
}
```

Write a program to print the area of the rectangle (given l = 2.5 and b = 3)

Answer:

```
#include<stdio.h>
main()
{
float l, b, area;
l = 2.5;
b = 3;
area = l*b;
printf("The area of the rectangle = %f", area);
}
```

What is the mistake in the following programs?

(a)

```
#include<stdio.h>
```

---

```

main()
{
float r, area;
printf("Enter any number:");
scanf("%d, &r");
area = 4 * 3.14 * r * r;
printf("The area of the circle = %f"; area);
}

```

(b)

```

#include<stdio.h>
main()
{
int l, area;
printf("Enter any number:");
scanf("%d"; &r);
area = l * l;
print("The area of the square = %f", area);
}

```

### **Format specifiers defined in C.**

Data type	format specifier
int	%d
float	%f or %e
char	%c
double	%lf or %le
long int	%ld

### **Program 1.3**

C program to find the sum of two numbers

```

#include<stdio.h>
main()
{
int a, b, sum;
a=1;
b=2;
sum = a + b;
printf("the sum of a and b = %d", sum);
}

```

The output on the screen:

the sum of a and b = 3

If you want to assign the floating point values i.e., fractional numbers for a & b (i.e., 1.5 for a & 2.6 for b) through the keyboard, then the statement int a, b, sum; should be replaced by the statement float a, b, sum;

---

and the statement

printf("the sum of a and b = %d", sum); should be replaced by the statement  
printf("the sum of a and b = %f", sum);

i.e.,

```
#include<stdio.h>
main()
{
float a, b, sum;
a=1.5;
b=2.6;
sum = a + b;
printf("the sum of a and b = %f", sum);
}
```

The output on the screen:

the sum of a and b = 4.1

The statement

printf("the sum of a and b = %f", sum);

make provision to print the output:

the sum of a and b = 4.1

In the statement

printf("the sum of a and b = %f", sum);

format string %f tells the printf function to print an floating point value which is sum.

Since a = 1.5 and b = 2.6 therefore:

the sum of a and b =  $1.5 + 2.6 = 4.1$  which is outputted on the screen.

If the statement printf("the sum of a and b = %f", sum); is replaced by the statement

printf("the sum of a and b = %f, sum");

Then output on the screen is:

the sum of a and b = %f, sum

And if the statement printf("the sum of a and b = %f", sum); is omitted from the C program, then the program will be successfully executed but there will be no display of the output on the screen.

If you want to supply the values for a and b through the key board, then the statements

```
a=1.5;
b=2.6;
```

should be replaced by the statements

```
printf("Enter any two numbers:");
scanf("%f %f", &a, &b);
```

i.e., the program is rewritten as:

```
#include<stdio.h>
main()
{
float a, b, sum;
printf("Enter any two numbers:");
}
```

```
scanf("%f %f", &a, &b);
sum = a+ b;
printf("the sum of a and b = %f", sum);
}
```

The output on the screen:

Enter any two numbers:

If you enter two numbers 2.9 & 3.6

the sum of a and b = 6.5 will be outputted on the screen.

As said earlier:

ampersand (“&”) imply the address and &a and &b imply the addresses of the created float variables a and b stored in the computer memory i.e., when we enter a number for a and b through the keyboard, these numbers are read by scanf function and they are stored in the computer memory (i.e., the number entered for a is stored in the address of a (i.e., stored in &a) and the number entered for b is stored in the address of b (i.e., stored in &b)).

There are 2 format strings in the statement

```
scanf("%f %f", &a, &b);
```

one format string %f corresponds to &a ( i.e., %f tells the scanf function to read the number entered through the keyboard for a and store it in the address of a in the computer memory).

and the other format string %f corresponds to &b ( i.e., %f tells the scanf function to read the number entered through the keyboard for b and store it in the address of b in the computer memory).

If the two format strings are separated by a comma i.e.,

```
scanf("%f, %f", &a, &b);
```

Then the compilation error will be displayed on the screen.

Note:

The statement printf("Enter any two numbers:"); make provision to print

Enter any two numbers:

on the screen and the statement scanf("%f %f", &a, &b); read the two numbers 2.9 and 3.6 entered through the keyboard and store them in the computer memory.

If the statements

```
printf("Enter any two numbers:");
scanf("%f %f", &a, &b);
```

are replaced by the statements:

```
printf("Enter any number:");
```

```
scanf("%f", &a);
```

```
printf("Enter any number:");
```

```
scanf("%f", &b);
```

i.e.,

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
float a, b, sum;
```

```
printf("Enter any number:");
```

```
scanf("%f", &a);
```

```
printf("Enter any number:");
```

```
scanf("%f", &b);
sum = a+ b;
printf("the sum of a and b = %f", sum);
}
```

Then the output on the screen:

Enter any number:

If you enter a number 2.9

Enter any number:

If you enter a number 3.6

the sum of a and b = 6.5 will be outputted on the screen.

If the statement

```
printf("the sum of a and b = %f", sum);
```

is replaced by the statement

```
printf("the sum of %f and %f = %f", a, b, sum);
```

Then the output on the screen is:

the sum of 2.9 and 3.6 = 6.5

In the statement

```
printf("the sum of %f and %f = %f", a, b, sum);
```

there are three format strings:

The format string %f after the statement (the sum of) indicates that the value to be displayed needs to be taken from a variable a.

The format string %f after the statement (the sum of %f and) indicates that the value to be displayed needs to be taken from a variable b.

The format string %f after the statement (the sum of %f and %f = ) indicates that the value to be displayed needs to be taken from a variable sum.

#### Program 1.4

C program to convert the temperature in Celsius to Fahrenheit

```
#include<stdio.h>
main()
{
float C, F;
C=38.5;
F = 9*C/5 +32;
printf("temperature in Fahrenheit= %f", F);
}
```

The output on the screen:

temperature in Fahrenheit= 101.3

As said earlier: if  $\times$  is used instead of \* and  $F = 9C/5 +32$  is used of  $F = 9*C/5 +32$ , then the compilation error will be displayed on the screen.

If you want to supply a number 16 digits after decimal point i.e., 36.5555555555555555 for C, then the statement

---

double C, F; should be used instead of the statement float C, F;  
and %lf should be used instead of %f

i.e.,

```
#include<stdio.h>
main()
{
double C, F;
C=38.555555555555555;
F = 9*C/5 +32;
printf("temperature in Fahrenheit= %lf", F);
}
```

And if you want to supply the number 16 digits after decimal point for C through the key board, then the statement  
C=38.5;

should be replaced by the statements

```
printf("Enter any number:");
scanf("%lf", &C);
```

i.e.,

```
#include<stdio.h>
main()
{
double C, F;
printf("Enter any number:");
scanf("%lf", &C);
F = 9*C/5 +32;
printf("temperature in Fahrenheit= %lf", F);
}
```

Note:

```
#include <stdio.h>
main()
{
double C, F;
C = 25.33333333333333;
F = 9*C/5 +32;
printf("temperature in Fahrenheit= %lf", F);
}
```

The output on the screen:

```
temperature in Fahrenheit = 77.600000
```

If the statement double C, F; is replaced by the statements

```
double C;
float F;
i.e., if the above program is rewritten as:
#include <stdio.h>
```

---

```

main()
{
double C;
float F;
C = 25.33333333333333;
F = 9*C/5 +32;
printf("temperature in Fahrenheit= %f", F); (%f is used because the data type for F is float)
}

```

Then there is slight change in the output on the screen:

temperature in Fahrenheit = 77.599998

Write a program to print the sum of three numbers

Answer:

```

#include<stdio.h>
main()
{
int a, b, c, sum;
printf("Enter any three numbers:");
scanf("%d %d%d", &a, &b, &c);
sum = a + b + c;
printf("the sum of a, b and c = %d", sum);
}

```

Write a program to print the area of a triangle, given

$$\text{area} = (s(s-a)(s-b)(s-c))^{1/2} \text{ where } s = (a+b+c)/2$$

```

#include<stdio.h>
#include<math.h>
main()
{
int a, b, c, s, area;
a = 3;
b = 4;
c = 5;
s = (a + b + c) / 2;
area = sqrt((s * (s-a) * (s-b) * (s-c)));
printf("the area of the triangle = %d", area);
}

```

Note: since `sqrt()` is not part of C language or of standard input output file i.e., (`stdio.h` file), it is part of math file i.e., (`math.h` file which defines various mathematical functions) so `#include<math.h>` should be included in the C program otherwise the compilation error will be flagged on the screen stating that `sqrt()` is not declared.

If the statement `area = (s(s-a)(s-b)(s-c))1/2` is written instead of `area = sqrt((s * (s-a) * (s-b) * (s-c)))`;

Then the compilation error will be displayed on the screen because C does not support `area = (s(s-a)(s-b)(s-c))1/2`.

---

**Punch Cards (or IBM cards, or Hollerith cards) -- a piece of stiff paper that contained commands for controlling automated machinery or data for data processing applications – was formerly used to program computers.**

**A paper tape, constructed from punched cards, in use in a Jacquard loom. The large holes on each edge were sprocket holes, which were used to pull the paper tape through the loom.**

### **Stuff you need to know about**

$$\begin{aligned}1 \text{ kilobyte} &= 1024 \text{ bytes} \\1 \text{ megabyte} &= 1024 \times 1024 \text{ bytes} \\1 \text{ gigabyte} &= 1024 \times 1024 \times 1024 \text{ bytes}\end{aligned}$$

### **Program 1.5**

C program to find the product of two numbers

```
#include<stdio.h>
main()
{
int a, b, product;
a=1;
b=2;
product = a * b;
printf("the product of a and b = %d", product);
}
```

The output on the screen:

the product of a and b = 2

If you insert a value  $2^3$  for a and  $3^2$  for b, then as said earlier wrong result or compilation error will be flagged on the screen because C language do not support the operation  $2^3$  and  $3^2$ ,

```
a=2^3;
b=3^2; → ERROR
a=2* 2*2
```

$b=3*3;$  → No ERROR will be displayed on the screen and the Result will be outputted on the screen i.e.,  
the product of a and b = 72 will be outputted on the screen.

If you want to insert a 10 digit number for a and b i.e.,

```
a=1000000000
```

```
b=3000000000, then the statement
```

```
int a, b, product; should be replaced by the statement long int a, b, product;
and %ld should be used instead of %d
i.e., the program should take the form:
```

```
#include<stdio.h>
main()
```

```
{  
long int a, b, product;  
a=1000000000;  
b=2000000000;  
product = a * b;  
printf("the product of a and b = %ld", product);  
}
```

The output on the screen:

```
the product of a and b = 30000000000000000000
```

“A language that doesn’t have everything is actually easier to program in than some that do.”

“UNIX is basically a simple operating system, but you have to be a genius to understand the simplicity.”

: Dennis Ritchie  
(1941 – 2011)

#### **IBM’s first large-scale scientific computer was the IBM 701**

If you want to supply the values for a and b through the key board, then the statements

```
a=1;  
b=2; should be replaced by the statements
```

```
printf("Enter any two numbers:");  
scanf("%d %d", &a, &b);
```

i.e.,

```
#include<stdio.h>  
main ()  
{  
int a, b, product;  
printf("Enter any two numbers:");  
scanf("%d%d", &a, &b);  
product = a* b;  
printf("the product of a and b = %d", product);  
}
```

The output on the screen:

Enter any two numbers:

If you enter two numbers 1 and 3

```
the product of a and b = 3 will be outputted on the screen.
```

If you replace the statements

```
printf("Enter any two numbers:");  
scanf("%d%d", &a, &b);
```

by the statements

```
printf("Enter any number:");  
scanf("%d", &a);  
printf("Enter any number:");  
scanf("%d", &b);
```

---

Then the output on the screen will be:

Enter any number:

If you enter the number 3

Enter any number:

If you enter the number 3

the product of a and b = 9 will be outputted on the screen.

If the statement `printf("the product of a and b = %d"; product);` is written instead of the statement `printf("the product of a and b = %d", product);` i.e., instead of variable separator (i.e., comma) semicolon is used -- Then the compilation error will be displayed on the screen.

Note:

```
#include <stdio.h>
```

```
main()
```

```
{
```

```
printf("Hello, World!");
```

```
printf("Hello, World!\b");
```

```
printf("Hello, World!\b");
```

```
printf("Hello, World!\b");
```

```
}
```

i.e., if back space \b is used then

Hello, World!Hello, World!Hello, World!Hello, World! will be outputted on the screen.

If carriage return \r is used instead of \b

i.e.,

```
#include <stdio.h>
```

```
main()
```

```
{
```

```
printf("Hello, World!");
```

```
printf("Hello, World!\r");
```

```
printf("Hello, World!\r");
```

```
printf("Hello, World!\r");
```

```
}
```

The output on the screen is:

Hello, World!Hello, World!

Hello, World!

Hello, World!

If tab \t is used instead of \r

i.e.,

```
#include <stdio.h>
```

```
main()
```

```
{
```

```
printf("Hello, World!\t");
```

```
printf("Hello, World!\t");
```

```
printf("Hello, World!\t");
printf("Hello, World!\t");
}
```

The output on the screen is:

```
Hello, World!    Hello, World!    Hello, World!    Hello, World!
```

### Program 1.5

C program to find the square of a number

```
#include<stdio.h>
main()
{
int a, b;
a=2;
b = a * a;
printf("the square of a = %d", b);
}
```

The output on the screen:

```
the square of a = 4
```

If the statement  $b = a * a;$  is replaced by  $b = \text{pow}(a, 2);$

i.e., if the above program is rewritten as:

```
#include<stdio.h>
#include<math.h>
main()
{
int a, b;
a=2;
b = \text{pow}(a, 2);
printf("the square of a = %d", b);
}
```

Then there will be no display of compilation error on the screen or there will be no change in the output on the screen i.e.,

```
the square of a = 4 will be outputted on the screen.
```

Which means:

$b = \text{pow}(a, 2);$  is the same as  $b = a * a;$

Since  $b = \text{pow}(a, 2);$  is used instead of  $b = a * a;$

`#include<math.h>` should be included in the C program as  $b = \text{pow}(a, 2);$  is supported by `#include<math.h>` otherwise compilation ERROR will be displayed on the screen.

If you want to supply the integer value for a through the key board, then the statement  $a=2;$  is replaced by the statements

```
printf("Enter any number:");
scanf("%d", &a);
```

i.e.,

```
#include<stdio.h>
main()
{
int a, b;
printf("Enter any number:");
scanf("%d", &a);
b = a * a;
printf("the square of a = %d", b);
}
The output on the screen:
Enter any number:
If you enter a number 4
```

the square of a = 16 will be outputted on the screen.

Note:

If scanf(%d, &a); is written instead of scanf("%d", &a);  
If printf(the square of a = %d, b); is written instead of printf("the square of a = %d", b);  
If the main function is followed by a semicolon i.e.,

main(); is written instead of main()

Then the compilation error will be displayed on the screen.

But if the body of the main function is followed by a semicolon i.e.,

main()

{

}; is written instead of

main()

{

}

There will be no display of the compilation error on the screen.

main(); → ERROR

main()

{

}; → NO ERROR

Write a program to print the cube of a number

Answer:

```
#include<stdio.h>
#include<math.h>
main()
{
int a, b;
a=2;
b = pow((a), 3);
printf("the cube of a = %d", b);
```

---

}

Write a program to print the energy of the substance using energy =  $mc^2$

Answer:

```
#include<stdio.h>
#include<math.h>
main()
{
int m;
long int c, energy;
m=2;
c = 300000000;
energy = m * pow((c), 2);
printf("the energy of the substance = %ld joules", energy);
```

Program 1.6

C program to find the greatest of two numbers using

- (a) if - if statement
- (b) if - else statement

The syntax of if - if statement is:

```
if (this condition is true)
{
print this statement using printf function;
}
if (this condition is true)
{
print this statement using printf function;
}
```

(a)

```
#include<stdio.h>
main()
{
int a, b;
a=2;
b =3;
if(a>b)
{
printf("a is greater than b");
}
```

---

```
if(b>a)
{
printf("b is greater than a");
}
}
```

The output on the screen:

b is greater than a

Since the condition  $a > b$  within the parentheses is not true, the statement  $a$  is greater than  $b$  is not executed; instead the execution skips and pass to the condition  $b > a$  and prints the statement  $b$  is greater than  $a$  using `printf` function.

In simpler words,

$(a > b)$  and  $(b > a)$  are the conditions (i.e., logical expressions that results in true or false) and if the condition  $(a > b)$  is true, then the statement

```
{  
printf("a is greater than b");  
}
```

make provision to print the output:

a is greater than b

and if the condition  $(a > b)$  is not true and the condition  $(b > a)$  is true, then the statement

```
{  
printf("b is greater than a");  
}
```

make provision to print the output:

b is greater than a

If you want to supply the integer values for  $a$  and  $b$  through the key board, then the statements

$a=2;$

$b=3;$  should be replaced by the statements

```
printf("Enter any number:");
scanf("%d", &a);
printf("Enter any number:");
scanf("%d", &b);
```

i.e., the program should be rewritten as:

```
#include<stdio.h>
main()
{
int a, b;
printf("Enter any number:");
scanf("%d", &a);
printf("Enter any number:");
scanf("%d", &b);
if(a>b)
{
printf("a is greater than b");
```

```
}
```

```
if(b>a)
```

```
{
```

```
printf("b is greater than a");
```

```
}
```

```
}
```

The output on the screen:

Enter any number:

If you enter the number 6

Enter any number:

If you enter the number 3

a is greater than b will be outputted on the screen.

Note:

If the symbol > is replaced by >>

i.e., if

(a>> b)

(b>>a)

is written instead of

(a>b)

(b>a)

Then the program will be successfully executed but there will be no display of the output on the screen.

The syntax of if – else statement is:

```
if (this condition is true)
```

```
{
```

```
print this statement using printf function;
```

```
}
```

```
else
```

```
{
```

```
print this statement using printf function;
```

```
}
```

(b)

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
int a, b;
```

```
a=2;
```

```
b =3;
```

```
if(a>b)
```

```
{
```

```
printf("a is greater than b");
```

```
}
```

```
else
```

---

```
{  
printf("b is greater than a");  
}  
}
```

The output on the screen:

b is greater than a

Since the condition  $a > b$  within the parentheses is not true, the statement  $a$  is greater than  $b$  is not executed; instead the execution skips and pass to print the statement  $b$  is greater than  $a$  using `printf` function.

Note:

Even if the statements

```
printf("a is greater than b");  
printf("b is greater than a");
```

are not written within the braces {}

i.e.,

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
int a, b;
```

```
a=2;
```

```
b =3;
```

```
if(a>b)
```

```
printf("a is greater than b");
```

```
else
```

```
printf("b is greater than a");
```

```
}
```

There will no display of compilation error on the screen or there will be no change in the output displayed on the screen (i.e.,  $b$  is greater than  $a$  will be outputted on the screen).

### Program 1.7

C program to find the greatest of three numbers using

- (a) if - if - if statement
- (b) if – else if – else statement
- (c) if – else if – else if statement

The syntax of if – if- if statement is:

```
if (this condition is true)  
{  
print this statement using printf function;  
}  
if (this condition is true)  
{  
print this statement using printf function;
```

---

```

}
if (this condition is true)
{
print this statement using printf function;
}

```

(a)

```
#include<stdio.h>
main()
{
int a, b, c;
a=2;
b =3;
c=4;
if(a>b&&a>c)
{
printf("a is greater than b and c");
}
if(b>a&&b>c)
{
printf("b is greater than a and c");
}
if(c>b&&c>a)
{
printf("c is greater than b and a");
}
}
```

The output on the screen:

c is greater than b and a

double ampersand “&&” imply and.

$(a > b \&\& a > c)$   
 $(b > a \&\& b > c)$   
 $(c > b \&\& c > a)$

denote conditions.

i.e., the condition

$(a > b \&\& a > c)$  imply a is greater than b and a is greater than c and if this condition is true, then the statement

```

{
    printf("a is greater than b and c");
}

```

make provision to print the output using printf function:

a is greater than b and c

and if the condition  $(a > b \&\& a > c)$  is not true and the statement a is greater than b and c is not executed; instead the execution skips and pass to the condition  $(b > a \&\& b > c)$  and if this condition is true, then the statement

{

---

```
    printf("b is greater than a and c");
}
```

make provision to print the output using printf function:

```
    b is greater than a and c
```

and if the condition ( $b > a \& \& b > c$ ) is not true and the statement b is greater than a and c is not executed; instead the execution skips and pass to the condition ( $c > b \& \& c > a$ ) and if this condition is true, then the statement

```
{  
    printf("c is greater than b and a");  
}
```

make provision to print the output using printf function:

```
    c is greater than b and a
```

The syntax of if – else if – else statement is:

```
if (this condition is true)  
{  
print this statement using printf function;  
}  
else if (this condition is true)  
{  
print this statement using printf function;  
}  
else  
{  
print this statement using printf function;  
}
```

(b)

```
#include<stdio.h>
main()
{
int a, b, c;
a=2;
b =3;
c=4;
if(a>b\&\&a>c)
{
printf("a is greater than b and c");
}
else if (b>a\&\&b>c)
{
printf("b is greater than a and c");
}
else
{
printf("c is greater than b and a");
}
```

---

```
}
```

The output on the screen:

```
c is greater than b and a
```

The syntax of if – else if – else if statement is:

```
if (this condition is true)
{
print this statement using printf function;
}
else if (this condition is true)
{
print this statement using printf function;
}
else if (this condition is true)
{
print this statement using printf function;
}
```

(c)

```
#include<stdio.h>
main()
{
int a, b, c;
printf("Enter any number:");
scanf("%d", &a);
printf("Enter any number:");
scanf("%d", &b);
printf("Enter any number:");
scanf("%d", &c);
if(a>b&&a>c)
{
printf("%d is greater than %d and %d", a, b, c);
}
else if (b>a&&b>c)
{
printf("%d is greater than %d and %d", b, a, c);
}
else if (c>b&&c>a)
{
printf("%d is greater than %d and %d", c, b, a);
}
}
```

The output on the screen:

Enter any number:

If you enter the number 2

Enter any number:

---

If you enter the number 3

Enter any number:

If you enter the number 4

4 is greater than 3 and 2 will be outputted on the screen.

As said earlier:

If the statements

```
if(a>b&&a>c)
{
    printf("%d is greater than %d and %d", a, b, c);
}
else if (b>a&&b>c)
{
    printf("%d is greater than %d and %d", b, a, c);
}
else if (c>b&&c>a)
{
    printf("%d is greater than %d and %d", c, b, a);
}
```

are replaced by the statements

```
if(a>b&&a>c)
    printf("%d is greater than %d and %d", a, b, c);
    else if (b>a&&b>c)
        printf("%d is greater than %d and %d", b, a, c);
        else if (c>b&&c>a)
            printf("%d is greater than %d and %d", c, b, a);
```

i.e., if the program is rewritten as:

```
#include<stdio.h>
main()
{
int a, b, c;
printf("Enter any number:");
scanf("%d", &a);
printf("Enter any number:");
scanf("%d", &b);
printf("Enter any number:");
scanf("%d", &c);
if(a>b&&a>c)
    printf("%d is greater than %d and %d", a, b, c);
    else if (b>a&&b>c)
        printf("%d is greater than %d and %d", b, a, c);
        else if (c>b&&c>a)
            printf("%d is greater than %d and %d", c, b, a);
}
```

---

There will no display of compilation error on the screen and c is greater than b and a will be successfully outputted on the screen

“ Everybody in this country should learn how to program a computer... because it teaches you how to think.”

: Steve Jobs

**ERMA (Electronic Recording Machine, Accounting) was the first machine to use Magnetic Ink Character Recognition (MICR)**

**Hypercard (an application program and programming tool for Apple Macintosh and Apple IIGS computers), that was among the first successful hypermedia systems before the World Wide Web**

### The Evolution Of Computer Programming Languages

Hex → Assembler → C → Fortran → C++ → Java → Ruby

Did you know that: American computer scientist Grace Brewster Murray Hopper completed A-0, a program that allowed a computer user to use English-like words instead of numbers to give the computer instructions. It possessed several features of a modern-day compiler and was written for the UNIVAC I (Universal Automatic Computer I), the first commercial business computer system in the United States.

What will be the output of the following program?

```
#include <stdio.h>
main()
{
int a, b;
a=2;
b=2;
if(a>b || a== b)
printf("a is greater than or equal to b");
else
printf("b is greater than a");
}
```

Answer:

a is greater than or equal to b

Note: symbol || denote OR i.e., a>b || a== b denote a is greater than or a is equal to b.

Program 1.8

C program to find the average of 10 numbers

```
#include<stdio.h>
main()
{
int N1, N2, N3, N4, N5, N6, N7, N8, N9, N10, X;
```

```

printf("Enter any 10 numbers:");
scanf("%d%d%d%d%d%d%d%d%d", &N1, &N2, &N3, &N4, &N5, &N6, &N7, &N8, &N9, &N10);
X = (N1 + N2 + N3 + N4 + N5 + N6 + N7 + N8 + N9 + N10) /10;
printf("the average of 10 numbers = %d", X);
}

```

The output on the screen:

Enter any 10 numbers:

If you enter ten numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10

the average of 10 numbers = 5 will be outputted on the screen.

Note: The average of 10 numbers is 5.5, the output on the screen is 5 because the data type int is used instead of float.

Any mathematical expression should be written in C equivalent expression to prevent the display of compilation error on the screen because C language does not accept the general mathematical expressions.

Mathematical expression	C equivalent expression
$x \times y / z$	$x * y / z$
$(ax + 1)(by + 2)$	$(a * x + 1) * (b * y + 2)$
$(a+b)^2 / (a-b)^2$	$(a+b) * (a+b) / (a-b) * (a-b)$ or $\text{pow}((a+b), 2) / \text{pow}((a - b), 2)$
$\log_{10}(x/y + c)$	$\log(10 * (x/y + c))$
$ax^2 + bx + c$	$a*x*x + b*x + c$
$\ln x$	$\log(x)$
$\sqrt{p^2 + q^2}$	$\sqrt{p*p + q*q}$
$2a^2 + 3b + 2$	$2*a*a + 3*b + 2$
$e^x + b$	$\exp(x) + b$
$x^{1/2}$	$\sqrt{x}$
$x^{1/3}$	$\text{cbrt}(x)$
$\alpha = \beta + \gamma$	$alpha = beta + gamma$
$\sin\theta + \cos\theta$	$\sin(theta) + \cos(theta)$
$a = e^{x/\sqrt{1+\sin\theta}}$	$a = \exp(x / \sqrt{1 + \sin(theta}))$

What will be the output of the following programs:

```

#include <stdio.h>
#include<math.h>
main()
{
int a, b, x;
x=2;
b=2;

```

```

a = exp (x) + b;
printf("the value of a = %d", a);
}

#include <stdio.h>
#include<math.h>
main()
{
int alpha, beta, gamma;
alpha =2;
beta=2;
gamma= 2 * alpha + beta;
printf("the value of alpha = %d", alpha);
}

#include <stdio.h>
#include<math.h>
main ()
{
double theta, result;
theta = 90;
result = sin(theta);
printf ("The sine 90 degrees is = %lf ", result);
}

```

What is C equivalent expression of  $(x/y)^{n-1}$ ?

Answer: pow((x/y), n-1)

### Program 1.9

C program to find the square root of a number

```

#include<stdio.h>
#include<math.h>
main()
{
int a, b;
printf("Enter any number:");
scanf("%d", &a);
b = sqrt (a);
printf("the square root of a number = %d", b);
}

```

The output on the screen:

Enter any number:

If you enter the number 4

the square root of a number = 2 is outputted on the screen.

Suppose if you enter the number 2, the square root of a number = 1 is outputted on the screen because int is used instead of float.

Note:

Since  $b = \sqrt{a}$  is written

#include<math.h> must be included in the above program otherwise compilation error will flag on the screen.

i.e., the program:

```

#include<stdio.h>
main()
{
int a, b;
printf("Enter any number:");
scanf("%d", &a);
b = sqrt (a);
printf("the square root of a number = %d", b);
}

```

will flag compilation error on the screen.

If float is used instead of int then the above program take the form:

```

#include<stdio.h>
#include<math.h>
main()
{
float a, b;
printf("Enter any number:");
scanf("%d", &a);
b = sqrt (a);
printf("the square root of a number = %f", b);
}

```

The output on the screen:

Enter any number:

If you enter the number 5

the square root of a number = 2.23 is outputted on the screen.

This program can also be written as:

```

#include<stdio.h>
#include<math.h>
main()
{
printf("the square root of a number = %f", sqrt (4));
}

```

---

“Measuring programming progress by lines of code is like measuring aircraft building progress by weight.”

: Bill Gates

|| imply or  
>imply greater than  
<imply less than  
== imply equal to  
! imply not  
!= imply not equal to  
&& imply and  
& imply address

Did you know that

American computer scientist John Warner Backus completed Speed code for IBM's first large-scale scientific computer, the IBM 701. Although using Speed code demanded a significant amount of scarce memory, it greatly reduced the time required to write a program. In 1957, Backus became project leader of the IBM FORTRAN (International Business Machine Formula Translation) project, which became the most popular scientific programming language in history and is still in use today.

#### **Harvard Mark I computer was built as a partnership between Harvard and IBM in 1944**

What is the mistake in the following program?

```
#include<stdio.h>
#include<math.h>
main()
{
    float x, y, c, b;
    x=2;
    y=3;
    c=4;
    b = log10(x/y + c);
    printf("the value of b= %F", b);
}
```

Program 2.0

C program to find the simple interest

```
#include<stdio.h>
```

```
main()
{
    int P, T, R, SI;
    P = 1000;
    T = 2;
    R = 3;
    SI = P*T*R/100;
    printf("the simple interest = %d", SI);
}
```

The output on the screen:

```
the simple interest = 60
```

Note:

If you write SI = PTR/100; instead of SI = P\*T\*R/100;

Then compilation error is displayed on the screen because C language does not accept the general expressions.

If you want to supply the values for P, T and R through the key board, then the statements

```
P = 1000;
T = 2;
R = 3;
```

should be replaced by the statements

```
printf("Enter any number:");
scanf("%d", &P);
printf("Enter any number:");
scanf("%d", &T);
printf("Enter any number:");
scanf("%d", &R);
```

i.e., the above program should take the form:

```
#include<stdio.h>
main()
{
    int P, T, R, SI;
    printf("Enter principal amount:");
    scanf("%d", &P);
    printf("Enter time:");
    scanf("%d", &T);
    printf("Enter rate of interest:");
    scanf("%d", &R);
    SI = P*T*R/100;
    printf("the simple interest = %d", SI);
}
```

The output on the screen:

Enter principal amount:

If you enter the principal amount 1000

Enter time:

If you enter the time 2

Enter rate of interest:

If you enter the rate of interest 3

the simple interest = 60 will be outputted on the screen.

Note: if write the statement `scanf("%d, &P);` instead of `scanf("%d", &P);`

or

if write the statement `scanf(%d, &P);` instead of `scanf("%d", &P);` i.e., format string for data type int i.e., %d is not enclosed by double quotes (" ")

Then compilation error will be displayed on the console screen.

## Program 2.1

C program to find whether the person is senior citizen or not

```
#include<stdio.h>
main()
{
int age;
age=20;
if(age>= 60)
{
printf("senior citizen");
}
if(age<60)
{
printf("not a senior citizen");
}
```

The output on the screen:

not a senior citizen

(age>= 60) means age greater than or equal to 60

If you want to supply the value for age through the key board, then the statement

age=20;

should be replaced by the statements

```
printf("Enter age:");
scanf("%d", &age);
```

i.e., the above program should take the form:

```
#include<stdio.h>
main()
{
int age;
printf("Enter age:");
scanf("%d", &age);
if(age>60)
{
printf("senior citizen");
}
if(age<60)
{
printf("not a senior citizen");
}
```

The output on the screen:

Enter age:

If you enter the value 60

senior citizen will be outputted on the screen.

Suppose if you enter the value 27

not a senior citizen will be outputted on the screen.

Note: As said earlier:

If the symbol `>>` is used instead of `>` and `<<` is used instead of `<`

i.e.,

```
#include<stdio.h>
main()
{
int age;
printf("Enter age:");
scanf("%d", &age);
if(age>>60)
{
printf("senior citizen");
}
if(age<<60)
{
printf("not a senior citizen");
}
```

Then the program will be executed successfully without the display of any compilation error but the output will not be displayed on the screen.

## Program 2.2

C program to get marks for 3 subjects and declare the result.

If the marks  $\geq 35$  in all the subjects the student passes else fails.

```
#include<stdio.h>
main()
{
int M1, M2,M3;
M1 = 38;
M2= 45;
M3 = 67;
if(M1>= 35 && M2>= 35 && M3>= 35)
{
printf("candidate is passed");
}
else
{
printf("candidate is failed");
}
```

The output on the screen:

```
candidate is passed
>= imply greater than or equal to and double
ampersand imply and
(M1>= 35 && M2>= 35 && M3>= 35) denote the
condition and this condition imply M1 is greater than
or equal to 35 and M2 is greater than or equal to 35
and M3 is greater than or equal to 35. And if this
condition is TRUE, then the statement
```

```
{ 
printf("candidate is passed");
}
```

make provision to print the output using the output  
function printf:

```
candidate is passed
else the statement
{
printf("candidate is failed");
}
```

make provision to print the output using printf  
function:

```
candidate is failed
```

If you want to supply the integer values for marks M<sub>1</sub>, M<sub>2</sub> and M<sub>3</sub> through the key board, then the statements

M<sub>1</sub> = 38;

M<sub>2</sub>= 45;

M<sub>3</sub> = 67; should be replaced by the statements

```
printf("Enter any three numbers:");
```

```
scanf("%d%d%d", &M1, &M2, &M3);
```

i.e.,

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
int M1, M2,M3;
```

```
printf("Enter any three numbers:");
```

```
scanf("%d%d%d", &M1, &M2, &M3);
```

```
if(M1>= 35 && M2>= 35 && M3>= 35)
```

```
{
```

```
printf("candidate is passed");
```

```
}
```

```
else
```

```
{
```

```
printf("candidate is failed");
```

```
}
```

```
}
```

The output on the screen:

Enter any three numbers:

If you enter three numbers 26, 28, 39

candidate is failed will be outputted on the screen.

“Programs must be written for people to read, and  
only incidentally for machines to execute.”

: Harold Abelson

Did you know that

An IBM team led by John Backus developed FORTRAN, a powerful scientific computing language that used English-like statements. Some programmers were skeptical that FORTRAN could be as efficient as hand coding, but that sentiment disappeared when FORTRAN proved it could generate efficient code. Over the ensuing decades, FORTRAN became the most often used language for scientific and technical computing. FORTRAN is still in use today.

Header file in C	the functions it defines
stdio.h	standard input output functions

(standard input output header file)	(like scanf and printf functions)
math.h	mathematical functions (like log(), sqrt(), sin(), cos(), log10() etc.)
stdlib.h	standard library functions (like void abort(void) – a function which causes an abnormal/unusual program termination)
ctype.h	character manipulation functions (like isalpha() which checks whether a character is an alphabet or not)
graphics.h	graphical functions
conio.h (console input output header file)	console input output functions like clrscr() – a function which clears the screen.

Note: The term console usually refers to monitor or display screen.

Write a program to check whether a character is an alphabet or not using the function isalpha()

```
#include <stdio.h>
#include <ctype.h>
main()
{
int a =2;
if( isalpha(a) )
{
printf(" the character a is an alphabet");
}
else
{
printf("the character a is not an alphabet");
}
}
```

The output on the screen:

the character a is not an alphabet

```
#include <stdio.h>
#include <ctype.h>
main()
```

```
{
char a = 'b';
if( isalpha(a) )
{
printf(" the character a is an alphabet");
}
else
{
printf("the character a is not an alphabet");
}
}
```

The output on the screen:

the character a is an alphabet

If the statement char a = b; is written instead of char a = 'b'; Then the compilation error will be flagged on the display screen.

### Program 2.3

C program to find profit or loss

```
#include<stdio.h>
main()
{
int CP, SP, loss, profit;
printf("Enter cost price:");
scanf("%d", &CP);
printf("Enter selling price:");
scanf("%d", &SP);
if(SP>CP)
{
printf("profit=%d", SP-CP);
}
if(CP>SP)
{
printf("loss =%d", CP-SP);
}
}
```

The output on the screen:

Enter cost price:

If you enter the cost price 25

Enter selling price:

If you enter the selling price 26

profit = 1 will be outputted on the screen.

If the condition (SP>CP) is true, then the statement

```
{  
    printf("profit=%d", SP-CP);  
}
```

make provision to print the output:

profit = SP-CP (in this case profit = 26-25 =1)

If the condition (CP>SP) is true, then the statement

```
{  
    printf("loss=%d", CP-SP);  
}
```

make provision to print the output:

loss = CP-SP

Note: if the minus sign (-) is used instead of the minus sign (-) i.e., CP- SP is written instead of CP- SP, the error will be displayed on the screen (because C is case sensitive language).

#### Program 2.4

C program to convert inches into centimeter

```
#include<stdio.h>  
main()  
{  
float I, C;  
I=3.5;  
C = 2.54*I;  
printf("length in centimeters= %f", C);  
}
```

The output on the screen:

length in centimeters = 8.89

Note: float is used instead of int because I = 3.5 if int is used instead of float then the result will not be clearly outputted i.e., instead of 8.89 the computer displays only 8. And since float is used instead of int, the operator %d is replaced by the operator %f.

If you want to supply the floating value for I through the key board, then the above program should take the form:

```
#include<stdio.h>  
main()  
{  
float I, C;  
printf("Enter the length in inches:");  
scanf("%f", &I);
```

C = 2.54\*I;

```
printf("length in centimeters= %f", C);  
}
```

The output on the screen:

Enter the length in inches:

If you enter the floating point value or fractional or decimal number for I i.e., 25.5

length in centimeters = 64.9 will be outputted on the screen.

Suppose

If you enter the value 25

The output on the screen:

length in centimeters = 63.5

Even if you enter the value 25 instead of 25.5, float should be used instead of int because if float is not used then C = 63 will be outputted on the screen.

#### Program 2.5

C program to find the incremented and decremented values of two numbers.

```
#include<stdio.h>  
main()  
{  
int a, b, c, d, e, f;  
a = 10;  
b=12;  
c=a+1;  
d=b+1;  
e=a-1;  
f=b-1;  
printf("the incremented value of a =%d", c);  
printf("the incremented value of b =%d", d);  
printf("the decremented value of a =%d", e);  
printf("the decremented value of b =%d", f);  
}
```

The output on the screen:

the incremented value of a = 11 the incremented value of b = 13 the decremented value of a = 9 the decremented value of b = 11

If the statements

```
printf("the incremented value of a =%d", c);  
printf("the incremented value of b =%d", d);  
printf("the decremented value of a =%d", e);  
printf("the decremented value of b =%d", f);
```

are replaced by the statements

```
printf("the incremented value of a =%d\n", c);
printf("the incremented value of b =%d\n", d);
printf("the decremented value of a =%d\n", e);
printf("the decremented value of b =%d\n", f);
i.e., new line \n is included i.e., the program is
rewritten:
#include<stdio.h>
main()
{
int a, b, c, d, e, f;
a = 10;
b=12;
c=a+1;
d=b+1;
e=a-1;
f=b-1;
printf("the incremented value of a =%d\n", c);
printf("the incremented value of b =%d\n", d);
printf("the decremented value of a =%d\n", e);
printf("the decremented value of b =%d\n", f);
return(0);
}
```

The output on the screen:

```
the incremented value of a = 11
the incremented value of b = 13
the decremented value of a = 9
the decremented value of b = 11
```

i.e., \n make provision for the another result to print in the new line and (as said earlier) with and without the statement return (0); the program will be successfully executed and the result will be outputted on the screen without the display of any ERROR on the screen.

Even if the statements

```
printf("the incremented value of a =%d\n", c);
printf("the incremented value of b =%d\n", d);
printf("the decremented value of a =%d\n", e);
printf("the decremented value of b =%d\n", f);
are replaced by the statements
```

```
printf("\n the incremented value of a =%d", c);
printf("\n the incremented value of b =%d", d);
printf("\n the decremented value of a =%d", e);
printf("\n the decremented value of b =%d", f);
```

There will be no change in the output on the screen i.e.,

The statements

```
printf("the incremented value of a =%d\n", c);
printf("the incremented value of b =%d\n", d);
printf("the decremented value of a =%d\n", e);
printf("the decremented value of b =%d\n", f);
```

are the same as:

```
printf("\n the incremented value of a =%d", c);
printf("\n the incremented value of b =%d", d);
printf("\n the decremented value of a =%d", e);
printf("\n the decremented value of b =%d", f);
```

If you want to supply the values for a and b through the key board, then the above program should take the form:

```
#include<stdio.h>
main()
{
int a, b, c, d, e, f;
printf("Enter any number:");
scanf("%d", &a);
printf("Enter any number:");
scanf("%d", &b);
c=a+1;
d=b+1;
e=a-1;
f=b-1;
printf("the incremented value of a =%d\n", c);
printf("the incremented value of b =%d\n", d);
printf("the decremented value of a =%d\n", e);
printf("the decremented value of b =%d\n", f);
}
```

The output on the screen:

```
Enter any number:
If you enter the number 2
Enter any number:
If you enter the number 3
```

```
the incremented value of a = 3
the incremented value of b = 4
the decremented value of a = 1
the decremented value of b = 2
```

will be outputted on the screen.

Note: b++ is same as b + 1 and b-- is same as b - 1 but b++ or b-- should be used only in case of for loop or

---

loop statements. Usage of b++ or b-- instead of b +1 or b-1 in the certain online compilers like coding ground (tutorials point) yields error or displays the wrong result.

What is the mistake in the following program:

```
#include<stdio.h>
main(),
{
float T1, T2, A,
printf("Enter any number:");
scanf("%f"; &T1);
printf("Enter any number:");
scanf("%f," &T2);
A = (T1 + T2) / 2,
printf("the average temperature of the day = %c"; a);
}
```

Did you know that: the process of fixing the errors in the program is called debugging.

### Program 2.6

The percentage marks are entered and the grades are allotted as follows :

percentage>= 60 First Class  
percentage>=50 and per <= 60 Second Class  
percentage>= 40 and per <= 50 Pass Class  
percentage< 40 Fail

Write a C program for the above:

```
#include<stdio.h>
main()
{
int P;
printf("Enter the percentage:");
scanf("%d", &P);
if(P >= 60)
{
printf("first class");
}
if(P>=50&&P <60)
{
printf("second class");
}
```

```
}
if(P>=40&&P<=50 )
{
printf("pass class");
}
if(P<40)
{
printf("fail");
}
```

The output on the screen:

Enter the percentage:

If you enter the percentage 65

first class will be outputted on the screen.

### Program 2.7

C program to calculate the discounted price and the total price after discount

Given:

If purchase value is greater than 1000, 10% discount  
If purchase value is greater than 5000, 20% discount  
If purchase value is greater than 10000, 30% discount

(a) discounted price

```
#include<stdio.h>
main()
{
int PV, dis;
printf("Enter purchased value:");
scanf("%d", &PV);
if(PV<1000)
{
printf("dis=%d", PV* 0.1);
}
if(PV>5000)
{
printf("dis =%d", PV* 0.2);
}
if(PV<10000)
{
printf("dis=%d", PV* 0.3);
}
```

```
}
```

The output on the screen:

Enter purchased value:

If you enter the purchased value 6500

dis = 1300 will be outputted on the screen.

(PV<1000), (PV>5000) and (PV<10000) denote the conditions and if the condition (PV<1000) is true i.e., purchased value is less than 1000, then the statement

```
{
    printf("dis=%d", PV* 0.1);
}
```

make provision to print the output using printf function:

$$\text{dis} = \text{PV} * 10\% = \text{PV} * 10 / 100 = \text{PV} * 0.1$$

and if the condition (PV<1000) is false and if the condition (PV< 5000) is true i.e., purchased value is less than 5000, then the statement

```
{
    printf("dis=%d", PV* 0.2);
}
```

make provision to print the output using the function printf:

$$\text{dis} = \text{PV} * 20\% = \text{PV} * 20 / 100 = \text{PV} * 0.2$$

and if the condition (PV< 5000) is not true and if the condition (PV< 10000) is true i.e., purchased value is less than 10000, then the statement

```
{
    printf("dis=%d", PV* 0.3);
}
```

make provision to print the output using the printf function:

$$\text{dis} = \text{PV} * 30\% = \text{PV} * 30 / 100 = \text{PV} * 0.3$$

(b) total price

```
#include<stdio.h>
main()
{
int PV, total;
printf("Enter purchased value:");
scanf("%d", &PV);
if(PV<1000)
{
printf("total=%d", PV - PV* 0.1);
}
if(PV>5000)
```

```
{
    printf("total =%d", PV- PV* 0.2);
}
if(PV<10000)
{
    printf("total=%d", PV- PV* 0.3);
}
}
```

The output on the screen:

Enter purchased value:

If you enter the purchased value 650

total = 585 will be outputted on the screen.

If the condition (PV<1000) is true i.e., purchased value is less than 1000, then the statement

```
{
    printf("total = %d", PV - PV* 0.1);
}
```

make provision to print the output:

$$\text{total} = \text{PV} - \text{dis} = \text{PV} - \text{PV} * 10\% = \text{PV} - \text{PV} * 10 / 100 = \text{PV} - \text{PV} * 0.1$$

and if the condition (PV<1000) is false and if the condition (PV< 5000) is true i.e., purchased value is less than 5000, then the statement

```
{
    printf("total = %d", PV - PV* 0.2);
}
```

make provision to print the output:

$$\text{total} = \text{PV} - \text{dis} = \text{PV} - \text{PV} * 20\% = \text{PV} - \text{PV} * 20 / 100 = \text{PV} - \text{PV} * 0.2$$

and if the condition (PV< 5000) is not true and if the condition (PV< 10000) is true i.e., purchased value is less than 10000, then the statement

```
{
    printf("total = %d", PV - PV* 0.3);
}
```

make provision to print the output:

$$\text{total} = \text{PV} - \text{dis} = \text{PV} - \text{PV} * 30\% = \text{PV} - \text{PV} * 30 / 100 = \text{PV} - \text{PV} * 0.3$$

Now, Combing both the programs (above), we can write:

```
#include<stdio.h>
main()
{
int PV, dis, total;
```

```

printf("Enter purchased value:");
scanf("%d", &PV);
if(PV<1000)
{
printf("dis=%d", PV* 0.1);
printf("total=%d", total - dis);
}
if(PV>5000)
{
printf("dis =%d", PV* 0.2);
printf("total=%d", total - dis);
}
if(PV<10000)
{
printf("dis=%d", PV* 0.3);
printf("total=%d", total - dis);
}
}

```

The output on the screen:

Enter purchased value:

If you enter the purchased value 850

```

dis = 85
total = 765

```

will be outputted on the screen.

“Object oriented programming offers a sustainable way to write spaghetti code. It lets you accrete programs as a series of patches”

--Paul Graham

(an English computer scientist, a well-known essayist, programmer, language designer, co-founded Viaweb, invented Bayesian spam filters (basis of modern filters))

### Program 2.8

C program to print the first ten natural numbers using for loop statement

```

#include<stdio.h>
main()
{
int i;
for (i=1; i<=10; i++)
printf("value of i=%d", i);
}

```

The output on the screen is:

value of i = 1 value of i = 2 value of i= 3 value of i= 4 value of i= 5 value of i= 6 value of i = 7 value of i= 8 value of i = 9 value of i = 10

for (i=1; i<=10; i++) denote the for loop statement and the syntax of the for loop statement is:

for (initialization; condition; increment)

Here:

i=1 denote initialization (i.e., from where to start)

i<=10 denote the condition (i.e., stop when 10 is reached)

i++ imply increment (which tells the value of i to increase by 1 each time the loop is executed) and i++ is the same as i+1.

Since the initialization i.e., i=1

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 1

on the screen.

After this, the following execution takes place:

value of i

i= 1

Is the condition (i<=10) is true?

Yes because i=1

Do this

i= 1+1 = 2

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 2

Now, the value of i is:

i= 2

Is the condition (i<=10) is true?

Yes because i=2

Do this

i= 2+1 = 3

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 3

Now, the value of i is:

i= 3

Is the condition (i<=10) is true?

Yes because i=3

Do this

i= 3+1 = 4

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 4

Now, the value of i is:

i= 4

Is the condition (i<=10) is true?

Yes because i=4

Do this

i= 4+1 = 5

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 5

Now, the value of i is:

i= 5

Is the condition (i<=10) is true?

Yes because i=5

Do this

i= 5+1 = 6

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 6

Now, the value of i is:

i= 6

Is the condition (i<=10) is true?

Yes because i=6

Do this

i= 6+1 = 7

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 7

Now, the value of i is:

i= 7

Is the condition (i<=10) is true?

Yes because i=7

Do this

i= 7+1 = 8

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 8

Now, the value of i is:

i= 8

Is the condition (i<=10) is true?

Yes because i=8

Do this

i= 8+1 = 9

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 9

Now, the value of i is:

i= 9

Is the condition (i<=10) is true?

Yes because i=9

Do this

i= 9+1 = 10

The statement printf("value of i =%d", i); make provision to print the output:

value of i = 10

stop because the condition i<=10 is achieved.

If new line \n is introduced i.e., the statement printf("value of i =%d", i); is replaced by the statement printf("value of i =%d\n", i); or printf("\n value of i=%d", i); i.e.,

```
#include<stdio.h>
main()
{
int i;
for (i=1; i<=10; i++)
printf("value of i =%d\n", i);
}
```

Then the output on the screen is:

value of i = 1  
value of i = 2  
value of i = 3  
value of i = 4  
value of i = 5  
value of i = 6  
value of i = 7  
value of i = 8  
value of i = 9  
value of i = 10

If the for loop statement for (i=2; i<=10; i++) is written instead of the statement for(i=1; i<=10; i++), then the output on the screen is:

value of i = 2 value of i = 3 value of i= 4 value of i= 5 value of i= 6 value of i = 7 value of i= 8 value of i = 9 value of i= 10

(because i=2 is initialized in the for loop statement the printing started from value of i = 2 and ended at value of i= 10 because of the condition i<=10)

If the for loop statement for(i=1; i<10; i++) is written instead of the statement for (i=1; i<=10; i++), then the output on the screen is:

value of i = 1 value of i = 2 value of i= 3 value of i= 4 value of i= 5 value of i= 6 value of i = 7 value of i= 8 value of i = 9

(Note: the condition  $i \leq 10$  tells to print till value of  $i = 10$  but the condition  $i < 10$  tells to print till value of  $i = 9$ )

If the statement `for(i=1; i=10; i++)` is written instead of the statement `for (i=1; i<=10; i++)`, then the output on the screen is:

value of  $i = 10$  ..... (continues).

Note:

If the statement `printf("value of i =%d", i);` is replaced by the statement `printf("%d\n", i);`

i.e.,

```
#include<stdio.h>
main()
{
    int i;
    for (i=1; i<=10; i++)
        printf("%d\n", i);
}
```

The output on the screen is:

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

C program to print the first ten natural numbers using for while loop statement

The syntax of while loop statement is:

```
while (this is the condition)
{
    execute this statement;
}
```

```
#include<stdio.h>
main()
```

```
{
int i = 1;
while (i<=10)
{
    printf("%d\n", i++);
}
```

The output on the screen is:

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

$(i \leq 10)$  is the condition and the statements  
while ( $i \leq 10$ )  
{  
 printf("%d\n", i++);  
}

imply that while the condition ( $i \leq 10$ ) is to print till 10, print till 10 using the statement

```
{
    printf("%d\n", i++);
}
i.e.,
```

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

Note: The statement `int i = 1;` imply that we are creating an integer variable  $i$  and we are initializing  $i = 1$ .

If the statement `int i=1;` is replaced by the statement `int i;`

```
i.e.,
#include<stdio.h>
main()
{
int i;
while (i<=10)
{
printf("%d\n", i++);
}
```

Then the compilation error will be displayed on the screen because initialization is not defined i.e., from where to start is not declared.

If the statement int i = 1; is replaced by the int i = 0;

```
i.e.,
#include<stdio.h>
main()
{
int i = 0;
while (i<=10)
{
printf("%d\n", i++);
}
```

Then the output on the screen is:

```
0
1
2
3
4
5
6
7
8
9
10
```

Similarly if the statement int i = 0; is replaced by the int i = 7;

Then the output on the screen is:

```
7
8
9
10
```

C program to print first 10 numbers using do while loop statement

The syntax of do while loop statement is:

```
do
{
execute this statement;
}
while(this is the condition);
```

```
#include<stdio.h>
main()
{
int i =1;
do
{
printf(" i= %d\n", i++);
} while (i<=10);
}
```

The output on the screen is:

```
i= 1
i= 2
i= 3
i= 4
i= 5
i= 6
i= 7
i= 8
i= 9
i= 10
```

Using the statement

```
do
{
printf(" i= %d\n", i++);
}
```

while the condition (i<=10) is to print till i = 10 ( starting from i = 1 because of the statement int i=1;)

**Why LOOP is USED?**

If loop is not used then the C program to print first 10 numbers should be written as follows:

```
#include<stdio.h>
```

```

main()
{
printf("\n i = 1");
printf("\n i = 2");
printf("\n i = 3");
printf("\n i = 4");
printf("\n i = 5");
printf("\n i = 6");
printf("\n i = 7");
printf("\n i = 8");
printf("\n i = 9");
printf("\n i = 10");
}

```

It takes pretty long time to write the code and the execution time is pretty long i.e., Because to reduce the time taken to write the code and to reduce the execution time -- loop statement is used.

“Simplicity is the ultimate sophistication.”

: LEONARDO DA VINCI

Write a program to print

Never test for an error condition you don't know how  
to handle  
5 times using for loop statement.

Answer:

```

#include<stdio.h>
main()
{
int i;
for (i =1; i<=5; i++)
printf("Never test for an error condition you don't
know how to handle \n");
}

```

What is the mistake in the following program:

```

#include<stdio.h>
main()
{
int i;
for (i =1; i<=5; i++)
printf("Linux is not portable\n", i);
}

```

Note: there is no mistake in the above program because even if we write printf("Linux is not portable\n", i); instead of

printf("Linux is not portable\n"); there will be no flag of error on the screen, the program will be successfully executed and the output

```

Linux is not portable

```

will be displayed on the console screen.

Note:

For the program:

```

#include<stdio.h>
main()
{
int i;
for (i =1; i=5; i++)
printf("Linux is not portable");
}

```

The output on the screen is:

```

Linux is not portable Linux is not portable Linux is
not portable Linux is not portable Linux is not
portable Linux is not portable Linux is not
portable Linux is not portable Linux is not
portable Linux is not portable .... continues

```

But for the program:

```

#include<stdio.h>
main()
{
int i;
for (i =1; i == 5; i++)
printf("Linux is not portable");
}

```

The output on the screen is:

?  
i.e., the program will be successfully executed but there will be no output on the screen.

---

Y

Z

char means the data type is character.

The statement

char a; imply that we are creating the character a.

Since char a is used. Therefore: the format specifier %c should be used instead of %d or %f otherwise error will be flagged on the screen.

If the statement for( a=A; a<=Z; a++) is written instead of the statement for( a='A'; a<='Z'; a++)

i.e., A is written instead of 'A' and Z is written instead of 'Z', then the compilation error will be displayed on the console screen.

### Program 2.9

C program to print the characters from A to Z using for loop, do while loop and while loop statement.

- (a) C program to print the characters from A to Z using for loop statement:

```
#include<stdio.h>
main()
{
    char a;
    for( a='A'; a<='Z'; a++)
        printf("%c\n", a);
}
```

The output on the screen:

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
W  
X

```
#include<stdio.h>
main()
{
    char a = 'A';
    while (a<='Z')
    {
        printf("%c\n", a++);
    }
}
```

- (c) C program to print the characters from A to Z using do while loop statement:

```
#include<stdio.h>
main()
{
    char a = 'A';
    do
    {
        printf(" %c\n", a++);
    } while (a<='Z');
}
```

### Program 3.0

C program to print the given number is even or odd.

```
#include<stdio.h>
main()
{
```

```

int a;
printf("Enter any number:");
scanf ("%d", &a);
if(a%2 == 0)
{
printf("the number is even");
}
else
{
printf("the number is odd");
}

```

The output on the screen:

Enter any number:

If you enter the number 4

the number is even will be outputted on the screen.

Mathematical symbol % denote modulus and (a%2 = = 0) is the condition and this condition imply: a divided by 2 yields remainder = 0.

For example: if you enter the number 4

Then a = 4

Then 4 divided by 2 yields the remainder = 0

Then the statement

```

{
    printf("the number is even");
}
```

make provision to print the output:

the number is even

(Note: in C language == implies equal to)

Suppose if you enter the number 3

Then a = 3

Then 3 divided by 2 yields the remainder = 1

Then the statement

```

{
    printf("the number is odd");
}
```

make provision to print the output:

the number is odd

“If you lie to the compiler, it will get its revenge.”

: Henry Spencer (a Canadian computer programmer and space enthusiast. He wrote “regex”, a widely used software library for regular expressions, and co-wrote C News, a Usenet server program)

Did you know that

Apple engineer William Atkinson designed HyperCard, a software tool that simplified development of in-house applications. In HyperCard, programmers built “stacks” of information with the concept of hypertext links between stacks of pages. As a stack author, a programmer employed various tools to create his own stacks, linked together as a sort of slide show. Apple distributed the program free with Macintosh computers until 1992. HyperCard influenced the creation on the Internet protocol HTTP (Hyper Text Transfer Protocol) and JavaScript.

### Data types and their storage size

Data type	Storage size
char	1 byte
int	2 byte
float	4 byte
double	8 byte

Program 3.1

C program to print the remainder of two numbers

```
#include<stdio.h>
main()
{
int a, b, c;
printf("Enter any number:");
scanf("%d", &a);
printf("Enter any number:");
scanf("%d", &b);
c = a%b;
printf("the remainder of a and b = %d", c);
}
```

The output on the screen:

Enter any number:

If you enter the number 3

Enter any number:

If you enter the number 2

the remainder of a and b = 1 will be outputted on the screen.

Since (a =3 and b =2). Therefore:

3 divided by 2 (i.e., a divided by b) yields the remainder equal to 1

If the statement printf("the remainder of a and b = %d", c); is replaced by the statement

```

printf("the remainder of %d and %d = %d", a, b, c);
i.e.,
#include<stdio.h>
main()
{
int a, b, c;
printf("Enter any number:");
scanf("%d", &a);
printf("Enter any number:");
scanf("%d", &b);
c = a%b;
printf("the remainder of %d and %d = %d", a, b, c);
}

```

The output on the screen:

Enter any number:

If you enter the number 3

Enter any number:

If you enter the number 2

the remainder of 3 and 2 = 1 will be outputted on the screen.

### Program 3.2

C program to check the equivalence of two numbers.

```

#include<stdio.h>
main()
{
int x, y;
printf("Enter any number:");
scanf ("%d", &x);
printf("Enter any number:");
scanf ("%d", &y);
if(x-y==0)
{
printf("the two numbers are equivalent");
}
else
{
printf("the number are not equivalent");
}
}

```

The output on the screen:

Enter any number:

If you enter the number 2

Enter any number:

If you enter the number 2  
the two numbers are equivalent will be outputted on the screen.

Since 2-2 is equal to 0 (i.e.,  $x-y == 0$ ). Therefore: the statement

```

{
printf("the two numbers are equivalent");
}

```

makes provision to print the output:  
two numbers are equivalent

If you enter the integers 3 and 2

The output on the screen:

the two numbers are not equivalent

Since 3-2 is not equal to 0 (i.e.,  $x-y != 0$ ). Therefore:  
the statement

```

{
printf("the two numbers are not equivalent");
}

```

makes provision to print the output:  
two numbers are not equivalent

(as said earlier: in C language the symbol  $\neq$  implies not equal to)

What is the mistake in the following program:

```

#include<stdio.h>
main()
{
int year;
year =1996;
if(year%4==0)
printf("leap year");
else
printf("not a leap year");
}

```

Answer: there is no mistake in the above program

The output on the screen is:

leap year

Since year =1996. Therefore:

1996 divided by 4 (i.e., year divided by 4) yields the remainder equal to 0.

The statement

```
printf("leap year");
```

makes provision to print the output:

leap year

If the year is = 1995. Then

1995 divided by 4 (i.e., year divided by 4) yields the remainder not equal to 0.

The statement

```
printf("not a leap year");
```

makes provision to print the output:

not a leap year

Note: for a year to be leap year, year divided by 4 should yield remainder zero.

"Most software today is very much like an Egyptian pyramid with millions of bricks piled on top of each other, with no structural integrity, but just done by brute force and thousands of slaves." -- ALAN KAY

Program 3.3

C program to print whether the given number is positive or negative

```
#include<stdio.h>
main()
{
int a;
a = -35;
if(a>0)
{
printf("number is positive");
}
else
{
printf(" number entered is negative");
}
```

The output on the screen:

number entered is negative

Since  $a = -35$ . Therefore:

$a$  is less than 0 i.e.,  $a < 0$  because any negative number is always less than zero.

The statement

```
{
    printf("number is negative");
}
```

makes provision to print the output:

number entered is negative

Program 3.4

C program to print the sum of the first 10 digits using for loop statement

```
#include<stdio.h>
main()
{
int i, sum = 0;
for( i=1; i<=10; i++)
sum = sum + i;
printf("sum of the first 10 digits =%d", sum);
}
```

The output on the screen:

sum of the first 10 digits = 55  
i.e.,  $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55$

**How the sum of the first 10 digits = 55 is outputted on the screen through the for Loop statement**

value of  $i$

$i=1$  (sum = 0 because the sum is initialized to 0 in the statement  $\text{int } i, \text{sum} = 0;$ )

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 0 + 1 = 1

value of  $i$

$i=2$  (now the sum = 1)

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 1 + 2 = 3

value of  $i$

$i=3$  (now the sum = 3)

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 3 + 3 = 6

value of  $i$

---

i=4 (now the sum = 6)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 6 + 4 = 10$$

value of i  
i=5 (now the sum = 10)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 10 + 5 = 15$$

value of i  
i=6 (now the sum = 15)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 15 + 6 = 21$$

value of i  
i=7 (now the sum = 21)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 21 + 7 = 28$$

value of i  
i=8 (now the sum = 28)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 28 + 8 = 36$$

value of i  
i=9 (now the sum = 36)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 36 + 9 = 45$$

value of i  
i=10 (now the sum = 45)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 45 + 10 = 55$$

stops because the condition is i<=10  
The printf statement i.e., printf("sum of the first 10 digits =%d", sum); make provision to display the output:

$$\text{sum of the first10 digits} = 55$$

on the screen.

If the statement int i, sum = 0; is replaced by int i, sum = 1;  
Then  
value of i

i=1 (sum = 1 because the sum is initialized to 1 in the statement int i, sum = 1;)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 1 + 1 = 2$$

value of i  
i=2 (now the sum = 2)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 2 + 2 = 4$$

value of i  
i=3 (now the sum = 4)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 4 + 3 = 7$$

value of i  
i=4 (now the sum = 7)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 7 + 4 = 11$$

value of i  
i=5 (now the sum = 11)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 11 + 5 = 16$$

value of i  
i=6 (now the sum = 16)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 16 + 6 = 22$$

value of i  
i=7 (now the sum = 22)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 22 + 7 = 29$$

value of i  
i=8 (now the sum = 29)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 29 + 8 = 37$$

value of i  
i=9 (now the sum = 37)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 37 + 9 = 46$$

value of i

i=10 (now the sum = 46)

Is i<=10 true?

Yes, do this

$$\text{sum} = \text{sum} + i = 46 + 10 = 56$$

stops because the condition is i<=10

The printf statement i.e., printf("sum of the first10 digits =%d", sum); make provision to display the output:

sum of the first10 digits = 56 on the screen.

(wrong result because the sum of the first 10 digits is 55)

What will be the output if the for loop statement for(i=1; i<=10; i++) is replaced by the statement for(i=2; i<10; i++)?

Answer: sum of 10 digits = 44

If the statement int i, sum, sum = 0; is written instead of int i, sum = 0;

Then the compilation error message will be displayed on the screen (stating that sum is twice declared).

If the for loop is ended with a semicolon i.e.,

for( i=1; i<=10; i++);

then the compilation error will be displayed on the screen

Note:

sum = sum + a; is the same as sum += a;

sub = sub - a; is the same as sub -= a;

product = product \* a; is the same as product \*= a;

div = div / a; is the same as div /= a;

a = a% b; is the same as a %= b;

Even though if i ++ is replaced by ++ i in the for loop statement i.e., if the for loop statement

for (i=1; i<=10; i++)

is replaced by the statement

for (i=1; i<=10; ++ i)

There will be no change in the output on the screen (as observed while compiling in online compilers like Coding ground (Tutorials point)) and if the statement for ( i=1; i<=10; i++); is written instead of the statement

for (i=1; i<=10; i++)

Then the Error will be flagged on the screen because for loop statement is ended by a semicolon (;).

### Program 3.5

C program to print the average of the first10 numbers using for loop statement

```
#include<stdio.h>
main()
{
    int i, avg, sum = 0;
    for( i=1; i<=10; i++)
        sum = sum + i;
    avg = sum/10;
    printf("sum of the first10 numbers =%d", sum);
    printf("average of the first10 numbers =%d", avg);
}
```

The output on the screen:

sum of the first 10 numbers = 55

average of the first10 numbers = 5

The average of the first10 numbers = 55/10 = 5.5 not 5. But the output on the screen is:

average of the first 10 numbers = 5

because int is used instead of float.

If the data type float is used i.e.,

```
#include<stdio.h>
main()
{
    float i, avg, sum = 0;
    for( i=1; i<=10; i++)
        sum = sum + i;
    avg = sum/10;
    printf("sum of the first10 numbers =%f", sum);
    printf("average of the first10 numbers = %f", avg);
}
```

The output on the screen:

sum of the first10 numbers = 55

average of the first 10 numbers = 5.5

### Program 3.6

C program to print the product of the first10 digits using for loop statement

```
#include<stdio.h>
main()
```

```
{
int i, product = 1;
for( i=1; i<=10; i++)
product = product * i;
printf("the product of the first 10 digits =%d",
product);
}
```

The output on the screen:

the product of the first 10 digits = 3628800  
i.e.,  $1 * 2 * 3 * 4 * 5 * 6 * 7 * 8 * 9 * 10 = 3628800$

### **How the product of the first 10 digits = 3628800 is outputted on the screen through the for Loop statement**

value of i

i=1 (product = 1 because the product is initialized to 1 in the statement int i, product = 1;)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 1 * 1 = 1$$

value of i

i=2 (now the product = 1)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 1 * 2 = 2$$

value of i

i=3 (now the product = 2)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 2 * 3 = 6$$

value of i

i=4 (now the product = 6)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 6 * 4 = 24$$

value of i

i=5 (now the product = 24)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 24 * 5 = 120$$

value of i

i=6 (now the product = 120)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 120 * 6 = 720$$

value of i

i=7 (now the product = 720)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 720 * 7 = 5040$$

value of i

i=8 (now the product = 5040)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 5040 * 8 = 40320$$

value of i

i=9 (now the product = 40320)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 40320 * 9 = 362880$$

value of i

i=10 (now the product = 362880)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 362880 * 10 = 3628800$$

stops because the condition is  $i \leq 10$

The printf statement i.e., `printf("the product of the first 10 digits =%d", product);` make provision to display the output:

the product of the first 10 digits = 3628800  
on the screen.

If the statement `int i, product = 1;` is replaced by `int i, product = 0;`

Then

value of i

i=1 (product = 0 because the product is initialized to 0 in the statement `int i, product = 0;`)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 0 * 1 = 0$$

value of i

i=2 (now the product = 0)

Is  $i \leq 10$  true?

Yes, do this

$$\text{product} = \text{product} * i = 0 * 2 = 0$$

value of i

i=3 (now the product = 0)

Is  $i \leq 10$  true?

Yes, do this

```

product = product * i = 0 * 3 = 0
value of i
i=4 (now the product = 0)
Is i<=10 true?
Yes, do this
    product = product * i = 0 * 4 = 0
value of i
i=5 (now the product = 0)
Is i<=10 true?
Yes, do this
    product = product * i = 0 * 5 = 0
value of i
i=6 (now the product = 0)
Is i<=10 true?
Yes, do this
    product = product * i = 0 * 6 = 0
value of i
i=7 (now the product = 0)
Is i<=10 true?
Yes, do this
    product = product * i = 0 * 7 = 0
value of i
i=8 (now the product = 0)
Is i<=10 true?
Yes, do this
    product = product * i = 0 * 8 = 0
value of i
i=9 (now the product = 0)
Is i<=10 true?
Yes, do this
    product = product * i = 0 * 9 = 0
value of i
i=10 (now the product = 0)
Is i<=10 true?
Yes, do this
    product = product * i = 0 * 10 = 0
stops because the condition is i<=10
The printf statement i.e., printf("the product of the
first 10 digits = %d", product); make provision to
display the output:
    the product of the first 10 digits = 0
on the screen.
(wrong result because the product of the first10 digits
is 3628800)

```

If the statement `for(i=1; i<=10; i++)` is replaced by  
`for(i=5; i<=8; i++)`

Then

value of i

i=5 (product = 1 because the product is initialized to 1  
in the statement `int i, product = 1;`)

Is i<=8 true?

Yes, do this

product = product \* i = 5 \* 1 = 5

value of i

i=6 (now the product = 5)

Is i<=8 true?

Yes, do this

product = product \* i = 5 \* 6 = 30

value of i

i=7 (now the product = 30)

Is i<=8 true?

Yes, do this

product = product \* i = 30 \* 7 = 210

value of i

i=8 (now the product = 210)

Is i<=8 true?

Yes, do this

product = product \* i = 210 \* 8 = 1680

stops because the condition i<=8 is achieved and the  
statement

`printf("the product of the first 10 digits =%d",  
product);`

make provision to display the output:

the product of the first 10 digits = 1680  
on the screen.

Note: If the statement

`int i, product, product = 1;`

is written instead of `int i, product = 1;`

Then the compilation error message is flagged on the  
screen (stating that product is twice declared).

### Program 3.7

C Program to print the table of a number using the for  
loop statement

```

#include<stdio.h>
main()
{
    int n, i;
    printf("Enter any number:");

```

```

scanf("%d", &n);
for( i=1; i<=5; i++)
printf("%d * %d = %d\n", n, i, n*i);
}

```

The output on the screen:

Enter any number:

If you enter the number 2 (i.e., n=2)

```

2 * 1 = 2
2 * 2 = 4
2 * 3 = 6
2 * 4 = 8
2 * 5 = 10

```

will be outputted on the screen.

### How the execution takes its Way through the for Loop statement

Since you entered the number 2, therefore: n=2.

value of i

i=1

Is i<=5 true?

Yes, print this

2 \* 1 = 2

using the statement printf("%d \* %d = %d\n", n, i, n\*i);

value of i

i=2

Is i<=5 true?

Yes, print this

2 \* 2 = 4

using the statement printf("%d \* %d = %d\n", n, i, n\*i);

value of i

i=3

Is i<=5 true?

Yes, print this

2 \* 3 = 6

using the statement printf("%d \* %d = %d\n", n, i, n\*i);

value of i

i=4

Is i<=5 true?

Yes, print this

2 \* 4 = 8

using the statement printf("%d \* %d = %d\n", n, i, n\*i);

value of i

i=5

Is i<=5 true?

Yes, print this

2 \* 5 = 10

using the statement printf("%d \* %d = %d\n", n, i, n\*i);

stop Now because the condition i <=5 is achieved.

If the symbol \* is replaced by +

i.e.,

```

#include<stdio.h>
main()
{
int n, a;
printf("Enter any number:");
scanf("%d", &n);
for( i=1; i<=5; i++)
printf("%d + %d = %d\n", n, i, n+i);
}

```

The output on the screen:

Enter any number:

If you enter the number 2 (i.e., n=2)

2 + 1 = 3

2 + 2 = 4

2 + 3 = 5

2 + 4 = 6

2 + 5 = 7

will be outputted on the screen.

### Program 3.8

C program:

If you enter a character M

Output must be: ch = M

```
#include<stdio.h>
```

```
main()
```

```
{
```

```
char M;
```

```
printf("Enter any character:");
scanf("%c", &M);
printf("ch=%c", M);
}
```

The output on the screen:

Enter any character:

If you enter the character M

ch = M will be outputted on the screen.

Note:

getchar() function is simplified version of the scanf function

If we replace the statement scanf("%c", &M); by the statement

```
M = getchar();
```

i.e.,

```
#include<stdio.h>
main()
{
char M;
printf("Enter any character:");
M = getchar();
printf("ch=%c", M);
}
```

There will be no change in the output on the screen  
i.e., The output on the screen is:

Enter any character:

If you enter the character K

ch = K will be outputted on the screen.

putchar() function is simplified version of the printf function

If we replace the statement printf("ch=%c", M); by the statement putchar (M); i.e.,

```
#include<stdio.h>
main()
{
char M;
printf("Enter any character:");
scanf("%c", &M);
putchar (M);
}
```

There will be no change in the output on the screen  
i.e., The output on the screen is:

Enter any character:

If you enter the character M

M will be outputted on the screen.

If you replace the statement scanf("%c", &M); by the statement

```
M = getchar();
```

and the statement printf("ch=%c", M); by the statement putchar (M); i.e.,

```
#include<stdio.h>
main()
{
char M;
printf("Enter any character:");
M = getchar();
putchar (M);
}
```

The output on the screen:

Enter any character:

If you enter the character S

S will be outputted on the screen.

### Program 3.9

C program to print the first 5 numbers starting from one together with their squares.

```
#include<stdio.h>
main()
{
int i;
for (i=1; i<=5; i++)
printf("number=%d its square=%d\n", i, i*i);
}
```

The output on the screen:

```
number=1 its square=1
number=2 its square=4
number=3 its square=9
number=4 its square=16
number=5 its square=25
```

### How the execution takes its way through the for loop statement

value of i

i=1

Is i<=5 true?

Yes, print this

```
        number=1 its square=1
using the statement printf("number=%d its
square=%d\n", i , i*i);
```

value of i

i=2

Is i<=5 true?

Yes, print this

```
        number=2 its square=4
using the statement printf("number=%d its
square=%d\n", i , i*i);
```

value of i

i=3

Is i<=5 true?

Yes, print this

```
        number=3 its square=9
using the statement printf("number=%d its
square=%d\n", i , i*i);
```

value of i

i=4

Is i<=5 true?

Yes, print this

```
        number=4 its square=16
using the statement printf("number=%d its
square=%d\n", i , i*i);
```

value of i

i=5

Is i<=5 true?

Yes, print this

```
        number=5 its square=25
using the statement printf("number=%d its
square=%d\n", i , i*i);
```

value of i

i=6

Is i<=5 true?

No, stop Now

Note:

If the statement

printf("number=%d its square=%d\n", i , i\*i); is replaced by the statement

printf("\n number=%d its square=%d", i , i\*i);  
then the output on the screen is:

```
number=1 its square=1
number=2 its square=4
number=3 its square=9
number=4 its square=16
number=5 its square=25
```

tab /t is included because to leave space between  
number=1 and its square=1

Suppose printf("number=%d its square=%d", a , a\*a);  
is replaced by the statement

printf("number=%d\n its square=%d\n", a , a\*a);

Then the output on the screen is:

```
number=1
its square=1
number=2
its square=4
number=3
its square=9
number=4
its square=16
number=5
its square=25
```

And if you replace the printf statement  
printf("number=%d its square=%d", a , a\*a); by the  
statement

printf("number=%d\n, its square=%d\n", a , a\*a);  
i.e., if you place variable separator ( i.e., comma)  
between number=%d\n and its square=%d\n

Then the compilation error will be displayed on the  
screen.

Write a program to print the first 10 numbers starting  
from one together with their squares and cubes?

Answer:

```
#include<stdio.h>
main()
{
int i;
for( i=1; i<=10; i++)
printf("number=%d its square=%d its cube=%d\n", i ,
i*i, i*i*i);
}
```

What is the mistake in the following program:

```
#include<stdio.h>
main()
{
int i;
for( i=1; i=5; i++)
printf("number=%d, its square=%d\n", i ; i*i*i);
}
```

**Simula, an object-oriented language, was written by Kristen Nygaard and Ole-John Dahl at the Norwegian Computing Center. Based largely on the Algol 60 programming language, Simula grouped data and instructions into blocks called objects, each represented one facet of a system intended for simulation. In addition to simulation, Simula also had applications in computer graphics, process control, scientific data processing and other fields.**

#### Program 4.0

C program to print the sum of two numbers using pointers

If we create a integer variable x by declaring the statement int x; within the body of the main function main() -- this variable is stored in the computer memory i.e., this variable occupies a specific location in the space of computer memory. And this integer variable x is assigned an address (i.e., &x) to locate its position in the computer memory (like a house in the street is assigned an address to locate its position in the street). Pointers are the variables that represent the address of x in the computer memory i.e., p = &x, where &x imply the address of x in the computer memory and p is the pointer variable (which is the variable that represent the address of x in the computer memory). And further if you assign a value to the variable x by declaring the statement x=1; within the body of the main function--this value is stored in the address of x in the computer memory. “\*” denote pointer operator and \*p denote the pointer (which represent the value stored in the address of x in the computer memory).

C program to print the address of x and the value assigned to x

```
#include <stdio.h>
main()
{
int x, *p;
```

```
x = 1;
p = &x;
printf("The address of the variable x =%d", p);
printf("The value of the variable x =%d", *p);
}
```

The output on the screen:

The address of the variable x = 0x7ffc60478a4

The value of the variable x = 1

Since p = &x:

\*p= \*&x

The value of the variable x = 1 because you have assigned a value to the variable x by declaring the statement x=1; within the body of the main function

If the statements

printf("The address of the variable x =%d", p);

printf("The value of the variable x =%d", \*p);

are replaced by the statement

```
printf("The address of the variable x =%d and its
value =%d", p,*p);
```

i.e.,

```
#include <stdio.h>
main()
{
int x, *p;
x=1;
p = &x;
printf("The address of the variable x =%d and its
value =%d", p,*p);
}
```

Then the output on the screen is:

The address of the variable x = 0x7ffc60478a4and its
value = 1

```
#include <stdio.h>
main()
{
int x, y, *p, *q, sum;
printf("Enter any number:");
scanf("%d", &x);
printf("Enter any number:");
scanf("%d", &y);
p = &x;
q = &y;
sum = *p + *q;
printf("Sum of entered numbers = %d\n", sum);
```

```
}
```

The output on the screen:

Enter any number:

If you enter the number 2

Enter any number:

If you enter the number 3

Sum of entered numbers = 5 will be outputted on the screen.

Since pointer \*p imply the value assigned to the variable x (i.e., 2) through the keyboard and the pointer \*q imply the value assigned to the variable y (i.e., 3) through the keyboard. Therefore:

sum = \*p + \*q = 2 + 3 = 5 (which will be outputted on the screen)

“A C program is like a fast dance on a newly waxed dance floor by people carrying razors.”

- Waldi Ravens.

C program to print the product, subtraction and division of two numbers using pointers

```
#include <stdio.h>
main()
{
int x, y, *p, *q, product, subtract, div;
printf("Enter any number:");
scanf("%d", &x);
printf("Enter any number:");
scanf("%d", &y);
p = &x;
q = &y;
product = *p * *q;
subtract = *p - *q;
div = *p / *q;
printf("product of entered numbers = %d\n", product);
printf("subtract of entered numbers = %d\n", subtract);
printf("division of entered numbers = %d\n", div);
}
```

The output on the screen:

Enter any number:

If you enter the number 4

Enter any number:

If you enter the number 2

product of entered numbers = 8

subtract of entered numbers = 2

division of entered numbers = 2

will be outputted on the screen.

C program to find the greatest of two numbers using pointers

```
#include<stdio.h>
main()
{
int x, y, *p, *q;
printf("Enter any integer:");
scanf("%d", &x);
printf("Enter any integer:");
scanf("%d", &y);
p = &x;
q = &y;
if(*p>*q)
{
printf("x is greater than y");
}
if(*q>*p)
{
printf("y is greater than x");
}
}
```

The output on the screen:

Enter any integer:

If you enter the integer 10

Enter any integer:

If you enter the integer 16

y is greater than x will be outputted on the screen.

What is the mistake in the following program:

```
#include <stdio.h>
main()
{
int x;
x= 0;
printf("size of x = %d", size of (x));
}
```

What is the output of the following programs:

```
#include <stdio.h>
```

```

main()
{
int x;
x=12;
printf("per = %d%", x);
}

#include <stdio.h>
main()
{
int x, t, c;
x=12;
t=2;
c = x/t;
printf("velocity = %d m/s", c);
}

```

#### Program 4.1

C program to print the sum of two numbers using functions

```

#include<stdio.h>
int add (int x, int y);
main()
{
int x, y;
printf("Enter any integer:");
scanf("%d", &x);
printf("Enter any integer:");
scanf("%d", &y);
result = add (x, y);
printf("sum of two numbers=%d", result);
}

int add (int x, int y)
{
return x + y;
}

```

The output on the screen:

Enter any integer:

If you enter the integer 3

Enter any integer:

If you enter the integer 5

sum of two numbers = 8 will be outputted on the screen.

The statement `int add (int x, int y);` imply function declaration (i.e., we are declaring a function `int add (int x, int y)` to add two integers `x` and `y`).

`main()` imply main function and

```

{
} imply the body of main function in which the
program statements:
int x, y;
printf("Enter any integer:");
scanf("%d", &x);
printf("Enter any integer:");
scanf("%d", &y);
result = add (x, y);
printf("sum of two numbers=%d", result);
are written.

```

`int add (int x, int y)` imply function to add two integers `x` and `y` and

```

{
return x + y;
} imply the body of function int add (int x, int y)

```

The statement `int x, y;` imply that we creating the integer variables `x` and `y`.

The statements

```

printf("Enter any integer:");
scanf("%d", &x);
printf("Enter any integer:");
scanf("%d", &y);

```

make provision to supply the values for `x` and `y` through the keyboard.

The statement `result = add (x, y);` imply function call i.e., we are calling the function `int add (int x, int y)` to add the entered values (i.e., 3 and 5) and return the result (i.e., 8) to the statement `printf("sum of two numbers = %d", result);` to make provision to display the output of the sum of two entered numbers as 8 on the screen.

In the statement

`printf("sum of two numbers=%d", result);` the format string `%d` indicates that the value to be displayed at that point in the string i.e., after the statement (`sum of two numbers =` ) needs to be taken from the result returned by the function `int add (int x, int y)`.

If the statement int add (int x, int y); is written instead of int add (int x, int y)  
i.e.,

```
#include<stdio.h>
int add (int x, int y);
main()
{
    int x, y;
    printf("Enter any integer:");
    scanf("%d", &x);
    printf("Enter any integer:");
    scanf("%d", &y);
    result = add (x, y);
    printf("sum of two numbers=%d", result);
}
int add (int x, int y);
{
    return x + y;
}
```

Then the error is displayed on the screen.

If the statement int add (intx, inty); is written instead of int add (int x, int y); i.e., no space is left between int and x ( and int and y )

Then the compilation error is displayed on the screen.

C program to print the product of two numbers using functions

```
#include<stdio.h>
int mult (int x, int y);
main()
{
    int x, y;
    printf("Enter any two integers:");
    scanf("%d %d", &x, &y);
    result = mult (x, y);
    printf("product of two numbers=%d", result);
}
int mult (int x, int y)
{
    return x + y;
}
```

The output on the screen:

Enter any integer:

If you enter the integer 3

Enter any integer:

If you enter the integer 5  
product of two numbers = 15 will be outputted on the screen.

C program to print the greatest of two numbers using functions

```
#include<stdio.h>
int max (int x, int y);
main()
{
    int x, y;
    printf("Enter any integer:");
    scanf("%d", &x);
    printf("Enter any integer:");
    scanf("%d", &y);
    result =max (x, y)
    printf("largest of two numbers=%d", result);
}
int max (int x, int y)
{

```

The output on the screen:

Enter any integer:

If you enter the integer 3

Enter any integer:

If you enter the integer 5

largest of two numbers= 5 will be outputted on the screen.

C program to print the greatest of three numbers using functions

```
#include<stdio.h>
int max (int x, int y, int z);
main()
{
    int x, y, z;
    printf("Enter any integer:");
    scanf("%d", &x);
    printf("Enter any integer:");
    scanf("%d", &y);
    printf("Enter any integer:");
    scanf("%d", &z);
```

```

printf("Enter any integer:");
scanf("%d", &z);
result = max (x, y, z)
printf("largest of three numbers=%d", result);
}
int max (int x, int y, int z)
{
if(x>y&& x>z)
return x;
if(y>x&& y > z)
return y;
if(z>x && z>y)
return z;
}

```

The output on the screen:

Enter any integer:

If you enter the integer 3

Enter any integer:

If you enter the integer 5

Enter any integer:

If you enter the integer 10

largest of three numbers = 10 will be outputted on the screen.

C program to print the square of the number using functions

```

#include<stdio.h>
int square (intx);
main()
{
int x;
printf("Enter any integer:");
scanf("%d", &x);
printf("square of the number=%d", square (x));
}
int square (int x)
{
return x*x;
}

```

The output on the screen is:

Enter any integer:

If you enter an integer 5

square of the number = 25 will be outputted on the screen.

What is the output of the following program:

```

#include<stdio.h>
main()
{
int x;
x=6;
printf("The address of x = %d", &x);
}

```

Program 4.2

Switch (case) allows to make decision from the number of choices i.e., from the number of cases

For example:

```

#include<stdio.h>
main()
{
char ch;
printf("Enter any character:");
scanf("%c", &ch);
switch(ch)
{
case 'R':
printf("Red");
break;
case 'W':
printf("White");
break;
case 'Y':
printf("Yellow");
break;
case 'G':
printf("Green");
break;
default:
printf("Error");
break;
}
}

```

The output on the screen:

Enter any character:

If you enter a character R

Red will be outputted on the screen.

switch(ch) allow to make decision from the number of choices i.e., from the number of cases

```
case 'R':  
case 'W':  
case 'Y':  
case 'G':
```

Since we have entered the character R (which corresponds to case 'R':)

The statement

```
printf("Red");
```

make provision to display the output

Red

on the screen.

Suppose you enter a character K

The output on the screen is:

Error

(Entered character K does not correspond to any of the cases

```
case 'R':  
case 'W':  
case 'Y':  
case 'G':
```

Therefore the statements

default:

printf("Error"); make provision to display the output

Error

on the screen).

If the statements

```
{  
case 'R':  
printf("Red");  
break;  
case 'W':  
printf("White");  
break;  
case 'Y':  
printf("Yellow");  
break;  
case 'G':  
printf("Green");  
break;  
default:  
printf("Error");  
break;
```

} are replaced by the statements

```
{
```

```
case 'R':  
printf("Red");  
case 'W':  
printf("White");  
case 'Y':  
printf("Yellow");  
break;  
case 'G':  
printf("Green");  
break;  
default:  
printf("Error");  
break;
```

i.e., if the statement break; is not written after the statements

```
case 'R':  
printf("Red");
```

```
case 'W':  
printf("White");
```

Then the output on the screen is:

Red  
White  
Yellow

i.e., the output will be printed till yellow even though you have entered the character R.

“C makes it easy to shoot yourself in the foot; C++ makes it harder, but when you do, it blows away your whole leg.”

-- Bjarne Stroustrup

#### Program 4.3

C program to print the output

```
Element [0] = 16  
Element [1] = 18  
Element [2] = 20  
Element [3] = 25  
Element [4] = 36
```

using arrays:

```
#include<stdio.h>  
main()
```

---

```

{
int i;
int num [5] = {16, 18, 20, 25, 36};
for(i=0; i<5; i++)
printf("\n Element [%d] = %d", i, num[i]);
}

```

The output on the screen:

```

Element [0] = 16
Element [1] = 18
Element [2] = 20
Element [3] = 25
Element [4] = 36

```

The statement `int num [5] = {16, 18, 20, 25, 36};` imply that we are creating an integer array (and the name of array is num) consisting of 5 values (i.e., 16, 18, 20, 25, 36) of the same data type int. And the number of values between the braces {} cannot be larger than the number of values that we declare for the array between square brackets []. Because there are 5 integers i.e., 16, 18, 20, 25, 36 within the braces {}, 5 is written within the square brackets []. If there were 6 integers i.e., 16, 18, 20, 25, 36, 42 within the braces {}, then 6 must be written within the square brackets [].

Note: With the declaration `int num [5]`, computer creates 5 memory cells with name `num[0], num[1], num[2], num[3], num[4]`. And since

```

int num [5] = {16, 18, 20, 25, 36};
the values 16, 18, 20, 25, 36 are stored in num[0],
num[1], num[2], num[3], num[4] respectively.

```

### **How the execution takes its way through the for loop statement**

```

value of i
i=0
Is i<5 true?
Yes, print this

```

`Element [0] = 16`

using the statement

```
printf("\n Element [%d] = %d", i, num[i])
```

format string %d in the square brackets indicates that the value to be displayed at that point in the string i.e.,

with the square brackets [] needs to be taken from a variable (which is i i.e., i=0) and the format string %d after the statement (\n Element [%d] = ) indicates that the value to be displayed at that point in the string i.e., after the statement (\n Element [%d] = ) needs to be taken from a variable (which is stored in num[i] i.e., num[0] i.e., 16).

```

value of i
i=1
Is i<5 true?
Yes, print this

```

`Element [1] = 18`

using the statement

```
printf("\n Element [%d] = %d", i, num[i])
```

format string %d in the square brackets indicates that the value to be displayed at that point in the string i.e., with the square brackets [] needs to be taken from a variable (which is i i.e., i=1) and the format string %d after the statement (\n Element [%d] = ) indicates that the value to be displayed at that point in the string i.e., after the statement (\n Element [%d] = ) needs to be taken from a variable (which is stored in num[i] i.e., num[1] i.e., 18).

```

value of i
i=2
Is i<5 true?
Yes, print this

```

`Element [2] = 20`

using the statement

```
printf("\n Element [%d] = %d", i, num[i])
```

format string %d in the square brackets indicates that the value to be displayed at that point in the string i.e., with the square brackets [] needs to be taken from a variable (which is i i.e., i=2) and the format string %d after the statement (\n Element [%d] = ) indicates that the value to be displayed at that point in the string i.e., after the statement (\n Element [%d] = ) needs to be taken from a variable (which is stored in num[i] i.e., num[2] i.e., 20).

```

value of i
i=3
Is i<5 true?
Yes, print this

```

`Element [3] = 25`

using the statement

```
printf("\n Element [%d] = %d", i, num[i])
```

format string %d in the square brackets indicates that the value to be displayed at that point in the string i.e., with the square brackets [ ] needs to be taken from a variable (which is i i.e., i=3) and the format string %d after the statement (\n Element [%d] = ) indicates that the value to be displayed at that point in the string i.e., after the statement (\n Element [%d] = ) needs to be taken from a variable (which is stored in num[i] i.e., num[3] i.e., 25).

value of i

i=4

Is i<5 true?

Yes, print this

```
Element [4] = 36
```

using the statement

```
printf("\n Element [%d] = %d", i, num[i])
```

Stop because the condition is i<5.

format string %d in the square brackets indicates that the value to be displayed at that point in the string i.e., with the square brackets [ ] needs to be taken from a variable (which is i i.e., i=4) and the format string %d after the statement (\n Element [%d] = ) indicates that the value to be displayed at that point in the string i.e., after the statement (\n Element [%d] = ) needs to be taken from a variable (which is stored in num[i] i.e., num[4] i.e., 36).

Suppose the statement printf("\n Element [%d] = %d", i, num[i]); is replaced by the statement

```
printf("\n Element [%d] = %d", i, num[0]);
```

Then the output on the screen:

```
Element [0] = 16  
Element [1] = 16  
Element [2] = 16  
Element [3] = 16  
Element [4] = 16
```

Suppose the statement printf("\n Element [%d] = %d", i, num[i]); is replaced by the statement

```
printf("\n Element [%d] = %d", i, num[1]);
```

The output on the screen:

```
Element [0] = 18  
Element [1] = 18
```

Element [2] = 18

Element [3] = 18

Element [4] = 18

Suppose the statement printf("\n Element [%d] = %d", i, num[i]); is replaced by the statement

```
printf("\n Element [%d] = %d", i, num[2]);  
i.e., num[2] corresponds to the output:
```

```
Element [0] = 20  
Element [1] = 20  
Element [2] = 20  
Element [3] = 20  
Element [4] = 20
```

Suppose the statement printf("\n Element [%d] = %d", i, num[i]); is replaced by the statement

```
printf("\n Element [%d] = %d", i, num[3]);  
i.e., num[3] corresponds to the output:
```

```
Element [0] = 25  
Element [1] = 25  
Element [2] = 25  
Element [3] = 25  
Element [4] = 25
```

Suppose the statement printf("\n Element [%d] = %d", i, num[i]); is replaced by the statement

```
printf("\n Element [%d] = %d", i, num[4]);  
i.e., num[4] corresponds to the output:
```

```
Element [0] = 36  
Element [1] = 36  
Element [2] = 36  
Element [3] = 36  
Element [4] = 36
```

If i<=5 i.e., if the for loop statement was  
for(i=0; i<=5; i++)

Then the output on the screen is:

```
Element [0] = 16  
Element [1] = 18  
Element [2] = 20  
Element [3] = 25  
Element [4] = 36  
Element [5] = 3656
```

3656 is the number stored in the memory i.e., any number stored in the memory will be displayed.

If the statement `int num [5] = {16, 18, 20, 25, 36};` is replaced by the statement `int num [i] = {16, 18, 20, 25, 36};`

Then the compilation will be displayed on the screen because there are 5 elements within the braces {} not i elements.

Note:

- (a) C program to print the sum of the elements in array.

```
#include<stdio.h>
main()
{
int i, sum = 0;
int num [5] = {16, 18, 20, 25, 36};
for(i=0; i<5; i++)
sum = sum + num[i];
printf("Sum of the Elements in the array = %d", sum);
}
```

The output on the screen:

Sum of the Elements in the array = 115  
i.e.,  $16 + 18 + 20 + 25 + 36 = 115$

### How the Execution takes its way through the for loop statement

value of i

i=0 (sum = 0 because the sum is initialized to 0 in the statement `int i, sum = 0;`)

Is i<5 true?

Yes, do this

$sum = sum + num[i] = sum + num[0] = 0 + 16 = 16$

value of i

i=1 (now the sum = 16)

Is i<5 true?

Yes, do this

$sum = sum + num[i] = sum + num[1] = 16 + 18 = 34$

value of i

i=2 (now the sum = 34)

Is i<5 true?

Yes, do this

$sum = sum + num[i] = sum + num[2] = 34 + 20 = 54$

value of i

i=3 (now the sum = 54)

Is i<5 true?

Yes, do this

$sum = sum + num[i] = sum + num[3] = 54 + 25 = 79$

value of i

i=5 (now the sum = 79)

Is i<5 true?

Yes, do this

$sum = sum + num[i] = sum + num[5] = 79 + 36 = 115$   
stops because the condition is i<5

The printf statement i.e., `printf("Sum of the Elements in the array = %d", sum);` make provision to display the output:

Sum of the Elements in the array = 115  
on the screen.

If the statement

`int i, sum = 0;` is replaced by `int i, sum = 1;`

Then The output on the screen:

Sum of the Elements in the array = 116  
(wrong result because the sum of 5 elements in the array is 115).

- (b) C program to print the average of the elements in array

```
#include<stdio.h>
main()
{
int i, avg, sum = 0;
int num [5] = {16, 18, 20, 25, 36};
for(i=0; i<5; i++)
sum = sum + num [i];
avg = sum/5;
printf("Sum of the Elements in the array = %d", sum);
printf("average of the elements in the array= %d",
avg);
}
```

The output on the screen:

Sum of the Elements in the array = 115  
average of the elements in the array = 23

Write a program to print

Einstein [0] = E

```

Einstein [1] = I
Einstein [2] = N
Einstein [3] = S
Einstein [4] = T
Einstein [5] = E
Einstein [6] = I
Einstein [7] = N
using arrays

```

Answer:

```

#include<stdio.h>
main()
{
int i;
char name [8] = {'E', 'I', 'N', 'S', 'T', 'E', 'I', 'N'};
for(i=0; i<8; i++)
printf("\n Element [%d] = %c", i, name[i]);
}

```

Note:

If the format string %d is used instead of %c i.e., if the statement

```
printf("\n Element [%d] = %c", name[i], name[i]);
```

written instead of the statement

```
printf("\n Element [%c] = %c", name[i], name[i]);
```

Then the output on the screen is:

```

Element [69] = E
Element [73] = I
Element [78] = N
Element [83] = S
Element [84] = T
Element [69] = E
Element [73] = I
Element [78] = N

```

What will be the output of the following programs?

```

#include <stdio.h>
#include <math.h>
main()
{
printf("%f", cbrt(27));
}

```

```

#include <stdio.h>
main()
{
char i;
char body [4] = {'b', 'o', 'd', 'y'};
for(i=0; i<4; i++)
printf("\n body[%c] = %c", body[i] , body[i]);
}

```

Answer:

```

body [b] = b
body [o] = o
body [d] = d
body [y] = y

```

```

#include <stdio.h>
main()
{
int i;
char body [4] = {'b', 'o', 'd', 'y'};
for(i=0; i<4; i++)
printf("\n body[%c] = %c", body[i] , body[i]);
}

```

Answer:

```

body [b] = b
body [o] = o
body [d] = d
body [y] = y

```

```

#include <stdio.h>
#include <malloc.h>
main()
{
int x=2;
printf("%d", malloc ( 200*sizeof(x)));
}

```

What is the mistake in the following program:

```

#include<stdio.h>
main()
{
int i;
int num [] = {16, 18, 20, 25, 36};
for(i=0; i<5; i++)
printf("\n Element [%d] = %d", i, num[i]);
}

```

```
}
```

Answer: there is no mistake in the above program.  
The output on the screen is:

```
Element [0] = 16  
Element [1] = 18  
Element [2] = 20  
Element [3] = 25  
Element [4] = 36
```

### Program 4.3

C program to print the output:

```
Name of the book = B  
Price of the book = 135.00  
Number of pages = 300  
Edition = 8
```

using structures

```
#include<stdio.h>  
main()  
{  
    struct book {  
        char name;  
        float price;  
        int pages;  
        int edition;  
    };  
    struct book b1;  
    b1.name = 'B';  
    b1.price = 135.00;  
    b1.pages = 300;  
    b1.edition = 8;  
    printf("\n Name of the book = %c", b1.name);  
    printf("\n Price of the book = %f", b1.price);  
    printf("\n Number of pages = %d", b1.pages);  
    printf("\n Edition of the book = %d", b1.edition);  
}
```

The output on the screen:

```
Name of the book = B  
Price of the book = 135.00  
Number of pages = 300  
Edition of the book = 8
```

The statement

```
struct book {
```

```
char name;  
float price;  
int pages;  
int edition;
```

; imply the structure definition i.e., we are defining a structure (and the data type name of the structure is book) and it consists of elements: name (which is of data type char), price (which is of data type float), pages (which is of data type int), edition (which is of data type int) – which are placed within the body of the structure.

The statement

```
struct book b1;
```

imply the structure variable declaration (where b1 denote the structure variable)

Why structure variable b1 is declared or defined?

In order to assign the values to the elements within the body of the structure, each element must be linked with structure variable with dot operator or period operator or member accessibility operator. For example: name is the element which must be linked with structure variable b1 with dot operator to assign a value B to the element “name”.

format string %c (corresponding to the data type char) in the statement

```
printf("\n Name of the book = %c", b1.name);
```

indicates that the value to be displayed at that point in the string i.e., after the statement (\n Name of the book = ) needs to be taken from b1.name.

The printf statement

```
printf("\n Name of the book = %c", b1.name);
```

make provision to print the output on the screen:

```
Name of the book = B
```

on the screen.

format string %f (corresponding to the data type float) in the statement

```
printf("\n Price of the book = %f", b1.price);
```

indicates that the value to be displayed at that point in the string i.e., after the statement (\n Price of the book = ) needs to be taken from b1.price.

The printf statement

```
printf("\n Price of the book = %f", b1.price);
```

make provision to print the output on the screen:  
 Price of the book = 135.00  
 on the screen.

format string %d (corresponding to the data type int) in the statement

```
printf("\n Number of pages = %d", b1.pages);
```

indicates that the value to be displayed at that point in the string i.e., after the statement (\n Number of pages = ) needs to be taken from b1.pages.

The printf statement

```
printf("\n Number of pages = %d", b1.pages);
```

make provision to print the output on the screen:  
 Number of pages = 300  
 on the screen.

format string %d (corresponding to the data type int) in the statement

```
printf("\n Edition of the book = %d", b1.edition);
```

indicates that the value to be displayed at that point in the string i.e., after the statement (\n Edition of the book = ) needs to be taken from b1.edition.

The printf statement

```
printf("\n Edition of the book = %d", b1.edition);
```

make provision to print the output on the screen:  
 Edition of the book = 8  
 on the screen.

What will be output of the following program?

```
#include<stdio.h>
struct book {
    char name;
    float price;
    int pages;
    int edition;
};
main()
{
    struct book b1;
    b1.name = 'B';
    b1.price = 135.00;
    b1.pages = 300;
    b1.edition = 8;
    printf("\n Name of the book = %c", b1.name);
```

```
printf("\n Price of the book = %f", b1.price);
printf("\n Number of pages = %d", b1.pages);
printf("\n Edition of the book = %d", b1.edition);
}
```

What will be the output of the following program?

```
#include<stdio.h>
main()
{
    int a, b, c;
    a=2;
    b=2;
    c = a ^ b;
    printf( " the value of c = %d", c);
}
```

Answer: 0

Note: symbol ^ denote XOR operator.

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1

Since a = 2

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	0	1	0

Since b = 2

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	0	1	0

$a \wedge b$

0	0	1	0
0	0	1	0
0	0	0	0

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1

0	0	1	0
0	0	1	0
0	0	0	0

$$0 \times 8 + 0 \times 4 + 0 \times 2 + 0 \times 1 = 0$$

$$a \wedge b = 0$$

What is the mistake in the following program:

```
#include<stdio.h>
main()
{
int a, b;
a=2;
printf( "the value of b = Rs %d", b);
}
```

Examine the following program and write the output:

```
#include <stdio.h>
#include<math.h>
#include<stdlib.h>
#include<ctype.h>
main()
{
printf(" \n E=mc squared Einstein's famous equation
that gave birth to the atom bomb and heralded a new
world of atomic physics");
printf(" \n");
printf(" \n E = energy m = mass c = speed of light in
vacuum");
printf(" \n As we know c squared is huge so if you
convert a small amount of mass you'll get a
tremendous amount of energy");
printf(" \n For example if you convert 1kg of mass
you'll get energy of ");
long int E, m, c;
m=1;
c=300000000;
E=m*c*c;
printf("\n %ld joules", E);
printf("\n address of Energy E in the computer
memory = %d", &E);
printf("\n address of mass m in the computer memory
= %d", &m);
```

```
printf("\n address of speed of light c in the computer
memory = %d", &c);
int b, z, a;
b = sizeof(E);
z = sizeof(m);
a = sizeof(z);
printf("\n space occupied by E in the computer
memory = %d bytes", b);
printf("\n space occupied by m in the computer
memory = %d bytes", z);
printf("\n space occupied by c in the computer
memory = %d bytes", a);
printf(" \n Suppose c would have been  $3 \times 10$  to the
power of -8 meter per second then For 1 kg of mass E
=  $9 \times 10$  to the power of -16 joules");
printf(" \n hence thousands and thousands of hydrogen
atoms in the sun would have to burn up to release  $4 \times$ 
10 to the power of 26 joules of energy per second in
the form of radiation");
int i;
for(i=0; i<5;i++)
printf(" \n Therefore sun would have ceased ");
printf("to form black hole even before an ooze of
organic molecules would react and built earliest cells
and then advance to a wide variety of one celled
organisms and evolve through a highly sophisticated
form of life to primitive mammals");
long int v;
v=300000000;
c=300000000;
if (v==c)
printf(" \n rest mass of the photon is zero because light
travels at the speed of light");
else
printf(" \n Albert Einstein's special theory of relativity
has to be rewritten");
int E1;
E1=2;
if (isalpha(E1))
printf("\n Einstein's equation does not hold good");
else
printf("\n Einstein's equation holds good because light
has zero rest mass");
printf("\n masses of the individual substances are 16 \t
18 \t 19 \t 20\t 21\t kilograms");
int j, sum = 0;
int num [5] = {16, 18, 19, 20, 21};
for(j=0; j<5; j++)
```

```

sum = sum + num [j];
printf("\n sum of the masses of the individual substances = %d", sum);
printf("\n sum of the energies of the individual substances = %ld", sum * 300000000 * 300000000);
printf("\n average energy = %f", sum / 5);
printf("\n");
printf("\n");
int p, q, r;
p= 6;
q= 3;
printf("\n expected energy = %d multiplied by ten to the power of minus 16 joules calculated using Einstein equation", p);
printf("\n experimental energy = %d multiplied by ten to the power of minus 16 joules", q);
r= q-p;
printf("\n difference between experimental energy and expected energy = %d multiplied by ten to the power of minus 16 joules", r);
printf("\n absolute value of the difference between experimental energy and expected energy = %d multiplied by ten to the power of minus 16 joules", abs(r));
char k;
char einstein [10] ={'e', 'm', 'c', 's', 'q', 'u', 'a', 'r', 'e', 'd'};
for(k=0; k<10; k++)
printf("\n Einstein[%c] = %c", einstein [k], einstein [k]);
int s;
printf("\n Hey! Einstein may not be wrong please repeat the experiment");
for(s=1; s<3; s++)
printf("\n *      ");
printf("\n *****      ");
printf("\n **Albert Einstein**      ");
printf("\n ***e= mc squared***");
printf("\n *****");
double EP, h, f;
f=2;
h=pow((6.625), -34);
EP= h*f;
printf("\n energy calculated using the Planck equation = %lf", EP);
if (E== EP)
printf("\n hf cannot be equivalent to mc squared");

```

```

if (E>EP)
printf ("\\n hf can be equivalent to mc squared");
if (E<EP)
printf ("\\n Einstein and Planck equation cannot be equalized");
printf ("\\n                                     ");
printf ("\\n                                     ");
printf ("\\n for more details please refer the book   ");
struct book {
char name;
float price;
int pages;
int edition;
};
struct book b1;
b1.name = 'E';
b1.price = 135.00;
b1.pages = 300;
b1.edition = 8;
printf("\n Name of the book = %cinsteinian physics", b1.name);
printf("\n Price of the book = %f", b1.price);
printf("\n Number of pages = %d", b1.pages);
printf("\n Edition of the book = %d th edition", b1.edition);
printf("*****\\n");
printf("*****\\n");
printf(" According to the Albert Einstein's law of variation of mass with velocity: \\n");
printf(" M = m0 / sqrt ((1 - (u/c) squared) \\n ");
printf(" M = mass of the moving body \\t m0 = rest mass of the body \\t u= velocity of the body \\t c= speed of light in vacuum\\n ");
{
double M, m0;
long int u, c, b;
m0 = 0.999;
u = 200000000;
c = 300000000;
b = u/c * u /c;
M = m0 / sqrt (1 - b);
printf(" \\n Mass of the moving body = %lf", M);
if (M==m0 || M<m0)
printf(" \\n body is at rest or the body is moving with nonrelativistic speed");

```

---

```

else
printf(" \n body is moving with relativistic speed");
}
}

```

What will be the output of the following program:

```

#include<stdio.h>
main()
{
char ch [5];
printf( "Enter the name: ");
scanf("%s", &ch);
printf( "the name you entered = %s", ch);
}

```

Answer:

The output on the screen:

Enter the name:

If you enter the name Dennis

the name you entered = Denni will be outputted on the screen.

Instead of Dennis, only Denni will be displayed on the screen because of the statement char ch [5];

The statement

```
char ch [5];
```

make provision only for 5 lettered name to be displayed on the screen.

If the statement char ch [5]; is replaced by the statement char ch [6];

Then the output on the screen is:

Enter the name:

If you enter the name Dennis

the name you entered = Dennis will be outputted on the screen.

Note: %s implies the format specifier for string.

"The best programs are written so that computing machines can perform them quickly and so that human beings can understand them clearly. A programmer is ideally an essayist who works with traditional aesthetic and literary forms as well as mathematical concepts, to communicate the way that an algorithm

works and to convince a reader that the results will be correct."

— Donald Ervin Knuth, Selected Papers on Computer Science

## IX

### C++

An object-oriented high level language (as C++ has the power and extensibility to write large-scale programs) developed by a Danish computer scientist Bjarne Stroustrup (in 1979 at AT & T Bell laboratories, USA) as an extension of the C language i.e., initially named C with classes which later named C++. As a successor of C language, C++ has been certified as a 99.9 percent pure standard and possesses exceptional performance, efficiency and flexibility of use compared to C, used in the development of operating systems and Adobe Systems (like Photoshop, Acrobat etc.).

Process of C++ program execution: A C++ program:

```

#include<iostream>
main()
{
std::cout<<"Hello, crazy world!";
}
```

is written in C ++ editor and is saved as source program and this source program is sent to the C ++ compiler where the source program is compiled (i.e., the program is entirely read and translated to instructions the computer can understand i.e., machine understandable/ readable language i.e., to machine code sequence of 0's and 1's). If the C ++ compiler finds any error during compilation, it provides information about the error to the user. The programmer has to review code and check for the solution. And if there are no errors the translated program is stored in computers main memory as object file and the program is executed and

Hello, crazy world!

is displayed on the screen. Like C language, C++ is also a case sensitive language: only lower case letters (or small letters) must be used. Capital letters (or upper case letters) must be avoided to prevent the display of error on the screen (For example: If the statement STD:: COUT<<"Hello, crazy world!"; is written instead of std::cout<<"Hello, crazy world!"; or MAIN() is written instead of main(), compilation Error will be displayed on the screen). And if we

forget to end each statement within the curly braces {} or each statement within the body of the main function main()

{

} with a semicolon (;), then the compilation Error will be displayed on the screen. There should be no space between main and the parentheses () and no space inside the parentheses () to prevent the display of compilation error on the screen.

#include <iostream> is to C++ what #include<stdio.h> is to C (note one thing: there is no .h extension to the name iostream. The reason is that <iostream> is one of the modern – style headers) → if we type a program (a well-defined set of instructions in the form of statements) in C ++ editor, (as said earlier) the program is saved as source program and this source program is sent to the C ++ compiler where the source program is compiled i.e., it is translated into machine level language i.e., into a machine code sequence of 0's and 1's (because computer can understand only machine level language). The statement #include <iostream> tells the compiler to include the text from the file iostream (which is already present in the operating system) before it translates or complies the program into a sequence of 0's and 1's. iostream means input output screen (i→ input, o → output, stream → screen) and iostream comprises input output functions like cout, cin etc. — note: cin is a input function (cin means console input) and cout is a output function (cout means console output) and it is included into the C ++ program by writing the statement #include <iostream>. #include tell the compiler to include the contents of the file iostream before compilation. If a program is written without the statement #include<iostream>, then the C++ compiler can't compile and a compilation error is displayed on the screen.

main() → After the compilation of the source program, the translated (or the complied) program is stored in the computer's memory as object file and the program is executed. The program begins its execution with the function main() (which is called the user defined function (function defined by the user) – the main function -- the entry point of the program execution i.e., the function from where the execution of C ++ program begins) . The left curly brace “{” implies the beginning of the main function and the right curly brace “}”implies the end of the main function

main() → main function

main()

{

} → body of the main function within which the sequence of instructions in the form of statements i.e., the program is written and executed.

Note: if a program begins its execution with main function “main()”, it takes the control of the computer from the operating system. And after the complete execution of the program, the execution is terminated and the function main() returns back the control to the operating system. Semicolon: program is a well-defined set of instructions and each well-defined instruction (in the form of a statement) is ended by a semicolon (which is also C ++ language punctuation — like a period in English i.e., in an English paragraph each sentence is ended by a full stop which tells that one sentence ends and another begins, semicolon implies that one instruction (or statement) ends and another begins).

cout→ output function of the C++ language which make provision to print the output

Hello, crazy world!

on the screen.

In std::cout

std → standard

:: → scope resolution operator

cout→ console output

std::cout basically means: look in standard library and get cout function. The sentence / text Hello, crazy world! should be enclosed by the double quotation marks (" ") and if the statement using namespace std; is added below #include<iostream> in the above program, then the cout statement std::cout<<"Hello, crazy world!"; take the form:

cout<<"Hello, crazy world!";

i.e., no need to include std:: in the statement std::cout<<"Hello, crazy world!"; i.e.,

#include<iostream>

using namespace std;

main()

{

cout<<"Hello, crazy world!";

}

The statement

cout<<"Hello, crazy world!";

make provision to display the output:

Hello, crazy world!

on the screen.

Note: if “ ” is used instead of " ", Error will be displayed on the screen

The statement cout<<"Hello, crazy world!"; will not display any error on the screen.

The statement cout<<"Hello, crazy world!"; will display error on the screen.

Past few years back, the statement return(0); was included in the body of the main function i.e.,

```
{  
cout<< "Hello, crazy world!";  
return(0);  
}
```

But now due to the advancement of technology and emergence of advanced online compilers like CodeChef ([www.codechef.com/](http://www.codechef.com/)) &

Coding Ground – TutorialsPoint  
([www.tutorialspoint.com/codingground.htm](http://www.tutorialspoint.com/codingground.htm))

-- without the statement return(0); the program is compiled and executed without flag of any error on the screen. However, as the execution encounters the statement return (0); the execution stops and the main function ends at “}” and the main function returns back the control to the operating system.

**The abacus (plural abaci or abacuses), also called a counting frame, is a calculating tool that was in use in Europe, China and Russia, centuries before the adoption of the written Hindu–Arabic numeral system and is still used by merchants, traders and clerks in some parts of Eastern Europe, Russia, China and Africa.**

Note:

If the statement return (0); is replaced by the statement return 0;

or

return (1);

or

return(-2);

or

return;

there will be no change in the output on the screen (and no error will be flagged or displayed on the screen) i.e., for the programs

```
(a)    #include<iostream>  
main()  
{  
cout<<"Hello, crazy world!";  
return 0;
```

}

```
(b)    #include<iostream>  
main()  
{  
cout<< "Hello, crazy world!";  
return (1);  
}
```

```
(c)    #include<iostream>  
main()  
{  
cout<<"Hello, crazy world!";  
return (-2);  
}
```

```
(d)    #include<iostream>  
main()  
{  
cout<<"Hello, crazy world!";  
return;  
}
```

The output on the screen is:

Hello, crazy world!

i.e., there will be no change in the output on the screen.

#### Program 4.4

C ++ program to print the word “hello Steve Jobs” on screen

```
#include<iostream>  
using namespace std;  
main()  
{  
cout<< "hello Steve Jobs ";  
}
```

The output on the screen:

Hello Steve Jobs

Note: (As said earlier) Like the header file stdio.h in C, iostream has no extension i.e., if you write #include< iostream.h> instead of #include< iostream> the compilation ERROR will be flagged on the screen.

Even if

```
main(void) is written instead of main()
int main is written instead of main()
```

No error will be displayed on the screen.

hello Bill Gates will be outputted on the screen.

Unlike in C language, if

```
void main is written instead of main()
main(computer) is written instead of main()
main(comp2016) is written instead of main()
```

Error will be flagged on the console screen.

(b)

\*\*\*\*\*

\*\*\*\*

\*

\*\*\*\*\*

\* \*

\* Hello World! \*

\* \*

\*\*\*\*\*

(c)

Program 4.5

C++ program to print

\*

```
**Hi Silicon Valley**
*****
*****
```

on screen

```
#include<iostream>
using namespace std;
main()
{
cout<<"\n      *      ";
cout<<"\n **Hi Silicon Valley** ";
cout<<"\n      ****      ";
cout<<"\n      *****      ";
}
```

The output on the screen:

\*

```
**Hi Silicon Valley**
*****
*****
```

If \n is not included in the above program then the output on the screen is:

```
***Hi Silicon Valley*****
```

Write a program to print the following outputs:

(b)

\*

\*\*\*

Braces come in pairs!

Comments come in pairs!

All statements end with a semicolon!

Spaces are optional!

Must have a main function!

Object oriented language

Like C C++ is done mostly in lowercase. It's also a case-sensitive language

Answers:

```
#include<iostream>
using namespace std;
main()
{
cout<< "\n      *      ";
cout<< "\n      ****      ";
cout<< "\n      *****      ";
cout<< "\n      ***      ";
cout<< "\n      *      ";
}
```

```
#include<iostream>
```

```
using namespace std;
```

```
main()
```

```
{
cout<<"\n      *****\n      * *\n      * Hello World! *\n      * *\n      *****\n";}
```

```
#include<iostream>
using namespace std;
main()
{
cout<< "\n Braces come in pairs!";
cout<< "\n Comments come in pairs!";
cout<< "\n All statements end with a semicolon!";
cout<< "\n No format strings are used";
cout<< "\n Must have a main function!";
cout<< "\n Object oriented language";
cout<< "\n Like C C++ is done mostly in lowercase.
It's also a case-sensitive language";
}
```

#### Program 4.5

C ++ program to find the area of a circle

```
#include<iostream>
using namespace std;
main()
{
int r, area;
r = 2;
area = 4 * 3.14 * r * r;
cout<<"The area of the circle = " << area;
}
```

The output on the screen:

The area of the circle = 50

int means the data type is integer.

The statement

int r, area; imply that we are creating the integer variables r , area.

The statements

```
r = 2;
area = 4 * 3.14 * r * r;
```

imply that we are assigning the values to the created variables (i.e., we are assigning the value 2 for r and  $4 * 3.14 * r * r$  for area).

Comma in the statement int r, area; imply variable separator.

If the multiplication sign  $\times$  is used instead of the multiplication operator  $*$  i.e.,

The statement  $area = 4 \times 3.14 \times r \times r$ ; is written instead of  $area = 4 * 3.14 * r * r$

then the compilation error is displayed on the screen.

Like the statement

```
printf("The area of the circle = %d", area);
in C language
```

The statement

```
cout<<"The area of the circle = " << area;
make provision to print the output:
```

The area of the circle = 50

on the screen (in the case of C++ language). Notice one thing there is no need to write format strings in the C ++ language.

The area of the circle is 50. 24 ( for  $r = 2$  ) but The area of the circle = 50 is displayed on the screen because data type int is used instead of float.

If float r, area; is used instead of int r, area;  
i.e.,

```
#include<iostream>
using namespace std;
main()
{
float r, area;
r = 2;
area = 4 * 3.14 * r * r;
cout<<"The area of the circle = " << area;
}
```

Then the output on the screen:

The area of the circle = 50.24

float means the data type is float.

The statement

float r, area; imply that we are creating the floating variables r, area.

(floating point variable means fractional variable or decimal number (for example: 1.5, 2.5, 3.5, 4.7...etc.) whereas integer means non-fractional variable or whole number (for example: 1, 2, 3, 4...etc.))

data type float is used instead of int because if the data type int is used instead of float then the result will not be clearly outputted i.e., instead of 50.24 the computer displays only 50.

If you want to supply the value for r through the key board, then the statement

```
float r = 2;
```

is replaced by the statements

```
cout<< "Enter any number:";  
cin>>r;
```

i.e.,

```
#include<iostream>  
using namespace std;  
main()  
{  
float r, area;  
cout<< "Enter any number:";  
cin>>r;  
area = 4 * 3.14 * r * r;  
cout<<"The area of the circle = " << area;  
}
```

The output on the screen:

Enter any number:

If you the number 2

The area of the circle = 50.24 will be outputted on the screen.

As told earlier: cout is an output function and cin is an input function.

The statement cout<< "Enter any number:"; make provision to print the sentence / text

Enter any number:

on the screen.

cin>> r; is to C++ what scanf("%d", &r); is to C

If you write area = 4 \* 3.14 \* r ^ 2; instead of area = 4 \* 3.14 \* r \* r; (where r ^ 2 → r to the power of 2 or r square), then error is displayed on the screen because like in C- there is no operator for performing exponentiation operation i.e., there is no operator for performing r ^ 2 operation so the statement area = 4 \* 3.14 \* r ^ 2; is invalid.

Note: cout and cin are not part of C++ language but they are part of input output file i.e., (iostream file) so the statement #include<iostream> should be included in the C++ program otherwise cout and cin will not work and the compilation error will be displayed on the console screen.

Note:

Right shift operator >> denote stream extraction operator (extract data entered through the keyboard)

Left shift operator << denote stream insertion operator (insert data into an output screen)

<< and >> are termed overloaded operators and the file iostream defines these operators.

Note: As told earlier: when you enter an integer for x through the keyboard, this integer will be stored in the computer memory. If you yearn to know the storage size of the integer in computer memory (i.e., space occupied by the entered integer in the computer memory), you need to appeal to the following program:

```
#include<iostream>  
using namespace std;  
main()  
{  
int x;  
x=10;  
cout<<"size of x = " << sizeof(x);  
}
```

The output on the screen:

size of x = 4

i.e., integer entered for x i.e., 10 has occupied a space of 4 bytes in the computer memory.

Write a program to print the circumference of the circle (given r = 2.5)

Answer:

```
#include<iostream>  
using namespace std;  
main()  
{  
float r, area;  
r = 2.5;  
circumference = 3.14 * r * r;  
cout<< "The circumference of the circle = " <<  
circumference;  
}
```

Write a program to print the area of the rectangle (given l = 2.5 and b = 3)

Answer:

```
#include<iostream>  
using namespace std;
```

```

main()
{
float l, b, area;
l = 2.5;
b = 3;
area = l*b;
cout<< "The area of the rectangle = " << area;
}

```

What is the mistake in the following programs?

(a)

```

#include<iostream>
using namespace std;
main()
{
float r, area;
cout>>"Enter any number: ";
cin << r;
area = 4 * 3.14 * r * r;
cout >> "The area of the circle = " >> area;
}

```

(b)

```

#include<iostream>
main()
{
int l; area;
cout<< "Enter any number: ";
cin >> r;
area = l * l;
cout<< "The area of the square = " << area;
}

```

(c)

```

#include<iostream>
main()
{
int l; volume;
l = 2;
volume = l * l * l;
std::cout<< " The volume of the square = " <<
volume;
}

```

}

#### Program 4.6

C++ program to find the sum of two numbers

```

#include<iostream>
using namespace std;
main()
{
int a, b, sum;
a=1;
b=2;
sum = a + b;
cout<<"the sum of a and b = "<< sum;
}

```

The output on the screen:

the sum of a and b = 3

If you assign the floating point values 1.5 & 2.6 for a & b, then the statement int a, b, sum; should be replaced by the statement float a, b, sum;

i.e.,

```

#include<iostream>
using namespace std;
main()
{
float a, b, sum;
a=1.5;
b=2.6;
sum = a + b;
cout<<"the sum of a and b = "<< sum;
}

```

The output on the screen:

the sum of a and b = 4.1

The statement

cout<<"the sum of a and b = "<< sum;  
make provision to print the output:

the sum of a and b = 4.1

And if the statement cout<<"the sum of a and b = "<< sum; is omitted from the C ++ program, then the program will be successfully executed but there will be no display of the output on the screen.

If you want to supply the values for a and b through the key board, then the statements

```

a=1.5;
b=2.6;
should be replaced by the statements
    cout<<"Enter any two numbers:";
        cin>>a;
        cin>>b;
i.e.,
#include<iostream>
using namespace std;
main()
{
float a, b, sum;
cout<<"Enter any two numbers:";
cin>>a;
cin>>b;
sum = a+ b;
cout<<"the sum of a and b = "<< sum;
}
The output on the screen:
Enter any two numbers:
If you enter two numbers 2.9 & 3.6
    the sum of a and b = 6.5 will be outputted on the
screen.

The statement
    cout<<"Enter any two numbers:";
make provision to print
Enter any two numbers:
on the screen and the statements
    cin>>a;
    cin>>b;
read the two numbers 2.9 and 3.6 entered through the
keyboard and store them in the computer memory.

If the statements
    cout<<"Enter any two numbers:";
        cin>>a;
        cin>>b;
are replaced by the statements
    cout<<"Enter any number:";
        cin>>a;
    cout<<"Enter any number:";
        cin>>b;
i.e.,
#include<iostream>
using namespace std;
main()

```

```

{
float a, b, sum;
cout<<"Enter any number:";
cin>>a;
cout<<"Enter any number:";
cin>>b;
sum = a+ b;
cout<<"the sum of a and b = "<< sum;
}

The output on the screen:
Enter any number:
If you enter the number 2.9
Enter any number:
If you enter the number 3.6
    the sum of a and b = 6.5 will be outputted on the
screen.
```

If the statement `cout<<"the sum of a and b = "<< sum;` is replaced by the statement

```
cout<<a << " + "<<b << " = " << sum;
```

Then

$2.9 + 3.6 = 6.5$  will be outputted on the screen.

What will be the output of the following program:

```
#include<iostream>
using namespace std;
int a = 5;
main()
{
int a =2;
cout<< a;
}
```

Answer: 2

Note:

2 is a local variable (variable declared within the body of the main function)

The statement `int a = 2;` imply local variable declaration.

5 is a global variable (variable declared outside the body of the main function)

The statement `int a = 5;` imply global variable declaration.

If the statement cout<< a; is replaced by the statement cout<< :: a; (where :: denote scope resolution operator)

i.e.,

```
#include<iostream>
using namespace std;
int a = 5;
main()
{
int a =2;
cout<< ::a;
}
```

Then the output on the screen is:

5

i.e., global variable will be outputted.

If the same program is written in C language

i.e.,

```
#include<stdio.h>
int a = 5;
main()
{
int a =2;
printf("%d", ::a);
}
```

Then the compilation error will be outputted on the screen because scope resolution operator is not defined in the C language (i.e., C does not hold scope resolution operator).

Whether the following program will be successfully outputted or not

```
#include<iostream>
using namespace std;
main()
{
int a, b, c;
a=3;
b=2;
c= a+b;
cout<< " sum of two numbers = %d" << c;
}
```

Answer:

Yes, the output on the screen is:

%d5

#### Program 4.7

C ++ program to convert the temperature in Celsius to Fahrenheit

```
#include<iostream>
using namespace std;
main()
{
float C, F;
C=38.5;
F = 9*C/5 +32;
cout<< "temperature in Fahrenheit= " << F;
}
```

The output on the screen:

temperature in Fahrenheit = 101.3

As said earlier: if  $\times$  is used instead of \* and  $F = 9C/5 +32$  is used of  $F = 9*C/5 +32$ , the error will be displayed on the screen.

If you want to supply a value 16 digits after decimal point i.e., 36.55555555555555 for C, then the statement

double C, F; should be used instead of the statement float C, F;

i.e.,

```
#include<iostream>
using namespace std;
main()
{
double C, F;
C=38.55555555555555;
F = 9*C/5 +32;
cout<< "temperature in Fahrenheit= " << F;
}
```

If you want to supply the value for C through the key board, then the statement

C=38.5;

should be replaced by the statements

```
cout<<"Enter any number:";
cin>>C;
```

i.e.,

```
#include<iostream>
using namespace std;
```

```

main()
{
float C, F;
cout<<"Enter any number:";
cin>>C;
F = 9*C/5 +32;
cout<<"temperature in Fahrenheit= "<< F;
}

The output on the screen:
Enter any number:
If you enter the number 23.6
temperature in Fahrenheit = 74.48 will be outputted on
the screen.

```

#### Program 4.8

C++ program to find the product of two numbers

```

#include<iostream>
using namespace std;
main()
{
int a, b, product;
a=1;
b=2;
product = a * b;
cout<<"the product of a and b = "<< product;
}

The output on the screen:
the product of a and b = 2
If you insert a value 2^3 for a and 3^2 for b, then as
said earlier wrong result or compilation error will be
flagged on the screen.
a=2^3;
b=3^2; → ERROR
a=2* 2*2
b=3*3; → Result will be outputted on the screen i.e.,
the product of a and b = 72
If you want to insert a 10 digit number for a and b i.e.,
a=1000000000
b=3000000000, then the statement
int a, b, product; should be replaced by the statement
long int a, b, product;
i.e.,
#include<iostream>
using namespace std;

```

```

main()
{
long int a, b, product;
a=1;
b=2;
product = a * b;
cout<<"the product of a and b = "<< product;
}

The output on the screen:
the product of a and b = 30000000000000000000000000000000
If you want to supply the integer values for a and b
through the key board, then the statements
a=1;
b=2; should be replaced by the statements
cout<<"Enter any two numbers:";
cin >> a;
cin >> b;

```

i.e.,

```

#include<iostream>
using namespace std;
main ()
{
int a, b, product;
cout<<"Enter any two numbers:";
cin>>a;
cin>>b;
product = a* b;
cout<<"the product of a and b = "<< product;
}

```

The output on the screen:  
Enter any two numbers:  
If you enter two numbers 2 & 3

the product of a and b = 6 will be outputted on the  
screen.

If the statement cout<<the product of a and b = <<  
product; is written instead of the statement cout<<"the  
product of a and b = "<< product; i.e., the statement  
the product of a and b = is not enclosed by the double  
quotation marks

Then the compilation error will be displayed on the  
output screen.

#### Did you know that

In 1949, a few years after Von Neumann's work, the language Short Code appeared ([www.byte.com](http://www.byte.com)). It was the first computer language for electronic devices and it required the programmer to change its

statements into 0's and 1's by hand. Still, it was the first step towards the complex languages of today.

"If the code and the comments disagree, then both are probably wrong."

- Norm Schryer

#### Program 4.9

C++ program to find the square of a number

```
#include<iostream>
using namespace std;
main()
{
int a, b;
a=2;
b = a * a;
cout<<"the square of a = " << b;
}
```

The output on the screen:

the square of a = 4

If you want to supply the integer value for a through the key board, then the statement

a=2;

should be replaced by the statements

```
cout<<"Enter any number:" ;
cin>>a;
```

i.e.,

```
#include<iostream>
using namespace std;
main()
{
int a, b;
cout<<"Enter any number:" ;
cin>>a;
b = a * a;
cout<<"the square of a = "<< b;
}
```

The output on the screen:

Enter any number:

If you enter a number 3

the square of a = 9 will be outputted on the screen.

Note:

main(); is written instead of main() then the error is displayed on the screen.

Write a program to print the cube of a number

Answer:

```
#include<iostream>
using namespace std;
main()
{
int a, b;
cout<<"Enter any number:" ;
cin>>a;
b = a * a*a;
cout<<"the cube of a = "<< b;
}
```

Write a program to print the square and cube root of a number

Answer =?

Write a program to print the force applied to the mass m.

Answer:

```
#include<iostream>
using namespace std;
main()
{
int m, a, F;
cout<<"Enter the mass:" ;
cin>>m;
cout<<"Enter acceleration:" ;
cin>>a;
F = m * a;
cout<<"the force applied to the mass = "<< F;
}
```

#### Program 5.0

C ++ program to find the greatest of two numbers using

(a) if - if statement

(b) if - else statement

The syntax of if - if statement is:

```

if (this condition is true)
{
print this statement using cout function;
}
if (this condition is true)
{
print this statement using cout function;
}

```

(a)

```

#include<iostream>
using namespace std;
main()
{
int a, b;
a=2;
b =3;
if(a>b)
{
cout<< "a is greater than b";
}
if(b>a)
{
cout<< "b is greater than a";
}
}

```

The output on the screen:

b is greater than a

Since the condition  $a > b$  within the parentheses is not true, the statement  $a$  is greater than  $b$  is not executed; instead the execution skips and pass to the condition  $b > a$  and prints the statement  $b$  is greater than  $a$  using cout function.

In simpler words,

$(a > b)$  and  $(b > a)$  are the conditions (i.e., logical expressions that results in true or false) and if the condition  $(a > b)$  is true, then the statement

```

{
cout<< "a is greater than b";
}
```

make provision to print the output:

a is greater than b

and if the condition  $(a > b)$  is not true and the condition  $(b > a)$  is true, then the statement

```

{
cout<< "b is greater than a";
}
```

make provision to print the output:

b is greater than a

If you want to supply the integer values for  $a$  and  $b$  through the key board, then the statements

```

a=2;
b=3; should be replaced by the statements
cout<<"Enter any number:";
cin>>a;
cout<<"Enter any number:";
cin>>b;
```

i.e., the program should be rewritten as:

```

#include<iostream>
using namespace std;
main()
{
int a, b;
cout<<"Enter any number: ";
cin>> a;
cout<< "Enter any number: ";
cin>> b;
if(a>b)
{
cout<< "a is greater than b";
}
if(b>a)
{
cout<< "b is greater than a";
}
}
```

The output on the screen:

```

Enter any number:
If you enter the number 6
Enter any number:
If you enter the number 3
a is greater than b will be outputted on the screen.
```

Note:

If the symbol  $>$  is replaced by  $>>$

i.e., if

$(a >> b)$

(b>>a)  
is written instead of  
(a>b)  
(b>a)

Then the program will be successfully executed but there will be no display of the output on the screen.

The syntax of if – else statement is:

```
if (this condition is true)
{
    print this statement using cout function;
}
else
{
    print this statement using cout function;
}
```

(b)

```
#include<iostream>
using namespace std;
main()
{
int a, b;
a=2;
b=3;
if(a>b)
{
cout<< "a is greater than b";
}
else
{
cout<< "b is greater than a";
}
}
```

The output on the screen:

b is greater than a

Since the condition a>b within the parentheses is not true, the statement a is greater than b is not executed; instead the execution skips and pass to print the statement b is greater than a using cout function.

Note:

Even if the statements

```
cout<< "a is greater than b";
cout<< "b is greater than a";
```

are not written within the braces {}

i.e.,

```
#include<iostream>
using namespace std;
main()
{
int a, b;
a=2;
b=3;
if(a>b)
cout<< "a is greater than b";
else
cout<< "b is greater than a";
}
```

There will no display of compilation error on the screen or there will be no change in the output displayed on the screen (i.e., b is greater than a will be outputted on the screen).

### Program 5.1

C program to find the greatest of three numbers using  
(a) if - if - if statement  
(b) if – else if – else statement  
(b) if – else if – else if statement

The syntax of if – if- if statement is:

```
if (this condition is true)
{
    print this statement using cout function;
}
if (this condition is true)
{
    print this statement using cout function;
}
if (this condition is true)
{
    print this statement using cout function;
}
```

(a)

```

#include<iostream>
using namespace std;
main()
{
int a, b, c;
a=2;
b =3;
c=4;
if(a>b&&a>c)
{
cout<< "a is greater than b and c";
}
if(b>a&&b>c)
{
cout<< "b is greater than a and c";
}
if(c>b&&c>a)
{
cout<< "c is greater than b and a";
}
}

```

The output on the screen:

c is greater than b and a

double ampersand “&&” imply and.

```

(a>b&&a>c)
(b>a&&b>c)
(c>b&&c>a)

```

denote conditions.

i.e., the condition

$(a>b \& \& a>c)$  imply a is greater than b and a is greater than c and if this condition is true, then the statement

```

{
cout<< "a is greater than b and c";
}

```

make provision to print the output using cout function:

a is greater than b and c

and if the condition  $(a>b \& \& a>c)$  is not true and the statement a is greater than b and c is not executed; instead the execution skips and pass to the condition  $(b>a \& \& b>c)$  and if this condition is true, then the statement

```

{
cout<< "b is greater than a and c";
}

```

make provision to print the output using cout function:

b is greater than a and c

and if the condition  $(b>a \& \& b>c)$  is not true and the statement b is greater than a and c is not executed; instead the execution skips and pass to the condition  $(c>b \& \& c>a)$  and if this condition is true, then the statement

```

{
cout<< "c is greater than b and a";
}

```

make provision to print the output using cout function:

c is greater than b and a

The syntax of if – else if – else statement is:

```

if (this condition is true)
{
print this statement using cout function;
}
else if (this condition is true)
{
print this statement using cout function;
}
else
{
print this statement using cout function;
}

```

(b)

```

#include<iostream>
using namespace std;
main()
{
int a, b, c;
a=2;
b =3;
c=4;
if(a>b&&a>c)
{
cout<< "a is greater than b and c";
}
else if (b>a&&b>c)
{
cout<< "b is greater than a and c";
}

```

```

else
{
cout<< "c is greater than b and a";
}
}

```

The output on the screen:

```
    c is greater than b and a
```

The syntax of if – else if – else if statement is:

```

if (this condition is true)
{
    print this statement using cout function;
}
else if (this condition is true)
{
    print this statement using cout function;
}
else if (this condition is true)
{
    print this statement using cout function;
}

```

(c)

```

#include<iostream>
using namespace std;
main()
{
int a, b, c;
cout<< "Enter any number: ";
cin>> a;
cout<< "Enter any number: ";
cin>> b;
cout<< "Enter any number: ";
cin>> c;
if(a>b&&a>c)
{
cout<< a<<" is greater than" << b<< " and " <<c;
}
else if (b>a&&b>c)
{
cout<< b<<" is greater than" << a << " and " <<c;
}
else if (c>b&&c>a)
{

```

```

cout<< c<<" is greater than" << b<< " and " <<a;
}
}

```

The output on the screen:

Enter any number:

If you enter the number 2

Enter any number:

If you enter the number 3

Enter any number:

If you enter the number 4

4 is greater than 3 and 2 will be outputted on the screen.

As said earlier:

If the statements

```

if(a>b&&a>c)
{
cout<< a<<" is greater than" << b<< " and " <<c;
}
else if (b>a&&b>c)
{
cout<< b<<" is greater than" << a << " and " <<c;
}
else if (c>b&&c>a)
{
cout<< c<<" is greater than" << b<< " and " <<a;
}
```

are replaced by the statements

```

if(a>b&&a>c)
cout<< a<<" is greater than" << b<< " and " <<c;
else if (b>a&&b>c)
cout<< b<<" is greater than" << a << " and " <<c;
else if (c>b&&c>a)
cout<< c<<" is greater than" << b<< " and " <<a;
i.e., if the program is rewritten as:
```

```
#include<iostream>
using namespace std;
main()
{
int a, b, c;
cout<< "Enter any number: ";
cin>> a;
cout<< "Enter any number: ";
cin>> b;
cout<< "Enter any number: ";
cin>> c;
```

```

if(a>b&&a>c)
cout<< a<<" is greater than" << b<< " and " <<c;
else if (b>a&&b>c)
cout<< b<<" is greater than" << a << " and " <<c;
else if (c>b&&c>a)
cout<< c<<" is greater than" << b<< " and " << a;
}

```

There will no display of compilation error on the screen and c is greater than b and a will be successfully outputted on the screen

### C ++ place in the World of Languages

```

Ada
Modula-2
Pascal
COBOL
FORTRAN
BASIC
Java
C#
C++
C
Forth
Macro-assembler
Assembler

```

Did you know that

C++ was designed to organize the raw power of C using OOP, but maintain the speed of C and be able to run on many different types of computers. C++ is most often used in simulations, such as games. C++ provides an elegant way to track and manipulate hundreds of instances of people in elevators, or armies filled with different types of soldiers. It is the language of choice in today's AP Computer Science courses.

### Program 5.2

C ++ program to find the average of 10 numbers

```

#include<iostream>
using namespace std;
main()
{

```

```

int N1, N2, N3, N4, N5, N6, N7, N8, N9, N10, X;
cout<<"Enter any 10 numbers:";
cin>>N1;
cin>>N2;
cin>>N3;
cin>>N4;
cin>>N5;
cin>>N6;
cin>>N7;
cin>>N8;
cin>>N9;
cin>>N10;
X = (N1 + N2 + N3 + N4 + N5 + N6 + N7 + N8 + N9 + N10) / 10;
cout<<"the average of 10 numbers = " << X;
}

The output on the screen:
Enter any 10 numbers:
If you enter ten numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10
the average of 10 numbers = 5 is outputted on the screen.

```

Note: The average of 10 numbers is 5.5, the output on the screen is 5 because int is used instead of float.

What is missing in the following program:

```

#include<iostream>
using namespace std;
main()
{
int a, b;
a=2;
b= exp(a);
cout<< " the value of b = " << b;
}

```

Like in C language, any mathematical expression should be written in C ++ equivalent expression to prevent the display of compilation error on the screen because C ++ language also does not accept the general mathematical expressions.

Note: C++ equivalent mathematical expression is same as C equivalent mathematical expression

For example:

Mathematical expression:  $\log_{10} x + bx$

C equivalent expression:  $\log_{10}(x) + b * x$   
C ++ equivalent expression:  $\log_{10}(x) + b * x$

### Program 5.3

C ++ program to find the square root of a number

```
#include<iostream>
#include<cmath>
using namespace std;
main()
{
int a, b;
cout<<"Enter any number:";
cin>>a;
b = sqrt (a);
cout<< "the square root of a number = " << b;
}
```

The output on the screen:

Enter any number:

If you enter the number 16

the square root of a number = 4 will be outputted on  
the screen.

Note:

This program can also be written as:

```
#include<iostream>
#include<cmath>
using namespace std;
main()
{
cout<< "the square root of a number = " << sqrt (4);
}
```

Suppose if you enter the number 8, the square root of a number = 2 will be outputted on the screen because int is used instead of float.

Note: Since  $b = \sqrt{a}$  is written

#include<cmath> must be included in the above program otherwise compilation error will flag on the screen because cmath file defines the mathematical functions like  $\sqrt()$ .

i.e., the program:

```
#include<iostream>
using namespace std;
main()
{
```

```
int a, b;
cout<<"Enter any number:";
cin>>a;
b = sqrt (a);
cout<< "the square root of a number = " << b;
}
will flag compilation error on the screen.
```

Note:

#include<math.h> is used in C  
whereas #include<cmath> is used in C ++

“Debugging is twice as hard as writing the code in the first place. Therefore, if you write the code as cleverly as possible, you are, by definition, not smart enough to debug it.”

: Brian Wilson  
Kernighan (a Canadian computer scientist who worked at Bell Labs alongside Unix creators Ken Thompson and Dennis Ritchie and contributed to the development of Unix).

Write a program to print the cube root of a number:

Answer: ?

What is the mistake in the following program?

```
#include<stdio.h>
#include<math.h>
main()
{
float x, y, b;
x=2;
y=3;
b = ex + y;
cout<< " the value of b = " << b;
}
```

### Program 5.4

C++ program to find the simple interest

```
#include<iostream>
using namespace std;
main()
```

```

{
int P,T, R, SI;
P = 1000;
T = 2;
R = 3;
SI = P*T*R/100;
cout<<"the simple interest = " << SI;
}

```

The output on the screen:

the simple interest = 60

Note:

If you write  $SI = PTR/100$ ; instead of  $SI = P*T*R/100$ ;

Then compilation error is displayed on the screen because (like C) C ++ language does not accept the general expressions.

If you want to supply the integer values for P, T and R through the key board, then the statements

```

P = 1000;
T = 2;
R = 3;

```

should be replaced by the statements

```

cout<<"Enter principal amount:";
cin>>P;
cout<<"Enter time:";
cin>>T;
cout<<"Enter rate of interest:";
cin>>R;

```

i.e., the above program should take the form:

```

#include<iostream>
using namespace std;
main()
{
int P,T, R, SI;
cout<<"Enter principal amount:";
cin>>P;
cout<<"Enter time:";
cin>>T;
cout<<"Enter rate of interest:";
cin>>R;
SI = P*T*R/100;
cout<<"the simple interest = " << SI;
}

```

The output on the screen:

Enter principal amount:

If you enter the principal amount 1000

Enter time:

If you enter the time 2

Enter rate of interest:

If you enter the rate of interest 3

the simple interest = 60 will be outputted on the screen.

What will be the output of the following program:

```

#include<iostream>
using namespace std;
main()
{
int a, b, c;
a=5;
b=7;
c = a ^ b;
cout<< " the value of c = " << c;
}

```

Answer: 2

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1

Since  $a = 5$

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	1	0	1

Since  $b = 7$

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	1	1	1

$a \wedge b$

0	1	0	1
0	1	1	1

0	0	1	0
---	---	---	---

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	1	0	1
0	1	1	1
0	0	1	0

$$0 \times 8 + 0 \times 4 + 1 \times 2 + 0 \times 1 = 2$$

$$a^b = 2$$

### Program 5.5

C++ program to find the senior citizen

```
#include<iostream>
using namespace std;
main()
{
int age;
age=20;
if(age >= 60)
{
cout<<"senior citizen";
}
if(age<60)
{
cout<<"not a senior citizen";
}
```

The output on the screen:

not a senior citizen

(age  $\geq 60$ ) means age greater than or equal to 60.

If you want to supply the value for age through the key board, then the statement

age = 20;

should be replaced by the statements

```
cout<<"Enter age:";
cin>>age;
```

i.e.,

```
#include<iostream>
using namespace std;
main()
```

```
{
int age;
cout<<"Enter age:";
cin>>age;
if(age>60)
{
cout<<"senior citizen";
}
if(age<60)
{
cout<<"not a senior citizen";
}
```

The output on the screen:

Enter age:

If you enter the age 60

senior citizen will be outputted on the screen.

Suppose if you enter the age 31

not a senior citizen will be outputted on the screen

### Program 5.6

C ++ program to get marks for 3 subjects and declare the result.

If the marks  $\geq 35$  in all the subjects the student passes else fails.

```
#include<iostream>
using namespace std;
main()
{
int M1, M2, M3;
M1 = 38;
M2 = 45;
M3 = 67;
if(M1 >= 35 && M2 >= 35 && M3 >= 35)
{
cout<<"candidate is passed";
}
else
{
cout<<"candidate is failed";
}
```

The output on the screen:

candidate is passed

$(M_1 \geq 35 \ \&\& M_2 \geq 35 \ \&\& M_3 \geq 35)$  imply  $M_1$  is greater than or equal to 35 and  $M_2$  is greater than or equal to 35 and  $M_3$  is greater than or equal to 35.

$\geq$  imply greater than or equal to.

$\&\&$  imply and.

$(M_1 \geq 35 \ \&\& M_2 \geq 35 \ \&\& M_3 \geq 35)$  is the condition and if the condition  $(M_1 \geq 35 \ \&\& M_2 \geq 35 \ \&\& M_3 \geq 35)$  is true, then the statement

```
{  
    cout<<"candidate is passed";  
}
```

make provision to print the output:

```
    candidate is passed
```

else the statement

```
{  
    cout<<"candidate is failed";  
}
```

make provision to print the output:

```
    candidate is failed
```

If you want to supply the values for marks  $M_1$ ,  $M_2$  and  $M_3$  through the key board, then the statements

$M_1 = 38;$

$M_2 = 45;$

$M_3 = 67;$  should be replaced by the statements

```
cout<<"Enter any three marks:";  
cin>> M1;  
cin>> M2;  
cin>> M3;
```

i.e.,

```
#include<iostream>  
using namespace std;  
main()  
{  
int M1, M2, M3;  
cout<<"Enter any three marks:";  
cin>> M1;  
cin>> M2;  
cin>> M3;  
if(M1 >= 35 && M2 >= 35 && M3 >= 35)  
{  
    cout<<"candidate is passed";  
}  
else  
{
```

```
    cout<<"candidate is failed";  
}  
}
```

The output on the screen:

Enter any three marks:

If you enter three marks 21, 25, 49

candidate is failed will be outputted on the screen.

“Writing code has a place in the human hierarchy  
worth somewhere above grave robbing and beneath  
managing.”

: GERALD WEINBERG

Did you know that

Pascal was begun in 1968 by Niklaus Wirth. Its development was mainly out of necessity for a good teaching tool. In the beginning, the language designers had no hopes for it to enjoy widespread adoption. Instead, they concentrated on developing good tools for teaching such as a debugger and editing system and support for common early microprocessor machines which were in use in teaching institutions.

## Program 5.7

C ++ program to find profit or loss

```
#include<iostream>  
using namespace std;  
main()  
{  
int CP, SP, loss, profit;  
cout<<"Enter cost price:";  
cin >> CP;  
cout<<"Enter selling price:";  
cin >> SP;  
if(SP > CP)  
{  
    cout<<"profit= "<< SP-CP;  
}  
if(SP < CP)  
{  
    cout<<"loss = "<< CP-SP;  
}
```

The output on the screen:

Enter cost price:

If you enter the cost price 25

Enter selling price:

If you enter the selling price 26

profit = 1 will be outputted on the screen.

If the condition (SP>CP) is true, then the statement

```
{  
cout<<"profit= "<< SP-CP;  
}
```

make provision to print the output:

profit = SP-CP (in this case profit = 26-25 =1)

If the condition (CP>SP) is true, then the statement

```
{  
cout<<"loss = "<< CP-SP;  
}
```

make provision to print the output:

loss = CP- SP

Note: if the minus sign (-) is used instead of (-) i.e., CP- SP is written instead of CP- SP, the error will be displayed on the screen (because (like C language) C++ is a case sensitive language).

### Program 5.8

C++ program to convert inches into centimeter

```
#include<iostream>  
using namespace std;  
main()  
{  
float I, C;  
I=3.5;  
C = 2.54*I;  
cout<<"length in centimeters = " << C;  
}
```

The output on the screen:

length in centimeters = 8.89

Note: float is used instead of int because I = 3.5 if int is used instead of float then the result will not be clearly outputted i.e., instead of 8.89 the computer displays only 8.

If you want to supply the value for I through the key board, then the above program should take the form:

```
#include<iostream>  
using namespace std;  
main()  
{  
float I, C;  
cout<<"Enter the length in inches:";  
cin >> I;  
C = 2.54*I;  
cout<<"length in centimeters= " << C;  
}
```

The output on the screen:

Enter the length in inches:

If you enter the value for I i.e., 25.5

length in centimeters = 64.9 will be outputted on the screen.

Suppose

If you enter the value 25

The output on the screen:

length in centimeters = 63.5

Even if you enter the value 25 instead of 25.5, float should be used instead of int because if float is not used then C = 63 will be outputted on the screen.

### Program 5.9

C++ program to find the incremented and decremented values of two numbers

```
#include<iostream>  
using namespace std;  
main()  
{  
int a, b, c, d, e, f;  
a = 10;  
b=12;  
c=a+1;  
d=b+1;  
e=a-1;  
f=b-1;  
cout<<"the incremented value of a = " << c;  
cout<<"the incremented value of b = " << d;  
cout<<"the decremented value of a = " << e;  
cout<<"the decremented value of b = " << f;  
}
```

The output on the screen:

---

the incremented value of a = 11 the incremented value of b = 13 the decremented value of a = 9 the decremented value of b = 11

If the statements

```
cout<<"the incremented value of a = " << c;
cout<<"the incremented value of b = " << d;
cout<<"the decremented value of a = " << e;
cout<<"the decremented value of b = " << f;
```

are replaced by the statements

```
cout<<"\n the incremented value of a = " << c;
cout<<"\n the incremented value of b = " << d;
cout<<"\n the decremented value of a = " << e;
cout<<"\n the decremented value of b = " << f;
```

The output on the screen:

```
the incremented value of a = 11
the incremented value of b = 13
the decremented value of a = 9
the decremented value of b = 11
```

If the statements

```
cout<<"the incremented value of a = " << c;
cout<<"the incremented value of b = " << d;
cout<<"the decremented value of a = " << e;
cout<<"the decremented value of b = " << f;
```

are replaced by the statements

```
cout<<"the incremented value of a = " << c << endl;
cout<<"the incremented value of b = " << d << endl;
cout<<"the decremented value of a = " << e << endl;
cout<<"the decremented value of b = " << f << endl;
```

The output on the screen:

```
the incremented value of a = 11
the incremented value of b = 13
the decremented value of a = 9
the decremented value of b = 11
```

If you want to supply the values for a and b through the key board, then the above program should take the form:

```
#include<iostream>
using namespace std;
main()
{
int a, b, c, d, e, f;
cout<<"Enter any number:";
```

```
cin>> a;
cout<<"Enter any number:";
cin>> b;
c=a+1;
d=b+1;
e=a-1;
f=b-1;
cout<<"\n the incremented value of a = " << c;
cout<<"\n the incremented value of b = " << d;
cout<<"\n the decremented value of a = " << e;
cout<<"\n the decremented value of b = " << f;
}
```

The output on the screen:

Enter any number:

If you enter the number 2

Enter any number:

If you enter the number 3

```
the incremented value of a = 3
the incremented value of b = 4
the decremented value of a = 1
the decremented value of b = 2
```

will be outputted on the screen.

Note: b++ is same as b + 1 and b-- is same as b - 1 but b ++ or b-- should be used only in case of for loop or loop statements. Usage of b++ or b-- instead of b +1 or b-1 in the certain online compilers like coding ground yields error or displays the wrong result.

What will be the output of the following program:

```
#include<iostream>
using namespace std;
main()
{
float T1, T2, A;
cout<<"Enter any number:";
cin >> T1;
cout<<"Enter any number:";
cin >> T2;
A = (T1 + T2) / 2;
cout<<"the average temperature of the day = " << A;
}
```

What is the mistake in the following program:

```

#include<iostream>
using namespace std;
main()
{
int a, b, c, d, e, f;
a = 10;
b=12;
c=a+1;
d=b+1;
e=a-1;
f=b-1;
cout<<"\n the incremented value of a = " << c;
cout<<"\n the incremented value of b = " << d;
cout<<"the decremented value of a = "<< e << endl;
cout<<"the decremented value of b = " << f << endl;
}

```

### Program 6.0

The percentage marks are entered and the grades are allotted as follows:

```

percentage >= 60 First Class
percentage >=50 and per <= 60 Second Class
percentage >= 40 and per <= 50 Pass Class
percentage < 40 Fail

```

Write a C++ program for the above.

```

#include<iostream>
using namespace std;
main()
{
int P;
cout<<"Enter the percentage:";
cin>>P;
if(P >= 60)
{
cout<<"first class";
}
if(P>=50&&P <60)
{
cout<<"second class";
}
if(P>=40&&P<=50 )
{
cout<<"pass class";
}

```

```

if(P<40)
{
cout<<"fail";
}
}

```

The output on the screen:

Enter the percentage:

If you enter the percentage 35

fail will be outputted on the screen.

### Program 6.1

C++ program to calculate the discounted price and the total price after discount

Given:

If purchase value is greater than 1000, 10% discount

If purchase value is greater than 5000, 20% discount

If purchase value is greater than 10000, 30% discount

(a) discounted price

```

#include<iostream>
using namespace std;
main()
{
int PV, dis;
cout<<"Enter purchased value:";
cin>>PV;
if(PV<1000)
{
cout<<"dis= " << PV* 0.1;
}
if(PV>5000)
{
cout<<"dis= " << PV* 0.2;
}
if(PV<10000)
{
cout<<"dis= " << PV* 0.3;
}
}

```

The output on the screen:

Enter purchased value:

If you enter the purchased value 6500

dis = 1300 will be outputted on the screen.

If the condition ( $PV < 1000$ ) is true i.e., purchased value is less than 1000, then the statement

```
{  
cout<<"dis= "<< PV* 0.1;  
}
```

make provision to print the output:

$$dis = PV * 10\% = PV * 10 / 100 = PV * 0.1$$

If the condition ( $PV < 5000$ ) is true i.e., purchased value is less than 5000, then the statement

```
{  
cout<<"dis= "<< PV* 0.2;  
}
```

make provision to print the output:

$$dis = PV * 20\% = PV * 20 / 100 = PV * 0.2$$

If the condition ( $PV < 10000$ ) is true i.e., purchased value is less than 10000, then the statement

```
{  
cout<<"dis= "<< PV* 0.3;  
}
```

make provision to print the output:

$$dis = PV * 30\% = PV * 30 / 100 = PV * 0.3$$

(b) total price

```
#include<iostream>  
using namespace std;  
main()  
{  
int PV, total;  
cout<<"Enter purchased value:";  
cin>>PV;  
if(PV<1000)  
{  
cout<<"total= "<<PV - PV* 0.1;  
}  
if(PV>5000)  
{  
cout<<"total = "<< PV- PV* 0.2;  
}  
if(PV<10000)  
{  
cout<<"total= "<< PV- PV* 0.3;  
}
```

The output on the screen:

Enter purchased value:

If you enter the purchased value 650  
total = 585 will be outputted on the screen.

If the condition ( $PV < 1000$ ) is true i.e., purchased value is less than 1000, then the statement

```
{  
cout<<"total= "<<PV - PV* 0.1;  
}
```

make provision to print the output:

$$total = PV - dis = PV - PV * 10\% = PV - PV * 10 / 100 = PV - PV * 0.1$$

If the condition ( $PV < 5000$ ) is true i.e., purchased value is less than 5000, then the statement

```
{  
cout<<"total = "<< PV- PV* 0.2;  
}
```

make provision to print the output:

$$total = PV - dis = PV - PV * 20\% = PV - PV * 20 / 100 = PV - PV * 0.2$$

If the condition ( $PV < 10000$ ) is true i.e., purchased value is less than 10000, then the statement

```
{  
cout<<"total= "<< PV- PV* 0.3;  
}
```

make provision to print the output:

$$total = PV - dis = PV - PV * 30\% = PV - PV * 30 / 100 = PV - PV * 0.3$$

Note: Combing both the programs (above), we can write:

```
#include<iostream>  
using namespace std;  
main()  
{  
int PV, dis, total;  
cout<<"Enter purchased value:";  
cin>>PV;  
if(PV<1000)  
{  
cout<< "dis = "<< PV* 0.1;  
cout<< "total= "<< total - dis;  
}  
if(PV>5000)  
{  
cout<< "dis = "<< PV* 0.2;  
cout<< "total= "<< total - dis;
```

```

}
if(PV<10000)
{
cout<< "dis = " << PV* 0.3;
cout<< "total= " << total - dis;
}
}

```

The output on the screen:

Enter purchased value:

If you enter the purchased value 850

```

dis = 85
total = 765

```

will be outputted on the screen.

“The sooner you start to code, the longer the program will take.”

--Roy Carls

## Program 6.2

C++ program to print the first ten natural numbers using for loop statement

```

#include<iostream>
using namespace std;
main()
{
int i;
for (i=1; i<=10; i++)
cout<<"value of i = " << i;
}

```

The output on the screen is:

```

value of i = 1 value of i = 2 value of i = 3 value of i =
4 value of i= 5 value of i= 6 value of i = 7 value of i=
8 value of i= 9 value of i= 10

```

for (i=1; i<=10; i++) denote the for loop statement and the syntax of the for loop statement is:

for (initialization; condition; increment)

Here:

i=1 denote initialization (i.e., from where to start)

i<=10 denote the condition (i.e., stop when 10 is reached)

i++ imply increment (which tells the value of i to increase by 1 each time the loop is executed) and i++ is the same as i+1.

Since the initialization i.e., i=1

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 1

on the screen.

After this, the following execution takes place:

value of i

i= 1

Is the condition (i<=10) is true?

Yes because i=1

Do this

i= 1+1 = 2

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 2

Now, the value of i is:

i= 2

Is the condition (i<=10) is true?

Yes because i=2

Do this

i= 2+1 = 3

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 3

Now, the value of i is:

i= 3

Is the condition (i<=10) is true?

Yes because i=3

Do this

i= 3+1 = 4

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 4

Now, the value of i is:

i= 4

Is the condition (i<=10) is true?

Yes because i=4

Do this

i= 4+1 = 5

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 5

Now, the value of i is:

i= 5

Is the condition (i<=10) is true?

Yes because i=5

Do this

i= 5+1 = 6

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 6

Now, the value of i is:

i= 6

Is the condition (i<=10) is true?

Yes because i=6

Do this

i= 6+1 = 7

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 7

Now, the value of i is:

i= 7

Is the condition (i<=10) is true?

Yes because i=7

Do this

i= 7+1 = 8

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 8

Now, the value of i is:

i= 8

Is the condition (i<=10) is true?

Yes because i=8

Do this

i= 8+1 = 9

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 9

Now, the value of i is:

i= 9

Is the condition (i<=10) is true?

Yes because i=9

Do this

i= 9+1 = 10

The statement cout<<"value of i = " << i; make provision to print the output:

value of i = 10

stop because the condition i<=10 is achieved.

i.e., If new line \n is introduced i.e., if the statement cout<<"\n value of a = " << a); is written instead of the statement cout<<" value of a = " << a;

i.e.,

```
#include<iostream>
```

```
using namespace std;
```

```
main()
```

```
{
```

```
int a;
```

```
for (a=1; a<=10; a++)
```

```
cout<<"\n value of a = " << a;
```

```
}
```

Then the output on the screen is:

value of a = 1

value of a = 2

value of a = 3

value of a = 4

value of a = 5

value of a = 6

value of a = 7

value of a = 8

value of a = 9

value of a = 10

If the statement cout<<"value of a = \n" << a; is written instead of cout<<"\n value of a = " << a; i.e.,

```
#include<iostream>
```

```
using namespace std;
```

```
main()
```

```
{
```

```
int a;
```

```
for (a=1; a<=10; a++)
```

```
cout<<"value of a = \n" << a;
```

```
}
```

Then the output on the screen is:

1value of a =

2value of a =

3value of a =

4value of a =

5value of a =

6value of a =

7value of a =

8value of a =

9value of a =

10value of a =

If the for loop statement for (i=2; i<=10; i++) is written instead of the statement for(i=1; i<=10; i++), then the output on the screen is:

value of i = 2 value of i = 3 value of i= 4 value of i= 5 value of i= 6 value of i = 7 value of i= 8 value of i = 9 value of i= 10

(because i=2 is initialized in the for loop statement the printing started from value of i = 2 and ended at value of i= 10 because of the condition i<=10)

If the for loop statement for(i=1; i<10; i++) is written instead of the statement for (i=1; i<=10; i++), then the output on the screen is:

value of i = 1 value of i = 2 value of i= 3 value of i= 4 value of i= 5 value of i = 6 value of i= 7 value of i= 8 value of i = 9

(Note: the condition i<=10 tells to print till value of i =10 but the condition i<10 tells to print till value of i =9)

If the statement for(i=1; i=10; i++) is written instead of the statement for (i=1; i<=10; i++), then the output on the screen is:

value of i = 10 ..... (continues).

If the statement cout<<"\n value of i = " << i); is replaced by the statement cout<< " \n" << i);  
i.e.,

```
#include<iostream>
using namespace std;
main()
{
int i;
for (i=1; i<=10; i++)
cout<< " \n"<< i;
}
```

The output on the screen is:

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

C++ program to print first 10 numbers using while loop statement

```
#include<iostream>
using namespace std;
main()
{
int i =1;
while (i<=10)
{
cout<<" \n" << i++;
}
```

The output on the screen is:

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

(i<=10) is the condition and the statements

```
while (i<=10)
{
cout<<" \n" << i++;
}
```

imply that while the condition (i<=10) is to print till 10, print till 10 using the statement

```
{
cout<<" \n" << a++;
}
```

i.e.,

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

---

If the above program is written as follows:

10

```
#include<iostream>
using namespace std;
main()
{
int a;
while (i<=10)
{
cout<<" \n" << i++;
}
```

Then the compilation error will be displayed on the screen because int i is written instead of int i= 1 i.e., initialization of i is not done.

If the statement int i = 1; is replaced by the int i = 0; i.e.,

```
#include<iostream>
using namespace std;
main()
{
int i = 0;
while (i<=10)
{
cout<<" \n" << i++;
}
```

Then the output on the screen is:

```
0
1
2
3
4
5
6
7
8
9
10
```

Similarly if the statement int i = 0; is replaced by the int i = 6;

Then the output on the screen is:

```
6
7
8
9
```

C++ program to print first 10 numbers using do while loop statement

The syntax of while loop statement is:

```
while (this is the condition)
{
execute this statement;
}
```

```
#include<iostream>
using namespace std;
main()
{
int i = 1;
do
{
cout<<" \n i= "<< i++;
} while (i<=10);
}
```

The output on the screen is:

```
i = 1
i = 2
i= 3
i= 4
i= 5
i= 6
i = 7
i= 8
i = 9
i= 10
```

Using the statement

```
do
{
printf(" i= %d\n", i++);
}
```

while the condition (i<=10) is to print till i = 10 ( starting from i = 1 because of the statement int i=1;)

Why LOOP is USED?

If loop is not used then the C ++ program to print first 10 numbers should be written as follows:

```
#include<iostream>
using namespace std;
main()
{
cout<< "\n i = 1";
cout<< "\n i = 2";
cout<< "\n i = 3";
cout<< "\n i = 4";
cout<< "\n i = 5";
cout<< "\n i = 6";
cout<< "\n i = 7";
cout<< "\n i = 8";
cout<< "\n i = 9";
cout<< "\n i = 10";
}
```

It takes pretty long time to write the code and the execution time is pretty long i.e., Because to reduce the time taken to write the code and to reduce the execution time -- loop statement is used.

Write a program to print

When in doubt use brute force  
100 times using for loop statement.

Answer:

```
#include<iostream>
using namespace std;
main()
{
int i;
for(i=0; i<=99; i++)
cout<<"\n When in doubt use brute force";
```

### Program 6.3

C++ program to print the characters from A to Z using for loop, do while loop and while loop statement.

(a) C ++ program to print the characters from A to Z using for loop statement:

```
#include<iostream>
using namespace std;
```

```
main()
{
char a;
for( a='A'; a<='Z'; a++)
cout<< " \n" << a;
}
```

The output on the screen:

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
W  
X  
Y  
Z

char means the data type is character.

The statement

char a; imply that we are creating the character a.

If the statement for( a=A; a<=Z; a++) is written instead of the statement for( a='A'; a<='Z'; a++) i.e., A is used instead of 'A' and Z is used instead of 'Z', then the error will be displayed on the screen.

(b) C ++ program to print the characters from A to Z using while loop statement:

```
#include<iostream>
using namespace std;
main()
{
```

```

char a = 'A';
while (a<='Z')
{
    cout<<" \n" << a++;
}

```

- (c) C ++ program to print the characters from A to Z using do while loop statement:

```

#include<iostream>
using namespace std;
main()
{
    char a = 'A';
    do
    {
        cout<<" \n"<< a++;
    } while (a<='Z');
}

```

#### Program 6.4

C++ program to print the given number is even or odd.

```

#include<iostream>
using namespace std;
main()
{
    int a;
    cout<<"Enter any number:";
    cin>>a;
    if(a%2 == 0)
    {
        cout<<"the number is even";
    }
    else
    {
        cout<<"the number is odd";
    }
}

```

The output on the screen:

Enter any number:

If you enter the number 6

the number is even will be outputted on the screen.

$(a \% 2 == 0)$  is the condition and this condition imply:  
a divided by 2 yields remainder = 0.

For example: if you enter the number 2

Then a = 2

Then 2 divided by 2 yields the remainder = 0

Then the statement

```

{
    cout<<"the number is even";
}

```

make provision to print the output:

the number is even

(Note:(like in C) in C ++ language == implies equal to)

if you enter the number 3

Then a = 3

Then 3 divided by 2 yields the remainder = 1

Then the statement

```

{
    cout<<"the number is odd";
}

```

make provision to print the output:

the number is odd

“Computer science is an empirical discipline. [...] Each new machine that is built is an experiment. Actually constructing the machine poses a question to nature; and we listen for the answer by observing the machine in operation and analyzing it by all analytical and measurement means available. Each new program that is built is an experiment. It poses a question to nature, and its behavior offers clues to an answer.”

--Allen Newell

#### Program 6.5

C++ program to print the remainder of two numbers

```

#include<iostream>
using namespace std;
main()
{
    int a, b, c;
    cout<<"Enter any number:";
    cin>>a;
    cout<<"Enter any number:";
    cin>>b;
    c = a % b;
}

```

```

cout<<"the remainder of a and b = "<<c;
}

The output on the screen:
Enter any number:
If you enter the number 3
Enter any number:
If you enter the number 2
    the remainder of a and b = 1 will be outputted on the
        screen.

Since (a =3 and b =2). Therefore:
3 divided by 2 (i.e., a divided by b) yields the
remainder equal to 1

If the statement cout<<"the remainder of a and b =
"<<c; is replaced by the statement
cout << " the remainder of " <<a << "and" <<b << "="
    "<<c;

i.e.,
#include<iostream>
using namespace std;
main()
{
int a, b, c;
cout<<"Enter any number:";
cin>>a;
cout<<"Enter any number:";
cin>>b;
c = a % b;
cout << " the remainder of " <<a << "and" <<b << "="
    "<<c;
}

The output on the screen:
Enter any number:
If you enter the number 3
Enter any number:
If you enter the number 2
    the remainder of 3 and 2 = 1 will be outputted on the
        screen.

```

### Program 6.6

C++ program to check equivalence of two numbers

```

#include<iostream>
using namespace std;
main()
{

```

```

int x, y;
cout<<"Enter any number:";
cin>>x;
cout<<"Enter any number:";
cin>>y;
if(x-y==0)
{
    cout<<"the two numbers are equivalent";
}
else
{
    cout<< "the number are not equivalent";
}

The output on the screen:
Enter any number:
If you enter the number 2
Enter any number:
If you enter the number 2
    the two numbers are equivalent will be outputted on
        the screen.

Since 2-2 is equal to 0 (i.e., x-y == 0). Therefore: the
statement
{
    cout<<"the two numbers are equivalent";
}
makes provision to print the output:
    two numbers are equivalent
If you enter the numbers 3 and 2
The output on the screen:
    the two numbers are not equivalent
Since 3-2 is not equal to 0 (i.e., x-y!= 0). Therefore:
the statement
{
    cout<<"the two numbers are not equivalent";
}
makes provision to print the output:
    two numbers are not equivalent

```

(Note: (like in C) in C ++ language != implies not equal to)

What is the mistake in the following program:

```

#include<iostream>
using namespace std;
main()
{

```

```

{
int year;
year == 1996;
if(year%4== 0)
cout<< "leap year";
else
cout<<"not a leap year";
}

```

### Program 6.7

C ++ program to print whether the given number is positive or negative

```

#include<iostream>
using namespace std;
main()
{
int a;
a = -35;
if(a>0)
{
cout<<"number is positive";
}
else
{
cout<<" number entered is negative";
}

```

The output on the screen:

number entered is negative

Since a = -35. Therefore:

a is less than 0 i.e.,  $a < 0$  because any negative number is always less than zero.

The statement

```

{
cout<<"number is negative";
}
```

makes provision to print the output:

number entered is negative

### Program 6.8

C++ program to print the sum of the first10 numbers using for loop statement

```

#include<iostream>
using namespace std;
main()
{
int i, sum = 0;
for( i=1; i<=10; i++)
sum = sum + i;
cout<<"sum of the first10 numbers = " << sum;
}

```

The output on the screen:

55

i.e.,  $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55$

**How the sum of the first 10 numbers = 55 is outputted on the screen through the for Loop statement**

value of i

i=1 (sum = 0 because the sum is initialized to 0 in the statement int i, sum = 0;)

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 0 + 1 = 1

value of i

i=2 (now the sum = 1)

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 1 + 2 = 3

value of i

i=3 (now the sum = 3)

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 3 + 3 = 6

value of i

i=4 (now the sum = 6)

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 6 + 4 = 10

value of i

i=5 (now the sum = 10)

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 10 + 5 = 15

value of i

i=6 (now the sum = 15)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 15 + 6 = 21$$

value of i

i=7 (now the sum = 21)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 21 + 7 = 28$$

value of i

i=8 (now the sum = 28)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 28 + 8 = 36$$

value of i

i=9 (now the sum = 36)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 36 + 9 = 45$$

value of i

i=10 (now the sum = 45)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 45 + 10 = 55$$

stops because the condition is  $i \leq 10$

The cout statement i.e., cout<<"sum of the first10 numbers = " << sum; make provision to display the output:

$$\text{sum of the first10 numbers} = 55$$

on the screen.

If the statement int i, sum = 0; is replaced by int i, sum = 1;

Then

value of i

i=1 (sum = 1 because the sum is initialized to 1 in the statement int i, sum = 1;)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 1 + 1 = 2$$

value of i

i=2 (now the sum = 2)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 2 + 2 = 4$$

value of i

i=3 (now the sum = 4)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 4 + 3 = 7$$

value of i

i=4 (now the sum = 7)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 7 + 4 = 11$$

value of i

i=5 (now the sum = 11)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 11 + 5 = 16$$

value of i

i=6 (now the sum = 16)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 16 + 6 = 22$$

value of i

i=7 (now the sum = 22)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 22 + 7 = 29$$

value of i

i=8 (now the sum = 29)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 29 + 8 = 37$$

value of i

i=9 (now the sum = 37)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 37 + 9 = 46$$

value of i

i=10 (now the sum = 46)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 46 + 10 = 56$$

stops because the condition is  $i \leq 10$

The cout statement i.e., cout<<"sum of the first10 numbers = " << sum; make provision to display the output:

$$\text{sum of the first10 numbers} = 56$$

on the screen.

(wrong result because the sum of the first 10 numbers is 55)

What will be the output if the for loop statement for(*i* = 1; *i* <= 10; *i*++) is replaced by the statement for(*i* = 0; *i* < 10; *i*++)?

Answer: ?

If the statement int *i*, sum, sum = 0; is written instead of int *i*, sum = 0;

Then the compilation error message will be displayed on the screen (stating that sum is twice declared).

If the for loop statement is ended with a semicolon i.e.,

```
for(i=1; i<=10; i++);
```

then the compilation error will be displayed on the screen.

Note: (like in C language) in C++:

sum = sum + *a*; is the same as sum += *a*;

sub = sub - *a*; is the same as sub -= *a*;

product = product \* *a*; is the same as product \*= *a*;

div = div / *a*; is the same as div /= *a*;

*a* = *a* % *b*; is the same as *a* %= *b*;

C++ program to print the average of the first 10 numbers using for loop

```
#include<iostream>
using namespace std;
main()
{
int a, avg, sum = 0;
for( i=1; i<=10; i++)
sum = sum + i;
avg = sum/10;
cout<<"sum of the first 10 numbers = " << sum;
cout<<"average of the first10 numbers = " << avg;
}
```

The output on the screen:

sum of the first10 numbers = 55

average of the first 10 numbers = 5

The average of the first10 numbers = 55/10 = 5.5 not 5. The output on the screen:

average of the first 10 numbers = 5  
because int is used instead of float.

If the data type float is used i.e.,

```
#include<iostream>
using namespace std;
main()
{
float a, avg, sum = 0;
for( i=1; i<=10; i++)
sum = sum + i;
avg = sum/10;
cout<<"sum of the first 10 numbers = " << sum;
cout<<"average of the first10 numbers = " << avg;
}
```

The output on the screen:

sum of the first10 numbers = 55

average of the first numbers = 5.5

## Program 6.9

C ++ program to print the product of the first 10 digits

```
#include<iostream>
using namespace std;
main()
{
int i, product = 1;
for( i=1; i<=10; i++)
product = product * i;
cout<<"the product of the first 10 digits = " <<
product;
}
```

The output on the screen:

3628800

i.e., 1 \* 2 \* 3 \* 4 \* 5 \* 6 \* 7 \* 8 \* 9 \* 10 = 3628800

Note:

Even though if *i* ++ is replaced by ++ *i* in the for loop statement i.e., if the for loop statement

for (*i*=1; *i*<=10; *i*++)

is replaced by the statement

for (*i*=1; *i*<=10; ++ *i*)

There will be no change in the output on the screen (as observed while compiling in online compilers like

Coding ground (Tutorials point) and if the statement  
for( i=1; i<=10; i++); is written instead of the  
statement

for (i=1; i<=10; i++)

Then the Error will be flagged on the screen because  
for loop statement is ended by a semicolon (;).

### How the product of the first 10 digits = 3628800 is outputted on the screen through the for Loop statement

value of i

i=1 (product = 1 because the product is initialized to 1  
in the statement int i, product = 1;)

Is i<=10 true?

Yes, do this

product = product \* i = 1 \* 1 = 1

value of i

i=2 (now the product = 1)

Is i<=10 true?

Yes, do this

product = product \* i = 1 \* 2 = 2

value of i

i=3 (now the product = 2)

Is i<=10 true?

Yes, do this

product = product \* i = 2 \* 3 = 6

value of i

i=4 (now the product = 6)

Is i<=10 true?

Yes, do this

product = product \* i = 6 \* 4 = 24

value of i

i=5 (now the product = 24)

Is i<=10 true?

Yes, do this

product = product \* i = 24 \* 5 = 120

value of i

i=6 (now the product = 120)

Is i<=10 true?

Yes, do this

product = product \* i = 120 \* 6 = 720

value of i

i=7 (now the product = 720)

Is i<=10 true?

Yes, do this

product = product \* i = 720 \* 7 = 5040

value of i

i=8 (now the product = 5040)

Is i<=10 true?

Yes, do this

product = product \* i = 5040 \* 8 = 40320

value of i

i=9 (now the product = 40320)

Is i<=10 true?

Yes, do this

product = product \* i = 40320 \* 9 = 362880

value of i

i=10 (now the product = 362880)

Is i<=10 true?

Yes, do this

product = product \* i = 362880 \* 10 = 3628800

stops because the condition is i<=10

The cout statement i.e., cout<< "the product of the  
first 10 digits = " << product; make provision to  
display the output:

the product of the first 10 digits = 3628800  
on the screen.

If the statement int a, product = 1; is replaced by int a,  
product = 0;

Then

value of i

i=1 (product = 0 because the product is initialized to 0  
in the statement int i, product = 0;)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 1 = 0

value of i

i=2 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 2 = 0

value of i

i=3 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 3 = 0

value of i

i=4 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 4 = 0  
value of i

i=5 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 5 = 0

value of i

i=6 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 6 = 0

value of i

i=7 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 7 = 0

value of i

i=8 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 8 = 0

value of i

i=9 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 9 = 0

value of i

i=10 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 10 = 0

stops because the condition is i<=10

The cout statement i.e., cout<< "the product of the first 10 digits = " << product; make provision to display the output:

the product of the first 10 digits = 0

on the screen.

(wrong result because the product of the first 10 digits is 3628800)

If the statement for(a=1; a<=10; a++) is replaced by for(a=5; a<=10; a++)

Then

value of i

i=5 (product = 1 because the product is initialized to 1 in the statement int i, product = 1;)

Is i<=8 true?

Yes, do this

product = product \* i = 5 \* 1 = 5

value of i

i=6 (now the product = 5)

Is i<=8 true?

Yes, do this

product = product \* i = 5 \* 6 = 30

value of i

i=7 (now the product = 30)

Is i<=8 true?

Yes, do this

product = product \* i = 30 \* 7 = 210

value of i

i=8 (now the product = 210)

Is i<=8 true?

Yes, do this

product = product \* i = 210 \* 8 = 1680

stops because the condition i<=8 is achieved and the statement

cout<< "the product of the first 10 digits = " <<  
product;

make provision to display the output:

the product of the first 10 digits = 1680  
on the screen.

Note: If the statement int a, product, product = 1; is written instead of int a, product = 1; Then the error is displayed on the screen (i.e., product is twice declared).

## Program 7.0

C++ Program to print the table of a number

```
#include<iostream>
using namespace std;
main()
{
int n, i;
cout<<"Enter any number:";
cin>>n;
for( i=1; i<=5; i++)
cout<< n << " * " << i << " = " << n*i;
}
```

The output on the screen:

Enter any number:

If you enter the number 2 (i.e., n=2)

$2 * 1 = 2$   $2 * 2 = 4$   $2 * 3 = 6$   $2 * 4 = 8$   $2 * 5 = 10$  will be outputted on the screen.

And  $2 * 1 = 2$   $2 * 2 = 4$   $2 * 3 = 6$   $2 * 4 = 8$   $2 * 5 = 10$  Ends because the condition is  $a \leq 5$ .

If the statement `cout << n << " * " << i << " = " << n*i;` is replaced by the statement

```
cout << n << " * " << i << " = " << n*i << endl;  
i.e.,  
#include<iostream>  
using namespace std;  
main()  
{  
int n, i;  
cout << "Enter any number:";  
cin >> n;  
for( i=1; i<=5; i++)  
cout << n << " * " << i << " = " << n*i << endl;  
}
```

Then the output on the screen:

```
2 * 1 = 2  
2 * 2 = 4  
2 * 3 = 6  
2 * 4 = 8  
2 * 5 = 10
```

If \* is replaced by +

```
i.e.,  
#include<iostream>  
using namespace std;  
main()  
{  
int n, i;  
cout << "Enter any number:";  
cin >> n;  
for( i=1; i<=5; i++)  
cout << n << " + " << i << " = " << n + i << endl;  
}
```

The output on the screen:

Enter any number:

If you enter the number 3 (i.e., n=3)

```
3 + 1 = 4  
3 + 2 = 5  
3 + 3 = 6  
3 + 4 = 7  
3 + 5 = 8
```

will be outputted on the screen.

### Program 7.1

C++ program:

If you enter a character M  
Output must be: ch = M

```
#include<iostream>  
using namespace std;  
main()  
{  
char M;  
cout << "Enter any character:";  
cin >> M;  
cout << "ch= " << M;  
}
```

The output on the screen:

Enter any character:  
If you enter the character S

ch = S will be outputted on the screen.

If we replace the statement `cin >> M;` by the statement  
`M = getchar();`

```
i.e.,  
#include<iostream>  
using namespace std;  
main()  
{  
char M;  
cout << "Enter any character:";  
M = getchar();  
cout << "ch= " << M;  
}
```

There will be no change in the output on the screen  
i.e., The output on the screen is:

Enter any character:

If you enter the character K

ch = K will be outputted on the screen.

If we replace the statement `cout << "ch= " << M;` by the statement `putchar (M);` i.e.,

```
#include<iostream>  
using namespace std;  
main()  
{
```

```

char M;
cout<<"Enter any character:";
cin>>M;
putchar (M);
}

```

There will be no change in the output on the screen i.e., The output on the screen is:

Enter any character:

If you enter the character M

M will be outputted on the screen.

If we replace the statement `cin>>M;` by the statement

```
M = getchar();
```

and the statement `cout<<"ch= "<< M;` by the statement `putchar (M);` i.e.,

```

#include<iostream>
using namespace std;
main()
{
char M;
cout<<"Enter any character:";
M = getchar();
putchar (M);
}

```

The output on the screen:

Enter any character:

If you enter the character S

S will be outputted on the screen.

Write a program to print the absolute value of a number

Answer:

```

#include<iostream>
#include<cmath>
using namespace std;
main()
{
int a, b;
a= - 2;
b= abs(a);
cout<<" absolute value of a = " << b<< endl;
}

```

The output on the screen:

absolute value of a = 2

### Program 7.2

C ++ program to print the first 5 numbers starting from one together with their squares

```

#include<iostream>
using namespace std;
main()
{
int i;
for( i=1; i<=5; i++)
cout<<"\n number = "<< i << "its square = "<< i*i;
}

```

The output on the screen:

```

number=1 its square=1
number=2 its square=4
number=3 its square=9
number=4 its square=16
number=5 its square=25

```

### How the execution takes its way through the for loop statement

value of i

i=1

Is `i<=5` true?

Yes, print this

number=1 its square=1

using the statement `cout<<"\n number = "<< i << "its square = "<< i*i;`

value of i

i=2

Is `i<=5` true?

Yes, print this

number=2 its square=4

using the statement `cout<<"\n number = "<< i << "its square = "<< i*i;`

value of i

i=3

Is `i<=5` true?

Yes, print this

number=3 its square=9

using the statement cout<<"\n number = "<< i << "its square = "<< i\*i;

value of i

i=4

Is i<=5 true?

Yes, print this

number=4 its square=16

using the statement cout<<"\n number = "<< i << "its square = "<< i\*i;

value of i

i=5

Is i<=5 true?

Yes, print this

number=5 its square=25

using the statement cout<<"\n number = "<< i << "its square = "<< i\*i;

value of i

i=6

Is i<=5 true?

No, stop Now

Note:

If the statement cout<<"\n number = "<< i << "its square = "<< i\*i; is replaced by the statement

cout<<"\n number = " << i << "\t its square = "<< i\*i;

i.e.,

```
#include<iostream>
using namespace std;
main()
{
int i;
for( i=1; i<=10; i++)
cout<<"\n number = " << i << "\t its square = "<< i*i;
```

Then the output on the screen is:

```
number=1    its square=1
number=2    its square=4
number=3    its square=9
number=4    its square=16
number=5    its square=25
```

tab /t is included because to leave space between

number=1 and its square=1

Suppose cout<<"\n number = " << i << "\t its square = "<< i\*i; is replaced by the statement  
cout<<"\n number = " << i << "\n its square = "<< i\*i;

Then the output on the screen is:

```
number=1
its square=1
number=2
its square=4
number=3
its square=9
number=4
its square=16
number=5
its square=25
```

Write a program to print the first 20 numbers starting from one together with their squares and cubes?

Answer:

```
#include<iostream>
using namespace std;
main()
{
int i;
for( i=1; i<=20; i++)
cout<<"number = " << i << " its square = "<< i*i <<
" its cube = "<< i*i*i<< endl;
```

What is the mistake in the following program:

```
#include<iostream>
using namespace std;
main()
{
int i=1;
for( i=0; i<=25; i++)
cout<<"\n number = " << i << " its square = "<< i*i;
```

---

### Program 7.3

C ++ program to print the sum of two numbers using pointers

If we create a integer variable x by declaring the statement int x; within the body of the main function main() -- this variable is stored in the computer memory i.e., this variable occupies a specific location in the space of computer memory. And this integer variable x is assigned an address (i.e., &x) to locate its position in the computer memory (like a house in the street is assigned an address to locate its position in the street). Pointers are the variables that represent the address of x in the computer memory i.e., p = &x, where &x imply the address of x in the computer memory and p is the pointer variable (which is the variable that represent the address of x in the computer memory). And further if you assign a value to the variable x by declaring the statement x=1; within the body of the main function—this value is stored in the address of x in the computer memory. “\*” denote pointer operator and \*p denote the pointer (which represent the value stored in the address of x in the computer memory).

C ++ program to print the address of x and the value assigned to x

```
#include<iostream>
using namespace std;
main()
{
int x, *p;
cout<<"Enter any integer:";
cin>>x;
p = &x;
cout<<"The address of the variable x = " << p;
cout<<"The value of the variable x = " << *p;
}
```

The output on the screen:

Enter any integer:

If you enter the integer 1

The address of the variable x = 0x7fffc60478a4

The value of the variable x = 1

will be outputted on the screen.

The value of the variable x = 1 because you have assigned the value 1 to the variable x by entering 1 through the keyboard.

If the statements

```
cout<<"The address of the variable x = "<< p;
cout<<"The value of the variable x = "<< *p;
```

are replaced by the statement

```
cout<<"The address of the variable x = " << p << "its
value = " << *p;
```

i.e.,

```
#include<iostream>
```

```
using namespace std;
```

```
main()
```

```
{
```

```
int x, *p;
```

```
cout<<"Enter any integer:";
```

```
cin >> x;
```

```
p = &x;
```

```
cout<< "The address of the variable x = " << p << "its
value = " << *p;
```

```
}
```

Then the output on the screen is:

The address of the variable x = 0x7fff78508cc4 its  
value = 2

```
#include<iostream>
```

```
using namespace std;
```

```
main()
```

```
{
```

```
int x, y, *p, *q, sum;
```

```
cout<<"Enter any number:";
```

```
cin >> x;
```

```
cout<< "Enter any number:";
```

```
cin >> y;
```

```
p = &x;
```

```
q = &y;
```

```
sum = *p + *q;
```

```
cout<< "\n sum of entered numbers = " << sum;
```

```
}
```

The output on the screen:

Enter any number:

If you enter the number 4

Enter any number:

If you enter the number 3

sum of entered numbers = 7 will be outputted on the screen.

Since  $*p$  imply the value assigned to the variable  $x$  (i.e., 4) by entering 4 through the keyboard and  $*q$  imply the value assigned to the variable  $y$  (i.e., 3) by entering 3 through the keyboard. Therefore:

$$\text{sum} = *p + *q = 4 + 3 = 7 \text{ (which is outputted on the screen).}$$

“As soon as we started programming, we found to our surprise that it wasn't as easy to get programs right as we had thought. Debugging had to be discovered. I can remember the exact instant when I realized that a large part of my life from then on was going to be spent in finding mistakes in my own programmes.”

- Maurice Wilkes discovers debugging, 1949.

C++ program to print the product, subtraction and division of two numbers using pointers

```
#include<iostream>
using namespace std;
main()
{
int x, y, *p, *q, product, subtract, div;
cout<<"Enter any number:";
cin>>x;
cout<<"Enter any number:";
cin>>y;
p = &x;
q = &y;
product = *p * *q;
subtract = *p - *q;
div= *p / *q;
cout<<"\n product of entered numbers = "<< product;
cout<<"\n subtract of entered numbers = "<< subtract;
cout<<"\n division of entered numbers = "<< div;
}
```

The output on the screen:  
Enter any number:  
If you enter the number 4  
Enter any number:  
If you enter the number 2  
product of entered numbers = 8  
subtract of entered numbers = 2  
division of entered numbers = 2  
will be outputted on the screen.

C++ program to find the greatest of two numbers using pointers

```
#include<iostream>
using namespace std;
main()
{
int x, y, *p, *q;
cout<<"Enter any integer:";
cin>>x;
cout<<"Enter any integer:";
cin>>y;
p = &x;
q = &y;
if(*p>*q)
{
cout<<"x is greater than y";
}
if(*q>*p)
{
cout<<"y is greater than x";
}
}
```

The output on the screen:  
Enter any integer:  
If you enter the integer 10  
Enter any integer:  
If you enter the integer 16  
y is greater than x will be outputted on the screen.

#### Program 7.4

```
#include <iostream>
using namespace std;
int add (int x, int y)
{
return x + y;
}
main()
{
int x, y;
cout<<"Enter any integer:";
cin>>x;
cout<<"Enter any integer:";
cin>>y;
```

```

result = add (x, y);
cout<<"sum of two integers = "<< result;
}

The output on the screen:
Enter any integer:
If you enter the integer 30
Enter any integer:
If you enter the integer 5
    sum of two integers = 35 will be outputted on the
        screen.

```

Note: No function declaration is required in C++ i.e., the statement int add (int x, int y); is not required (without the statement int add (int x, int y); the program will be successfully executed and the result will be outputted on the screen)

int add (int x, int y) imply the function to add two integers x and y and

```

{
return x + y;
} imply the body of function int add (int x, int y)

```

main() imply main function and

```

{
} imply the body of main function in which the
program statements:
int x, y;
cout<<"Enter any integer:";
cin>>x;
cout<<"Enter any integer:";
cin>>y;
result = add (x, y);
cout<<"sum of two integers = "<< result;
are written.

```

The statement int x, y; imply that we creating the integer variables x and y.

The statements

```

cout<< "Enter any integer: ";
cin>>x;
cout<< "Enter any integer: ";
cin>>y;

```

make provision to supply the values for x and y through the keyboard.

The statement result = add (x, y); imply function call (i.e., we are calling the function int add (int x, int y) to add the entered values (i.e., 30 and 5) and return the

result (i.e., 35) to the statement cout<<"sum of two numbers= "<< result; to make provision to display the output of the sum of two entered integers as 35 on the screen.

If the statement int add (int x, int y); is written instead of int add (int x, int y)

```

#include <iostream>
using namespace std;
int add (int x, int y);
{
return x + y;
}
main()
{
int x, y;
cout<<"Enter any integer:";
cin>>x;
cout<<"Enter any integer:";
cin>>y;
result = add (x, y);
cout<<"sum of two integers = "<< result;
}

```

Then the error is displayed on the screen.

If the statement int add (intx, inty); is written instead of int add (int x, int y); i.e., no space is left between int and x (and int and y)

Then the compilation error is displayed on the screen.

If the above program is rearranged:  
i.e., the program

```

#include <iostream>
using namespace std;
main()
{
int x, y;
cout<<"Enter any integer:";
cin>>x;
cout<<"Enter any integer:";
cin>>y;
cout<<"Enter any integer:";
cin>>y;
result = add (x, y);
cout<<"sum of two numbers= "<< result;
}
int add (int x, int y)
{

```

```
return x + y;  
}  
is written instead of
```

```
#include <iostream>  
using namespace std;  
int add (int x, int y)  
{  
    return x + y;  
}  
main()  
{  
    int x, y;  
    cout<<"Enter any integer:";  
    cin>>x;  
    cout<<"Enter any integer:";  
    cin>>y;  
    result = add (x, y);  
    cout<<"sum of two numbers= "<< result;  
}  
i.e., if the body of main function is written first and  
the body of the function int add (int x, int y) is written  
next
```

Then the compilation error is displayed on the screen.

C ++ program to print the product of two numbers  
using functions

```
#include <iostream>  
using namespace std;  
int mult (int x, int y)  
{  
    return x * y;  
}  
main()  
{  
    int x, y;  
    cout<<"Enter any two numbers:";  
    cin>>x;  
    cin>>y;  
    result = mult (x, y);  
    cout<<"product of two numbers= " << result;  
}
```

The output on the screen:

Enter any two numbers:

If you enter the two numbers 3 and 50

product of two numbers = 150 will be outputted on the  
screen.

C ++ program to print the greatest of two numbers  
using functions

```
#include <iostream>  
using namespace std;  
int max (int x, int y)  
{  
    if(x>y)  
        return x;  
    if(y>x)  
        return y;  
}  
main()  
{  
    int x, y;  
    cout<<"Enter any integer: ";  
    cin>>x;  
    cout<<"Enter any integer: ";  
    cin>>y;  
    result = max (x, y);  
    cout<<"largest of two integers = " << result;  
}
```

The output on the screen:

Enter any integer:

If you enter the integer13

Enter any integer:

If you enter the integer 15

largest of two integers = 15 will be outputted on the  
screen.

C++ program to print the greatest of three numbers  
using functions

```
#include <iostream>  
using namespace std;  
int max (int x, int y, int z)  
{  
    if(x>y && x>z)  
        return x;  
    if(y>x && y > z)  
        return y;  
    if(z>x && z>y)  
        return z;
```

```

}

main()
{
int x, y, z;
cout<<"Enter any integer: ";
cin>>x;
cout<<"Enter any integer: ";
cin>>y;
cout<<"Enter any integer: ";
cin>>z;
cout<<"largest of three integers = " << result;
}

The output on the screen:
Enter any integer:
If you enter the integer 3
Enter any integer:
If you enter the integer 5
Enter any integer:
If you enter the integer 10
largest of three integers = 10 will be outputted on the
screen.

```

C++ program to print the square of the number using functions

```

#include <iostream>
using namespace std;
int square (int x)
{
return x*x;
}
main()
{
int x;
cout<<"Enter any integer:";
cin>>x;
result = square (x);
cout<<"square of the number = " << result;
}

The output on the screen is:
Enter any integer:
If you enter an integer 5
square of the number = 25 will be outputted on the
screen.

```

Program 7.5

Switch (case) allows to make decision from the number of choices i.e., from the number of cases

For example:

```

#include <iostream>
using namespace std;
main()
{
char ch;
cout<< "Enter any character: ";
cin >> ch;
switch(ch)
{
case 'R':
cout<<"Red";
break;
case 'W':
cout<<"White";
break;
case 'Y':
cout<<"Yellow";
break;
case 'G':
cout<<"Green";
break;
default:
cout<<"Error";
break;
}
}

```

The output on the screen:

Enter any character:

If you enter a character R

Red will be outputted on the screen.

switch(ch) allow to make decision from the number of choices i.e., from the number of cases

```

case 'R':
case 'W':
case 'Y':
case 'G':

```

Since we have entered the character R (which corresponds to case 'R': )

The statement

```
cout<<"Red";
```

make provision to display the output

Red

on the screen.

Suppose you enter a character K

The output on the screen is:

Error

(Entered character K does not correspond to any of the cases

case 'R':

case 'W':

case 'Y':

case 'G':

Therefore the statements

default:

cout<<"Error"; make provision to display the output

Error

on the screen).

If the statements

{

case 'R':

cout<<"Red";

break;

case 'W':

cout<<"White";

break;

case 'Y':

cout<<"Yellow";

break;

case 'G':

cout<<"Green";

break;

default:

cout<<"Error";

break;

} are replaced by the statements

{

case 'R':

cout<<"Red";

case 'W':

cout<<"White";

case 'Y':

cout<<"Yellow";

break;

case 'G':

cout<<"Green";

break;

default:

cout<<"Error";

break;

}

i.e., if the statement break; is not written after the statements

case 'R':

cout<<"Red";

case 'W':

cout<<"White";

Then the output on the screen is:

Red

White

Yellow

i.e., the output is printed till yellow even though you have entered the character R.

## Program 7.6

C ++ program to print the output

Element [0] = 16

Element [1] = 18

Element [2] = 20

Element [3] = 25

Element [4] = 36

using arrays:

```
#include<iostream>
using namespace std;
main()
{
int i;
int num [5] = {16, 18, 20, 25, 36};
for(i=0; i<5; i++)
cout<< "Element [" << i << "] = "<< num[i] << endl;
}
```

The output on the screen:

Element [0] = 16

Element [1] = 18

Element [2] = 20

Element [3] = 25

Element [4] = 36

Ends because of the condition i<5.

The statement `int num [5] = {16, 18, 20, 25, 36};` imply that we are creating an integer array (and the name of array is num) consisting of 5 values (i.e., 16, 18, 20, 25, 36) of the same data type int. And the number of values between the braces {} cannot be larger than the number of values that we declare for the array between square brackets [ ]. Because there are 5 integers i.e., 16, 18, 20, 25, 36 within the braces {}, 5 is written within the square brackets [ ]. If there were 6 integers i.e., 16, 18, 20, 25, 36, 42 within the braces {}, then 6 must be written within the square brackets [ ].

Note: With the declaration `int num [5],` computer creates 5 memory cells with name `num[0], num[1], num[2], num[3], num[4]`. And since

`int num [5] = {16, 18, 20, 25, 36};`  
the values 16, 18, 20, 25, 36 are stored in `num[0], num[1], num[2], num[3], num[4]` respectively.

**An integrated circuit (more often called an IC, microchip, silicon chip, computer chip, or chip) is a piece of specially prepared silicon (or another semiconductor) into which a very complex electronic circuit is etched using photographic techniques.**

### How the execution takes its way through the for loop statement

value of i

i=0

Is `i<5` true?

Yes, print this

`Element [0] = 16`

using the statement

```
cout<< "Element [" << i << "] = " << num[i] <<
endl;
```

value of i

i=1

Is `i<5` true?

Yes, print this

`Element [1] = 18`

using the statement

```
cout<< "Element [" << i << "] = " << num[i] <<
endl;
```

value of i

i=2

Is `i<5` true?

Yes, print this

`Element [2] = 20`

using the statement

```
cout<< "Element [" << i << "] = " << num[i] <<
endl;
```

value of i

i=3

Is `i<5` true?

Yes, print this

`Element [3] = 25`

using the statement

```
cout<< "Element [" << i << "] = " << num[i] <<
endl;
```

value of i

i=4

Is `i<5` true?

Yes, print this

`Element [4] = 36`

using the statement

```
cout<< "Element [" << i << "] = " << num[i] <<
endl;
```

Stop because the condition is `i<5`.

If `i<=5` i.e., if the for loop statement was

```
for(i=0; i<=5; i++)
```

Then the output on the screen is:

`Element [0] = 16`

`Element [1] = 18`

`Element [2] = 20`

`Element [3] = 25`

`Element [4] = 36`

`Element [5] = 82`

82 is the number stored in the memory i.e., any number stored in the memory will be displayed.

If the statement `int num [5] = {16, 18, 20, 25, 36};` is replaced by the statement

```
int num [i] = {16, 18, 20, 25, 36};
```

Then the compilation will be displayed on the screen because there are 5 elements within the braces {} not i elements.

Suppose the statement `cout<< "Element [" <<i<<" ] = "<< num[i]<< endl;` is replaced by the statement  
`cout<< "Element [" <<i<<" ] = "<< num[0]<< endl;`

Then the output on the screen:

```
Element [0] = 16
Element [1] = 16
Element [2] = 16
Element [3] = 16
Element [4] = 16
```

Suppose the statement `cout<< "Element [" << i <<" ] = "<< num[i]<< endl;` is replaced by the statement  
`cout<< "Element [" << i <<" ] = "<< num[1]<< endl;`

The output on the screen:

```
Element [0] = 18
Element [1] = 18
Element [2] = 18
Element [3] = 18
Element [4] = 18
```

Suppose the statement `cout<< "Element [" <<i<<" ] = "<< num[i]<< endl;` is replaced by the statement  
`cout<< "Element [" <<i<<" ] = "<< num[2]<< endl;`  
i.e., `num[2]` corresponds to the output:

```
Element [0] = 20
Element [1] = 20
Element [2] = 20
Element [3] = 20
Element [4] = 20
```

Suppose the statement `cout<< "Element [" << i <<" ] = "<< num[i]<< endl;` is replaced by the statement  
`cout<< "Element [" << i <<" ] = "<< num[3]<< endl;`  
i.e., `num[3]` corresponds to the output:

```
Element [0] = 25
Element [1] = 25
Element [2] = 25
Element [3] = 25
Element [4] = 25
```

Suppose the statement `cout<< "Element [" <<i<<" ] = "<< num[i]<< endl;` is replaced by the statement  
`cout<< "Element [" << i <<" ] = "<< num[4]<< endl;`  
i.e., `num[4]` corresponds to the output:

```
Element [0] = 36
Element [1] = 36
```

Element [2] = 36
Element [3] = 36
Element [4] = 36

Note:

- (a) C++ program to print the sum of the elements in array.

```
#include<iostream>
using namespace std;
main()
{
int i, sum = 0;
int num [5] = {16, 18, 20, 25, 36};
for(i=0; i<5; i++)
sum = sum + num[i];
cout<<"Sum of the Elements in the array = "<< sum;
}
```

The output on the screen:

Sum of the Elements in the array = 115  
i.e.,  $16 + 18 + 20 + 25 + 36 = 115$

### How the Execution takes its way through the for loop statement

value of i

i=0 (sum = 0 because the sum is initialized to 0 in the statement `int i, sum = 0;`)

Is  $i < 5$  true?

Yes, do this

$sum = sum + num[i] = sum + num[0] = 0 + 16 = 16$

value of i

i=1 (now the sum = 16)

Is  $i < 5$  true?

Yes, do this

$sum = sum + num[i] = sum + num[1] = 16 + 18 = 34$

value of i

i=2 (now the sum = 34)

Is  $i < 5$  true?

Yes, do this

$sum = sum + num[i] = sum + num[2] = 34 + 20 = 54$

value of i

i=3 (now the sum = 54)

Is  $i < 5$  true?

Yes, do this

$$\text{sum} = \text{sum} + \text{num}[i] = \text{sum} + \text{num}[3] = 54 + 25 = 79$$

value of  $i$

$$i=5 \text{ (now the sum} = 79)$$

Is  $i < 5$  true?

Yes, do this

$$\text{sum} = \text{sum} + \text{num}[i] = \text{sum} + \text{num}[5] = 79 + 36 = 115$$

stops because the condition is  $i < 5$

The cout statement i.e., `cout<<"Sum of the Elements in the array = " << sum;` make provision to display the output:

Sum of the Elements in the array = 115  
on the screen.

If the statement

`int i, sum = 0;` is replaced by `int i, sum = 1;`

Then The output on the screen:

Sum of the Elements in the array = 116  
(wrong result because the sum of 5 elements in the array is 115).

(b) C ++ program to print the average of the elements in array

```
#include<iostream>
using namespace std;
main()
{
    int i, avg, sum = 0;
    int num [5] = {16, 18, 20, 25, 36};
    for(i=0; i<5; i++)
        sum = sum + num[i];
    avg = sum/5;
    cout<<"Sum of the Elements in the array = " << sum;
    cout<<"average of the Elements in the array = " <<
    avg;
}
```

The output on the screen:

Sum of the Elements in the array = 115  
average of the elements in the array = 23

What will be the output of the following program:

```
#include<iostream>
```

```
using namespace std;
```

```
main()
```

```
{
```

```
int a, b, c;
```

```
a=5;
```

```
b=7;
```

```
c = a | b;
```

```
cout<< " the value of c = " << c;
```

```
}
```

Answer: 7

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1

Since  $a = 5$

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	1	0	1

Since  $b = 7$

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	1	1	1

| denote bit wise or operator

Whereas || denote logical or operator

$a | b$

0	1	0	1
0	1	1	1
0	1	1	1

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	1	0	1
0	1	1	1
0	1	1	1

$$0 \times 8 + 1 \times 4 + 1 \times 2 + 1 \times 1 = 7$$

$$a \mid b = 7$$

0	1	0	1
0	1	1	1
0	1	0	1

What is the output of the following program:

$$0 \times 8 + 1 \times 4 + 0 \times 2 + 1 \times 1 = 5$$

```
#include<iostream>
using namespace std;
main()
{
int a, b, c;
a=5;
b=7;
c = a & b;
cout<< " the value of c = " << c;
}
```

Answer: 5

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1

Note:

Bitwise OR table

Hint: addition

a	b	a b
0	1	1
1	0	1
1	1	1
0	0	0

Bitwise AND table

Hint: multiplication

Since a = 5

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	1	0	1

a	b	a&b
0	1	0
1	0	0
1	1	1
0	0	0

Since b = 7

XOR table

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1
0	1	1	1

a	b	a $\wedge$ b
0	1	1
1	0	1
1	1	0
0	0	0

& denote bit wise and operator

Whereas && denote logical and operator

a & b

0	1	0	1
0	1	1	1
0	1	1	1

$2^3$	$2^2$	$2^1$	$2^0$
8	4	2	1

What will be the output of the following C program:

```
#include <stdio.h>
main()
{
int a, b, c;
a=2;
b=3;
c= ~ (a ^ b);
printf("value of c = %d", c);
```

}

Hello World

Answer: ?

Hello World

Note:

$\sim$  denote bit wise negation operator

Negation truth table

a	b	$a \wedge b$	$\sim(a \wedge b)$
0	1	1	0
0	0	1	0
1	1	0	1
0	1	0	1

Negation of  $a \wedge b$  means inverse of  $a \wedge b$  i.e., if the value of  $a \wedge b$  is 1 then the negation of  $a \wedge b$  (i.e.,  $\sim(a \wedge b)$ ) is 0 and if the value of  $a \wedge b$  is 0 then the negation of  $a \wedge b$  (i.e.,  $\sim(a \wedge b)$ ) is 1.

What is the mistake in the following programs:

```
#include<iostream>
using namespace std;
main()
{
int a, b, c;
a=8;
b=7;
c = a || b;
cout<< " the value of c = " << c;
}
```

```
#include <iostream>
using namespace std;
int main()
{
    cout << "\n Hello World" << endl;
    cout << "\n Hello World" << endl;
    cout << "\n Hello World" << endl;
    return 0;
}
```

Note: there is no mistake in the second program-- the output of the second program is:

Hello World

### Program 7.7

C++ program to print the output:

Name of the book = B

Price of the book = 135.00

Number of pages = 300

Edition = 8

using structures

```
#include<iostream>
using namespace std;
main()
{
struct book {
    char name;
    float price;
    int pages;
    int edition;
};

struct book b1= {'B', 135.00, 300, 8};
cout<<"Name of the book = "<< b1.name<< endl;
cout<<"Price of the book = "<< b1.price<< endl;
cout<<"Number of pages = "<< b1.pages<< endl;
cout<<"Edition of the book = "<< b1.edition<< endl;
}
```

The output on the screen:

Name of the book = B

Price of the book = 135.00

Number of pages = 300

Edition of the book = 8

The statement

struct book {

```
char name;
float price;
int pages;
int edition;
```

; imply the structure definition i.e., we are defining a structure (and the data type name of the structure is book) and it consists of elements: name (which is of data type char), price (which is of data type float),

pages (which is of data type int), edition (which is of data type int) – which are placed within the body of the structure.

The statement

```
struct book b1;
```

imply the structure variable declaration (where b1 denote the structure variable)

Why structure variable b1 is declared or defined?

In order to assign the values to the elements within the body of the structure, each element must be linked with structure variable with dot operator or period operator or member accessibility operator. For example: name is the element which must be linked with structure variable b1 with dot operator to assign a value B to the element “name”.

The cout statement

```
cout<<"Name of the book = "<< b1.name<< endl;
```

make provision to print the output on the screen:

Name of the book = B

on the screen.

Similarly,

The statement

```
cout<<"Price of the book = "<< b1.price<< endl;
```

make provision to print the output:

Price of the book = 135.00

on the screen.

The statement

```
cout<<"Number of pages = "<< b1.pages<< endl;
```

make provision to print the output:

Number of pages = 300

on the screen.

The statement

```
cout<<"Edition of the book = "<< b1.edition<< endl;
```

make provision to print the output:

Edition of the book = 8

on the screen.

What will be output of the following program?

```
#include<iostream>
```

```
using namespace std;
struct book {
    char name;
    float price;
    int pages;
    int edition;
};

main()
{
    struct book b1;
    b1.name = 'C';
    b1.price = 135.00;
    b1.pages = 300;
    b1.edition = 8;
    cout<<"Name of the book = bulgarian "<< b1.name
    << endl;
    cout<<"\n Price of the book = "<< b1.price;
    cout<<"\n Number of pages = "<< b1.pages<< endl;
    cout<< "\n Edition of the book = "<< b1.edition;
}
```

What will be the output of the following program:

```
#include <iostream>
```

```
using namespace std;
main()
{
    int F, m, a;
    m=2;
    a=3;
    F=m*a;
    cout << "force applied to the mass = " << F << "\t
Newton" << endl;
}
```

Answer:

force applied to the mass = 6 Newton

Examine the following program and write the output:

```
#include <iostream>
#include<cmath>
using namespace std;
```

```

main()
{
cout<<"\n E=mc squared Einstein's famous equation
that gave birth to the atom bomb and heralded a new
world of atomic physics" << endl;
cout<<"\n
" << endl;
cout<<"\n E = energy m = mass c = speed of light in
vacuum" << endl;
cout<<"\n As we know c squared is huge so if you
convert a small amount of mass you'll get a
tremendous amount of energy" << endl;
cout<<"\n For example if you convert 1kg of mass
you'll get energy of " << endl;
long int E, m, c;
m=1;
c=300000000;
E=m*c*c;
cout<<"\n << E << " joules " << endl;
cout<<"\n address of Energy E in the computer
memory = " << &E << endl;
cout<<"\n address of Energy m in the computer
memory = " << &m << endl;
cout<<"\n address of Energy c in the computer
memory = " << &c << endl;
int b, z, a;
b = sizeof(E);
z = sizeof(m);
a = sizeof(z);
cout<<"\n space occupied by E in the computer
memory = << b << "bytes" << endl;
cout<<"\n space occupied by m in the computer
memory = << z << "bytes" << endl;
cout<<"\n space occupied by c in the computer
memory = << a << "bytes" << endl;
cout<<"\n Suppose c would have been  $3 \times 10$  to the
power of -8 meter per second then For 1 kg of mass E
=  $9 \times 10$  to the power of -16 joules" << endl;
cout<<"\n hence thousands and thousands of
hydrogen atoms in the sun would have to burn up to
release  $4 \times 10$  to the power of 26 joules of energy per
second in the form of radiation" << endl;
int i;
for(i=0; i<5; i++)
cout<<"\n Therefore sun would have ceased " << endl;
cout<<"to form black hole even before an ooze of
organic molecules would react and built earliest cells
and then advance to a wide variety of one celled

```

organisms and evolve through a highly sophisticated form of life to primitive mammals" << endl;

```

long int v;
v=300000000;
c=300000000;
if (v==c)
cout<<"\n rest mass of the photon is zero because
light travels at the speed of light" << endl;
else
cout<<"\n Albert Einstein's special theory of
relativity has to be rewritten" << endl;
int E1;
E1=2;
if (isalpha(E1))
cout<<"\n Einstein's equation does not hold good" <<
endl;
else
cout<<"\n Einstein's equation holds good because
light has zero rest mass" << endl;
cout<<"\n masses of the individual substances are 16
|t 18 |t 19 |t 20|t 21|t kilograms" << endl;
int j, sum = 0;
int num [5] = {16, 18, 19, 20, 21};
for(j=0; j<5; j++)
sum = sum + num [j];
cout<<"\n sum of the masses of the individual
substances = " << sum << endl;
cout<<"\n sum of the energies of the individual
substances = " << sum * 300000000 * 300000000 <<
endl;
cout<<"\n average energy = " << sum / 5 << endl;
cout<<"\n
" << endl;
cout<<"\n
" << endl;
int p, q, r;
p= 6;
q= 3;
cout<<"\n expected energy = " << p << "multiplied
by ten to the power of minus 16 joules calculated
using Einstein equation" << endl;
cout<<"\n experimental energy = " << q <<
"multiplied by ten to the power of minus 16 joules
calculated using Einstein equation" << endl;
r= q-p;
cout<<"\n difference between experimental energy
and expected energy =" << r << " multiplied by ten to
the power of minus 16 joules" << endl;

```

```

cout<<"\n absolute value of the difference between
experimental energy and expected energy
=" <<abs(r)<<"multiplied by ten to the power of minus
16 joules" << endl;
char k;
char einstein [10] ={'e', 'm', 'c', 's', 'q', 'u', 'a', 'r', 'e', 'd'};
for(k=0; k<10; k++)
cout<<"\n Einstein["<<einstein [k]<<"] = " <<einstein
[k] << endl;
int s;
cout<<"\n Hey! Einstein may not be wrong please
repeat the experiment"<<endl;
for(s=1; s<3; s++)
cout<<"\n          *      ";
cout<<"\n          *****   ";
cout<<"\n          **Albert Einstein**   ";
cout<<"\n          **e= mc squared**   ";
cout<<"\n          *****";
double EP, h, f;
f=2;
h=pow((6.625), -34);
EP= h*f;
cout<<"\n energy calculated using the Planck
equation = " << EP << endl;
if (E== EP)
cout<<"\n hf cannot be equivalent to mc squared"<<
endl;
if (E>EP)
cout<<"\n hf can be equivalent to mc squared"<<
endl;
if (E<EP)
cout<<"\n Einstein and Planck equation cannot be
equalized"<<endl;
cout<<"\n          " <<endl;
cout<<"\n          " <<endl;
cout<<"\n for more details please refer the book
" <<endl;
struct book {
char name;
float price;
int pages;
int edition;
};
struct book b1;
b1.name = 'E';
b1.price = 135.00;
b1.pages = 300;

```

```

b1.edition = 8;
cout<<"\n Name of the book =
"<<b1.name<<"insteian physics" << endl;
cout<<"\n Price of the book = " << b1.price << endl;
cout<< "\n Number of pages = " << b1.pages<< endl;
cout<<"\n Edition of the book = "<<b1.edition<< " th
edition"<< endl;
cout<<"*****\n" ;
cout<<"*****\n" ;
cout<<" According to the Albert Einstein's law of
variation of mass with velocity: \n";
cout<<" M = m0 / sqrt ((1- (u/c) squared) \n ";
cout<<" M = mass of the moving body \t m0 = rest
mass of the body \t u= velocity of the body \t c= speed
of light in vacuum\n ";
{
double M, m0;
long int u, c, b;
m0 = 0.999;
u = 200000000;
c = 300000000;
b = u/c * u /c;
M = m0 / sqrt (1 - b);
cout<<" \n Mass of the moving body = "<< M<<endl;
if (M==m0 || M<m0)
cout<<" \n body is at rest or the body is moving with
nonrelativistic speed"<<endl;
else
cout<<" \n body is moving with relativistic
speed"<<endl;
}
}
```

## IX

### Java

“Without requirements or design, programming is the art of adding bugs to an empty text file. (Louis Srygley)”

JAVA is a high level programming language conceived by James Gosling, Patrick Naughton, Chris Warth, Ed Frank, and Mike Sheridan at Sun Microsystems, Inc. in 1991 to create programs to control consumer electronics (which is now a

subsidiary of Oracle Corporation) and released in 1995, used in internet programming, mobile devices, games, e-business solutions etc., because of its reliability, high performance, simplicity and easy to use and quick to learn and rigid versus extensibility.

Process of Java program execution: A Java program:

```
public class HelloWorld {  
    public static void main(String [] args) {  
        System.out.println("Hello, World!");  
    }  
}
```

} is written in notepad or text pad or java editor is called the source program (Unlike C & C++ language, java is a platform independent language because java program can be written in notepad or text pad or java editor and executed) and this source program is saved as HelloWorld.java (because the class name is public class HelloWorld {}) the source file should be named as HelloWorld.java and sent to the java compiler (i.e., javac compiler) where the source program is compiled (i.e., the program is entirely read and translated into Java byte codes (but not into machine language)). If the javac compiler finds any error during compilation, it provides information about the error to the user. The programmer has to review code and check for the solution. And if there are no errors the translated program (i.e., java byte codes -- a highly optimized set of instructions) is stored in computers main memory as HelloWorld.class and since the java byte codes cannot be trusted to be correct—therefore before execution they are verified and converted to machine level language i.e., machine code sequence of 0's and 1's by Java run-time system, which is called the Java Virtual Machine (JVM) and is executed by a Java interpreter and

Hello, World!

is displayed on the screen.

```
public class HelloWorld imply class and  
{
```

} imply the body of the class (Here: the curly brace '{' imply the beginning of the class and the curly brace '}' imply the end of the class) within which the main method

```
public static void main(String [] args)  
{  
}
```

} is written.

public static void main(String [] args) imply main method (a collection of statements or methods like System.out.println( ) that are grouped together to perform an operation) and

```
{
```

} imply the body of the main method (Here: the curly brace '{' imply the beginning of the main method and the curly brace '}' imply the end of the main method) within which the program statements i.e.,

```
System.out.println("Hello, World!");
```

is written and executed (i.e., main method in java functions like main function main () in C and C++).

If the statement public class HelloWorld is replaced by the statement public class sample i.e., if the above program is rewritten as:

```
public class sample {  
    public static void main(String [] args) {  
        System.out.println("Hello, World!");  
    }  
}
```

Then the error will be displayed on the screen because the program written in notepad or text pad or java editor is saved as HelloWorld.java not as sample.java.

If we want to write the statement public class sample instead of the statement public class HelloWorld, then we have to save the program written in notepad or in java editor as sample.java or but not as HelloWorld.java. As said earlier, like C & C++, Java is not platform dependent because java program can be written in notepad/ text pad or java editor and can be executed (whereas C & C++ program can only be written in C & C++ editor and can be executed). And like C & C++, Java is also a case sensitive language i.e., capital letters (or upper case letters) must be avoided to prevent the display of error on the screen (For example: If the statement PUBLIC static void main(String [] args) is written instead of the statement public static void main(String [] args) or the statement Public class HelloWorld is written instead of public class HelloWorld, compilation Error will be displayed on the screen). And if we forget to end each program statement within the body of main method with a semicolon (;), Error will be displayed on the screen i.e., if we forget to end the statement System.out.println("Hello, World!") with a semicolon (;), Error will be displayed on the screen. After the compilation of the source program, the translated (or the complied) program is stored in the computer's memory as object file and the program is executed. The program begins its execution with the method public static void main (String [] args) (which is called the main method -- the entry point of the program execution). If a program begins its execution with main method, it takes the control of the computer from the operating system. And after the complete

execution of the program, the execution is terminated and the main method returns back the control to the operating system.

Semicolon: program is a set of instructions and each instruction (or each statement) is ended by a semicolon. Like in an English paragraph each sentence is ended by a full stop which tells that one sentence ends and another begins, semicolon implies that one instruction (or statement) ends and another begins.

`System.out.println ("")` → method which displays the statement enclosed by the double quotation marks with the parenthesis of `System.out.println` i.e., displays the output:

Hello, World!

on the screen.

Note: if “ ” is used instead of “ ”, Error will be displayed on the screen

The statement `System.out.println("Hello, World!");` will not display any error on the screen.

The statement `System.out.println("Hello, World!");` will display error on the screen.

Even though the statement `System.out.print("Hello, World!");` is written instead of the statement `System.out.println("Hello, World!");`; i.e., instead of `println` only `print` is used – no compilation error will be displayed on the screen i.e., Hello, World! will be outputted on the screen without display of any compilation error on the screen.

If the word args in the statement `public static void main(String [] args)` is replaced by another word say `jamesgosling` or `java`

i.e., the above program is rewritten as:

```
public class HelloWorld
{
    public static void main(String [] jamesgosling)
    {
        System.out.println("Hello, World!");
    }
}
```

or

```
public class HelloWorld {
    public static void main (String [] java) {
        System.out.println("Hello, World!");
    }
}
```

No compilation error will be displayed on the screen i.e., Hello, World! will be outputted on the screen without display of any error on the screen.

If the statement

```
public static void main(String [] args)
```

or

```
public static void main(String [] jamesgosling)
```

or

```
public static void main(String [] java)
```

is replaced by the statement `public static void main(String [])` – Then the error is displayed on the screen. Because no word is written after `String []` – any word say `args` or `argv` or `java` or `jamesgosling` should be written after `string[]` to prevent the display of error on the screen.

Note: Most Java programmers prefer `args` and `argv` i.e., the statements

```
public static void main(String [] args) and public static
void main(String [] argv) are preferred.
```

If the statement `public static void main (String [] jamesgosling)` is replaced by the statement `public static void main (String [] james gosling)` i.e., space is left between the words `james` and `gosling`. Then the compilation error will be displayed on the screen.

`jamesgosling` → no error.

`james gosling` → error.

Similarly, if the space is left between the words `Hello` and `World` i.e., if the statement `public class Hello World` is written instead of the statement `public class HelloWorld`. Then the compilation error will be displayed on the screen.

Note: All the programs written in java editor is saved as `HelloWorld.java` and executed – hence public class `HelloWorld` corresponds to all programs.

**The IBM Personal Computer, commonly known as the IBM PC, is the original version and progenitor of the IBM PC compatible hardware platform.**

## Program 7.8

Java program to print the word “hello Bill Gates” on screen

```
public class HelloWorld {
    public static void main (String [] args) {
        System.out.println("hello Bill Gates");
    }
}
```

The output on the screen:

hello Bill Gates

### Program 7.9

Java program to print the word “\*\*\*\*hello silicon city\*\*\*\*” on screen

```
public class HelloWorld {  
    public static void main(String [] args) {  
        System.out.println(" ****hello silicon city**** ");  
    }  
}
```

The output on the screen:

\*\*\*\*hello silicon city\*\*\*\*

### Program 8.0

Java program to print

```
*  
*****  
*****  
*****  
*****
```

on screen

```
public class HelloWorld {  
    public static void main(String [] args) {  
        System.out.println("\n    * ");  
        System.out.println("\n    *****");  
        System.out.println("\n    *****");  
        System.out.println("\n    *****");  
        System.out.println("\n    *****");  
    }  
}
```

The output on the screen:

```
*  
*****  
*****  
*****  
*****
```

If new line \n is not included in the above program then the output on the screen is:

\*\*\*\*\*

Write a program to print the following outputs:

(c)

```
*  
****  
**java**  
****  
*
```

(b)

```
*****  
* *  
* Hello World! *  
* *  
*****
```

(c)

Braces come in pairs!  
Comments come in pairs!  
All statements end with a semicolon!  
Spaces are optional!  
Must have a main method!  
java is done mostly in lowercase. Like C & C++ it's  
also a case-sensitive language

Answers:

```
public class HelloWorld {  
    public static void main (String [] args) {  
        System.out.println("\n    * ");  
        System.out.println("\n    *****");  
        System.out.println("\n    *****");  
        System.out.println("\n    *****");  
        System.out.println("\n    * ");  
    }  
}
```

```
public class HelloWorld {  
    public static void main (String [] args) {  
        System.out.println("\n    *****\n");  
        System.out.println("\n            * *\n");  
        System.out.println("\n            * Hello World! *\n");  
        System.out.println("\n            * *\n");  
        System.out.println("\n    *****\n");  
    }  
}
```

```

}
}

public class HelloWorld {
    public static void main (String [] args) {
        System.out.println("\n Braces come in pairs!");
        System.out.println("\n Comments come in pairs!");
        System.out.println("\n All statements end with a
semicolon!");
        System.out.println("\n Spaces are optional!");
        System.out.println("\n Must have a main method!");
        System.out.println("\n java is done mostly in
lowercase. Like C & C++ it's also a case-sensitive
language");
    }
}

```

### Program 8.1

Java program to find the area of the circle

```

public class HelloWorld {
    public static void main (String [] args) {
        int r, area;
        r = 2;
        area = 4 * 3.14 * r * r;
        System.out.println("The area of the circle = " + area);
    }
}

```

The output on the screen:

The area of the circle = 50

int means the integer data type.

Note: An integer is a whole number — no fractions, decimal parts, or funny stuff.

The statement

int r, area; imply that we are creating the integer  
variables r , area.

The statements

```

r = 2;
area = 4 * 3.14 * r * r;

```

imply that we are assigning the values to the created variables (i.e., we are assigning the value 2 for r and  $4 * 3.14 * r * r$  for area).

Comma in the statement int r, area; imply variable separator.

If multiplication sign  $\times$  is used instead of multiplication operator  $*$  i.e.,

$$\text{area} = 4 \times 3.14 \times r \times r;$$

then the compilation error is displayed on the screen.

In C language, the statement

`printf("The area of the circle = %d ", area);`  
make the provision to print the output on the screen.

In C++ language, the statement

`cout << "The area of the circle = " << area;`  
make the provision to print the output on the screen.

whereas in the Java language, the statement

`System.out.println("The area of the circle = " + area);`  
make the provision to print the output on the screen.

In the statement `System.out.println("The area of the circle = " + area);`

There are two strings:

1. The area of the circle =
2. area

plus operator  $(+)$  functions as the concatenation operator (concatenation means connecting two statements to produce a single statement) – which (here) concatenates the string “The area of the circle = ” and the string “area (which is  $4 * 3.14 * r * r (=50$  since  $r = 2)$ )” -- producing a String statement

The area of the circle = 50 which is displayed on the screen as the result.

If the statement `System.out.println("The area of the circle = " area);` is written instead of the statement `System.out.println("The area of the circle = " + area);` i.e., plus sign is omitted. Then the compilation error will be displayed on the screen.

(Like in C and C++)

If the multiplication sign  $\times$  is used instead of multiplication operator  $*$  i.e.,

The statement  $\text{area} = 4 \times 3.14 \times r \times r;$  is written  
instead of  $\text{area} = 4 * 3.14 * r * r$

then the compilation error will be displayed on the screen.

The area of the circle is = 50. 24 (for  $r = 2$ ) but The area of the circle = 50 is displayed on the screen because the data type int is used instead of data type float.

If the data type float is used instead of int i.e., the above program is rewritten as:

```

public class HelloWorld{
    public static void main(String [] args) {
        float r;
    }
}

```

```

r = 2;
area = 4 * 3.14 * r * r;
System.out.println("The area of the circle = " + area);
}
}

```

The output on the screen is:

The area of the circle = 50.24

If you write  $4 * 3.14 * r^2$ ; instead of  $4 * 3.14 * r * r$ ; (where  $r^2 \rightarrow r$  to the power of 2 or r square), then error is displayed on the screen because unlike other high level languages – there is no operator for performing exponentiation operation i.e., (like in C and C++) there is no operator for performing  $r^2$  operation so the statement  $4 * 3.14 * r^2$ ; is invalid.

Even though if we write ARGs instead of args i.e., even though if we express args in capital letter, No error is displayed on the screen.

`public static void main(String [] ARGs)` → no error is displayed on the screen.

Note:

In

```
public class HelloWorld
```

HelloWorld is the name of the file within the source program is saved. public class HelloWorld because the source program is saved in the file named HelloWorld.java.

### Program 8.1

Java program to find the circumference of the circle

```

public class HelloWorld {
public static void main (String [] args) {
float r, circumference;
r = 2;
circumference = 3.14 * r * r;
System.out.println("The circumference of the circle =
" + circumference);
}
}

```

The output on the screen is:

The circumference of the circle = 12.56

What will be the output of the following programs:

```

public class HelloWorld {
public static void main (String [] args) {
int l, b, area;

```

```

l=2;
b=2.5;
area = l*b;
System.out.println("The area of the rectangle = " +
area);
}
}

```

```

public class HelloWorld {
public static void main (String [] args) {
int a, b, c;
a= 3;
b=3;
c=3;
if ((a + b < c) || (b + c < a) || (a==b && b==c))
System.out.println(" the triangle is equilateral");
else
System.out.println(" the triangle is not possible");
}
}

```

What is the mistake in the following program:

```

public class HelloWorld {
public static void main (String [] argv) {
float l, b, area, volume;
l=2;
b=2.5;
h =2.9
area = l*b;
volume = l*b*h;
System.out.println("The volume of the rectangle = " +
area);
}
}

```

“Shut up and code.”

ANONYMOUS - NOTICE ON THE OFFICE WALL  
OF AN INDUSTRIAL SOFTWARE MANAGER,  
1970

### Program 8.2

Java program to convert the temperature in Celsius to Fahrenheit

```
public class HelloWorld{
```

```

public static void main(String [] args){
float C, F;
C=38.5;
F = 9*C/5 +32;
System.out.println("temperature in Fahrenheit= " +F);
}
}

```

The output on the screen:

temperature in Fahrenheit= 101.3

Note:

Program I:

```

public class HelloWorld
{
public static void main(String [] args)
{
int a, b, sum;
a=1;
b=2;
sum = a + b;
System.out.println("the sum of a and b = " + sum);
}
}

```

The output on the screen:

the sum of a and b = 3

If you want to supply the values for a and b through the key board, then we have to include the statements:

```

import java.util.Scanner;
Scanner scan = new Scanner(System.in);
and replace the statements

```

```

a=1;
b=2;

```

by the statements

```

System.out.print("Enter any two Numbers: ");
a = scan.nextInt();
b = scan.nextInt();

```

i.e., the program should be rewritten as:

```

import java.util.Scanner;
public class HelloWorld
{
public static void main(String [] args) {
int a, b, sum;
Scanner scan = new Scanner(System.in);

```

```

System.out.print("Enter any two Numbers: ");
a = scan.nextInt();
b = scan.nextInt();
sum = a + b;
System.out.println("the sum of a and b = " + sum);
}
}

```

The output on the screen:

Enter any two Numbers:

If you enter two numbers 2 and 3

the sum of a and b = 5 will be outputted on the screen

Program II:

```

public class HelloWorld
{
public static void main(String [] args) {
float x;
x = 233;
System.out.println(" square root of a number = " +
Math.sqrt(x));
}
}

```

The output on the screen:

square root of a number = 15.264

If you want to supply the value for x through the key board, then we have to include the statements:

```

import java.util.Scanner;
Scanner scan = new Scanner(System.in);
and replace the statement

```

```

x = 233;

```

by the statements

```

System.out.print("Enter any Number: ");
x = scan.nextFloat();

```

i.e., the program should be rewritten as:

```

import java.util.Scanner;
public class HelloWorld {
public static void main(String [] args) {
int x;
Scanner scan = new Scanner(System.in);
System.out.print("Enter any Number: ");
x = scan.nextFloat();
System.out.println(" square root of a number = " +
Math.sqrt(x));
}
}

```

```

}
}

The output on the screen:
Enter any Number:
If you enter the number 233
    square root of a number = 15.264337522473747 will be
        outputted on the screen.

```

### Program III:

```

public class HelloWorld
{
    public static void main(String [] args) {
        double x;
        x = 233;
        System.out.println(" square root of a number = " +
        Math.sqrt(x));
    }
}

```

The output on the screen:  
 square root of a number = 15.264337522473747

If you want to supply the value for x through the key board, then we have to include the statements:

```

import java.util.Scanner;
Scanner scan = new Scanner(System.in);
and replace the statement

```

x = 233;

by the statements

```

System.out.print("Enter any Number: ");
    x = scan.nextDouble();

```

i.e., the program should be rewritten as:

```

import java.util.Scanner;
public class HelloWorld {
    public static void main(String [] args) {
        double x;
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter any Number: ");
        x = scan.nextDouble();
        System.out.println(" square root of a number = " +
        Math.sqrt(x));
    }
}

```

The output on the screen:  
 Enter any Number:

If you enter the number 233  
 square root of a number = 15.264337522473747 will  
 be outputted on the screen.

### Program IV:

```

public class HelloWorld{
    public static void main(String[] args) {
        char c;
        c = 'A';
        System.out.println("ch= " + c);
    }
}

```

The output on the screen:

ch= A

If you want to supply the value for c through the key board, then we have to include the statements:

```

import java.util.Scanner;
Scanner scan = new Scanner(System.in);
and replace the statement

```

c = 'A';

by the statements

```

System.out.print("Enter a character:");
    c = (char)System.in.read();

```

i.e., the program should be rewritten as:

```

public class HelloWorld {
    public static void main(String[] args) throws
    Exception {
        char c;
        System.out.print("Enter a character:");
        c = (char)System.in.read();
        System.out.println("ch= " + c);
    }
}

```

The output on the screen:

Enter a character:

If you enter the character K

ch= K will be outputted on the screen.

Note: Exception is a problem that arises during the execution of a program. When an exception occurs, program abnormally terminates and disrupts—throws. Exception should be written after the statement `public static void main(String[] args)` so that the exceptions are thrown to the operating system to handle and the

---

program will be successfully executed and the output will be displayed on the screen.

Program V:

```
import java.util.Scanner;
public class HelloWorld {
    public static void main(String [] args) {
        String m;
        Scanner in = new Scanner(System.in);
        System.out.print("Enter the word: ");
        m = in.nextLine();
        System.out.println(" the word you entered = " + m);
    }
}
```

The output on the screen:

Enter the word:

If you enter the word dog

the word you entered = dog will be outputted on the screen.

Note:

If the statement

```
m = scan.nextLine(); is written instead of
m = in.nextLine();
```

Then we have to replace the statement

```
Scanner in = new Scanner(System.in);
```

by the statement

```
Scanner scan = new Scanner(System.in);
```

Otherwise compilation error will be displayed on the screen.

What is the mistake in the following program:

```
public class HelloWorld
{
    static public void main(String args []) {
        float x;
        x = 233;
        System.out.println(" cube root of a number = " +
Math.cbrt(x));
    }
}
```

Answer:

There is no mistake in the above program. The statement `public static void main(String[] args)` can also be written as

```
static public void main(String args [])
```

The output on the screen is:

```
cube root of a number = 6.1534494936636825
```

Program 8.3

Java program to find the product of two numbers.

```
public class HelloWorld{
    public static void main(String [] args) {
        int a, b, product;
        a=1;
        b=2;
        product = a * b;
        System.out.println("the product of a and b = " +
product);
    }
}
```

The output on the screen:

```
the sum of a and b = 2
```

If you want to supply the values for a and b through the key board, then we have to include the statements:

```
import java.util.Scanner;
Scanner scan = new Scanner(System.in);
```

and replace the statements

```
a=1;
b=2;
```

by the statements

```
System.out.print("Enter any two Numbers: ");
a = scan.nextInt();
b = scan.nextInt();
```

i.e., the program should be rewritten as:

```
import java.util.Scanner;
public class HelloWorld{
    public static void main(String [] args) {
        int a, b, product;
        Scanner scan = new Scanner(System.in);
        System.out.print("Enter any two Numbers: ");
        a = scan.nextInt();
        b = scan.nextInt();
        product = a * b;
```

```

System.out.println("the product of a and b = " +
product);
}
}

```

The output on the screen:

Enter any two Numbers:

If you enter two numbers 6 and 3

the product of a and b = 18 will be outputted on the screen

If you want to assign the floating point values for a & b, then the statement int a, b, sum; should be replaced by the statement float a, b, sum;  
and the statements

```

a = scan.nextInt();
b = scan.nextInt();

```

should be replaced by the statements

```

a = scan.nextFloat();
b = scan.nextFloat();

```

i.e., the above program should be rewritten as:

```

import java.util.Scanner;
public class HelloWorld {
public static void main(String [] args) {
float a, b, product;
Scanner scan = new Scanner(System.in);
System.out.print("Enter any two Numbers: ");
a = scan.nextFloat();
b = scan.nextFloat();
product = a * b;
System.out.println("the product of a and b = " +
product);
}
}

```

The output on the screen:

Enter any two Numbers:

If you enter two floating point values 2.9 and 3.6

the product of a and b = 10.44 will be outputted on the screen.

float is used instead of int because a and b are assigned fractional values (i.e., 2.9 and 3.6) if int is used instead of float then the result will not be clearly outputted i.e., instead of 10.44 the computer displays only 10 (as said earlier).

If the statement System.out.println("the product of a and b = " + product); is replaced by the statement

```
System.out.println(a + "* " + b + " = " + product);
```

Then the output on the screen is:

2.9 \* 3.6 = 10.44

Note: The word public in public class HelloWorld implies that the program or the data within the program (such as methods, variables etc.) can be accessed directly by an external java program.

If replace the word public by private i.e., private class HelloWorld is written instead of public class HelloWorld -- then the program or the data within the program (such as methods, variables etc.) cannot be accessed directly by an external program.

If you insert a value  $2^3$  for a and  $3^2$  for b, then as said earlier wrong result or compilation error will be flagged on the screen.

a= $2^3$

b= $3^2$ ; → ERROR

a= $2^2$

b= $3^3$ ; → Result will be outputted on the screen i.e.,  
the product of a and b = 72

If you want to insert a 10 digit number for a and b i.e.,  
a=1000000000

b=3000000000, then the statement

int a, b, product; should be replaced by the statement  
long int a, b, product;

i.e.,

```

public class HelloWorld{
public static void main(String [] args){
long int a, b, product;
a=1000000000;
b=2000000000;
product = a * b;
System.out.println("the product of a and b = " +
product);
}
}

```

The output on the screen:

the product of a and b = 30000000000000000000

“Code doesn't exist until it's checked into source control.”

:JEFF ATWOOD

---

Did you know that

Harvard MBA candidate Dan Bricklin and programmer Bob Frankston developed VisiCalc, the program that turned the personal computer into a business machine.

What will be the output of the following program:

```
public class HelloWorld{  
    static public void main(String args []) {  
        float x;  
        x = 2;  
        System.out.println(" square of a number = " +  
                           Math.pow((x), 2));  
    }  
}
```

Answer:

square of a number = 4

Program 8.4

Java program to find the square of a number

```
public class HelloWorld{  
    public static void main(String [] args){  
        int a, b;  
        a=2;  
        b = a * a;  
        System.out.println("the square of a = " + b);  
    }  
}
```

The output on the screen:

the square of a = 4

If you want to supply the value for a through the key board, then we have to include the statements:

```
import java.util.Scanner;
```

```
Scanner scan = new Scanner(System.in);
```

and replace the statement

a=2;

by the statements

```
System.out.print("Enter any Number: ");  
a = scan.nextInt();
```

i.e., the program should be rewritten as:

```
import java.util.Scanner;  
public class HelloWorld{  
    public static void main(String [] args) {  
        int a, b;  
        Scanner scan = new Scanner(System.in);  
        System.out.println("Enter any Number: ");  
        a = scan.nextInt();  
        b = a * a;  
        System.out.println("the square of a = " + b);  
    }  
}
```

The output on the screen:

Enter any number:

If you enter a number 3

the square of a = 9 will be outputted on the screen.

Note:

If scan.nextInt() is written instead of scan.nextInt()

public static void main(string [] args); is written instead of public static void main(String [] args)

System.out.println(the square of a = + b); is written instead of System.out.println("the square of a = " + b);

Then the compilation error will be displayed on the screen.

Program 8.5

Java program to find the greatest of two numbers using

(a) if - if statement

(b) if - else statement

The syntax of if - if statement is:

```
if (this condition is true)  
{  
    print this statement using the method  
    System.out.println( );  
}  
if (this condition is true)  
{  
    print this statement using the method  
    System.out.println( );  
}
```

(a)

```

public class HelloWorld {
    public static void main(String [] args){
        int a, b;
        a=2;
        b =3;
        if(a>b)
        {
            System.out.println("a is greater than b");
        }
        if(b>a)
        {
            System.out.println("b is greater than a");
        }
    }
}

```

The output on the screen:

b is greater than a

(a>b) and (b>a) are the conditions and if the condition (a> b) is true, then the statement

```

    {
        System.out.println("a is greater than b");
    }

```

make provision to print the output:

a is greater than b

and if the condition (a> b) is not obeyed and the condition (b>a) is true, then the statement

```

    {
        System.out.println("b is greater than a");
    }

```

make provision to print the output:

b is greater than a

(b)

The syntax of if – else statement is:

```

if (this condition is true)
{
print this statement using the method
System.out.println();
}
else
{
print this statement using the method
System.out.println();
}

```

```

public class HelloWorld{
    public static void main(String [] args){
        int a, b;
        a=2;
        b =3;
        if(a>b)
        {
            System.out.println("a is greater than b");
        }
        else
        {
            System.out.println("b is greater than a");
        }
    }
}

```

The output on the screen:

b is greater than a

In the above program:

if the condition (a> b) is true, then the statement

```

    {
        System.out.println("a is greater than b");
    }

```

make provision to print the output:

a is greater than b

else

the statement

```

    {
        System.out.println("b is greater than a");
    }

```

make provision to print the output:

b is greater than a

If you want to supply the values for a and b through the key board, then the above program should be rewritten as:

```

import java.util.Scanner;
public class HelloWorld{
    public static void main(String [] args){
        int a, b;
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter any two Numbers: ");
        a = scan.nextInt();
        b = scan.nextInt();
        if(a>b)

```

```

{
System.out.println("a is greater than b");
}
if(b>a)
{
System.out.println("b is greater than a");
}
}

The output on the screen:  

Enter any two Numbers:  

If you enter two numbers 2 and 3  

    b is greater than a will be outputted on the screen.

```

Note:

Even if the statements

```

System.out.println("a is greater than b");
System.out.println ("b is greater than a");

```

are not written within the braces {}

i.e.,

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args){
int a, b;
Scanner scan = new Scanner(System.in);
System.out.println("Enter any two Numbers: ");
a = scan.nextInt();
b = scan.nextInt();
if(a>b)
System.out.println("a is greater than b");
if(b>a)
System.out.println("b is greater than a");
}
}

```

There will no display of compilation error on the screen or there will be no change in the output displayed on the screen (i.e., b is greater than a will be outputted on the screen).

### Program 8.6

Java program to find the greatest of three numbers using

- (a) if - if - if statement
- (b) if – else if – else statement
- (b) if – else if – else if statement

The syntax of if – if- if statement is:

```

if (this condition is true)
{
print this statement using the method
System.out.println( );
}
if (this condition is true)
{
print this statement using the method
System.out.println( );
}
if (this condition is true)
{
print this statement using the method
System.out.println( );
}

```

(a)

```

public class HelloWorld{
public static void main(String [] args){
int a, b, c;
a=2;
b =3;
c=4;
if(a>b&&a>c)
{
System.out.println("a is greater than b and c");
}
if(b>a&&b>c)
{
System.out.println("b is greater than a and c");
}
if(c>b&&c>a)
{
System.out.println("c is greater than b and a");
}
}
}

```

The output on the screen:

c is greater than b and a  
symbol && imply and i.e., the condition  
(a>b&&a>c) imply  
a is greater than b and a is greater than c

$(a>b \& \& a>c)$ ,  $(b>a \& \& b>c)$  and  $(c>b \& \& c>a)$  are the conditions and if the condition  $(a>b \& \& a>c)$  is true, then the statement

```
{  
    System.out.println("a is greater than b and c");  
}
```

make provision to print the output:

a is greater than b and c

and if the condition  $(a>b \& \& a>c)$  is not true and the condition  $(b>a \& \& b>c)$  is true, then the statement

```
{  
    System.out.println("b is greater than a and c");  
}
```

make provision to print the output:

b is greater than a and c

and if the condition  $(b>a \& \& b>c)$  is not true and the condition  $(c>b \& \& c>a)$  is true, then the statement

```
{  
    System.out.println("c is greater than b and a");  
}
```

make provision to print the output:

c is greater than b and a

If you want to supply the values for a, b and c through the key board, then the above program should be rewritten as:

```
import java.util.Scanner;  
public class HelloWorld{  
public static void main(String [] args) {  
int a, b, c;  
Scanner scan = new Scanner(System.in);  
System.out.println("Enter any three Numbers: ");  
a = scan.nextInt();  
b = scan.nextInt();  
c = scan.nextInt();  
if(a>b && a>c)  
{  
System.out.println("a is greater than b and c");  
}  
if(b>a && b>c)  
{  
System.out.println("b is greater than a and c");  
}  
if(c>b && c>a)  
{
```

```
    System.out.println("c is greater than b and a");  
}  
}  
}
```

The output on the screen:

Enter any three Numbers:

If you enter three numbers 2, 3 and 4

c is greater than b and a will be outputted on the screen.

The syntax of if – else if – else statement is:

```
if (this condition is true)  
{  
print this statement using the method  
System.out.println( );  
}  
else if (this condition is true)  
{  
print this statement using the method  
System.out.println( );  
}  
else  
{  
print this statement using the method  
System.out.println( );  
}
```

(b)

```
public class HelloWorld{  
public static void main(String [] args){  
int a, b, c;  
a=2;  
b =3;  
c=4;  
if(a>b && a>c)  
{  
System.out.println("a is greater than b and c");  
}  
else if(b>a && b>c)  
{  
System.out.println("b is greater than a and c");  
}  
else  
{  
System.out.println("c is greater than b and a");  
}
```

```
}
```

The output on the screen:

c is greater than b and a

The syntax of if – else if – else if statement is:

```
if (this condition is true)
{
print this statement using the method
System.out.println();
}
else if (this condition is true)
{
print this statement using the method
System.out.println();
}
else if (this condition is true)
{
print this statement using the method
System.out.println();
}
```

(c)

```
public class HelloWorld {
public static void main(String [] args){
int a, b, c;
a=2;
b =3;
c=4;
if(a>b&&a>c)
{
System.out.println("a is greater than b and c");
}
else if(b>a&&b>c)
{
System.out.println("b is greater than a and c");
}
else if(c>b&&c>a)
{
System.out.println("c is greater than b and a");
}
}
```

The output on the screen:

c is greater than b and a

Note:

If the statements

```
if(a>b&&a>c)
{
System.out.println("a is greater than b and c");
}
else if(b>a&&b>c)
{
System.out.println("b is greater than a and c");
}
else if(c>b&&c>a)
{
System.out.println("c is greater than b and a");
}
```

are replaced by the statements

```
if(a>b&&a>c)
{
System.out.println(a + "is greater than" + b + "and" +
c);
}
else if(b>a&&b>c)
{
System.out.println(b + "is greater than" + a + "and" +
c);
}
else if(c>b&&c>a)
{
System.out.println(c + "is greater than" + b + "and" +
a);
}
```

Then the output on the screen is:

4 is greater than 3 and 2

Program 8.7

Java program to find the average of 10 numbers

```
import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int N1, N2, N3, N4, N5, N6, N7, N8, N9, N10, X;
Scanner scan = new Scanner(System.in);
System.out.println("Enter any ten Numbers: ");
N1 = scan.nextInt();
```

```

N2 = scan.nextInt();
N3 = scan.nextInt();
N4 = scan.nextInt();
N5 = scan.nextInt();
N6 = scan.nextInt();
N7 = scan.nextInt();
N8 = scan.nextInt();
N9 = scan.nextInt();
N10 = scan.nextInt();
X = (N1 + N2 + N3 + N4 + N5 + N6 + N7 + N8 + N9 + N10) / 10;
System.out.println("the average of 10 numbers = " + X);
}
}

The output on the screen:  

Enter any ten Numbers:  

If you enter ten numbers 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10  

the average of 10 numbers = 5 will be outputted on the  

screen.

```

Note: The average of 10 numbers is 5.5, the output on the screen is 5 because int is used instead of float.

“Time is so short, you can't make a debug...”

: SCOTT ADAMS

### Program 8.8

Java program to find the simple interest

```

public class HelloWorld{
public static void main(String [] args) {
int P,T, R, SI;
P = 1000;
T = 2;
R = 3;
SI = P*T*R/100;
System.out.println("the simple interest = " + SI);
}
}

The output on the screen:  

the simple interest = 60

```

If you want to supply the values for P, T and R through the key board, then the above program should take the form:

```

import java.util.Scanner;
public class HelloWorld {
public static void main(String [] args) {
int P,T, R, SI;
Scanner scan = new Scanner(System.in);
System.out.println("Enter principal amount:");
P = scan.nextInt();
System.out.println("Enter time:");
T = scan.nextInt();
System.out.println("Enter rate of interest:");
R = scan.nextInt();
SI = P*T*R/100;
System.out.println("the simple interest = " + SI);
}
}

```

The output on the screen:

Enter principal amount:  
If you enter the principal amount 1000  
Enter time:  
If you enter the time 2  
Enter rate of interest:  
If you enter the rate of interest 3  
the simple interest = 60 will be outputted on the  
screen.

### Program 8.9

Java program to find the senior citizen

```

public class HelloWorld{
public static void main(String [] args){
int age;
age=20;
if(age>= 60)
{
System.out.println("senior citizen");
}
if(age<60)
{
System.out.println("not a senior citizen");
}
}

```

```
}
```

The output on the screen:

not a senior citizen

(age $\geq$  60) implies age greater than or equal to 60

If you want to supply the value for age through the key board, then the above program should be rewritten as:

```
import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args){
int age;
Scanner scan = new Scanner(System.in);
System.out.println("Enter the age: ");
age = scan.nextInt();
if(age $\geq$  60)
{
System.out.println("senior citizen");
}
if(age<60)
{
System.out.println("not a senior citizen");
}
}
```

The output on the screen:

Enter the age:

If you enter the age 60

senior citizen will be outputted on the screen.

Suppose if you enter the age 28

not a senior citizen will be outputted on the screen.

Note:

If the symbol  $>>$  is used instead of  $>$  and  $<<$  is used instead of  $<$

Then the compilation error will be displayed on the screen.

## Program 9.0

Java program to get marks for 3 subjects and declare the result

If the marks  $\geq 35$  in all the subjects the student passes else fails.

```
public class HelloWorld{
```

```
public static void main(String [] args){
int M1, M2,M3;
M1 = 38;
M2= 45;
M3 = 67;
if(M1 $\geq$  35 && M2 $\geq$  35 && M3 $\geq$  35)
{
System.out.println("candidate is passed");
}
else
{
System.out.println("candidate is failed");
}
}
```

The output on the screen:

candidate is passed

(M<sub>1</sub> $\geq$  35 && M<sub>2</sub> $\geq$  35 && M<sub>3</sub> $\geq$  35) imply M<sub>1</sub> is greater than or equal to 35 and M<sub>2</sub> is greater than or equal to 35 and M<sub>3</sub> is greater than or equal to 35.

$\geq$  imply greater than or equal to.

&& imply and whereas & imply address.

(M<sub>1</sub> $\geq$  35 && M<sub>2</sub> $\geq$  35 && M<sub>3</sub> $\geq$  35) is the condition and if the condition (M<sub>1</sub> $\geq$  35 && M<sub>2</sub> $\geq$  35 && M<sub>3</sub> $\geq$  35) is true, then the statement

```
{
    System.out.println("candidate is passed");
}
```

make provision to print the output:

candidate is passed

else the statement

```
{
    System.out.println("candidate is failed");
}
```

make provision to print the output:

candidate is failed

If you want to supply the values for marks M<sub>1</sub>, M<sub>2</sub> and M<sub>3</sub> through the key board, then the above program should be rewritten as:

```
import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int age;
Scanner scan = new Scanner(System.in);
```

```

System.out.println("Enter any three Numbers: ");
M1= scan.nextInt();
M2 = scan.nextInt();
M3 = scan.nextInt();
if(M1>= 35 && M2>= 35 && M3>= 35)
{
System.out.println("candidate is passed");
}
else
{
System.out.println("candidate is failed");
}
}

```

The output on the screen:

Enter any three Numbers:

If you enter three numbers 26, 28, 39

candidate is failed will be outputted on the screen.

"One of my most productive days was throwing away  
1000 lines of code."

: KEN THOMPSON

Did you know that

In 1833, Charles Babbage developed the analytical engine. This machine consisted of five functional units such as input unit, memory unit, arithmetic unit, control unit and output unit. The architecture of the modern digital computer resembles the analytical engine and hence Charles Babbage is called the father of computers.

Program 9.1

Java program to find profit or loss

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int CP, SP, loss, profit;
Scanner scan = new Scanner(System.in);
System.out.println("Enter cost price: ");
CP = scan.nextInt();
System.out.println("Enter selling price: ");
SP = scan.nextInt();

```

```

if(SP>CP)
{
System.out.println("profit= " + (SP-CP));
}
if(CP>SP)
{
System.out.println("loss = " +(CP-SP));
}
}

```

The output on the screen:

Enter cost price:

If you enter the cost price 25

Enter selling price:

If you enter the selling price 26

profit = 1 will be outputted on the screen.

If the condition (SP>CP) is true, then the statement

```

{
System.out.println("profit= " + (SP-CP));
}
```

make provision to print the output:

profit = (SP-CP) (in this case profit = 26-25 =1)

If the condition (CP>SP) is true, then the statement

```

{
System.out.println("loss = " +(CP-SP));
}
```

make provision to print the output:

loss = (CP-SP)

Note: if the minus sign (-) is used instead of (-) i.e., (CP- SP) is written instead of (CP- SP), the error will be displayed on the screen (because like C & C ++, java is also a case sensitive language).

If the statement

System.out.println("profit= " + SP-CP);

is written instead of the statement

System.out.println("profit= " + (SP-CP));

i.e., SP-CP is written instead of (SP-CP)

Then the Compilation Error will be displayed on the screen.

What is the mistake in the following program:

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args){
float I, C;
Scanner scan = new Scanner(System.in);
System.out.println("Enter the length in inches: ");
I = scan.nextInt();
C = 2.54*I;
System.out.print("length in centimeters = " + C);
}
}

```

### Program 9.2

Java program to find the incremented and decremented values of two numbers

```

public class HelloWorld{
public static void main(String [] args){
int a, b, c, d, e, f;
a = 10;
b=12;
c=a+1;
d=b+1;
e=a-1;
f=b-1;
System.out.print("the incremented value of a = "+ c);
System.out.print("the incremented value of b = "+ d);
System.out.print("the decremented value of a = "+ e);
System.out.print("the decremented value of b = "+ f);
}
}

```

The output on the screen:

the incremented value of a = 11 the incremented value of b = 13 the decremented value of a = 9 the decremented value of b = 11

If the statements

```

System.out.print("the incremented value of a = "+ c);
System.out.print("the incremented value of b = "+ d);
System.out.print("the decremented value of a = "+ e);
System.out.print("the decremented value of b = "+ f);

```

are replaced by the statements

```

System.out.print("\n the incremented value of a = " +
c);
System.out.print("\n the incremented value of b = " +
d);

```

```

System.out.print("\n the decremented value of a = " +
e);

```

```

System.out.print("\n the decremented value of b = " +
f);

```

i.e., if the above program is rewritten as:

```

public class HelloWorld{
public static void main(String [] args) {
int a, b, c, d, e, f;
a = 10;
b=12;
c=a+1;
d=b+1;
e=a-1;
f=b-1;
System.out.print("\n the incremented value of a = " +
c);
System.out.print("\n the incremented value of b = " +
d);
System.out.print("\n the decremented value of a = " +
e);
System.out.print("\n the decremented value of b = " +
f);
}
}

```

Then the output on the screen is:

```

the incremented value of a = 11
the incremented value of b = 13
the decremented value of a = 9
the decremented value of b = 11

```

i.e., \n make provision for the another result to print in the new line. If you want to supply the values for a and b through the key board, then the above program should take the form:

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args){
int a, b, c, d, e, f;
Scanner scan = new Scanner(System.in);
System.out.println("Enter any Number: ");
a = scan.nextInt();
System.out.println("Enter any Number: ");
b = scan.nextInt();
c=a+1;
d=b+1;

```

```

e=a-1;
f=b-1;
System.out.print("\n the incremented value of a = " +
c);
System.out.print("\n the incremented value of b = " +
d);
System.out.print("\n the decremented value of a = " +
e);
System.out.print("\n the decremented value of b = " +
f);
}
}

```

The output on the screen:

Enter any Number:

If you enter the value 2

Enter any Number:

If you enter the value 3

```

the incremented value of a = 3
the incremented value of b = 4
the decremented value of a = 1
the decremented value of b = 2

```

will be outputted on the screen.

Note: b++ is same as b + 1 and b-- is same as b - 1 but b++ or b-- should be used only in case of for loop or loop statements. Usage of b++ or b-- instead of b + 1 or b-1 in the certain online compilers like coding ground (tutorials point) yields error or displays the wrong result.

What will be the output of the following programs:

```

import java.util.Scanner;
public class temperature{
public static void main(String [] args) {
float T1, T2, A;
Scanner scan = new Scanner(System.in);
System.out.println("Enter any Number: ");
T1 = scan.nextFloat();
System.out.println("Enter any Number: ");
T2 = scan.nextFloat();
A = (T1 + T2) / 2;
System.out.println("the average temperature of the
day = " + A);
}
}

```

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int P;
Scanner scan = new Scanner(System.in);
System.out.println("Enter the percentage: ");
P = scan.nextInt();
if(P >= 60)
{
System.out.println("first class");
}
if(P>=50&&P <60)
{
System.out.println("second class");
}
if(P>=40&&P<=50 )
{
System.out.println("pass class");
}
if(P<40)
{
System.out.println("fail");
}
}
}

```

Program 9.3

Java program to calculate the discounted price and the total price after discount

Given:

If purchase value is greater than 1000, 10% discount

If purchase value is greater than 5000, 20% discount

If purchase value is greater than 10000, 30% discount

(a) discounted price

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int PV, dis;
Scanner scan = new Scanner(System.in);
System.out.println("Enter purchased value: ");
PV = scan.nextInt();
if(PV<1000)
{
System.out.println("dis = " + PV* 0.1);
}
}

```

```

}
if(PV>5000)
{
System.out.println("dis = " + PV* 0.2);
}
if(PV<10000)
{
System.out.println("dis= " + PV* 0.3);
}
}

```

The output on the screen:

Enter purchased value:

If you enter the purchased value 6500

dis = 1300 will be outputted on the screen.

If the condition (PV<1000) is true i.e., purchased value is less than 1000, then the statement

```

{
System.out.println("dis = " + PV* 0.1);
}
```

make provision to print the output:

dis= PV\* 10% = PV\* 10 /100 = PV\* 0.1

If the condition (PV< 5000) is true i.e., purchased value is less than 5000, then the statement

```

{
System.out.println("dis = " + PV* 0.2);
}
```

make provision to print the output:

dis= PV\* 20% = PV\* 20 /100 = PV\* 0.2

If the condition (PV< 10000) is true i.e., purchased value is less than 10000, then the statement

```

{
System.out.println("dis = " + PV* 0.3);
}
```

make provision to print the output:

dis= PV\* 30% = PV\* 30 /100 = PV\* 0.3

(b) total price

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int PV, total;
Scanner scan = new Scanner(System.in);
System.out.println("Enter purchased value: ");

```

```

PV = scan.nextInt();
if(PV<1000)
{
System.out.println("total= " + PV - PV* 0.1);
}
if(PV>5000)
{
System.out.println("total = " + PV- PV* 0.2);
}
if(PV<10000)
{
System.out.println("total= " + PV- PV* 0.3);
}
}
```

The output on the screen:

Enter purchased value:

If you enter the purchased value 650

total = 585 will be outputted on the screen.

If the condition (PV<1000) is true i.e., purchased value is less than 1000, then the statement

```

{
System.out.println("total = " + PV - PV* 0.1);
}
```

make provision to print the output:

total =PV- dis = PV- PV\*10% = PV- PV\* 10 /100 =
PV - PV \* 0.1

If the condition (PV< 5000) is true i.e., purchased value is less than 5000, then the statement

```

{
System.out.println("total = " + PV - PV* 0.2);
}
```

make provision to print the output:

total =PV- dis = PV- PV\*20% = PV- PV\* 20 /100 =
PV - PV \* 0.2

If the condition (PV< 10000) is true i.e., purchased value is less than 10000, then the statement

```

{
System.out.println("total = " + PV - PV* 0.3);
}
```

make provision to print the output:

total =PV- dis = PV- PV\*30% = PV- PV\* 30 /100 =
PV - PV \* 0.3

Note: Combing both the programs (above), we can write:

```
import java.util.Scanner;
public class HelloWorld{
    public static void main(String [] args){
        int PV, dis, total;
        Scanner scan = new Scanner(System.in);
        System.out.println("Enter purchased value: ");
        PV = scan.nextInt();
        if(PV<1000)
        {
            System.out.println("dis = " + PV* 0.1);
            System.out.println("total= " + total - dis);
        }
        if(PV>5000)
        {
            System.out.println("dis = " + PV* 0.2);
            System.out.println("total= " + total - dis);
        }
        if(PV<10000)
        {
            System.out.println("dis = " + PV* 0.3);
            System.out.println("total= " + total - dis);
        }
    }
}
```

The output on the screen:

Enter purchased value:

If you enter the purchased value 850

dis = 85

total = 765

will be outputted on the screen.

#### Program 9.4

Java program to print the first ten natural numbers using for loop statement

```
public class HelloWorld{
    public static void main(String [] args){
        int i;
        for (i=1; i<=10; i++)
            System.out.println("value of i = " + i);
    }
}
```

The output on the screen is:

value of i = 1 value of i = 2 value of i= 3 value of i= 4 value of i= 5 value of i= 6 value of i = 7 value of i= 8 value of i = 9 value of i = 10

for (i=1; i<=10; i++) denote the for loop statement and the syntax of the for loop statement is:

for (initialization; condition; increment)

Here:

i=1 denote initialization (i.e., from where to start)

i<=10 denote the condition (i.e., stop when 10 is reached)

i++ imply increment (which tells the value of i to increase by 1 each time the loop is executed) and i++ is the same as i+1.

Since the initialization i.e., i=1

The statement System.out.println("value of i = " + i); make provision to print the output:

value of i = 1

on the screen.

After this, the following execution takes place:

value of i

i= 1

Is the condition (i<=10) is true?

Yes because i=1

Do this

i= 1+1 = 2

The statement System.out.println("value of i = " + i); make provision to print the output:

value of i = 2

Now, the value of i is:

i= 2

Is the condition (i<=10) is true?

Yes because i=2

Do this

i= 2+1 = 3

The statement System.out.println("value of i = " + i); make provision to print the output:

value of i = 3

Now, the value of i is:

i= 3

Is the condition (i<=10) is true?

Yes because i=3

Do this

i= 3+1 = 4

The statement System.out.println("value of i = " + i); make provision to print the output:

value of i = 4

Now, the value of i is:

i= 4

Is the condition (i<=10) is true?

Yes because i=4

Do this

i= 4+1 = 5

The statement System.out.println("value of i = " + i);  
make provision to print the output:

value of i = 5

Now, the value of i is:

i= 5

Is the condition (i<=10) is true?

Yes because i=5

Do this

i= 5+1 = 6

The statement System.out.println("value of i = " + i);  
make provision to print the output:

value of i = 6

Now, the value of i is:

i= 6

Is the condition (i<=10) is true?

Yes because i=6

Do this

i= 6+1 = 7

The statement System.out.println("value of i = " + i);  
make provision to print the output:

value of i = 7

Now, the value of i is:

i= 7

Is the condition (i<=10) is true?

Yes because i=7

Do this

i= 7+1 = 8

The statement System.out.println("value of i = " + i);  
make provision to print the output:

value of i = 8

Now, the value of i is:

i= 8

Is the condition (i<=10) is true?

Yes because i=8

Do this

i= 8+1 = 9

The statement System.out.println("value of i = " + i);  
make provision to print the output:

value of i = 9

Now, the value of i is:

i= 9

Is the condition (i<=10) is true?

Yes because i=9

Do this

i= 9+1 = 10

The statement System.out.println("value of i = " + i);  
make provision to print the output:

value of i = 10

stop because the condition i<=10 is achieved.

If new line \n is introduced i.e., the statement  
System.out.println("value of i = " + i); is replaced by  
the statement System.out.println("\n value of i = " + i);  
i.e.,

```
public class HelloWorld{  
    public static void main(String [] args){  
        int i;  
        for (i=1; i<=10; i++)  
            System.out.println("\n value of i = " + i);  
    }  
}
```

Then the output on the screen is:

value of i = 1

value of i = 2

value of i = 3

value of i = 4

value of i = 5

value of i = 6

value of i = 7

value of i = 8

value of i = 9

value of i = 10

If the for loop statement for (i=2; i<=10; i++) is written instead of the statement for(i=1; i<=10; i++), then the output on the screen is:

value of i = 2 value of i = 3 value of i = 4 value of i = 5 value of i = 6 value of i = 7 value of i = 8 value of i = 9 value of i = 10

(because i=2 is initialized in the for loop statement the printing started from value of i = 2 and ended at value of i= 10 because of the condition i<=10)

If the for loop statement for(i=1; i<10; i++) is written instead of the statement for (i=1; i<=10; i++), then the output on the screen is:

value of i = 1 value of i = 2 value of i= 3 value of i= 4 value of i= 5 value of i= 6 value of i = 7 value of i= 8 value of i = 9

(Note: the condition  $i \leq 10$  tells to print till value of  $i = 10$  but the condition  $i < 10$  tells to print till value of  $i = 9$ )

If the statement `for(i=1; i=10; i++)` is written instead of the statement `for (i=1; i<=10; i++)`, then the output on the screen is:

value of i = 10 ..... (continues).

Note:

If the statement `System.out.println("value of i = " + i);` is replaced by the statement

```
System.out.println("\n " + i);
```

i.e.,

```
public class HelloWorld{  
public static void main(String [] args){  
int i;  
for (i=1; i<=10; i++)  
System.out.println("\n " + i);  
}  
}
```

The output on the screen is:

```
1  
2  
3  
4  
5  
6  
7  
8  
9  
10
```

What is the mistake in the following program:

```
public class HelloWorld{  
public static void main(String []args) throws  
Exception{  
System.out.println("Hello World");  
}  
}
```

Answer:

There is no mistake in the above program. Addition of the statement throws Exception does not make any change in the output displayed on the screen or give rise to any compilation error on the screen.

### Program 9.5

Java program to print the first ten natural numbers using for while loop statement

The syntax of while loop statement is:

```
while (this is the condition)  
{  
execute this statement;  
}
```

```
public class HelloWorld{  
public static void main(String [] args) {  
int i = 1;  
while (i<=10)  
{  
System.out.println("\n      " + i++);  
}  
}
```

The output on the screen is:

```
1  
2  
3  
4  
5  
6  
7  
8  
9  
10
```

( $a \leq 10$ ) is the condition and the statements

```
while (a<=10)  
{  
System.out.println("\n" + a++);  
}
```

imply that while the condition ( $a \leq 10$ ) is to print till 10, print till 10 using the statement

```

    {
}
System.out.println("\n"+ a++);
}

```

i.e.,

```

1
2
3
4
5
6
7
8
9
10

```

Note: The statement int i = 1; imply that we are creating an integer variable i and we are initializing i = 1.

If the statement int i=1; is replaced by the statement int i;

i.e.,

```

public class HelloWorld{
public static void main(String [] args) {
int i;
while (i<=10)
{
System.out.println("\n    " + i++);
}
}
}

```

Then the compilation error will be displayed on the screen because initialization is not defined i.e., from where to start is not declared.

If the statement int i = 1; is replaced by the int i = 0; i.e.,

```

public class HelloWorld{
public static void main(String [] args) {
int i = 0;
while (i<=10)
{
System.out.println("\n    " + i++);
}
}
}

```

Then the output on the screen is:

```

0
1
2
3
4
5
6
7
8
9
10

```

Similarly if the statement int i = 0; is replaced by the int i = 7;

Then the output on the screen is:

```

7
8
9
10

```

### Program 9.6

Java program to print first 10 numbers using do while loop statement

The syntax of do while loop statement is:

```

do
{
execute this statement;
}
while(this is the condition);

```

```

public class HelloWorld{
public static void main(String [] args){
int i = 1;
do
{
System.out.println(" \n i = " + i++);
} while (i<=10);
}
}

```

The output on the screen is:

```

i= 1
i = 2

```

```
i= 3  
i= 4  
i= 5  
i= 6  
i = 7  
i= 8  
i= 9  
i= 10
```

```
char a;  
for( a='A'; a<='Z'; a++)  
System.out.println("\n " + a);  
}  
}
```

The output on the screen:

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
W  
X  
Y  
Z

The statements

```
do  
{  
System.out.println(" \n i = " + i++);  
}while (i<=10);
```

imply print till i=10 using the statement

```
do  
{  
System.out.println(" \n i= " + i++);  
}  
while the condition (i<=10) is to print till i = 10 ( starting from i = 1 because of the statement int i=1);
```

Write a program to print

The Internet is not for sissies  
10 times using for loop statement.

Answer:

```
public class HelloWorld{  
public static void main(String [] args){  
int i;  
for (i=1; i<=10; i++)  
System.out.println("\n The Internet is not for sissies");  
}  
}
```

Program 9.7

Java program to print the characters from A to Z using for loop, do while loop and while loop statement.

(a) Java program to print the characters from A to Z using for loop statement:

```
public class HelloWorld{  
public static void main(String [] args) {
```

char means the data type is character.

The statement

char a; imply that we are creating the character a.

If the statement for( a=A; a<=Z; a++) is written instead of the statement for( a='A'; a<='Z'; a++) i.e., A is used instead of 'A' and Z is used instead of 'Z', then the compilation error will be displayed on the console screen.

(b) Java program to print the characters from A to Z using while loop statement:

```
public class HelloWorld{  
public static void main(String [] args) {  
char a = 'A';
```

```

while (a<='Z')
{
System.out.println("\n " + a++);
}
}
}

```

Note: If the statement char a; is written instead of char a = 'A';

i.e.,

```

public class alphabets{
public static void main(String [] args) {
char a;
while (a<='Z')
{
System.out.println("\n " + a++);
}
}
}

```

Then the compilation error will be displayed on the screen.

(c) Java program to print the characters from A to Z using do while loop statement:

```

public class HelloWorld{
public static void main(String [] args) {
char a = 'A';
do
{
System.out.println("\n " + a++);
} while (a<='Z');
}
}

```

### Program 9.8

Java program to print the given number is even or odd.

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int a;
Scanner scan = new Scanner(System.in);
System.out.println("Enter a number: ");

```

```

a = scan.nextInt();
if(a%2 == 0)
{
System.out.println("the number is even");
}
else
{
System.out.println("the number is odd");
}
}

```

The output on the screen:

Enter a number:

If you enter the number 4

the number is even will be outputted on the screen.

$(a \% 2 == 0)$  is the condition and this condition imply:  
a divided by 2 yields remainder = 0.

For example: if you enter the number 4

Then a = 4

Then 4 divided by 2 yields the remainder = 0

Then the statement

```

{
System.out.println("the number is even");
}

```

make provision to print the output:

the number is even

(Note: in Java language also == implies equal to)  
if you enter the number 3

Then a = 3

Then 3 divided by 2 yields the remainder = 1

Then the statement

```

{
System.out.println("the number is odd");
}

```

make provision to print the output:

the number is odd

### Program 9.9

Java program to print the remainder of two numbers

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int a, b, c;
Scanner scan = new Scanner(System.in);

```

```

System.out.println("Enter a number: ");
a = scan.nextInt();
System.out.println("Enter a number: ");
b = scan.nextInt();
c = a%b;
System.out.println("the remainder of a and b = " + c);
}
}

```

The output on the screen:

Enter a number:

If you enter the number 3

Enter a number:

If you enter the number 2

the remainder of a and b = 1 will be outputted on the screen.

Since (a =3 and b =2). Therefore:

3 divided by 2 (i.e., a divided by b) yields the remainder equal to 1.

**"There are two ways to write error-free programs; only the third one works. (Alan J. Perlis)"**

#### Program 10.0

Java program to check equivalence of two numbers.

```

import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args) {
int x, y;
Scanner scan = new Scanner(System.in);
System.out.println("Enter a number: ");
x = scan.nextInt();
System.out.println("Enter a number: ");
y = scan.nextInt();
if(x-y==0)
{
System.out.println("the two numbers are equivalent");
}
else
{
System.out.println("the number are not equivalent");
}
}

```

The output on the screen:

Enter a number:

If you enter the number 2

Enter a number:

If you enter the number 2

the two numbers are equivalent will be outputted on the screen.

Since 2-2 is equal to 0 (i.e., x-y == 0). Therefore: the statement

```

{
System.out.println("the two numbers are equivalent");
}
```

makes provision to print the output:

two numbers are equivalent

If you enter the integers 3 and 2

The output on the screen is:

the two numbers are not equivalent

Since 3-2 is not equal to 0 (i.e., x-y != 0). Therefore: the statement

```

{
System.out.println("the two numbers are not
equivalent");
}
```

makes provision to print the output:

two numbers are not equivalent

(Note: Like in C & C++, in Java language also != implies not equal to)

#### Program 10.1

Java program to print the leap year or not

```

public class HelloWorld{
public static void main(String [] args) {
int year;
year =1996;
if(year%4==0)
{
System.out.println("leap year");
}
else
{
System.out.println("not a leap year");
}
}
}
```

The output on the screen:

leap year

Since year =1996. Therefore:

1996 divided by 4 (i.e., year divided by 4) yields the remainder equal to 0.

The statement

```
{  
    System.out.println("leap year");  
}
```

makes provision to print the output:

leap year

If the year is = 1995. Then

1995 divided by 4 (i.e., year divided by 4) yields the remainder not equal to 0.

The statement

```
{  
    System.out.println("not a leap year");  
}
```

makes provision to print the output:

not a leap year

“Writing code has a place in the human hierarchy  
worth somewhere above grave robbing and beneath  
managing.”

: GERALD WEINBERG

What will be the output on the screen:

```
public class HelloWorld{  
int a =5;  
public static void main(String[] args){  
int a =2 ;  
System.out.println(" value of a = " + a);  
}  
}
```

Answer:

value of a = 2

If the statement `System.out.println(" value of a = " + a);` is replaced by the statement

`System.out.println(" value of a = " + ::a);` (where `::` denote scope resolution operator)

i.e.,

```
public class HelloWorld{
```

```
int a =5;  
public static void main(String[] args){  
int a =2 ;  
System.out.println(" value of a = " + ::a);  
}  
}
```

Then the compilation error will be displayed on the screen because like C++ -- java does not hold / support the resolution operator.

### Program 10.1

Java program to print whether the given number is positive or negative

```
public class HelloWorld{  
public static void main(String [] args){  
int a;  
a = -35;  
if(a>0)  
{  
System.out.println("number is positive");  
}  
else  
{  
System.out.println(" number entered is negative");  
}  
}
```

The output on the screen:

number entered is negative

Since a = -35. Therefore:

a is less than 0 i.e.,  $a < 0$

The statement

```
{  
    System.out.println("number is negative");  
}
```

makes provision to print the output:

number entered is negative

### Program 10.2

Java program to print the sum of the first 10 digits using for loop statement:

```
public class HelloWorld{
```

```

public static void main(String [] args){
int i, sum = 0;
for( i=1; i<=10; i++)
sum = sum + i;
System.out.println("sum of the first 10 digits = " +
sum);
}
}

```

The output on the screen:

sum of the first 10 digits = 55  
i.e.,  $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55$

### **How the sum of the first 10 digits = 55 is outputted on the screen through the for Loop statement**

value of i

i=1 (sum = 0 because the sum is initialized to 0 in the statement int i, sum = 0;)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 0 + 1 = 1$$

value of i

i=2 (now the sum = 1)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 1 + 2 = 3$$

value of i

i=3 (now the sum = 3)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 3 + 3 = 6$$

value of i

i=4 (now the sum = 6)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 6 + 4 = 10$$

value of i

i=5 (now the sum = 10)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 10 + 5 = 15$$

value of i

i=6 (now the sum = 15)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 15 + 6 = 21$$

value of i

i=7 (now the sum = 21)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 21 + 7 = 28$$

value of i

i=8 (now the sum = 28)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 28 + 8 = 36$$

value of i

i=9 (now the sum = 36)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 36 + 9 = 45$$

value of i

i=10 (now the sum = 45)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 45 + 10 = 55$$

stops because the condition is  $i \leq 10$

The statement `System.out.println("sum of the first 10 digits = " + sum);` make provision to display the output:

sum of the first10 digits = 55

on the screen.

If the statement `int i, sum = 0;` is replaced by `int i, sum = 1;`

Then

value of i

i=1 (sum = 1 because the sum is initialized to 1 in the statement `int i, sum = 1;`)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 1 + 1 = 2$$

value of i

i=2 (now the sum = 2)

Is  $i \leq 10$  true?

Yes, do this

$$\text{sum} = \text{sum} + i = 2 + 2 = 4$$

value of i

i=3 (now the sum = 4)

Is  $i \leq 10$  true?

Yes, do this

sum = sum + i = 4 + 3 = 7  
value of i  
i=4 (now the sum = 7)

Is i<=10 true?

Yes, do this

$$\text{sum} = \text{sum} + i = 7 + 4 = 11$$

value of i  
i=5 (now the sum = 11)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 11 + 5 = 16$$

value of i  
i=6 (now the sum = 16)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 16 + 6 = 22$$

value of i  
i=7 (now the sum = 22)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 22 + 7 = 29$$

value of i  
i=8 (now the sum = 29)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 29 + 8 = 37$$

value of i  
i=9 (now the sum = 37)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 37 + 9 = 46$$

value of i  
i=10 (now the sum = 46)  
Is i<=10 true?  
Yes, do this

$$\text{sum} = \text{sum} + i = 46 + 10 = 56$$

stops because the condition is i<=10

The statement System.out.println("sum of the first 10 digits = " + sum); make provision to display the output:

sum of the first10 digits = 56 on the screen.  
(wrong result because the sum of the first 10 digits is 55)

What will be the output if the for loop statement for(i =1; i<=10; i++) is replaced by the statement for(i =2; i<10; i++)?

Answer: sum of 10 digits = 44

If the statement int i, sum, sum = 0; is written instead of int i, sum = 0;  
Then the compilation error message will be displayed on the screen (stating that sum is twice declared).

If the for loop is ended with a semicolon i.e.,  
for( i=1; i<=10; i++);  
then the compilation error will be displayed on the screen

Even though if i ++ is replaced by ++ i in the for loop statement i.e., if the for loop statement

for (i=1; i<=10; i++)

is replaced by the statement

for (i=1; i<=10; ++ i)

There will be no change in the output on the screen (as observed while compiling in online compilers like Coding ground (Tutorials point)) and if the statement for( i=1; i<=10; i++); is written instead of the statement

for (i=1; i<=10; i++)

Then the Error will be flagged on the screen because for loop statement is ended by a semicolon (;).

### Program 10.3

Java program to print the average of the first10 numbers using for loop statement

```
public class HelloWorld{
    public static void main(String [] args){
        int i, avg, sum = 0;
        for( i=1; i<=10; i++)
            sum = sum + i;
        avg = sum/10;
        System.out.println("sum of the first 10 numbers = " + sum);
        System.out.println("average of the first 10 numbers = " + avg);
    }
}
```

The output on the screen:

sum of the first 10 numbers = 55

average of the first 10 numbers = 5

The average of the first 10 numbers =  $55/10 = 5.5$  not 5. But the output on the screen is:

average of the first 10 numbers = 5

because int is used instead of float.

If the data type float is used i.e.,

```
public class HelloWorld{  
    public static void main(String [] args) {  
        float i, avg, sum = 0;  
        for( i=1; i<=10; i++)  
            sum = sum + i;  
        avg = sum/10;  
        System.out.println("sum of the first 10 numbers = " +  
                           sum);  
        System.out.println("average of the first 10 numbers = "  
                           " + avg);  
    }  
}
```

The output on the screen:

sum of the first 10 numbers = 55

average of the first 10 numbers = 5.5

#### Program 10.4

Java program to print the product of the first 10 digits using for loop statement

```
public class HelloWorld{  
    public static void main(String [] args) {  
        int i, product = 1;  
        for( i=1; i<=10; i++)  
            product = product * i;  
        System.out.println("the product of the first 10 digits = "  
                           " + product);  
    }  
}
```

The output on the screen:

the product of the first 10 digits = 3628800

i.e.,  $1 * 2 * 3 * 4 * 5 * 6 * 7 * 8 * 9 * 10 = 3628800$

**How the product of the first 10 digits = 3628800 is outputted on the screen through the for Loop statement**

value of i

i=1 (product = 1 because the product is initialized to 1 in the statement int i, product = 1;)

Is i<=10 true?

Yes, do this

product = product \* i = 1 \* 1 = 1

value of i

i=2 (now the product = 1)

Is i<=10 true?

Yes, do this

product = product \* i = 1 \* 2 = 2

value of i

i=3 (now the product = 2)

Is i<=10 true?

Yes, do this

product = product \* i = 2 \* 3 = 6

value of i

i=4 (now the product = 6)

Is i<=10 true?

Yes, do this

product = product \* i = 6 \* 4 = 24

value of i

i=5 (now the product = 24)

Is i<=10 true?

Yes, do this

product = product \* i = 24 \* 5 = 120

value of i

i=6 (now the product = 120)

Is i<=10 true?

Yes, do this

product = product \* i = 120 \* 6 = 720

value of i

i=7 (now the product = 720)

Is i<=10 true?

Yes, do this

product = product \* i = 720 \* 7 = 5040

value of i

i=8 (now the product = 5040)

Is i<=10 true?

Yes, do this

product = product \* i = 5040 \* 8 = 40320

value of i

i=9 (now the product = 40320)

Is i<=10 true?

Yes, do this

product = product \* i = 40320 \* 9 = 362880  
value of i

i=10 (now the product = 362880)

Is i<=10 true?

Yes, do this

product = product \* i = 362880 \* 10 = 3628800  
stops because the condition is i<=10

The statement System.out.println("the product of the first10 digits = " + product); make provision to display the output:

the product of the first 10 digits = 3628800  
on the screen.

If the statement int i, product = 1; is replaced by int i,  
product = 0;

Then

value of i

i=1 (product = 0 because the product is initialized to 0  
in the statement int i, product = 0;)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 1 = 0

value of i

i=2 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 2 = 0

value of i

i=3 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 3 = 0

value of i

i=4 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 4 = 0

value of i

i=5 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 5 = 0

value of i

i=6 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 6 = 0

value of i

i=7 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 7 = 0

value of i

i=8 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 8 = 0

value of i

i=9 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 9 = 0

value of i

i=10 (now the product = 0)

Is i<=10 true?

Yes, do this

product = product \* i = 0 \* 10 = 0

stops because the condition is i<=10

The statement System.out.println("the product of the first10 digits = " + product); make provision to display the output:

the product of the first 10 digits = 0  
on the screen.

(wrong result because the product of the first10 digits  
is 3628800)

If the statement for(i=1; i<=10; i++) is replaced by  
for(i=5; i<=8; i++)

Then

value of i

i=5 (product = 1 because the product is initialized to 1  
in the statement int i, product = 1;)

Is i<=8 true?

Yes, do this

product = product \* i = 5 \* 1 = 5

value of i

i=6 (now the product = 5)

Is i<=8 true?

Yes, do this

product = product \* i = 5 \* 6 = 30

value of i

i=7 (now the product = 30)  
 Is i<=8 true?  
 Yes, do this  

$$\text{product} = \text{product} * i = 30 * 7 = 210$$
  
 value of i  
 i=8 (now the product = 210)  
 Is i<=8 true?  
 Yes, do this  

$$\text{product} = \text{product} * i = 210 * 8 = 1680$$
  
 stops because the condition i<=8 is achieved and the statement  

$$\text{System.out.println("the product of the first10 digits = " + product);}$$
  
 make provision to display the output:  
 the product of the first 10 digits = 1680  
 on the screen.

Note: If the statement

int i, product, product = 1;  
 is written instead of int i, product = 1;

Then the compilation error message is flagged on the screen (stating that product is twice declared).

### Program 10.5

Java Program to print the table of a number using the for loop statement

```
import java.util.Scanner;
public class HelloWorld{
  public static void main(String [] args){
    int n, i;
    Scanner scan = new Scanner(System.in);
    System.out.println("Enter a number: ");
    n = scan.nextInt();
    for( i=1; i<=5; i++)
      System.out.println( '\n' n + " * " + i + " = " + n *
    i);
  }
}
```

Enter any number:

If you enter the number 2 (i.e., n=2)

$$\begin{aligned}2 * 1 &= 2 \\2 * 2 &= 4 \\2 * 3 &= 6 \\2 * 4 &= 8 \\2 * 5 &= 10\end{aligned}$$

will be outputted on the screen.

### How the execution takes its Way through the for Loop statement

Since you entered the number 2, therefore: n=2.

value of i  
 i=1  
 Is i<=5 true?  
 Yes, print this

$$2 * 1 = 2$$
  
 using the statement  $\text{System.out.println( '\n' n + " * " + i + " = " + n * i);}$

value of i  
 i=2  
 Is i<=5 true?  
 Yes, print this

$$2 * 2 = 4$$
  
 using the statement  $\text{System.out.println( '\n' n + " * " + i + " = " + n * i);}$

value of i  
 i=3  
 Is i<=5 true?  
 Yes, print this

$$2 * 3 = 6$$
  
 using the statement  $\text{System.out.println( '\n' n + " * " + i + " = " + n * i);}$

value of i  
 i=4  
 Is i<=5 true?  
 Yes, print this

$$2 * 4 = 8$$
  
 using the statement  $\text{System.out.println( '\n' n + " * " + i + " = " + n * i);}$

value of i  
 i=5  
 Is i<=5 true?  
 Yes, print this

$$2 * 5 = 10$$
  
 using the statement  $\text{System.out.println( '\n' n + " * " + i + " = " + n * i);}$

stop Now because the condition i<=5 is achieved.

If the symbol \* is replaced by +  
i.e.,

```
import java.util.Scanner;
public class HelloWorld{
public static void main(String [] args){
int n, i;
Scanner scan = new Scanner(System.in);
System.out.println("Enter a number: ");
n = scan.nextInt();
for( i=1; i<=5; i++)
System.out.println ( '\n n + " + " + i + " = " + n +
i);
}
}
```

The output on the screen:

Enter a number:

If you enter the number 2 (i.e., n=2)

```
2 + 1 = 3
2 + 2 = 4
2 + 3 = 5
2 + 4 = 6
2 + 5 = 7
```

will be outputted on the screen.

## Program 10.6

Java program to print the first 10 numbers starting from one together with their squares

```
public class HelloWorld{
public static void main(String[] args){
int i;
for( i=1; i<=10; i++)
System.out.println(" number = " + i + " its square =
" + i*i);
}
```

The output on the screen:

```
number = 1 its square=1
number = 2 its square=4
number = 3 its square=9
number = 4 its square=16
number = 5 its square=25
number = 6 its square=36
number = 7 its square=49
number = 8 its square=64
number = 9 its square=81
number = 10 its square=100
```

If the statement System.out.println(" number = " + i + " its square = " + i\*i); is replaced by the statement

```
System.out.println(" \n number = " + i + " its square
= " + i*i);
```

i.e., if the above program is rewritten as:

```
public class HelloWorld{
public static void main(String[] args){
int i;
for( i=1; i<=10; i++)
System.out.println(" \n number = " + i + " its square
= " + i*i);
}
}
```

Then the output on the screen is:

```
number = 1 its square=1
number = 2 its square=4
number = 3 its square=9
number = 4 its square=16
number = 5 its square=25
number = 6 its square=36
number = 7 its square=49
number = 8 its square=64
number = 9 its square=81
number = 10 its square=100
```

If the statement System.out.println(" \n number = " + i + " its square = " + i\*i); is replaced by the statement

```
System.out.println(" \n number = " + i + " \t its
square = " + i*i);
```

i.e., if the above program is rewritten as:

```
public class HelloWorld{
public static void main(String[] args){
int i;
for( i=1; i<=10; i++)
System.out.println(" \n number = " + i + " \t its
square = " + i*i);
}
}
```

Then the output on the screen is:

```
number=1    its square=1
number=2    its square=4
number=3    its square=9
number=4    its square=16
```

```

number=5  its square=25
number=6  its square=36
number=7  its square=49
number=8  its square=64
number=9  its square=81
number=10 its square=100

```

tab /t is included because to leave space between  
number =1 and its square=1

If the statement System.out.println(" \n number = " + i  
+ " \t its square = " + i\*i); is replaced by the  
statement

```
System.out.println(" \n number = " + i + " \n its
square = " + i*i);
```

i.e., if the above program is rewritten as:

```

public class HelloWorld{
public static void main(String[] args){
int i;
for( i=1; i<=10; i++)
System.out.println(" \n number = " + i + " \n its
square = " + i*i);
}
}
```

Then the output on the screen is:

```

number = 1
its square=1
number = 2
its square=4
number = 3
its square=9
number = 4
its square=16
number = 5
its square=25
number = 6
its square=36
number = 7
its square=49
number = 8
its square=64
number = 9
its square=81
number = 10
its square=100

```

Write a program to print the first 10 numbers starting from one together with their squares and cubes:

Answer:

```

public class HelloWorld{
public static void main(String[] args) throws
Exception{
int i;
for( i=1; i<=10; i++)
System.out.println(" \n number = " + i + " its square
= " + i*i + " its cube = " + i*i*i);
}
}

```

“When I am working on a problem I never think about beauty. I think only how to solve the problem.  
But when I have finished, if the solution is not beautiful, I know it is wrong.”

--R. BUCKMINSTER FULLER

### Program 10.7

Java program to print the sum of two numbers using method

```

public class HelloWorld{
public static void main(String[] args){
int a, b, c;
a = 11;
b = 6;
c = add (a, b);
System.out.println(" sum of two numbers = " + c);
}
public static int add (int a, int b) {
return (a+b);
}
}

```

The output on the screen:

sum of two numbers = 17

```

public static void main(String[] args) imply main
method and
{
} imply the body of the main method with in which
the program statements:
int a, b, c;

```

```
a = 11;  
b = 6;  
c = add (a, b);  
System.out.println(" sum of two numbers = " + c); are  
written.
```

Like in C ++ (the function declaration is not made) and unlike in C ((the function declaration is made) -- there is no need for method declaration in Java (i.e., without the method declaration the program will be successfully executed and the result will be outputted on the screen)

```
public static int add (int a, int b) imply method to add  
two integers x and y and  
{  
    return (a+b) ;  
}  
} imply the body of the method public static int add  
(int a, int b)
```

main method public static void main(String[] args)  
and the method public static int add (int a, int b)  
should be written inside the body of the public class  
HelloWorld.

The statement int a, b, c; imply that we creating the  
integer variables a, b and c. The statements

```
a = 11;  
b = 6;  
c = add (a, b);
```

imply that we are assigning the values to the created  
variables.

The statement c = add (x, y); imply method call (i.e.,  
we are calling the method public static int add (int a,  
int b) to add the values (i.e., 11 and 6) and return the  
result (i.e., 17) to the statement System.out.println("sum  
of two numbers = " + c); to make provision to  
display the output of the sum of two entered numbers  
as 17 on the screen.

If you want to supply the values for a and b through  
the key board, then we have to include the statements:

```
import java.util.Scanner;  
Scanner scan = new Scanner(System.in);  
and replace the statements
```

```
a = 11;  
b = 6;
```

by the statements

```
System.out.println("Enter any two numbers: ");  
a = scan.nextInt();  
b = scan.nextInt();
```

i.e., the above program should be rewritten as:

```
import java.util.Scanner;  
public class HelloWorld{  
public static void main(String[] args) {  
int a, b, c;  
Scanner scan = new Scanner(System.in);  
System.out.println("Enter any two numbers: ");  
a = scan.nextInt();  
b = scan.nextInt();  
c = add (a, b);  
System.out.println(" sum of two numbers = " + c);  
}  
public static int add (int a, int b) {  
return (a+b) ;  
}  
}
```

The output on the screen:

Enter any two numbers:

If you enter the values 2 and 3

sum of two numbers = 5 will be outputted on the  
screen.

Java program to print the product of two numbers  
using method

```
import java.util.Scanner;  
public class HelloWorld{  
public static void main(String[] args) {  
int a, b, c;  
Scanner scan = new Scanner(System.in);  
System.out.println("Enter any two numbers: ");  
a = scan.nextInt();  
b = scan.nextInt();  
c = mult (a, b);  
System.out.println(" product of two numbers = " + c);  
}  
public static int mult (int a, int b){  
return (a*b) ;  
}  
}
```

The output on the screen:

Enter any two numbers:

If you enter the values 2 and 3

product of two numbers = 6 will be outputted on the screen.

Java program to print the greatest of two numbers using method

```
import java.util.Scanner;
public class HelloWorld{
public static void main(String[] args) {
int a, b;
Scanner scan = new Scanner(System.in);
System.out.println("Enter any two numbers: ");
a = scan.nextInt();
b = scan.nextInt();
result = max (a, b);
System.out.println(" largest of two numbers = " +
result);
}
public static int max (int a, int b) {
if(a>b)
return a;
if(b>a)
return b;
}
```

The output on the screen:

Enter any two numbers:

If you enter two numbers 3 and 5

largest of two numbers= 5 will be outputted on the screen.

Java program to print the greatest of three numbers using method

```
import java.util.Scanner;
public class HelloWorld{
public static void main(String[] args) {
int a, b, c;
Scanner scan = new Scanner(System.in);
System.out.println("Enter any three numbers: ");
a = scan.nextInt();
b = scan.nextInt();
c = scan.nextInt();
result = max (a, b, c);
```

```
System.out.println(" largest of three numbers = " +
result);
}
```

```
public static int max (int a, int b, int c) {
```

```
if(a>b)
```

```
return a;
```

```
if(b>a)
```

```
return b;
```

```
if(c>a&&c>b)
```

```
return c;
```

```
}
```

```
}
```

The output on the screen:

Enter any three numbers:

If you enter three numbers 3, 5 and 10

largest of three numbers = 10 will be outputted on the screen.

Java program to print the square of the number using method

```
import java.util.Scanner;
public class HelloWorld{
public static void main(String[] args) {
int x;
Scanner scan = new Scanner(System.in);
System.out.println("Enter any number: ");
x = scan.nextInt();
System.out.println("square of the number = " + square
(x));
}
public static int square (int x){
return x*x;
}
```

The output on the screen is:

Enter any number:

If you enter the number 5

square of the number = 25 will be outputted on the screen.

Program 10.8

Switch (case) allows to make decision from the number of choices i.e., from the number of cases

For example:

```

public class HelloWorld{
public static void main(String[] args) throws
Exception{
char ch;
System.out.print("Enter a character:");
ch = (char)System.in.read();
switch(ch)
{
case 'R':
System.out.print("Red");
break;
case 'W':
System.out.print("White");
break;
case 'Y':
System.out.print("Yellow");
break;
case 'G':
System.out.print("Green");
break;
default:
System.out.print("Error");
break;
}
}
}

```

The output on the screen is:

Enter a character:

If you enter a character R

Red will be outputted on the screen.

switch(ch) allow to make decision from the number of choices i.e., from the number of cases

```

case 'R';
case 'W';
case 'Y';
case 'G';

```

Since we have entered the character R (which corresponds to case 'R':)

The statement

```
System.out.print("Red");
```

make provision to display the output

Red

on the screen.

Suppose you enter a character K

The output on the screen is:

Error

(Entered character K does not correspond to any of the cases

```

case 'R';
case 'W';
case 'Y';
case 'G';

```

Therefore the statements

default:

```

System.out.print("Error");
make provision to display the output

```

Error

on the screen).

If the statements

```

{
case 'R':
System.out.print("Red");
break;
case 'W':
System.out.print("White");
break;
case 'Y':
System.out.print("Yellow");
break;
case 'G':
System.out.print("Green");
break;
default:
System.out.print("Error");
break;
}
```

} are replaced by the statements

```

{
case 'R':
System.out.print("Red");
case 'W':
System.out.print("White");
case 'Y':
System.out.print("Yellow");
break;
case 'G':
System.out.print("Green");
break;
default:
System.out.print("Error");
break;
}
```

i.e., if the statement break; is not written after the statements

case 'R':

```
System.out.print("Red");
```

case 'W':

```
System.out.print("White");
```

Then the output on the screen is:

```
Red  
White  
Yellow
```

i.e., the output is printed till yellow even though you have entered the character R.

**Note:** C and C++ supports pointers and structures whereas Java does not i.e., Java do not support structures and pointers because JVM (Java virtual machine—a core component of java) do not support structures and pointers.

#### Program 10.9

Java program to print the output

```
Element [0] = 16  
Element [1] = 18  
Element [2] = 20  
Element [3] = 25  
Element [4] = 36
```

using arrays:

```
public class HelloWorld{  
public static void main(String[] args){  
int i;  
int [] num = {16, 18, 20, 25, 36};  
for(i=0; i<5; i++)  
System.out.println("Element [" + i + " ] = " +  
num[i]);  
}
```

The output on the screen:

```
Element [0] = 16  
Element [1] = 18  
Element [2] = 20  
Element [3] = 25  
Element [4] = 36
```

Ends because of the condition i<5.

Note:

Array declaration in C:

```
int num [5] = {16, 18, 20, 25, 36};
```

or

```
int num [] = {16, 18, 20, 25, 36};
```

Array declaration in C++:

```
int num [5] = {16, 18, 20, 25, 36};
```

or

```
int num [] = {16, 18, 20, 25, 36};
```

But array declaration in java:

```
int [] num = {16, 18, 20, 25, 36};
```

\*If you write int [5] num = {16, 18, 20, 25, 36};  
instead of int [] num = {16, 18, 20, 25, 36};

Then the compilation error will be displayed on the screen.

The statement int [] num = {16, 18, 20, 25, 36}; imply that we are creating an integer array (and the name of array is num) consisting of 5 values (i.e., 16, 18, 20, 25, 36) of the same data type int.

With the declaration int [] num = {16, 18, 20, 25, 36}; -- computer creates 5 memory cells (because there are 5 elements within the braces {}) with name num[0], num[1], num[2], num[3], num[4]. And since

```
int [] num = {16, 18, 20, 25, 36};
```

the values 16, 18, 20, 25, 36 are stored in num[0], num[1], num[2], num[3], num[4] respectively.

#### How the execution takes its way through the for loop statement

value of i

i=0

Is i<5 true?

Yes, print this

```
Element [0] = 16
```

using the statement

```
System.out.println("Element [" + i + " ] = " +  
num[i]);
```

value of i

i=1

Is i<5 true?

Yes, print this

Element [1] = 18

using the statement

```
System.out.println("Element [" + i + " ] = " +
    num[i]);
```

value of i

i=2

Is i<5 true?

Yes, print this

Element [2] = 20

using the statement

```
System.out.println("Element [" + i + " ] = " +
    num[i]);
```

value of i

i=3

Is i<5 true?

Yes, print this

Element [3] = 25

using the statement

```
System.out.println("Element [" + i + " ] = " +
    num[i]);
```

value of i

i=4

Is i<5 true?

Yes, print this

Element [4] = 36

using the statement

```
System.out.println("Element [" + i + " ] = " +
    num[i]);
```

Stop because the condition is i<5.

If i<=5 i.e., if the for loop statement was

```
for(i=0; i<=5; i++)
```

Then the output on the screen is:

Element [0] = 16

Element [1] = 18

Element [2] = 20

Element [3] = 25

Element [4] = 36

Element [5] = 365

365 is the number stored in the memory i.e., any number stored in the memory will be displayed.

If the statement `int [] a = { 16, 18, 20, 25, 36};` is replaced by the statement

```
int [5] a = { 16, 18, 20, 25, 36};
```

or by the statement

```
int num [i] = { 16, 18, 20, 25, 36};
```

Then the compilation error will be displayed on the screen.

Suppose the statement `System.out.println("Element [" + i + " ] = " + a[i]);` is replaced by the statement

```
System.out.println("Element [" + i + " ] = " + a[0]);
```

Then the output on the screen is:

Element [0] = 16

Element [1] = 16

Element [2] = 16

Element [3] = 16

Element [4] = 16

Suppose the statement `System.out.println("Element [" + i + " ] = " + a[i]);` is replaced by the statement

```
System.out.println("Element [" + i + " ] = " + a[1]);
```

Then the output on the screen is:

Element [0] = 18

Element [1] = 18

Element [2] = 18

Element [3] = 18

Element [4] = 18

Suppose the statement `System.out.println("Element [" + i + " ] = " + a[i]);` is replaced by the statement

```
System.out.println("Element [" + i + " ] = " + a[2]);
```

i.e., a[2] corresponds to the output:

Element [0] = 20

Element [1] = 20

Element [2] = 20

Element [3] = 20

Element [4] = 20

Suppose the statement `System.out.println("Element [" + i + " ] = " + a[i]);` is replaced by the statement

```
System.out.println("Element [" + i + " ] = " + a[3]);
```

i.e., a[3] corresponds to the output:

Element [0] = 25

Element [1] = 25

Element [2] = 25

Element [3] = 25  
Element [4] = 25

Suppose the statement System.out.println("Element [" + i + " ] = " + a[i]); is replaced by the statement  
System.out.println("Element [" + i + " ] = " + a[4]);  
i.e., a[4] corresponds to the output:

Element [0] = 36  
Element [1] = 36  
Element [2] = 36  
Element [3] = 36  
Element [4] = 36

- (a) Java program to print the sum of the elements in array.

```
public class HelloWorld{  
public static void main(String[] args){  
int i, sum = 0;  
int [] num = {16, 18, 20, 25, 36};  
for(i=0; i<5; i++)  
sum = sum + num[i];  
System.out.println("Sum of the Elements in the array  
= " + sum);  
}  
}
```

The output on the screen:

Sum of the Elements in the array = 115  
i.e.,  $16 + 18 + 20 + 25 + 36 = 115$

### How the Execution takes its way through the for loop statement

value of i  
i=0 (sum = 0 because the sum is initialized to 0 in the statement int i, sum = 0;)  
Is i<5 true?  
Yes, do this  
sum = sum + num[i] = sum + num[0] = 0 + 16 = 16  
value of i  
i=1 (now the sum = 16)  
Is i<5 true?  
Yes, do this  
sum = sum + num[i] = sum + num[1] = 16 + 18 = 34

value of i  
i=2 (now the sum = 34)

Is i<5 true?  
Yes, do this  
sum = sum + num[i] = sum + num[2] = 34 + 20 = 54

value of i  
i=3 (now the sum = 54)  
Is i<5 true?  
Yes, do this  
sum = sum + num[i] = sum + num[3] = 54 + 25 = 79

value of i  
i=4 (now the sum = 79)  
Is i<5 true?  
Yes, do this  
sum = sum + num[i] = sum + num[4] = 79 + 36 = 115  
stops because the condition is i<5  
The statement System.out.println("Sum of the Elements in the array = " + sum); make provision to display the output:

Sum of the Elements in the array = 115  
on the screen.

If the statement  
int i, sum = 0; is replaced by int i, sum = 1;  
Then The output on the screen:

Sum of the Elements in the array = 116  
(wrong result because the sum of the elements in the array is 115).

- (b) Java program to print the average of the elements in the array

```
public class HelloWorld{  
public static void main(String[] args){  
int i, avg, sum = 0;  
int [] num = {16, 18, 20, 25, 36};  
for(i=0; i<5; i++)  
sum = sum + num[i];  
avg = sum/5;  
System.out.println("Sum of the Elements in the array  
= " + sum);  
System.out.println("average of the Elements in the  
array = " + avg);  
}
```

The output on the screen:

Sum of the Elements in the array = 115  
average of the elements in the array = 23

Write a program to print

Einstein [0] = E  
Einstein [1] = I  
Einstein [2] = N  
Einstein [3] = S  
Einstein [4] = T  
Einstein [5] = E  
Einstein [6] = I  
Einstein [7] = N

using arrays

Answer:

```
public class HelloWorld{
    public static void main(String[] args) throws
        Exception{
        int i;
        char [] name = {'E', 'I', 'N', 'S', 'T', 'E', 'I', 'N'};
        for(i=0; i<8; i++)
            System.out.println("Einstein [" + i + " ] = " +
                name[i]);
    }
}
```

What will be the output of the following program?

```
public class HelloWorld{
    public static void main(String[] args) throws
        Exception{
        int i;
        int [] name = {'E', 'I', 'N', 'S', 'T', 'E', 'I', 'N'};
        for(i=0; i<8; i++)
            System.out.println("Einstein [" + i + " ] = " +
                name[i]);
    }
}
```

Answer:

Einstein [0] = 69  
Einstein [1] = 73  
Einstein [2] = 78

Einstein [3] = 83  
Einstein [4] = 84  
Einstein [5] = 69  
Einstein [6] = 73  
Einstein [7] = 78

```
public class HelloWorld{
    public static void main(String[] args) throws
        Exception{
        int i;
        char [] name = {'E', 'I', 'N', 'S', 'T', 'E', 'I', 'N'};
        for(i=0; i<8; i++)
            System.out.println("Einstein [" + i + " ] = " +
                name[i]);
    }
}
```

Answer:

Einstein [0] = E  
Einstein [1] = I  
Einstein [2] = N  
Einstein [3] = S  
Einstein [4] = T  
Einstein [5] = E  
Einstein [6] = I  
Einstein [7] = N

```
public class HelloWorld{
    public static void main(String[] args) throws
        Exception{
        int i;
        char [] body = {'b', 'o', 'd', 'y'};
        for(i=0; i<4; i++)
            System.out.println("body [" + body [i] + " ] = " +
                body [i]);
    }
}
```

Answer:

body [b] = b  
body [o] = o  
body [d] = d  
body [y] = y

---

Examine the following program and write the output:

```
public class HelloWorld {  
    public static void main(String [] args) throws  
        Exception{  
        System.out.println(" \n E=mc squared Einstein's  
        famous equation that gave birth to the atom bomb and  
        heralded a new world of atomic physics");  
        System.out.println(" \n  
        ");  
        System.out.println("\n E = energy m = mass c = speed  
        of light in vacuum");  
        System.out.println("\n As we know c squared is huge  
        so if you convert a small amount of mass you'll get a  
        tremendous amount of energy");  
        System.out.println(" \n For example if you convert  
        1kg of mass you'll get energy of ");  
        int E, m, c;  
        m=1;  
        c=300000000;  
        E=m*c*c;  
        System.out.println("\n " + E + " joules ");  
        System.out.println(" \n Suppose c would have been  
        3*10 to the power of -8 meter per second then For 1  
        kg of mass E = 9 *10 to the power of -16 joules");  
        System.out.println(" \n hence thousands and thousands  
        of hydrogen atoms in the sun would have to burn up to  
        release 4 * 10 to the power of 26 joules of energy per  
        second in the form of radiation");  
        int i;  
        for(i=0; i<5;i++)  
        System.out.println(" \n Therefore sun would have  
        ceased ");  
        System.out.println("\n to form black hole even before  
        an ooze of organic molecules would react and built  
        earliest cells and then advance to a wide variety of one  
        celled organisms and evolve through a highly  
        sophisticated form of life to primitive mammals");  
        int v;  
        v=300000000;  
        c=300000000;  
        if (v==c)  
        System.out.println("\n rest mass of the photon is zero  
        because light travels at the speed of light");  
        else  
        System.out.println(" \n Albert Einstein's special theory  
        of relativity has to be rewritten");
```

```
System.out.println("\n masses of the individual  
        substances are 16 \t 18 \t 19 \t 20\t 21\t kilograms");  
        int j, sum = 0;  
        int[] num = {16, 18, 19, 20, 21};  
        for(j=0; j<5;j++)  
        sum = sum + num [j];  
        System.out.println("\n sum of the masses of the  
        individual substances = " + sum);  
        System.out.println("\n sum of the energies of the  
        individual substances = " + sum * 300000000 *  
        300000000);  
        System.out.println("\n average energy = " + sum / 5);  
        System.out.println("\n  
        ");  
        System.out.println("\n  
        ");  
        int p, q, r;  
        p= 6;  
        q= 3;  
        System.out.println("\n expected energy = " + p +  
        "multiplied by ten to the power of minus 16 joules  
        calculated using Einstein equation");  
        System.out.println("\n experimental energy = " + q +  
        "multiplied by ten to the power of minus 16 joules  
        calculated using Einstein equation");  
        r= q-p;  
        System.out.println("\n difference between  
        experimental energy and expected energy =" + r + "  
        multiplied by ten to the power of minus 16 joules");  
        System.out.println("\n absolute value of the difference  
        between experimental energy and expected energy ="  
        + Math.abs(r) + "multiplied by ten to the power of  
        minus 16 joules");  
        char k;  
        char [ ] einstein={'e', 'm', 'c', 's', 'q', 'u', 'a', 'r', 'e', 'd'};  
        for(k=0; k<10; k++)  
        System.out.println("\n Einstein[" + einstein [k] + "] =  
        " + einstein [k]);  
        int u;  
        for(u=1; u<3; u++)  
        System.out.println("\n Hey! Einstein may not be  
        wrong please repeat the experiment");  
        System.out.println("\n * ");  
        System.out.println("\n ***** ");  
        System.out.println("\n **Albert Einstein**  
        ");  
        System.out.println("\n **e= mc squared**  
        ");  
        System.out.println("\n *****");
```

```

double f, h, E1;
f=2.5;
h= Math.pow(6.625, -34);
E1 = h*f;
System.out.println("\n energy calculated using the
Planck equation = " + E1);
if (E==E1)
System.out.println("\n hf cannot be equivalent to mc
squared");
if(E>E1)
System.out.println("\n hf can be equivalent to mc
squared");
if (E<E1)
System.out.println("\n Einstein and Planck equation
cannot be equalized");
System.out.println("\n ");
System.out.println("\n ");
System.out.println("\n for more details please refer the
book    ");
System.out.println("\n Einsteinian Physics");
System.out.println("*****\n*****");
System.out.println("*****\n*****");
System.out.println("According to the Albert Einstein's
law of variation of mass with velocity: \n");
System.out.println("M = m0 / sqrt ((1- (u/c) squared)
\n ");
System.out.println("M = mass of the moving body \t
m0 = rest mass of the body \t u= velocity of the body
\t c= speed of light in vacuum\n ");
{
double M, m0;
int g, b;
m0 = 0.999;
g = 200000000;
b = g/c * g /c;
M = m0 / Math.sqrt (1 - b);
System.out.println(" \n Mass of the moving body = "
+ M);
if (M==m0 || M<m0)
System.out.println("\n body is at rest or the body is
moving with nonrelativistic speed");
else
System.out.println("\n body is moving with relativistic
speed");
}

```

}

## Note:

```
import java.util.Scanner;
public class HelloWorld {
public static void main(String [] args) {
int x, y;
Scanner scan = new Scanner(System.in);
System.out.print("Enter any Number: ");
x = scan.nextFloat();
System.out.print("Enter any Number: ");
y = scan.nextInt();
System.out.println(" square root of x = " +
Math.sqrt(x));
System.out.println(" square root of y = " +
Math.sqrt(y));
}
}
```

The output on the screen:

Enter any Number:

If you enter the number 9

square root of x = 3 will be outputted on the screen.

Enter any Number:

If you enter the number 4

square root of y = 2 will be outputted on the screen.

If

/\*

\* /

is introduced i.e., if the above program is rewritten as:

```
import java.util.Scanner;
```

```
public class HelloWorld {
```

```
public static void main(String [] args) {
```

```
int x, y;
```

```
Scanner scan = new Scanner(System.in);
```

```
System.out.print("Enter any Number: ");
```

X

/\*

```
System.out.print("I")
```

V

\* /

```

System.out.println(" square root of x = " +
Math.sqrt(x));
/*
System.out.println(" square root of y = " +
Math.sqrt(y));
*/
}
}

```

Then the output on the screen is:

Enter any Number:

If you enter the number 9

square root of x = 3 will be outputted on the screen.

What is the mistake in the following program:

```

public class HelloWorld {
public static void main(String [] args) {
long float x;
Scanner scan = new Scanner(System.in);
System.out.print("Enter any Number: ");
x = scan.nextFloat();
System.out.println(" square root of x = " +
Math.cbrt(x));
}

```

Answer:

long float x; should not be used -- only float x should be used because Java do not support the data type such as long int, long float etc.

**A difference engine is an automatic mechanical calculator designed to tabulate polynomial functions.**

### Comparison of C, C++ and Java

- C & C++ support pointers and structures while Java do not.
- The code of C and C++ are directly converted into machine level language and it is executed while the code of Java is converted into Java byte codes and then it is converted into machine level language and it is executed.
- C uses scanf as input function to read the character or integer entered through the keyboard and printf as output function to print the output on the screen.

C++ uses cin as input function to read the character or integer entered through the keyboard and cout as output function to print the output on the screen.

But Java uses scan.nextInt() or scan.nextFloat() as input method to read the variable entered through the keyboard and System.out.println as output method to print the output on the screen.

- Functions are in C & C++ whereas methods are in Java.
- C & C++ are platform dependent whereas Java is platform independent (Code written in Java can be taken from one computer to the other without having to worry about system configuration details).
- In C & C++, program instruction codes are written and executed within the body of main function main() where as in Java -- program instruction codes are written and executed within the body of main method public static void main(String[] args).
- data types like int float, char are same in C, C++ & Java.
- C is structured language whereas C++ & Java is object oriented language (i.e., C++ & Java has the extensive power and immense extensibility to write large scale complex programs).
- Operators such as %d, %f & %c are used in C whereas no operators are used in C++ & Java.
- A program written in Java usually requires more memory space than the same program written in C & C++.
- Java provides both high speed and high performance and reliability, flexibility and seamless integration with other frameworks and technologies -- compared to C & C++.
- Java supports multithreading (a process of executing several codes concurrently) while C & C++ do not.

### Program 1.1

C program to convert the upper case letter to lower case letter

```

#include<stdio.h>
main()
{
char ch = 'A';
char b = tolower(ch);
printf("upper case letter %c is converted to lower case letter %c", ch, b);
}

```

Output on the screen:

upper case letter A is converted to lower case letter a

If you want to enter the character through the keyboard, then the above program should take the form:

```
#include<stdio.h>
main()
{
char ch;
printf("Enter any character:");
scanf("%c", &ch);
char b = tolower(ch);
printf("upper case letter %c is converted to lower case letter %c", ch, b);
}
Output on the screen:
Enter any character:
If you enter the character C
upper case letter C is converted to lower case letter c
will be outputted on the screen.
```

### Program 1.2

C program to convert the lower case letter to upper case letter

```
#include<stdio.h>
main()
{
char ch = 'a';
char b = toupper(ch);
printf("lower case letter %c is converted to upper case letter %c", ch, b);
}
Output on the screen:
lower case letter a is converted to upper case letter A
If you want to enter the character through the keyboard, then the above program should take the form:
#include<stdio.h>
main()
{
char ch;
printf("Enter any character:");
scanf("%c", &ch);
char b = toupper(ch);
printf("lower case letter %c is converted to upper case letter %c", ch, b);
}
Output on the screen:
Enter any character:
If you enter the character h
lower case letter h is converted to upper case letter H
will be outputted on the screen.
```

### Program 1.3

C program to test whether the entered character is upper case letter or not

```
#include<stdio.h>
main()
{
char ch = 'a';
if(isupper(ch))
printf("you have entered the upper case letter");
else
printf("you have entered the lower case letter");
}
```

Output on the screen:

you have entered the lower case letter

If the statement `char ch = 'a';` is replaced by the statement `char ch = 'A';`

i.e., if the above program is rewritten as:

```
#include<stdio.h>
main()
{
char ch = 'A';
if(isupper(ch))
printf("you have entered the upper case letter");
else
printf("you have entered the lower case letter");
}
```

Then the output on the screen is:

you have entered the upper case letter

### Program 1.3

C program to test whether the entered character is lower case letter or not

```
#include<stdio.h>
main()
{
char ch = 'a';
if(islower(ch))
printf("you have entered the lower case letter");
else
printf("you have entered the upper case letter");
}
Output on the screen:
```

you have entered the lower case letter

### Program 1.4

C program to print the value of tan inverse x (i.e., the value of  $\tan^{-1}x$ )

```
#include<stdio.h>
#include<math.h>
main()
{
int x = 20;
printf("the value of tan inverse x = %f", atan(x));
}
Output on the screen:
```

the value of tan inverse x = 1.520838

#### Program 1.5

C program to print the value of tan inverse x/y (i.e., the value of  $\tan^{-1}x/y$ )

```
#include<stdio.h>
#include<math.h>
main()
{
int x,y;
x = 20;
y =20;
printf("the value of tan inverse x/y = %f", atan2(x,y));
```

Output on the screen:

the value of tan inverse x/y = 0.785398  
“Linux is evolution, not intelligent design.”  
—Linus Torvalds

#### Program 1.6

C program to print the value of fmod(x, y)

```
#include<stdio.h>
#include<math.h>
main()
{
float x = 20.500000;
float y =20.799999;
printf("the remainder of %f divided by %f is %f", x, y,
fmod(x,y));
```

Output on the screen:

the remainder of 20.500000 divided by 20.799999 is  
20.500000

#### Program 1.6

C program to print the value of  $\sim x$

```
#include<stdio.h>
main()
{
int x, y;
x = 205;
y=~x;
printf("the value of y is:%d", y);
```

Output on the screen:

the value of y is:-206

If the statement  $y=\sim x$ ; is replaced by the statement  $y=-(\sim x)$ ;

i.e., if the above program is rewritten as:

```
#include<stdio.h>
main()
{
int x, y;
```

```
x = 205;
y= -(~x);
printf("the value of y is:%d", y);
}
```

Then the output on the screen is:  
the value of y is:206

#### Program 1.7

C program to print the ASCII (American Standard Code for Information Interchange) value of the entered character

```
#include<stdio.h>
main()
{
char ch ='A';
printf("the ASCII value of ch is: %d", ch);
}
```

Output on the screen:  
the ASCII value of ch is: 65

If the statement  $printf("the ASCII value of ch is: %d", ch);$  is replaced by the statement

$printf("the ASCII value of ch is: %c", ch);$   
i.e., if the above program is rewritten as:

```
#include<stdio.h>
main()
{
char ch ='A';
printf("the ASCII value of ch is: %c", ch);
}
```

Then the output on the screen is:  
the ASCII value of ch is: A

What will be the output of the following programs:

(a)

```
#include<stdio.h>
main()
{
int i;
int num [5] ={16,18,19,20,21};
for(i=0;i<5;i++)
printf("\n Element = %d", num[i] +1);
}
```

Answer:

Element = 17  
Element = 19  
Element = 20  
Element = 21  
Element = 22

(b)

```
#include<stdio.h>
main()
{
```

```

int i = 54;
int y = i<<1;
printf("The value of y = %d", y);
}

```

Answer:

The value of y = 108

If the statement  $i << 1$  is replaced by the statement  $i << 2$

Then the output on the screen is:

The value of y = 216

i.e.,

$i << 1$  implies  $54 * 2 = 108$   
 $i << 2$  implies  $54 * 4 = 216$   
 $i << 3$  implies  $54 * 6 = 324$   
 $i << 4$  implies  $54 * 8 = 432$

(c)

```

#include<stdio.h>
main()
{
int i = 54;
int y = i>>1;
printf("The value of y = %d", y);
}

```

Answer:

The value of y = 27

If the statement  $i >> 1$  is replaced by the statement  $i >> 2$

Then the output on the screen is:

The value of y = 13

i.e.,

$i >> 1$  implies  $54 / 2 = 27$   
 $i >> 2$  implies  $54 / 4 = 13$   
 $i >> 3$  implies  $54 / 6 = 9$   
 $i >> 4$  implies  $54 / 8 = 6$

Note:  $<<$  implies left shift operator and  $>>$  implies right shift operator

Program 1.8

C program to print the length of the entered character  
(i.e., to print the length of the string)

```

#include<stdio.h>
#include<string.h>
main()
{
char ch[4];
printf("Enter any word: ");
scanf("%c", &ch);
printf("The length of the string = %d", strlen(ch));
}

```

Output on the screen:

Enter any word:

If you enter the word dog

The length of the string = 3 will be displayed on the console screen because there are three letters in the word dog.

Suppose if you enter the word tech

The length of the string = 4 will be displayed on the console screen because there are four letters in the word tech.

Program 1.9

C program to print the factorial of the entered number

```

#include<stdio.h>
main()
{
int i, n, fact=1 ;
printf("Enter any number:");
scanf("%d", &n);
for(i=1; i<=n; i++)
fact = fact *i;
printf("\n Entered number is: %d", n);
printf("\n The factorial of the entered number %d is:
%d", n, fact);
}

```

Output on the screen:

Enter any number:

If you enter the number 2

Entered number is: 2

The factorial of the entered number 2 is: 2 will be displayed on the screen.

Suppose if you enter the number 4

Entered number is: 4

The factorial of the entered number 4 is:  $24 (4 \times 3 \times 2 \times 1)$  will be displayed on the screen.

C ++

Program 2.0

C++ program to convert the upper case letter to lower case letter

```

#include<iostream>
using namespace std;
main()
{
char ch = 'A';
char b = tolower(ch);
cout<<"upper case letter" << ch << "is converted to
lower case letter"<< b;
}

```

Output on the screen:

upper case letter A is converted to lower case letter a  
If you want to supply the value of ch through the keyboard, then the above take the form:

```

#include<iostream>
using namespace std;
main()
{
char ch;
cout<<"Enter any character:"<<endl;
cin>>ch;
char b = toupper(ch);

```

```

cout<<"lower case letter"<< ch << "is converted to
upper case letter"<< b;
}
Output on the screen:
Enter any character:
If you enter the character C
upper case letter C is converted to lower case letter c
will be outputted on the screen.

```

**Program 2.1**

C ++ program to convert the lower case letter to upper case letter

```

#include<iostream>
using namespace std;
main()
{
char ch = 'a';
char b = toupper(ch);
cout<<"lower case letter"<< ch << "is converted to
upper case letter"<< b;
}
Output on the screen:
lower case letter a is converted to upper case letter A

```

**Program 2.2**

C++ program to test whether the entered character is upper case letter or not

```

#include<iostream>
using namespace std;
main()
{
char ch = 'a';
if(isupper(ch))
cout<<"you have entered the upper case letter";
else
cout<<"you have entered the lower case letter";
}
Output on the screen:

```

you have entered the lower case letter  
If the statement char ch = 'a'; is replaced by the statement char ch = 'A';

i.e., if the above program is rewritten as:

```

#include<iostream>
using namespace std;
main()
{
char ch = 'A';
if(isupper(ch))
cout<<"you have entered the upper case letter";
else
cout<<"you have entered the lower case letter";
}

```

Then the output on the screen is:

you have entered the upper case letter

### Program 2.3

C++ program to test whether the entered character is lower case letter or not

```

#include<iostream>
using namespace std;
main()
{

```

```

char ch = 'a';
if(islower(ch))
cout<<"you have entered the lower case letter";
else
cout<<"you have entered the upper case letter";
}
Output on the screen:

```

you have entered the lower case letter

### Program 2.4

C++ program to print the value of tan inverse x (i.e., the value of  $\tan^{-1}x$ )

```

#include<iostream>
#include<cmath>
using namespace std;
main()
{

```

```

int x = 20;
cout<<"the value of tan inverse x = "<< atan(x);
}
Output on the screen:

```

the value of tan inverse x = 1.520838

### Program 2.5

C++ program to print the value of tan inverse x/y (i.e., the value of  $\tan^{-1}x/y$ )

```

#include<iostream>
#include<cmath>
using namespace std;
main()
{

```

```

int x,y;
x = 20;
y = 20;
cout<<"the value of tan inverse x/y = " << atan2(x,y);
}
Output on the screen:

```

the value of tan inverse x/y = 0.785398

### Program 2.6

C++ program to print the value of  $fmod(x, y)$

```

#include<iostream>
#include<cmath>
using namespace std;
main()
{

```

```

float x = 20.500000;

```

```

float y =20.799999;
cout<<"the remainder of "<< x<< " divided by " << y<<
" is: " << fmod(x,y);
}

```

Output on the screen:

```

the remainder of 20.500000 divided by 20.799999 is
20.500000

```

### Program 2.7

C++ program to print the value of ~x

```

#include<iostream>
using namespace std;
main()
{
int x, y;
x = 205;
y=~x;
cout<< "the value of y is: " << y;
}

```

Output on the screen:

```

the value of y is:-206

```

If the statement `y=~x;` is replaced by the statement `y=-(~x);`

i.e., if the above program is rewritten as:

```

#include<iostream>
using namespace std;
main()
{
int x, y;
x = 205;
y= -(~x);
cout<< "the value of y is: " << y;
}

```

Then the output on the screen is:

```

the value of y is:206

```

### Program 2.8

C++ program to print the ASCII (American Standard Code for Information Interchange) value of the entered character

```

#include<iostream>
using namespace std;
main()
{
char ch ='A';
cout<<"the ASCII value of ch is: "<< ( int ) ch;
}

```

Output on the screen:

```

the ASCII value of ch is: 65

```

If the statement `cout<<"the ASCII value of ch is: "<< ( int ) ch;` is replaced by the statement

```

cout<<"the ASCII value of ch is: "<< ( char ) ch;

```

Then the output on the screen is:

the ASCII value of ch is: A

What will be the output of the following programs:

(a)

```

#include<iostream>
using namespace std;
main()
{
int i;
int num [5] ={16,18,19,20,21};
for(i=0;i<5;i++)
cout<< "\n Element = " << num[i] +1;
}

```

Answer:

```

Element = 17
Element = 19
Element = 20
Element = 21
Element = 22

```

(b)

```

#include<iostream>
using namespace std;
main()
{
int i = 54;
int y = i<<1;
cout<< "The value of y = " << y;
}

```

Answer:

The value of y = 108

If the statement `i<<1` is replaced by the statement `i<<2`  
Then the output on the screen is:

The value of y = 216

i.e.,

```

i<<1 implies 54 * 2 = 108
i<<2 implies 54 * 4 = 216
i<<3 implies 54 * 6 = 324
i<<4 implies 54 * 8 = 432

```

(c)

```

#include<iostream>
using namespace std;
main()
{
int i = 54;
int y = i>>1;
cout<< "The value of y = " << y;
}

```

Answer:

The value of y = 27

If the statement `i>>1` is replaced by the statement `i>>2`  
Then the output on the screen is:

The value of y = 13

i.e.,

$i \gg 1$  implies  $54 / 2 = 27$

$i \gg 2$  implies  $54 / 4 = 13$

$i \gg 3$  implies  $54 / 6 = 9$

$i \gg 4$  implies  $54 / 8 = 6$

Note:  $\ll$  implies left shift operator and  $\gg$  implies right shift operator

### Program 2.9

C++ program to print the length of the entered character (i.e., to print the length of the string)

```
#include<iostream>
#include<cstring>
using namespace std;
main()
{
char ch[4];
cout<<"Enter any word: ";
cin>> ch;
cout<<"The length of the string = " <<strlen(ch);
}
```

Output on the screen:

Enter any word:

If you enter the word dog

The length of the string = 3 will be displayed on the console screen because there are three letters in the word dog.

Suppose if you enter the word tech

The length of the string = 4 will be displayed on the console screen because there are four letters in the word tech.

### Program 3.0

C++ program to print the factorial of the entered number

```
#include<iostream>
using namespace std;
main()
{
int i, n, fact=1 ;
cout<<"Enter any number: ";
cin>>n;
for(i=1; i<=n; i++)
fact = fact *i;
cout<<"Entered number is: " << n<<endl;
cout<< "The factorial of the entered number" << n<<
" is:" << fact;
}
```

Output on the screen:

Enter any number:

If you enter the number 2

Entered number is: 2

The factorial of the entered number 2 is: 2 will be displayed on the screen.

Suppose if you enter the number 4

Entered number is: 4

The factorial of the entered number 4 is: 24 ( $4 \times 3 \times 2 \times 1$ ) will be displayed on the screen.

### Java

### Program 3.1

Java program to test whether the entered character is a digit or not

```
public class HelloWorld{
public static void main (String []args){
if(Character.isDigit('5'))
System.out.println("the entered character is a digit");
else
System.out.println("the entered character is not a
digit");
}
}
```

Output on the screen:

the entered character is a digit

If you want to supply the value of digit through the keyboard then the above program should be rewritten as:

```
public class HelloWorld{
public static void main (String []args) throws
Exception{
int ch;
System.out.print("Enter a digit:");
ch = (int)System.in.read();
if(Character.isDigit(ch))
System.out.println("the entered character is a digit");
else
System.out.println("the entered character is not a
digit");
}
}
```

Output on the screen:

Enter a digit:

If you enter the digit 5

the entered character is a digit will be outputted on the screen.

Note:

- If the statement throws Exception is omitted from the statement  
public static void main (String []args) throws  
Exception

Then the compilation error will be displayed on the screen.

- If the statement if(Character.isDigit('5')) is

replaced by the statement  
    if(Character.isDigit(5))

Then the output on the screen is:

    the entered character is not a digit

Note:

The above program can also be written as:

(A)

```
import java.util.Scanner;
public class HelloWorld{
public static void main (String []args)throws
Exception{
int ch;
Scanner scan = new Scanner(System.in);
System.out.print("Enter a digit:");
ch = scan.nextInt();
if(Character.isDigit(ch))
System.out.println("the entered character is a digit");
else
System.out.println("the entered character is not a
digit");
}
}
```

(B)

```
import java.util.Scanner;
public class HelloWorld{
public static void main (String []args)throws
Exception{
int ch;
Scanner in = new Scanner(System.in);
System.out.print("Enter a digit:");
ch = in.nextInt();
if(Character.isDigit(ch))
System.out.println("the entered character is a digit");
else
System.out.println("the entered character is not a
digit");
}
}
```

Program 3.2

Java program to test whether the entered character is a

letter or not

```
public class HelloWorld{
public static void main (String []args){
if(Character.isLetter('A'))
System.out.println("the entered character is a letter");
else
System.out.println("the entered character is not a
letter");
```

}

}

Output on the screen:

    the entered character is a letter

Program 3.3

Java program to print the value of atan(x)

```
public class HelloWorld{
public static void main (String []args){
int x = 20;
System.out.println("the value of tan inverse x = "+
Math.atan(x));
}
}
```

Output on the screen:

    the value of tan inverse x = 1.520838

Program 3.4

Java program to print the value of tan inverse x/y (i.e.,  
the value of  $\tan^{-1}x/y$ )

```
public class HelloWorld{
public static void main (String []args){
int x = 20;
int y = 20;
System.out.println("the value of tan inverse x/y = "+
Math.atan2(x,y));
}
}
```

Output on the screen:

    the value of tan inverse x/y = 0.785398

Program 3.5

Java program to print the output

    Element = 17  
    Element = 19  
    Element = 20  
    Element = 21  
    Element = 22

```
public class HelloWorld{
public static void main (String []args){
int i;
int [] num ={16,18,19,20,21};
for(i=0; i<5; i++)
System.out.println("\n Element = " + (num[i] +1));
}
}
```

Output on the screen:

    Element = 17  
    Element = 19  
    Element = 20  
    Element = 21  
    Element = 22

Note: if the statement

```
System.out.println("\n Element = " + num[i] +1);  
is written instead of the statement
```

```
System.out.println("\n Element = " + (num[i] +1));  
Then the output on the screen is:
```

```
Element = 161  
Element = 181  
Element = 191  
Element = 201  
Element = 211
```

What will be the output of the following programs:

(a)

```
public class HelloWorld{  
public static void main (String []args){  
int i = 54;  
int y = i >>1;  
System.out.println("value of y = " + y);  
}  
}
```

(b)

```
public class HelloWorld{  
public static void main (String []args){  
int i = 54;  
int y = i <<1;  
System.out.println("value of y = " + y);  
}  
}
```

### Program 3.6

Java program to print the ASCII (American Standard Code for Information Interchange) value of the entered character

```
public class HelloWorld{  
public static void main (String []args){  
char ch ='A';  
System.out.println("the ASCII value of ch is: " + ( int )  
ch);  
}
```

Output on the screen:

```
the ASCII value of ch is: 65
```

If the statement System.out.println("the ASCII value of ch is: " + ( int ) ch); is replaced by the statement

```
System.out.println("the ASCII value of ch is: " +  
char) ch);
```

Then the output on the screen is:

```
the ASCII value of ch is: A
```

### Program 3.7

Java program to print the value of ~x

```
public class HelloWorld{  
public static void main (String [] args){  
int x, y;  
x = 205;  
y=~x;  
System.out.println("the value of y is: " + y);  
}  
}
```

Output on the screen:

```
the value of y is:-206
```

If the statement y=~x; is replaced by the statement y= -(~x);

i.e., if the above program is rewritten as:

```
public class HelloWorld{  
public static void main (String [] args){  
int x, y;  
x = 205;  
y= -(~x);  
System.out.println("the value of y is: " + y);  
}  
}
```

Then the output on the screen is:

```
the value of y is:206
```

### Program 3.7

Java program to print the length of the entered character (i.e., to print the length of the string)

A)

```
public class HelloWorld{  
public static void main (String [] args){  
String m = new String ("computer");  
System.out.println("length of string = " + m.length());  
}  
}
```

Output on the screen:

```
length of string = 8
```

B)

```
import java.util.Scanner;  
public class HelloWorld {  
public static void main(String [] args) {  
String m;  
Scanner in = new Scanner(System.in);  
System.out.print("Enter the word: ");  
m = in.nextLine();  
System.out.println(" the word you entered = " + m);  
System.out.println("length of string = " + m.length());  
}  
}
```

Enter the word: file

```
the word you entered = file
```

```
length of string = 4
```

### Program 3.8

```
Java program to display the date  
import java.util.Date;  
public class HelloWorld {  
    public static void main(String args[]) {  
        Date date = new Date();  
        System.out.println(date.toString());  
    }  
}
```

Output on the screen:

Mon Feb 15 10:49:33 EST 2016

What will be the output of the following program:

```
import java.util.Scanner;  
public class HelloWorld {  
    public static void main(String args[]) {  
        int i, n, fact=1 ;  
        Scanner scan = new Scanner(System.in);  
        System.out.println("Enter any number: " );  
        n= scan.nextInt();  
        for(i=1; i<=n; i++)  
            fact = fact *i;  
        System.out.println("\n Entered number is: " + n);  
        System.out.println("\n The factorial of the entered  
        number" + n + " is:" + fact);  
    }  
}
```

### Program 3.8

Java program to check whether the two numbers are equivalent or not using equals() method

```
public class HelloWorld {  
    public static void main(String [] args) {  
        Integer x =5;  
        Integer y= 6;  
        if(x.equals(y))  
            System.out.println("x equals y ");  
        else  
            System.out.println("x does not equals y ");  
    }  
}
```

Output on the screen:

x does not equals y

### Program 3.9

Java program to print the reverse of the entered word

```
public class HelloWorld{  
    public static void main (String [] args){  
        String m = new String ("computer");  
        System.out.println("length of string = " + m.length());  
        System.out.println(" the word you entered = " + m);  
        String l = new StringBuffer(m).reverse().toString();  
        System.out.println("reverse of the entered word:" + l);
```

}

}

Output on the screen:

length of string = 8

the word you entered = computer

reverse of the entered word: retupmoc

If you want to enter the word through the keyboard, then the above program should take the form:

```
import java.util.Scanner;  
public class HelloWorld {  
    public static void main(String [] args) {  
        String m;  
        Scanner in = new Scanner(System.in);  
        System.out.print("Enter the word: ");  
        m = in.nextLine();  
        System.out.println(" the word you entered = " + m);  
        String l = new StringBuffer(m).reverse().toString();  
        System.out.println("reverse of the entered word:" + l);  
    }  
}
```

Output on the screen:

Enter the word:

If you enter the word computer

the word you entered = computer

reverse of the entered word: retupmoc

will be displayed on the screen.

### Program 4.0

Java program to insert the word

```
public class HelloWorld{  
    public static void main (String [] args){  
        String m = new String ("computer");  
        System.out.println(" the word you entered = " + m);  
        String l = new StringBuffer(m).insert(3, "bill  
gates").toString();  
        System.out.println("the word computer after addition  
of another word bill gates appear as :" + l);  
    }  
}
```

Output on the screen:

the word you entered = computer

the word computer after addition of another word bill  
gates appear as : combill gatesputer

If you want to enter the word through the keyboard, then the above program should take the form:

```
import java.util.Scanner;  
public class HelloWorld{  
    public static void main (String [] args){  
        String m;  
        Scanner in = new Scanner(System.in);  
        System.out.print("Enter the word: ");  
        m = in.nextLine();  
        System.out.println(" the word you entered = " + m);  
        String l = new StringBuffer(m).insert(3, "bill  
gates").toString();
```

```

System.out.println("the entered word after addition of
another word bill gates appear as :" + l);
}
}

```

Output on the screen:

Enter the word:

If you enter the word steve jobs

the word you entered = steve jobs

the entered word after addition of another word bill

gates appear as :stebill gatesve jobs

will be outputted on the screen.

Note:

(a)

```

import java.util.Scanner;
public class HelloWorld{
public static void main (String [] args){
String m;
Scanner scan = new Scanner(System.in);
System.out.print("Enter the word: ");
m = scan.nextLine();
System.out.println(" the word you entered = " + m);
String l = new StringBuffer(m).insert(3, "bill
gates").toString();
System.out.println("the entered word after addition of
another word bill gates appear as :" + l);
}
}

```

(b)

```

import java.util.Scanner;
public class HelloWorld{
public static void main (String [] args){
String m;
Scanner yavon = new Scanner(System.in);
System.out.print("Enter the word: ");
m = yavon.nextLine();
System.out.println(" the word you entered = " + m);
String l = new StringBuffer(m).insert(3, "bill
gates").toString();

```

```

System.out.println("the entered word after addition of
another word bill gates appear as :" + l);
}
}

```

Output on the screen:

Enter the word:

If you enter the word steve jobs

the word you entered = steve jobs

the entered word after addition of another word bill

gates appear as :stebill gatesve jobs

will be outputted on the screen.

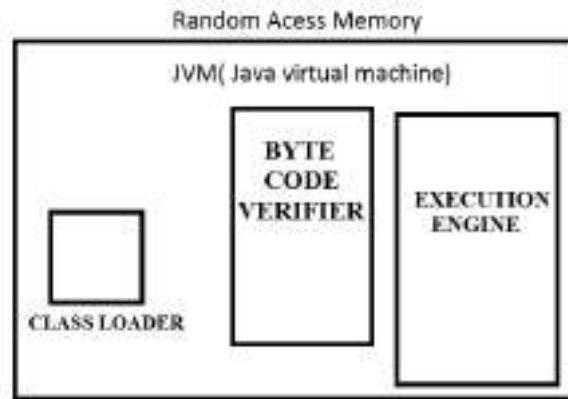
Note 1:

The statement public static void main(String args[])

can also be written as:

static public void main(String [] args)

Note 2:



JVM (Java Virtual Machine) resides under RAM (Random Access Memory – the stuff that boost up your computer to run faster and allows your computer to perform many tasks at the same time) and it comprises

**CLASS LOADER:** it loads .class file that contains Java byte codes.

**BYTE CODE VERIFIER:** it verifies byte codes.

**EXECUTION ENGINE:** it translates java byte codes to machine codes and executes them.

**“I think right now it's a battle for the mindshare of developers and for the mindshare of customers, and right now iPhone and Android are winning that battle.”**

: Steve Jobs

## ANDROID

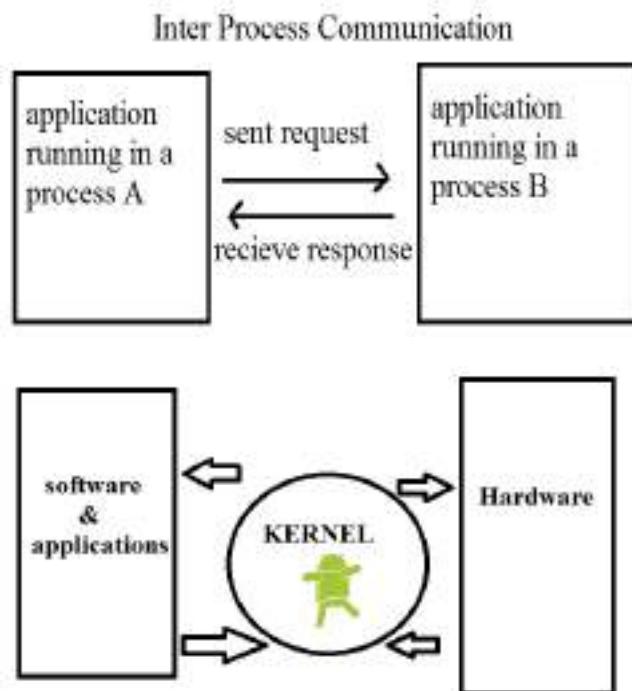
Linux based operating system currently developed by Google, based on the Linux kernel and designed primarily for touchscreen mobile devices such as smartphones and tablets -- which empowers millions of mobile devices such as smartphones and tablet computers across the world – first developed by Android Inc. (a Palo Alto-based startup

company, founded in 2003) and later subsequently acquired by and further advanced by a coalition of hardware, software and telecommunications companies i.e., open hand set alliance (a group of 84 technology and mobile companies including Dell, Motorola, Samsung Electronics, Sony, Intel, LG Electronics, Qualcomm, Broadcom, HTC, Sprint, Texas Instruments and Japanese wireless carriers KDDI and NTT DoCoMo etc.) – led by Google Inc. and was initially released in September 23, 2008 under the Apache v2 open source license.

## Android Architecture

- **LINUS KERNEL**

Core part / heart of the android operating system – developed by Linus Torvalds in 1991 – which consists of drivers (i.e., a well-defined set of instructions – what we call programs or software written in C language that is installed into mobile phones and stored in the form of files in the phone) – that tells your mobile phone how to communicate with its hardware components such as camera, display etc. – without which keypad, Bluetooth, Audio, Wi-Fi, Camera won't work properly and it is responsible for Inter Process Communication (IPC: a mechanism which allows applications running in different processes to share data and communicate with each other i.e., a mechanism which allows an application running in a process to send requests and receive responses from an application running in another process), Power management (conserves power in the expense of performance and holds the device not to get to sleep state) and Memory management (make the best or most effective use of memory).



Intercommunication of software and applications with hardware through Kernel

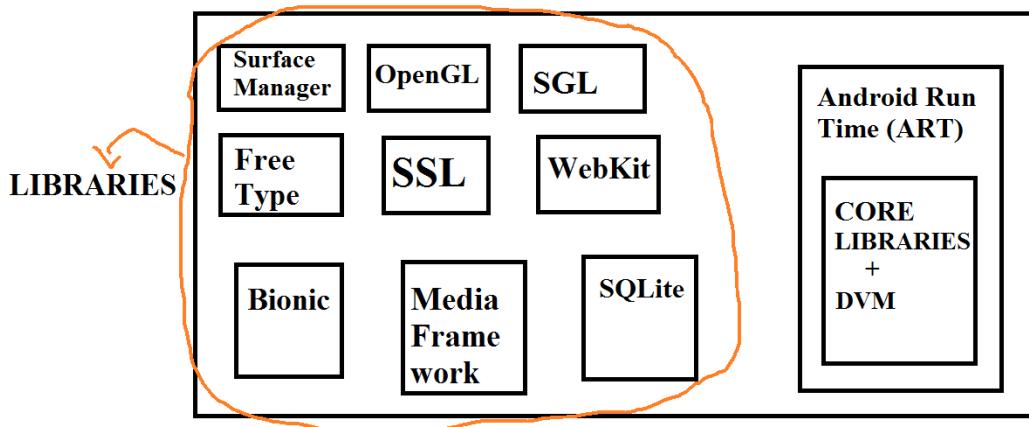
- **LIBRARIES**

A collection of prewritten non-volatile data (written in C/ C++ language) and precompiled programming codes – which support the well-functioning of android operating system.

Libraries include:

- ❖ Surface Manager/ Screen manager (support the display screen)
- ❖ OpenGL (Open Graphics Library) – support 3Dimensional graphics

- ❖ SGL (Scalable Graphics Library) – support 2Dimensional graphics
- ❖ Media Framework – support recording and playback of audio and video and image formats (MP3, JPG, JPEG, PNG, GIF etc.)
- ❖ Free Type – responsible for font support (i.e., font size, color etc.)
- ❖ SSL (Secured Sockets layer) / TLS (Transport Layer Security) – responsible for internet security and support network applications
- ❖ WebKit – support the display of web pages (i.e., support inbuilt browser)
- ❖ SQLite – responsible for storage of user data
- ❖ Bionic – standard C library WHICH supports embedded Linux based devices in mobile phones



### **Android Run Time (ART)**

This includes Java core libraries (consists of Java packages) and DVM (Dalvik Virtual Machine) – which is responsible to run android application.

Note 1:

Java source code is compiled into Java bytecode which is stored within .class file and the Java bytecode is read, verified and executed by Java Virtual Machine (JVM). But in the case of Google's Android operating system, DVM (Dalvik Virtual Machine) is used instead of JVM because JVM is designed for desktops and it is too heavy for mobile devices and moreover JVM takes more memory, runs and loads slower compared to DVM.

In case of desktop operating system,

Java source codes – are compiled to – Java byte codes (which then stored in .class file) – read, verified and executed by JVM.

In case of Google's Android operating system,

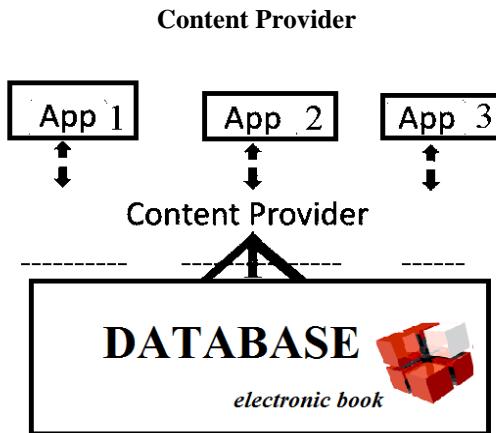
Java source codes – are compiled to – Java byte codes (which then stored in .class file) – a tool called dx then converts Java byte codes into Dalvik byte codes (which are then stored in .dex file i.e., in . Dalvik Executable file) – and are read, verified and executed by DVM (Dalvik Virtual Machine – open-source software meaning a software which is freely available to the public – developed by Dan Bornstein, who named it after the fishing village of Dalvik in Iceland).

### **Application Frame Work**

A software frame work (written in Java language) that supports the features of android applications  
Application Frame Work includes:

- Content Provider
- Notifications Manager

- Activity Manager
- Window Manager
- Location Manager
- View manager
- Package manager
- Telephony manager
- XMPP (Extensible Messaging and Presence Protocol)
- Resource manager:



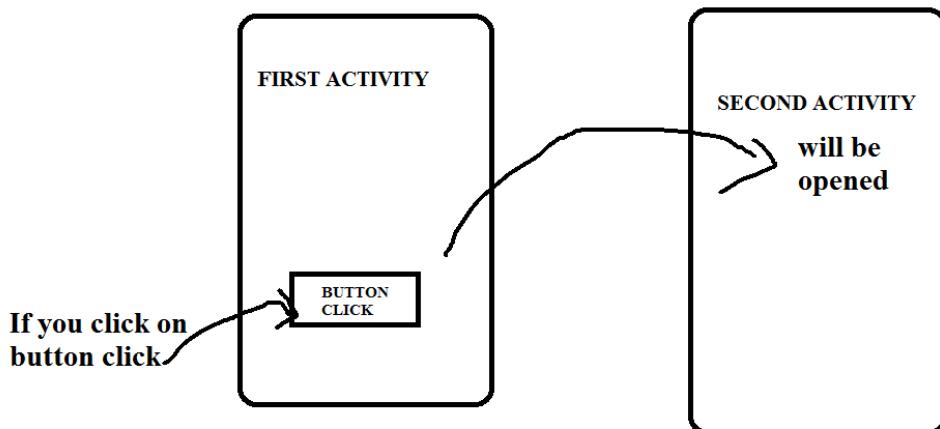
Data of applications (App 1, App 2 & App 3) are stored in database (which may be SQLite or Files etc.). If application App 1 requests content provider for the data of the application App 2, then the content provider fetches the data of the application App 2 and sends to App 1. Thus the data of App 2 is shared by App 1 THROUGH Content provider.

“Content provider allows the sharing of data among various applications.”

#### Notifications Manager

Notifications Manager – display alerts and notifications (like low battery, you have got 2 messages, you have 2 missed calls etc.) to the user.

#### Activity Manager



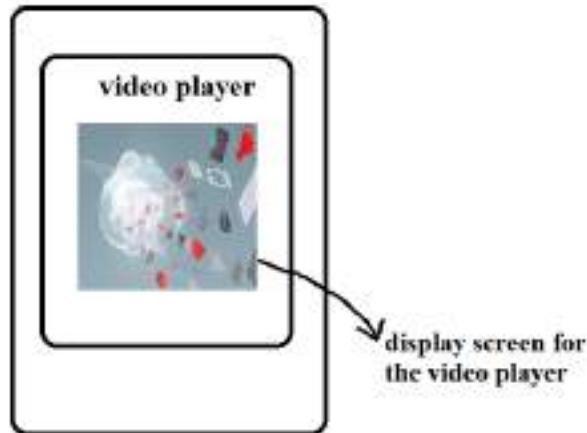
If you open your mailbox application, you see number of activities such as inbox, sent, draft etc.

If you click on inbox, then another activity showing the list of inbox mails is opened.  
And if you click on one of the inbox mail, then another activity showing the content of inbox mail is opened.

**The activity manager manages and keeps the record of these activities.**

#### **Window Manager**

Window Manager organizes the display screen for the application

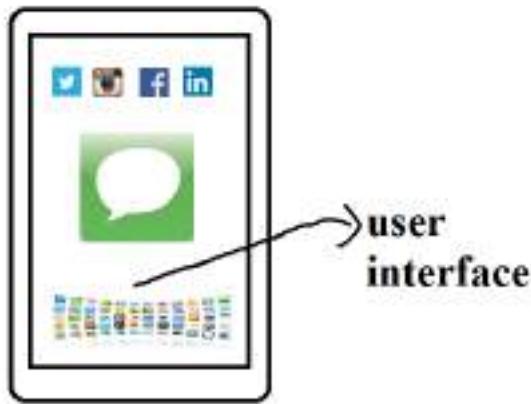


**the display screen for the video player application organized by Window Manager**

#### **Location Manager**

Location Manager provides the periodic updates of the geographical location of the mobile device using GPS (Global Positioning System which is a satellite-based navigation system) or cell tower.

#### **View manager**



**View manager manages the apps user interface.**

#### **Package manager**

Package manager provide information about the list of installed apps in Android mobile device.

#### **Telephony manager**

Telephony manager provide information about the Telephony services (such as phone network, sim serial number, IMEI number etc.).

## **XMPP**

XMPP (Extensible Messaging and Presence Protocol) supports online chat application (like yahoo messenger etc.).



## **Resource manager**

Where you can store all the non-code resources like images, graphics, videos, audios, animations, pictures that your application might use as backgrounds etc. – and you can upload these resources to your app.

## **Applications**

Which include: contacts, browser, messages, facebook, whatsapp etc.



Twitter



Facebook



Instagram



LinkedIn

What will be the output of the following program:

```
public class HelloWorld{  
    public static void main (String [] args){  
        String m = new String ("Strings are immutable");  
        System.out.println(m.charAt(8));  
    }  
}
```

---

Answer:

Output on the screen:

a

Note: if you replace the statement

```
System.out.println(m.charAt(8));
```

by the statement

```
System.out.println("m.charAt(8)");
```

Then the output on the screen is:

m.charAt(8)

If you want to enter the sentence through the keyboard, then the above program should take the form:

```
import java.util.Scanner;
public class HelloWorld {
    public static void main(String [] args) {
        String m;
        Scanner in = new Scanner(System.in);
        System.out.print("Enter the sentence: ");
        m = in.nextLine();
        System.out.println(m.charAt(8));
    }
}
```

Output on the screen:

Enter the sentence:

If you enter the sentence: strings are immutable

Then

a

will be displayed on the screen.

### **Android - Application Components**

Which are the building blocks of android application.

The main components of the android application are:

- Activities
- Services
- Broadcast Receivers
- Content Providers
- Intent
- View
- Android Virtual Device (AVD)
- Android Emulator

### **Activities**

If you open your phone application, you see number of activities such as received calls, dialed calls, missed calls etc.

If you click on received calls, then another activity (i.e., screen showing the list of received calls) is opened.

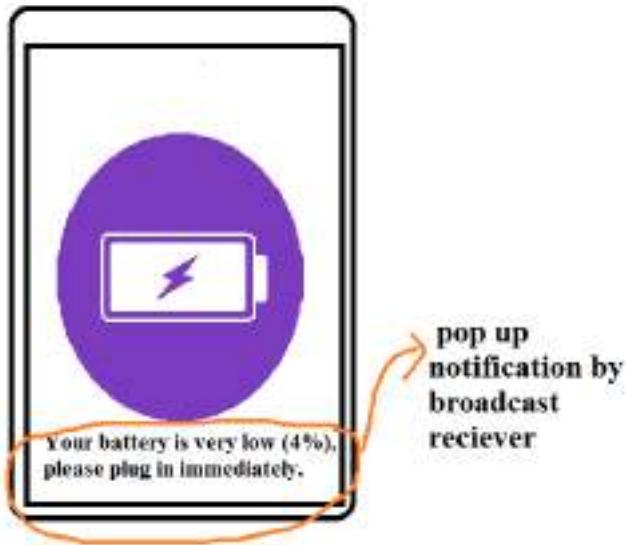
And if you click on one of the received call, then another activity showing the information about the received call (such as the phone number of received call, the time at which it was received etc.) is opened. And if you want to make a call, another activity showing the number keypad is opened.

### **Services**

If you want the music to play in the background or if you want some video to be downloaded while you are browsing over the internet – services provide feasibility for the music to play in the background or video to be downloaded while you are browsing over internet.

#### Broadcast Receivers

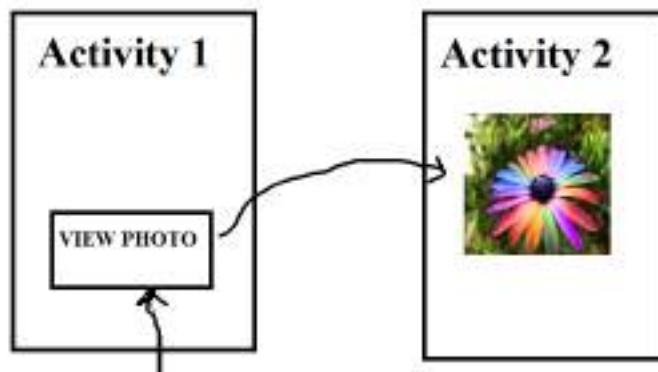
pop up notifications such as low battery, charging, Power got connected to the mobile device, Power got disconnected from the mobile device, A headset was plugged in, A headset was plugged out.



#### Content Providers

If you type a request for the meaning of a word in the search engine of user dictionary application User dictionary application sends the request to content resolver and the content resolver sends the request to the content provider and the content provider fetches the information from the database and directs it to the content provider and then from content provider to content resolver and finally from content resolver to user application.

#### Intent



When you press view photo, intent (message) is sent to the android operating system to open another activity (i.e., activity 2) which display the photo

View (apps user interface)

#### Android Virtual Device (AVD) & Emulator

Different android mobile devices possess different configurations. After running and testing your android application on emulator (the component that allows the testing of android application without the necessity to install

---

the application on a physical Android based mobile device) you need Android Virtual Device (AVD) to test whether the application is compatible with a particular android mobile device configuration before installation of the app into that mobile device.

## **XML**

EXtensible (extendable) Markup (symbols and notations like <, >, / etc.) Language (which is both human and machine understandable language) is a simple and very flexible text format designed to store and transport data through internet.

HTML (Hyper Text Markup Language) = A text format designed to display data

1. XML to display the output:

```
note
to people
from steve jobs
message Design is not just what it looks like and feels like. Design is how it works.
```

Answer:

```
<note>
<to> people </to>
<from> steve jobs </from>
<message> Design is not just what it looks like and feels like. Design is how it works. </message>
</note>
```

**Note:**

If the statement

<message> Design is not just what it looks like and feels like. Design is how it works. </message>

is replaced by the statement

<Message> Design is not just what it looks like and feels like. Design is how it works. </message>

Then there will be no display of the output on the console screen.

The statement <to> people </to> imply element  
<to> imply start tag and </to> imply end tag

```
<note>
.....
.....
.....
</note> is termed parent element
```

And

```
<to> people </to>
<from> steve jobs </from>
```

<message> Design is not just what it looks like and feels like. Design is how it works. </message> are termed child elements

2. XML to display the output:

Book

Name of the book: Harry Potter

Author: J K. Rowling

---

Price: 255\$  
Pages: 296  
Year: 2002  
Edition: 8

Answer:

```
<Book>
<Name>:Harry Potter </Name>
<Author>: J K. Rowling </Author>
<Price>: 255$ </Price>
<Pages>: 296 </Pages>
<Year>: 2002</Year>
<Edition>: 8 </Edition>
</Book>
```

**Note:**

What will be the output of the following:

```
<Book>
<Name>: Harry Potter </Name>
<Author> J K. Rowling </Author>
<Price> 255$ </Price>
<rowling> <Pages> 296 </Pages></rowling>
<Year> 2002</Year>
<Edition> 8 </Edition>
</Book>
```

Note 1:

<rowling> <Pages> 296 </Pages></rowling> is termed child element and <Pages> 296 </Pages> is termed sub child element.

“Well, Mr. Frankel, who started this program, began to suffer from the computer disease that anybody who works with computers now knows about. It's a very serious disease and it interferes completely with the work. The trouble with computers is you \*play\* with them. They are so wonderful. You have these switches - if it's an even number you do this, if it's an odd number you do that - and pretty soon you can do more and more elaborate things if you are clever enough, on one machine.

After a while the whole system broke down. Frankel wasn't paying any attention; he wasn't supervising anybody. The system was going very, very slowly - while he was sitting in a room figuring out how to make one tabulator automatically print arc-tangent X, and then it would start and it would print columns and then bitsi, bitsi, bitsi, and calculate the arc-tangent automatically by integrating as it went along and make a whole table in one operation.

Absolutely useless. We \*had\* tables of arc-tangents. But if you've ever worked with computers, you understand the disease - the \*delight\* in being able to see how much you can do. But he got the disease for the first time, the poor fellow who invented the thing.”

— Richard Feynman, Surely You're Joking, Mr. Feynman!: Adventures of a Curious Character

### How to create an android application which says Hello Android

There is one major step for getting started with Android operation:

You need to download java development kit i.e., JDK (jdk-8u91-windows-x64.exe) from the website

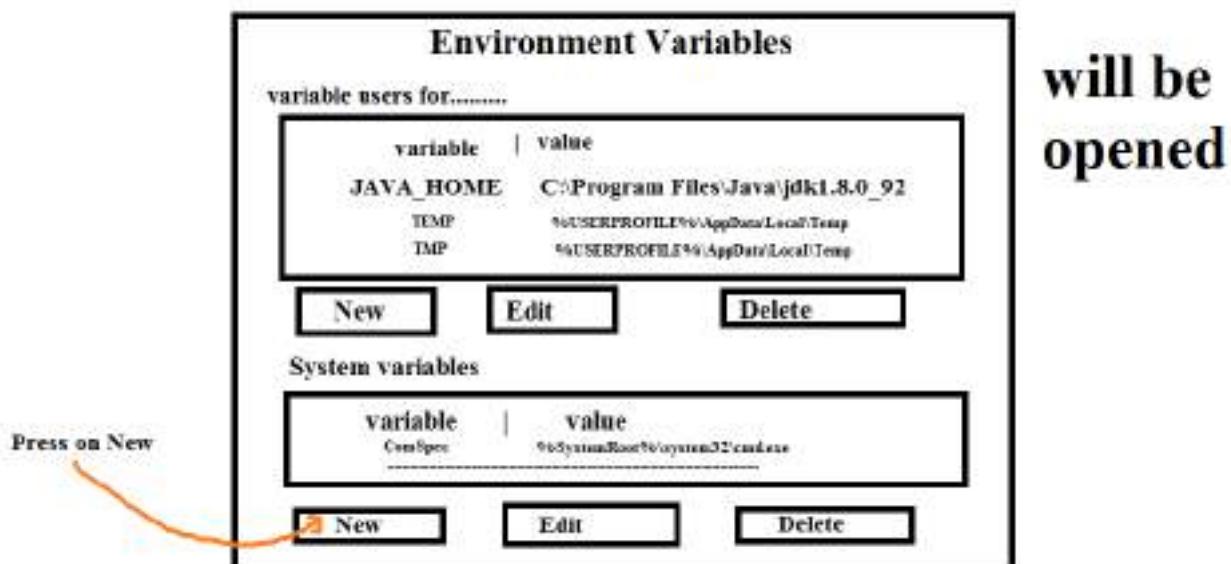
<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>

And after downloading and installing it into your computer,  
You need to download android studio (1.5.1 or 2.0) from the website

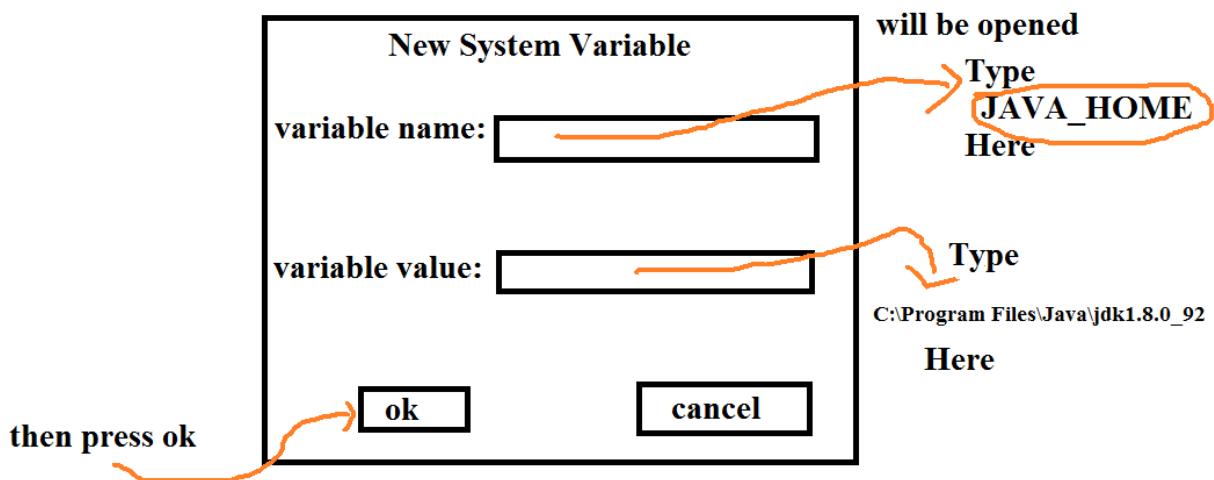
<http://developer.android.com/sdk/index.html>

And after downloading and installing it into your computer, if you try to open the studio – you will observe a popup message stating that your JDK does not point to valid installation and your studio will be forcibly closed. For that you need to follow the following steps:

Open control panel → then open System and Security → then open System → then open Advanced system settings → click on Environment variables then a window



And if you click on New button—then a window



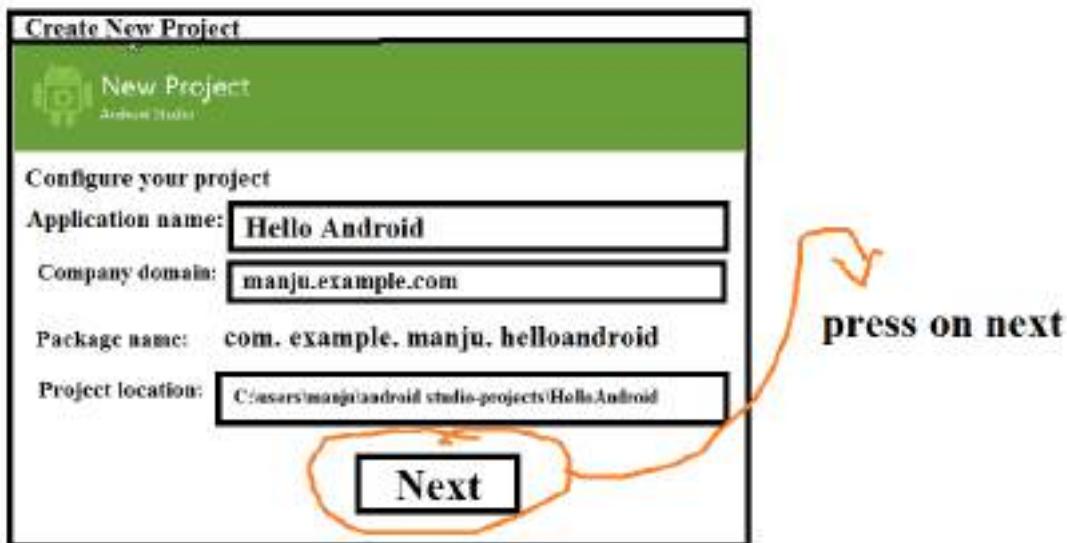
And restart the system → now open your studio → and follow the option  
File → New → New project

And Create New Project window is opened and in create new project window you will see a list of things:

Application name:

Company domain:

Package name:  
Project location:



Application name: name of the application you are going to create  
Because you are going to create Hello Android application,  
Application name is Hello Android

Company domain: domain name which you prefer to be associated with your app to preserve its unique identity in Google play store —without which you cannot generate a package name and without the package name you cannot distribute your app in the official app store for Android smartphones and tablets or in the online android market like Google play store.

In this case we just name the  
Company domain as manju.example.com

Package name:  
Since Company domain is manju.example.com and application name is Hello Android  
Package name is:  
com.example.manju.Helloandroid (which is autogenerated)

Project location: a file or folder on your hard drive where the newly created application will be stored.  
In this case the above project will be stored in the C drive and the path of the project will be as follows:

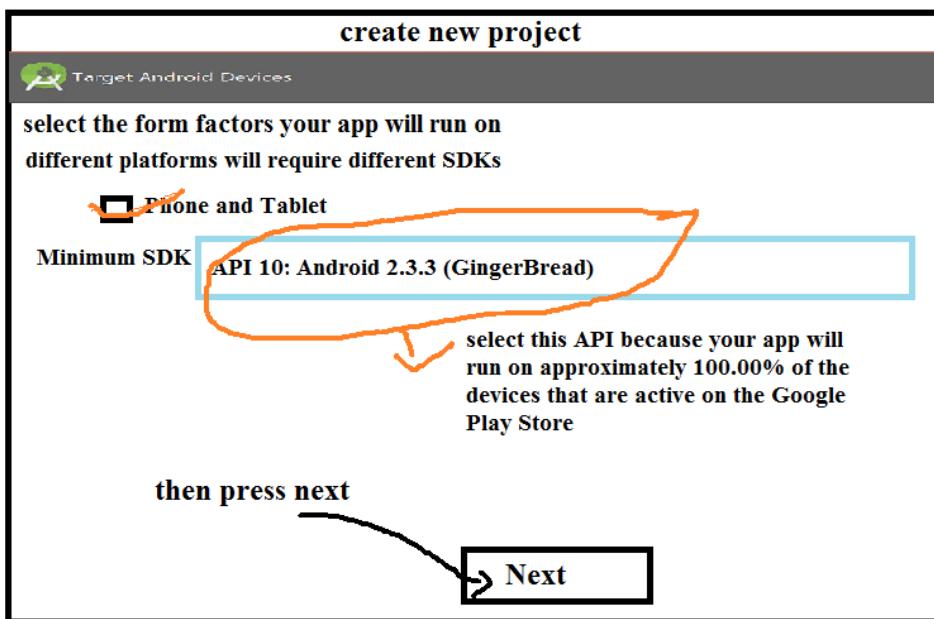
C:\Users\Manju\AndroidStudioProjects\HelloAndroid

Application name: Hello Android  
Company domain: manju.example.com  
Package name: com.example.manju.helloandroid  
Project location: C:\Users\Manju\AndroidStudioProjects\HelloAndroid

Once you have set the application name, company domain and project location, click on the "Next" button in the lower right corner of the Create New Project window.  
And then a window

Target Android devices

Will be opened



Because normally apps are installed into phones and smart phone tablets we select Phones and Tablets (instead of TV, Glass , Android Auto and Wear). And under Phones and Tablets – we select minimum SDK (SDK means software development kit): API 10: Android 2.3.3 (GingerBread) because we wish our app to run on approximately 100.00% of the devices that are active on the Android market. Selection of minimum SDK is very important because

If you select minimum SDK:

API 15: Android 4.0.3 (IceCreamSandwich)

Then your app will run on only approximately 96.2% of the mobile devices that are active on the Google play store.  
Suppose if you select minimum SDK:

API16: Android 4.1 (Jelly Bean)

Then your app will run on approximately 94.8% of the mobile devices that are active on the Google play store.

After selecting the minimum SDK --click on the "Next" button in the lower right corner of the Target Android devices window.

And then a window -- add an activity to mobile -- will be opened



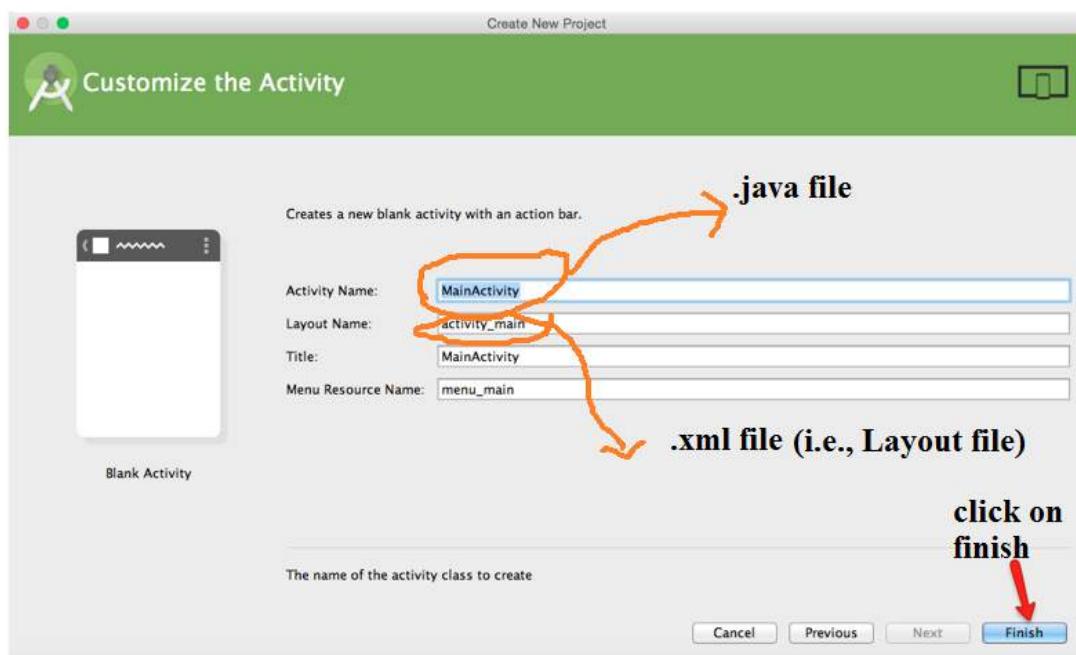
And you need to select an activity and click on the "Next" button in the lower right corner of the Add an activity to mobile window.

In this case, we select blank activity

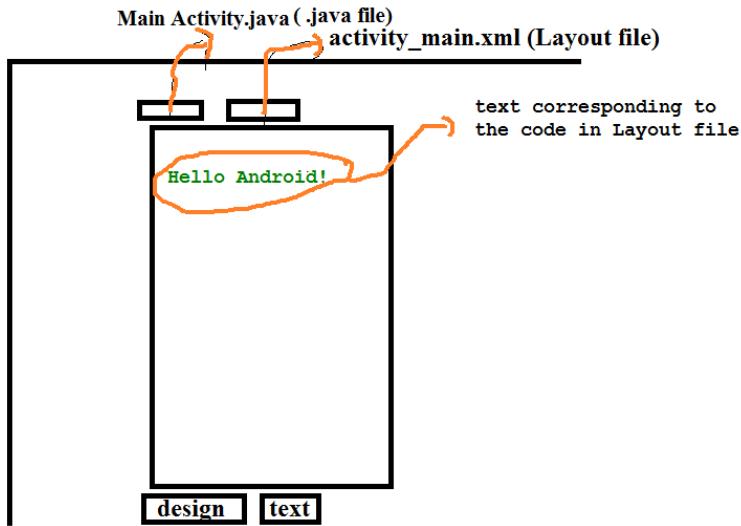
And then a window

Customize the activity

Will be opened



If you click on finish button -- a new window displaying .java and xml file will be opened displaying the text Hello Android!



If you click on text button then 2 files

- Main Activity.java
- activity\_main.xml

will be displayed on the screen.

And in activity\_main.xml file

You see

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello Android!" />
```

If you replace the statement

```
        android:text="Hello Android!"
```

by the statement

```
        android:text="Hello World!"
```

Then instead of Hello Android!

Hello World!

Will be displayed on the screen.

If you add the statement

```
        android: textAppearance="?android:attr/textAppearanceSmall"
```

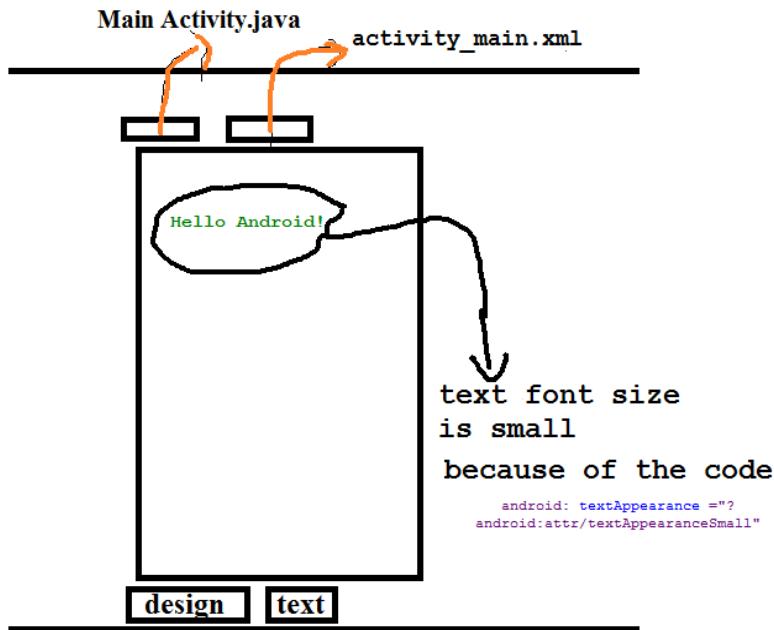
after the statement

```
        android:text="Hello Android!"
```

i.e.,

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello Android!"
    android: textAppearance="?android:attr/textAppearanceSmall"
/>
```

Then the output on the screen is:



If you replace the statement

```
        android: textAppearance ="?android:attr/textAppearanceSmall"
```

by the statement

```
        android: textAppearance ="?android:attr/textAppearanceMedium"
```

Then the font size of Hello Android! will be medium.

If you replace the statement

```
        android: textAppearance ="?android:attr/textAppearanceSmall"
```

by the statement

```
        android: textAppearance ="?android:attr/textAppearanceLarge"
```

Then the font size of Hello Android! will be large.

Suppose if add the statement

```
        android:textStyle="bold"
```

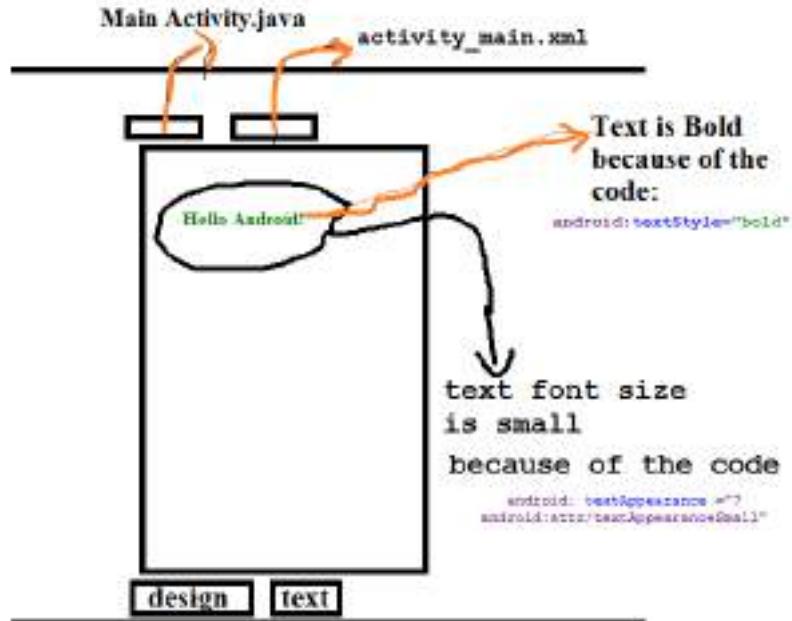
after the statement

```
        android: textAppearance ="?android:attr/textAppearanceSmall"
```

i.e.,

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello Android!"
    android: textAppearance ="?android:attr/textAppearanceSmall"
    android:textStyle="bold"
/>
```

Then the output on the screen is:



If you replace the statement

```
        android:textStyle="bold"
```

by the statement

```
        android:textStyle="italic"
```

Then the text

Hello Android!

will be in italic format

i.e.,

*Hello Android!*

Suppose if you replace the statement

```
        android:textStyle="bold"
```

by the statement

```
        android:textStyle="bold|italic"
```

Then the text

Hello Android!

Will appear as:

*Hello Android!*

If you add the statement

```
        android:textColor="#33b5e5"
```

after the statement

```
        android:textStyle="bold"
```

i.e.,

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Hello Android!"
    android: textAppearance ="? android:attr/textAppearanceSmall"
    android:textStyle="bold"
    android:textColor="#33b5e5" />
```

Then the output on the screen is:



If you replace

#33b5e5

by #33b565

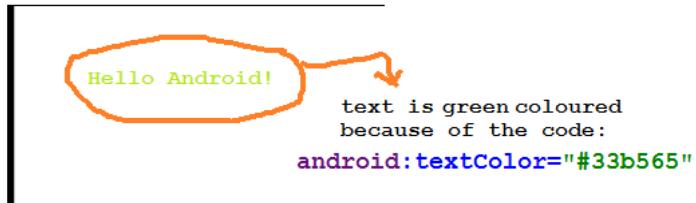
i.e., if you replace the statement

android:textColor="#33b5e5"

by the statement

android:textColor="#33b565"

Then the output on the screen is:



If you add the statement

android:textSize="50sp"

after the statement

android:textColor="#33b5e5"

i.e.,

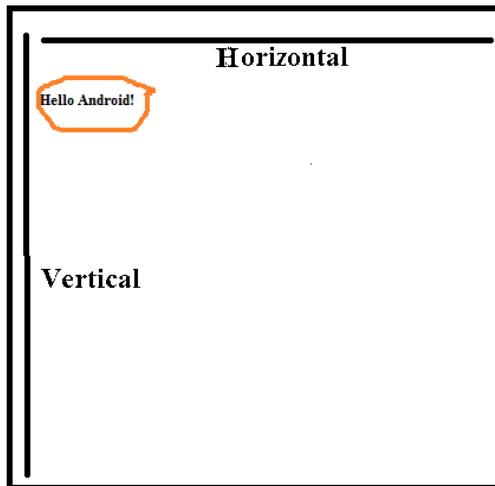
```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="Hello Android!"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:textStyle="bold"  
    android:textColor="#33b5e5"  
    android:textSize="50sp"/>
```

Then the output on the screen is:

50sp corresponds to **Hello Android!**

100sp corresponds to **Hello Android!**

150sp corresponds to **Hello Android!**



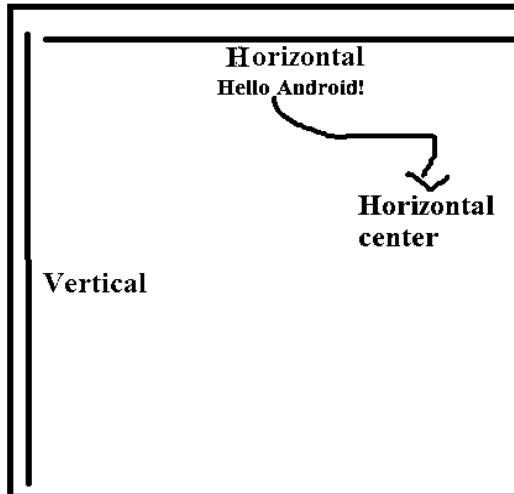
Suppose if you add the statement

after the statement

i.e.

```
    <TextView  
        android:layout_width="wrap_content" android:layout_height="wrap_content"  
        android:layout_centerHorizontal="true"  
        android:text="Hello Android!"  
        android:textAppearance="?android:attr/textAppearanceSmall"  
        android:textStyle="bold"  
        android:textColor="#33b5e5"  
        android:textSize="50sp" />
```

Then the output on the screen is:

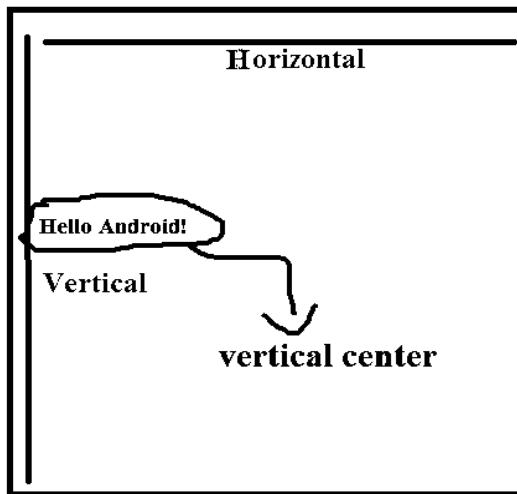


If replace the statement

by the statement

Then the output on the screen is:

```
    android:layout_centerHorizontal="true"  
  
    android:layout_centerVertical="true"
```

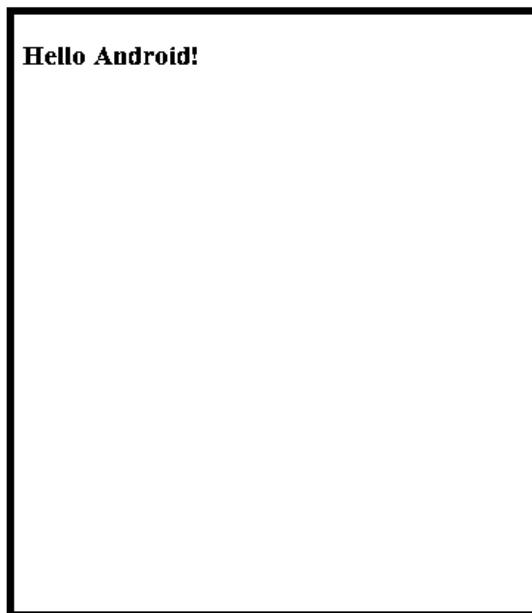


If you replace the statement

by the statement

```
    android:layout_centerHorizontal="true"
    android:layout_leftHorizontal="true"
```

Then the output on the screen is:



Suppose if you add the statement

```
    android:layout_marginTop="30dp"
```

after the statement

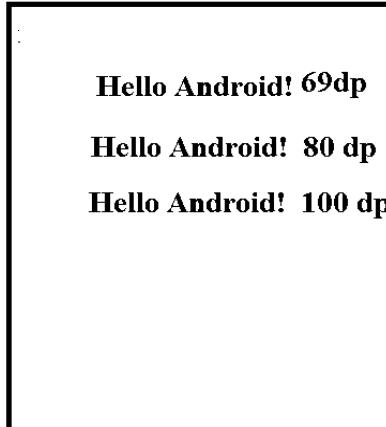
```
    android:layout_centerHorizontal="true"
```

i.e.,

```
<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="30dp"
    android:text="Hello Android!"
    android:textAppearance="?android:attr/textAppearanceSmall"
    android:textStyle="bold"
```

```
    android:textColor="#33b5e5"
    android:textSize="50sp"
/>
```

Then the output on the screen is:

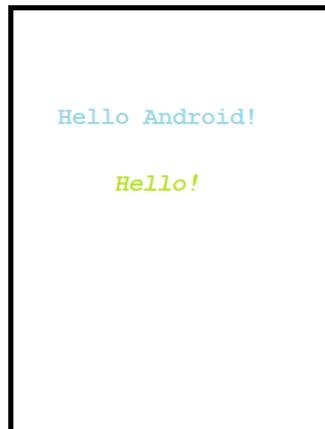


What will be the output on the screen if:

```
<TextView
    android:layout_width="wrap_content" android:layout_height="wrap_content"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="30dp"
    android:text="Hello Android!"
    android: textAppearance="?android:attr/textAppearanceSmall"
    android:textStyle="bold"
    android:textColor="#33b5e5"
    android:textSize="50sp"
/>

<TextView
    android:layout_width="wrap_content" android:layout_height="wrap_content"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="60dp"
    android:text="Hello!"
    android: textAppearance="?android:attr/textAppearanceLarge"
    android:textStyle="bold|italic"
    android:textColor="#33b575"
    android:textSize="90sp"/>
```

Answer:



What is the difference between SQL and SQLite?

SQL (Structured Query Language) — a standard interactive and programming language for getting information from a database

SQLite – database

If you replace the statement

```
        android:layout_centerHorizontal="true"
```

by the statement

```
        android:layout_alignParentLeft = "true"
```

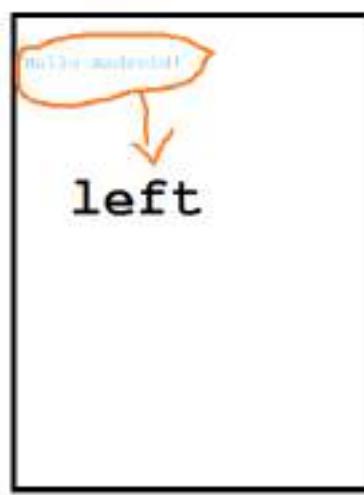
i.e., if

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_alignParentLeft = "true"  
    android:layout_marginTop="30dp"  
    android:text="Hello Android!"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:textStyle="bold"  
    android:textColor="#33b5e5"  
    android:textSize="25sp"/>
```

is written instead of

```
<TextView  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_centerHorizontal="true"  
    android:layout_marginTop="30dp"  
    android:text="Hello Android!"  
    android:textAppearance="?android:attr/textAppearanceSmall"  
    android:textStyle="bold"  
    android:textColor="#33b5e5"  
    android:textSize="25sp"/>
```

Then the output on the screen is:



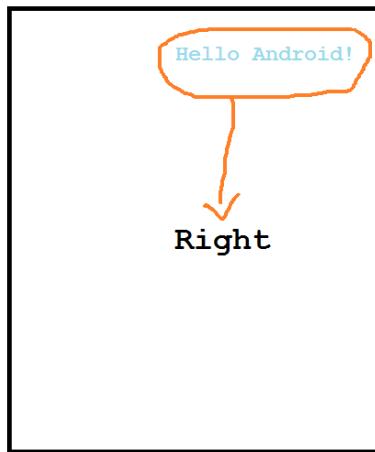
If you replace the statement

```
        android:layout_centerHorizontal="true"
```

by the statement

```
        android:layout_alignParentRight = "true"
```

Then the output on the screen is:



**Note:**

If you replace the statement

```
    android:layout_centerHorizontal="true"
```

by the statement

```
    android:layout_alignParentBottom = "true"
```

Then the text

Hello Android! on the screen will become invisible on the screen.

And if replace the statement

```
    android:layout_alignParentBottom = "true"
```

by the statement

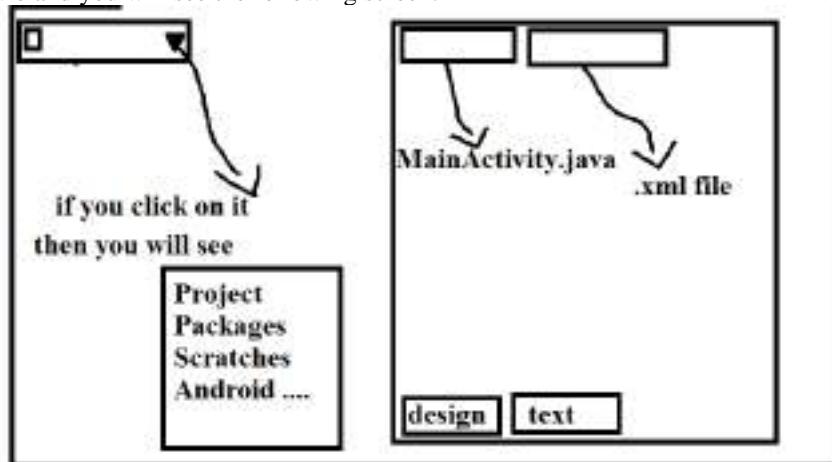
```
    android:layout_alignParentTop = "true"
```

Then the text Hello Android! will become visible on the screen.

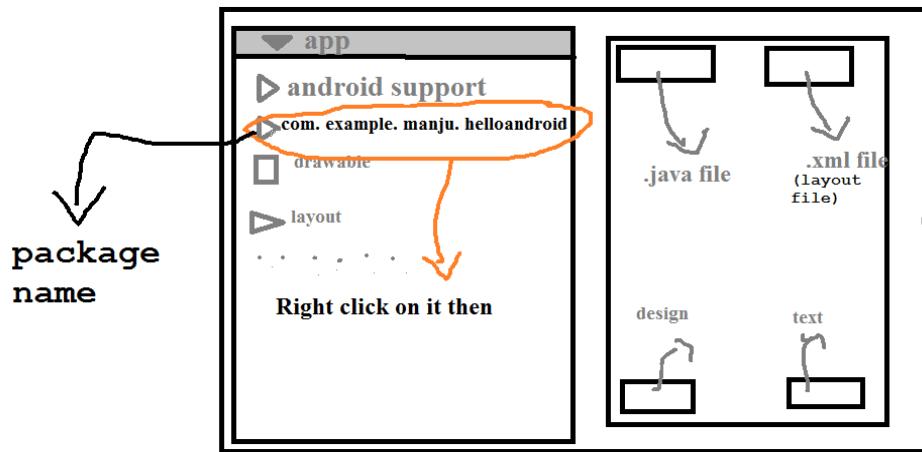
\*\*\*\*\*

## How to Add an Image to Your Android Application

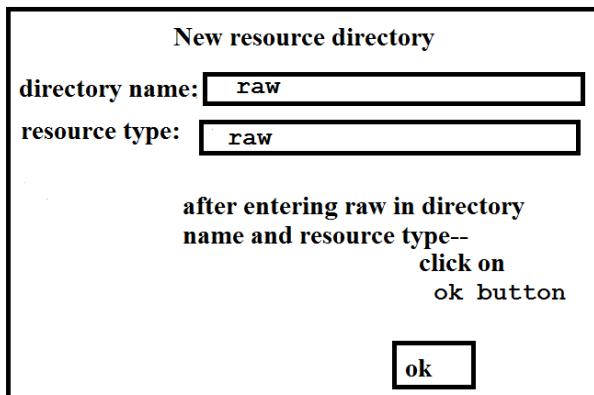
First you need to create a raw folder and for that you need to follow the following steps:  
Open Android studio and you will see the following screen:



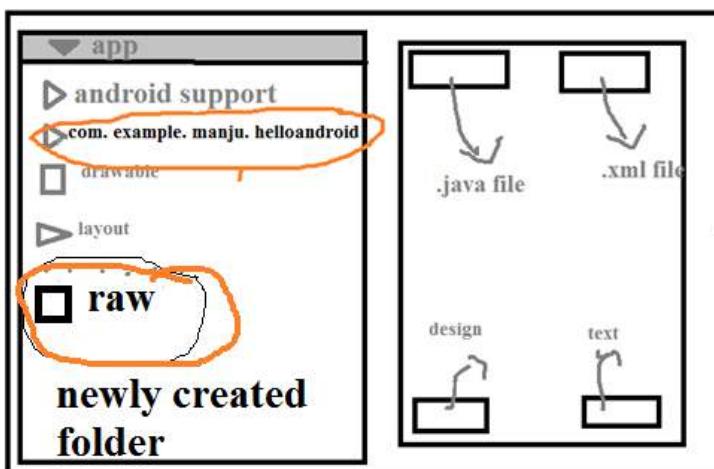
If you select packages then you will see



if you select new and click on it and select Android resource directory and click on it – a new resource directory window will be opened



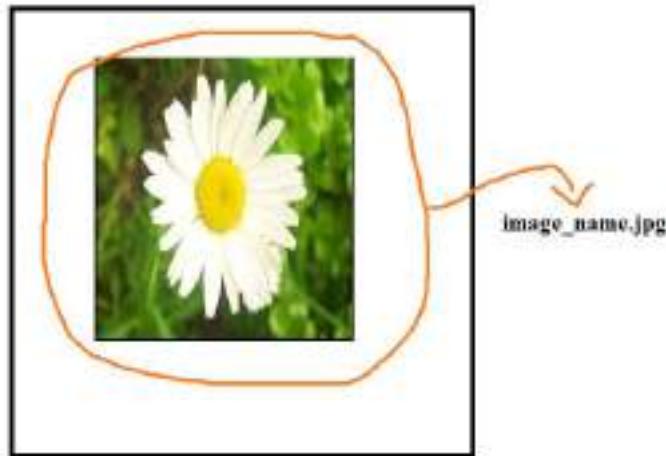
After clicking on ok button, a new folder named raw will be created and you can see it as shown in the figure below:



Now you copy the image (i.e., image\_name.jpg) from the desktop and paste in the newly created folder (i.e., in raw folder) and open .xml file and paste the following code:

```
<ImageView  
    android:layout_width="fill_parent"  
    android:layout_height="wrap_content"  
    android:src="@raw/image_name" />
```

in it. Then the output on the screen is:



If you want to drag the image downwards, then you have to add the statement

`android:layout_marginTop="100dp"`

after the statement

`android:layout_height="wrap_content"`

i.e.,

```
<ImageView  
    android:layout_width="fill_parent"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="100dp"  
    android:src="@raw/image_name" />
```

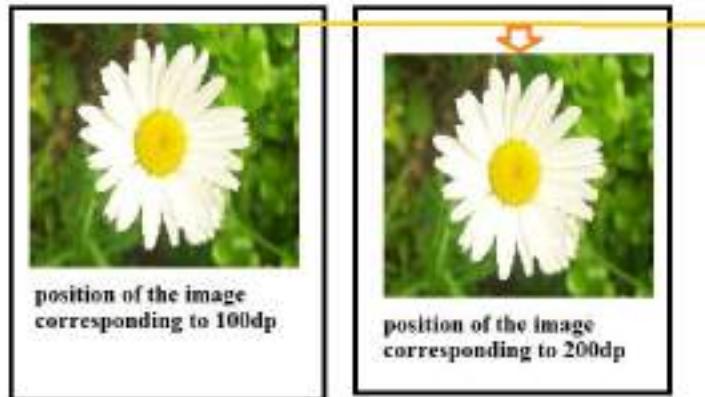
If you replace 100dp by 200 dp i.e., if you replace the statement

`android:layout_marginTop="100dp"`

by the statement

`android:layout_marginTop="200dp"`

Then the image will move downwards on the screen i.e.,



Suppose if you have copied the image (i.e., image\_name.jpg) from the desktop and pasted it in the drawable folder, then you need to replace the statement

```
    android:src="@raw/image_name"
```

by the statement

```
    android:src="@drawable/image_name"
```

otherwise no image will be displayed on the screen (because you have saved the image in drawable folder not in the raw folder).

**Note:**

Suppose if you copy the image from the desktop and paste it in the layout folder, then you have to replace the statement

```
    android:src="@raw/image_name"
```

by the statement

```
    android:src="@layout/image_name"
```

image will be displayed on the screen but when you try to build / generate the .apk file (i.e., .Android application package file), error will be displayed on the screen stating that

Build failed

The file must end with.xml

So please avoid saving the image in layout folder.

If you replace the statements

```
    android:layout_width="fill_parent"  
    android:layout_height="wrap_content"
```

by the statements

```
    android:layout_width="100dp"  
    android:layout_height="100dp"
```

i.e.,

```
<ImageView  
    android:layout_width="100dp"  
    android:layout_height="100dp"  
    android:layout_marginTop="100dp"  
    android:src="@raw/image_name" />
```

Then the output on the screen is:



To drag the image to the center you need to add the following code:

```
    android:layout_centerHorizontal="true"
```

i.e.,

---

```

<ImageView
    android:layout_width="100dp"
    android:layout_height="100dp"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="100dp"
    android:src="@raw/image_name" />
*****

```

## How to Add a Video to Your Android Application

First you need to copy the video (i.e., video.mp4) from the desktop and paste it in the raw folder and then you have to replace the existing codes in activity\_main.xml file by the following codes:

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.manju.Helloandroid.MainActivity">

    <VideoView
        android:id="@+id/videoView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerVertical="true"
        android:layout_centerHorizontal="true" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerVertical="true"
        android:layout_centerHorizontal="true"
        android:background="@android:color/transparent" />

</RelativeLayout>

```

and after replacing the above codes in activity\_main .xml file, you need to replace the existing codes below package name (i.e., **com.example.manju.Helloandroid**) in MainActivity.java by the following codes:

```

import android.graphics.PixelFormat;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.MediaController;
import android.widget.VideoView;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button buttonPlayVideo2 = (Button) findViewById(R.id.button1);
        getWindow().setFormat(PixelFormat.UNKNOWN);
    }
}

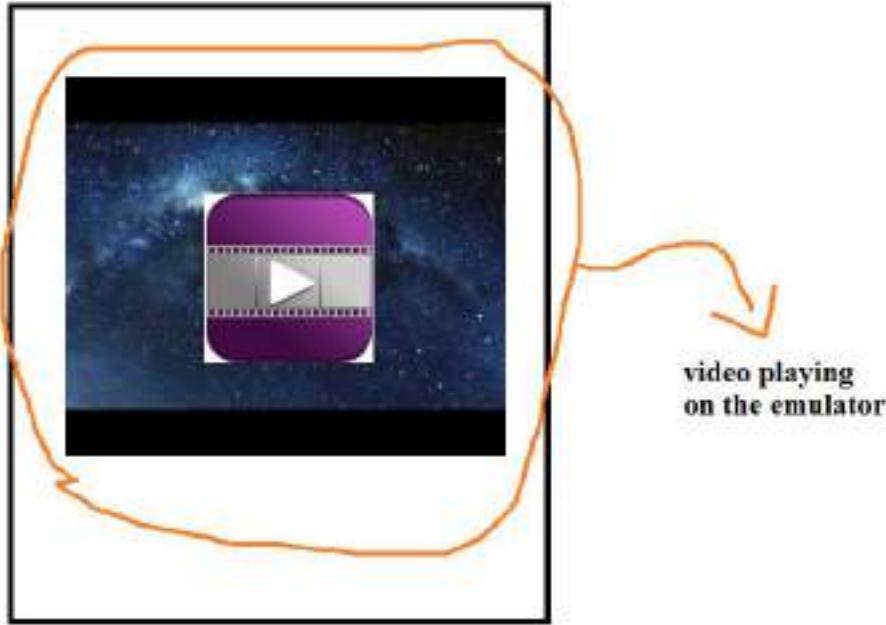
```

```

//displays a video file
    VideoView mVideoView2 = (VideoView) findViewById(R.id.videoView1);
    String uriPath2 = "android.resource://com.example.manju.Helloandroid/" + R.raw.bvideo;
    Uri uri2 = Uri.parse(uriPath2);
    mVideoView2.setVideoURI(uri2);
    mVideoView2.requestFocus();
    mVideoView2.start();
    buttonPlayVideo2.setOnClickListener(new Button.OnClickListener() {
        @Override
        public void onClick(View v) {
            VideoView mVideoView2 = (VideoView) findViewById(R.id.videoView1);
// VideoView mVideoView = new VideoView(this);
            String uriPath = "android.resource://com.example.manju.Helloandroid/" +
R.raw.video;
            Uri uri2 = Uri.parse(uriPath);
            mVideoView2.setVideoURI(uri2);
            mVideoView2.requestFocus();
            mVideoView2.start();
        }
    });
}
}

```

Then if you run the application -- video will be played on the emulator as shown in the figure below.



If you replace the statements

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

```

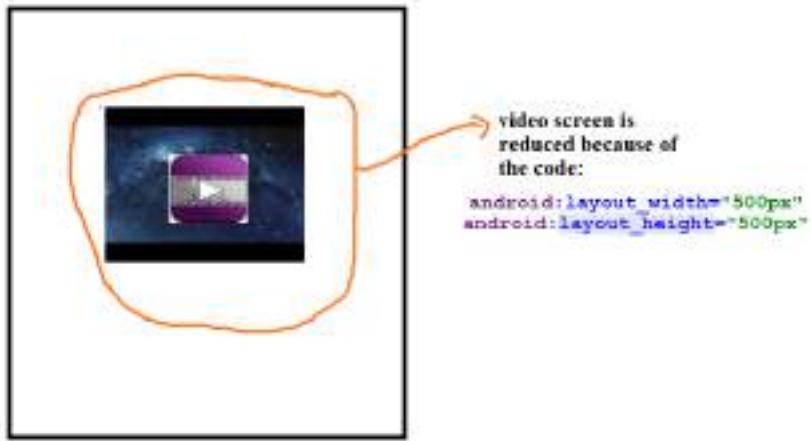
by the statements

```

        android:layout_width="500px"
        android:layout_height="500px"

```

Then the output on the screen is:



#### Note:

If you replace the file video.mp4 in the raw folder by the file music.mp3, then you should rewrite the above codes after the package name in .java file as follows:

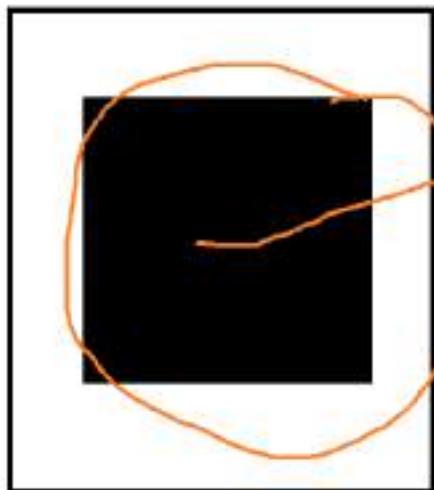
```
import android.graphics.PixelFormat;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.MediaController;
import android.widget.VideoView;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button buttonPlayVideo2 = (Button) findViewById(R.id.button1);
        getWindow().setFormat(PixelFormat.UNKNOWN);
        //displays a video file
        VideoView mVideoView2 = (VideoView) findViewById(R.id.videoView1);
        String uriPath2 = "android.resource://com.example.manju.helloandroid/" + R.raw.music;
        Uri uri2 = Uri.parse(uriPath2);
        mVideoView2.setVideoURI(uri2);
        mVideoView2.requestFocus();
        mVideoView2.start();
        buttonPlayVideo2.setOnClickListener(new Button.OnClickListener() {
            @Override
            public void onClick(View v) {
                VideoView mVideoView2 = (VideoView) findViewById(R.id.videoView1);
                // VideoView mVideoView = new VideoView(this);
                String uriPath = "android.resource://com.example.manju.helloandroid/" +
                    R.raw.music;
                Uri uri2 = Uri.parse(uriPath);
                mVideoView2.setVideoURI(uri2);
                mVideoView2.requestFocus();
                mVideoView2.start();
            }
        });
    }
}
```

```
    }  
}
```

Then the output on the screen is:



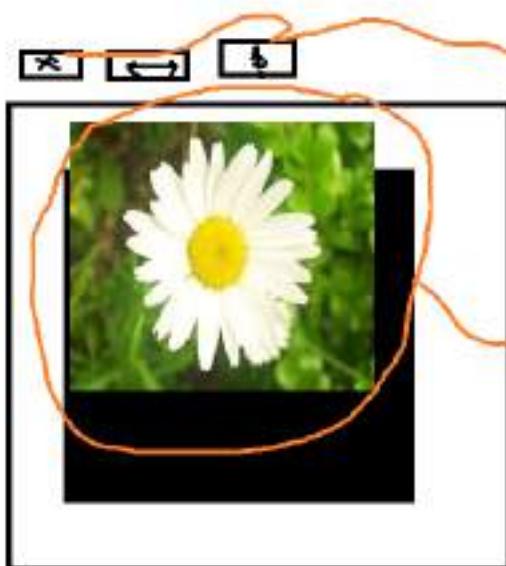
YOU will see the black  
screen but you will listen  
the music

**Note:**

If you add the following code in .xml file:

```
<  
ImageView  
    android:layout_width="fill_parent"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="100dp"  
    android:src="@raw/image_name" />
```

Then the output on the screen is:

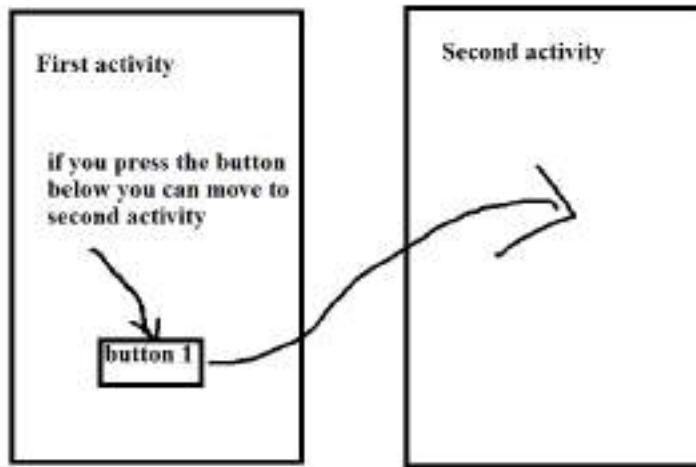


you can  
adjust the image using  
the following buttons

you can drag the  
image on the black  
screen and if you run  
the application on an  
emulator --you can  
listen to the music  
**WATCHING** the image

\*\*\*\*\*

## How to Create a second activity



First you need to replace the existing codes after the package name in Mainactivity.java file by the following codes:

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.content.Intent;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void onButtonClick(View v) {
        if (v.getId() == R.id.Bdisplay)

        {
            Intent i = new Intent(MainActivity.this, Display.class);
            startActivity(i);
        }
    }
}
```

And you need to replace the existing codes in activity\_main. xml by the following codes:

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.manju.Helloandroid.MainActivity">

    <Button
        android:layout_width="wrap_content"
```

```

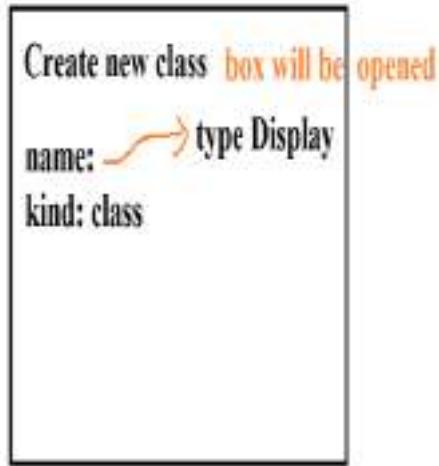
    android:layout_height="wrap_content"
    android:text="Button1"
    android:id="@+id/Bdisplay"
    android:layout_alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginBottom="177dp"
    android:onClick="onButtonClick" />

</RelativeLayout>

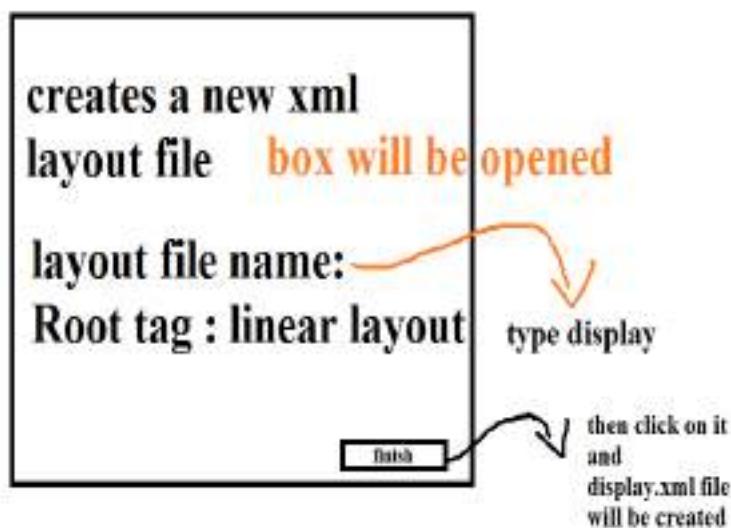
```

And Go to packages and under packages select Main activity → right click on it → select New → and select Java class

Then



And go to Layout and under layout select activity\_main. xml and right click on it → select New → and select → XML → and select Layout xml file.



And you should place the following codes in Display.java file:

```
import android.app.Activity;
import android.os.Bundle;

/***
 * Created by Manju on 3/17/2016.
 */
public class Display extends Activity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.display);
    }
}
```

And you should place the following codes in display.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Our new activity has started"
        android:id="@+id/textView" />
</LinearLayout>
```

And you should add the following code in android manifest.xml file:

```
<activity android:name = ".Display"></activity>
```

i.e.,

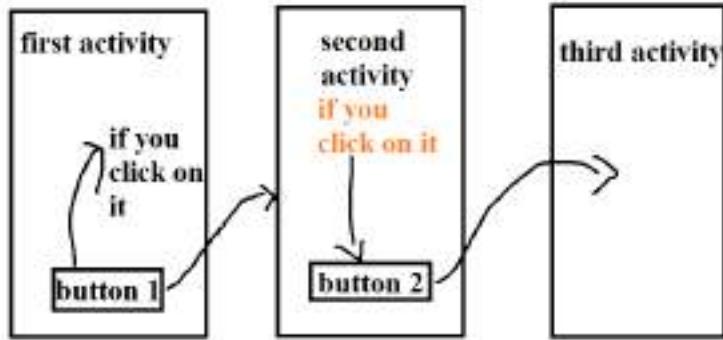
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.manju.helloandroid">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name = ".Display"></activity>
    </application>

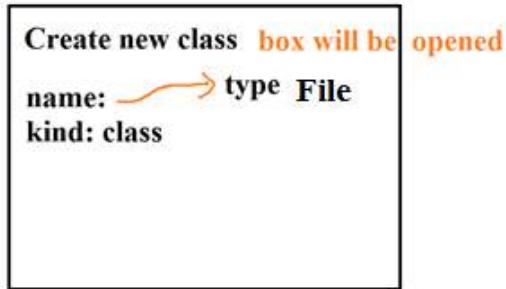
</manifest>
*****
```

## How to Create multiple activity

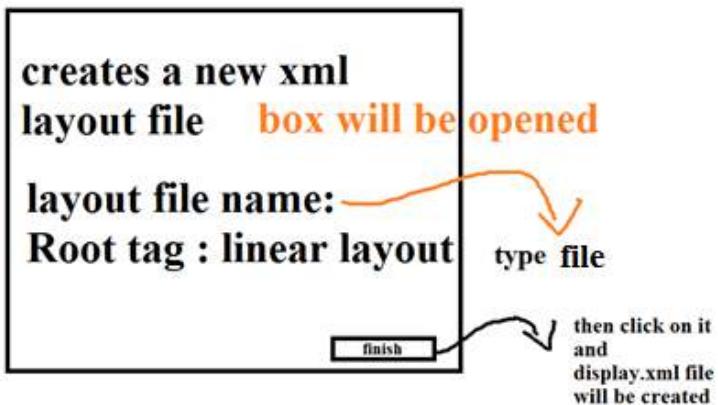


Go to packages and under packages select Display.java → right click on it → select New → and select Java class

Then



And go to Layout and under layout select display.xml and right click on it → select New → and select → XML → and select Layout xml file.



And you should place the following codes in File.java file:

```
import android.app.Activity;
import android.os.Bundle;

/**
 * Created by Manju on 3/21/2016.
```

---

```

/*
public class File extends Activity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.file);
    }
}

```

And you should place the following codes in file.xml file:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Our new activity is running"
        android:id="@+id/textView" />
</LinearLayout>

```

And you should add the following codes in android manifest.xml file:

```

<activity android:name = ".Display"></activity>
<activity android:name = ".File"></activity>

```

i.e.,

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.manju.helloandroid">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name = ".Display"></activity>
        <activity android:name = ".File"></activity>
    </application>

</manifest>

```

And you should open the Display.java file and rewrite the existing codes by the following codes:

```

import android.app.Activity;
import android.os.Bundle;
import android.view.View;
import android.content.Intent;

```

```

/**
 * Created by Manju on 3/17/2016.
 */
public class Display extends Activity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.display);
    }

    public void onButtonClick(View v) {
        if (v.getId() == R.id.Bfile)
        {
            Intent i = new Intent(Display.this, File.class);
            startActivity(i);
        }
    }
}

```

And you should open the display.xml file and rewrite the existing codes by the following codes:

```

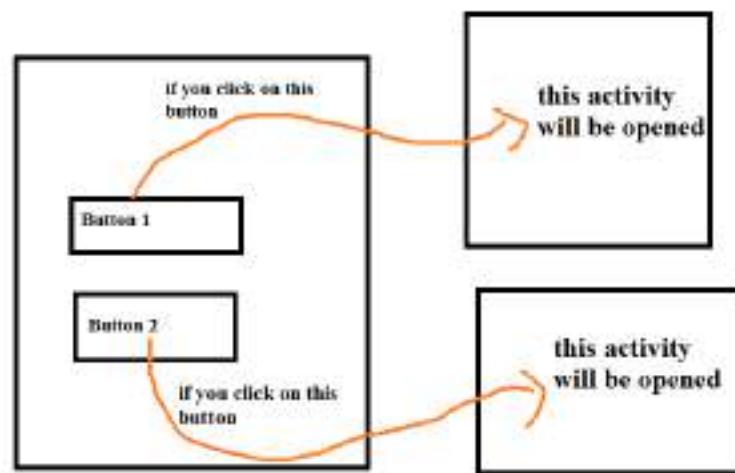
<LinearLayout

    xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button2"
        android:id="@+id/Bfile"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="177dp"
        android:onClick="onButtonClick" />

</LinearLayout>

```



---

### Code that must be written in Mainactivity.java file

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.content.Intent;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void onButtonClick(View v) {
        if (v.getId() == R.id.Bdisplay)

        {
            Intent i = new Intent(MainActivity.this, Display.class);
            startActivity(i);
        }

        if (v.getId() == R.id.Bmanju)

        {
            Intent i = new Intent(MainActivity.this, Manju.class);
            startActivity(i);
        }
    }
}
```

### Code that must be written in main\_activity.xml file

```
<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.manju.helloandroid.MainActivity">

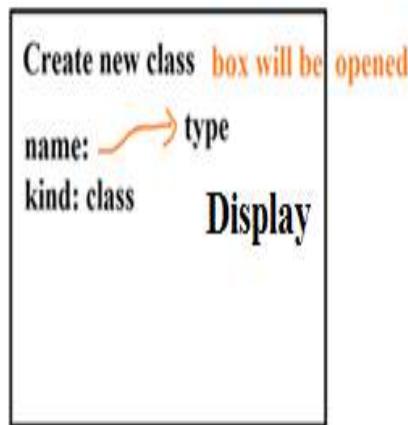
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="button 1"
        android:id="@+id/Bdisplay"
        android:onClick="onButtonClick"
        android:layout_centerVertical="true"
        android:layout_centerHorizontal="true" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="button 2"
        android:id="@+id/Bmanju"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="177dp"
        android:onClick="onButtonClick" />
```

```
</RelativeLayout>
```

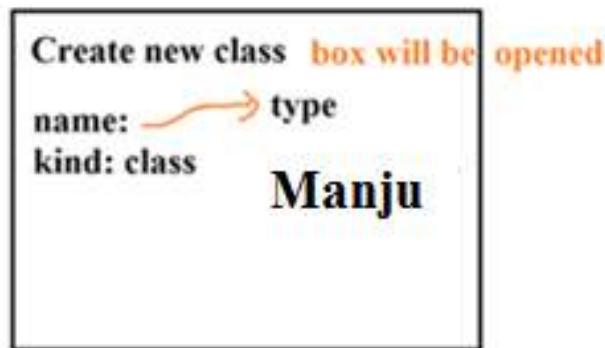
And go to Mainactivity.java → right click on it → select New → and select Java class

Then



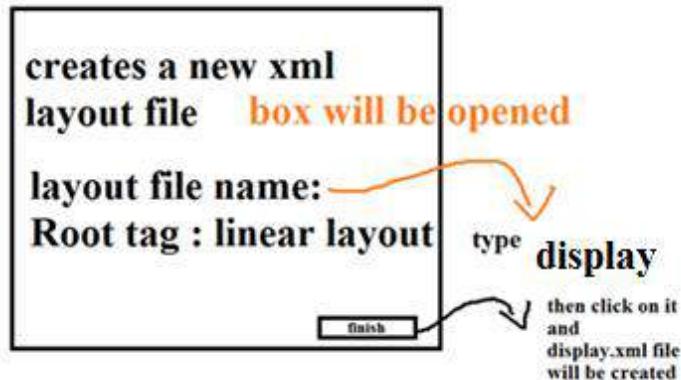
And again go to Mainactivity.java → right click on it → select New → and select Java class

Then

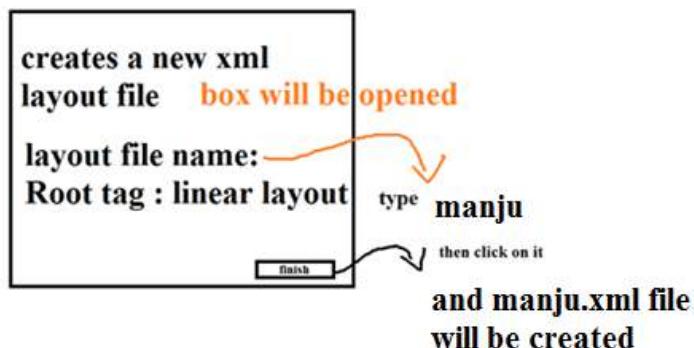


Now Display.java and Manju.java files are created.

And go to Layout and under layout select main\_activity.xml and right click on it → select New → and select → XML → and select Layout xml file.



And again go to Layout and under layout select main\_activity.xml and right click on it → select New → and select → XML → and select Layout xml file.



Now display.xml and manju.xml files are created.

Code that should be written in Display.java file:

```
import android.app.Activity;
import android.os.Bundle;

/**
 * Created by Manju on 3/17/2016.
 */
public class Display extends Activity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.display);
    }
}
```

Code that should be written in display.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
```

```

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceLarge"
    android:text="Our new activity has started"
    android:id="@+id/textView" />
</LinearLayout>

```

Code that should be written in Manju.java file:

```

import android.os.Bundle;
import android.app.Activity;
/**
 * Created by Manju on 3/28/2016.
 */
public class Manju extends Activity{
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.manju);
    }
}

```

Code that should be written in manju.xml file:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Our new activity has ended"
        android:id="@+id/textView" />
</LinearLayout>

```

And in android manifest file you have to add the following codes:

```

<activity android:name = ".Display"></activity>
<activity android:name = ".Manju"></activity>

```

i.e.,

```

<application
    android:allowBackup="true"
    android:icon="@mipmap/ic_launcher"
    android:label="@string/app_name"
    android:supportsRtl="true"
    android:theme="@style/AppTheme">
    <activity
        android:name=".MainActivity"
        android:label="@string/app_name"
        android:theme="@style/AppTheme.NoActionBar">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>
    <activity android:name = ".Display"></activity>
    <activity android:name = ".Manju"></activity>

```

```
</application>
```

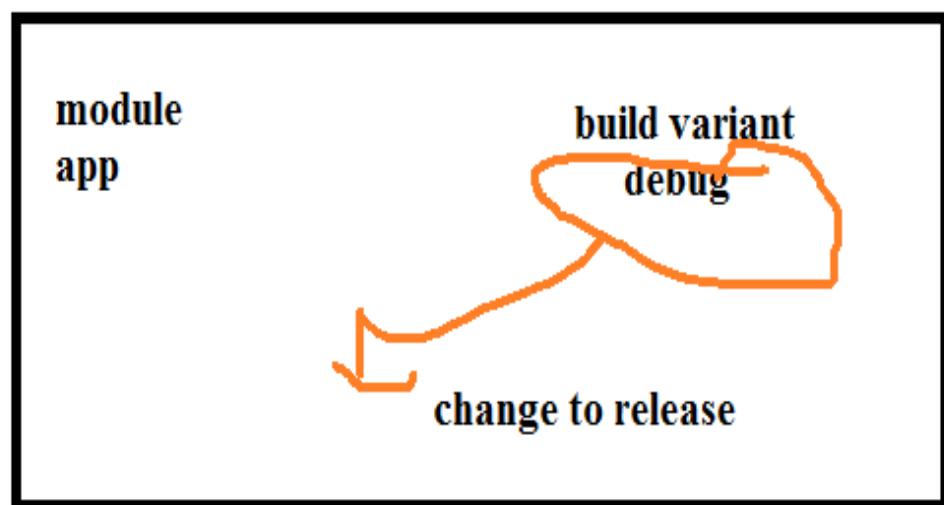
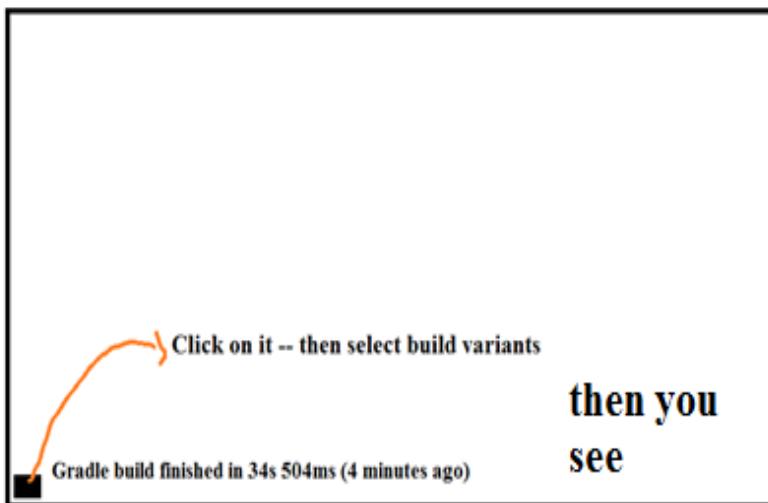
```
*****
```

### How to generate .apk file

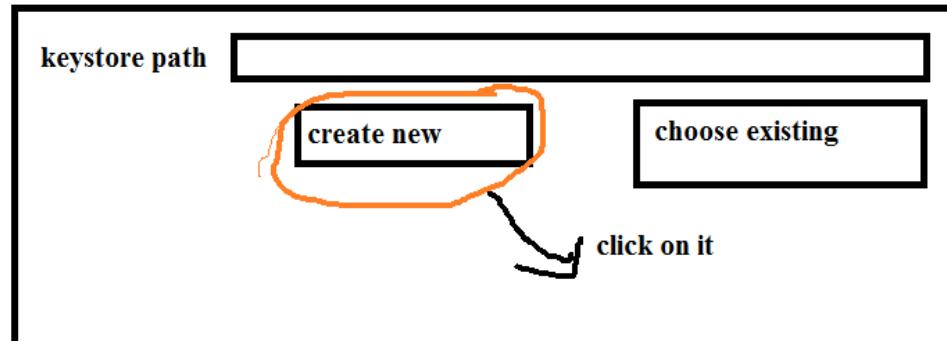
Go to build → then select build apk → Gradle build starts → apk files are generated in few minutes → install and run it on your android mobile set.

**Note:**

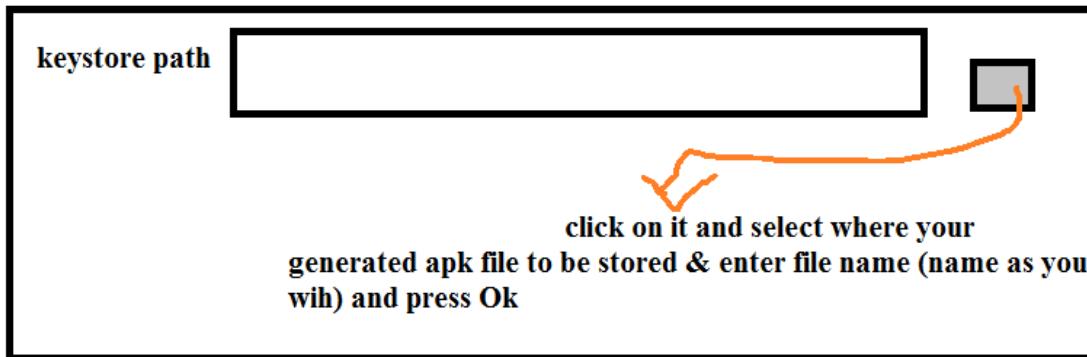
In order to sell your app on Google play -- you need to generate signed apk file for that:



Then go to build → select generate signed apk→ then you will see



Then you see New key store window → then fill the details – for example



In Alias → type (say IT means information technology)

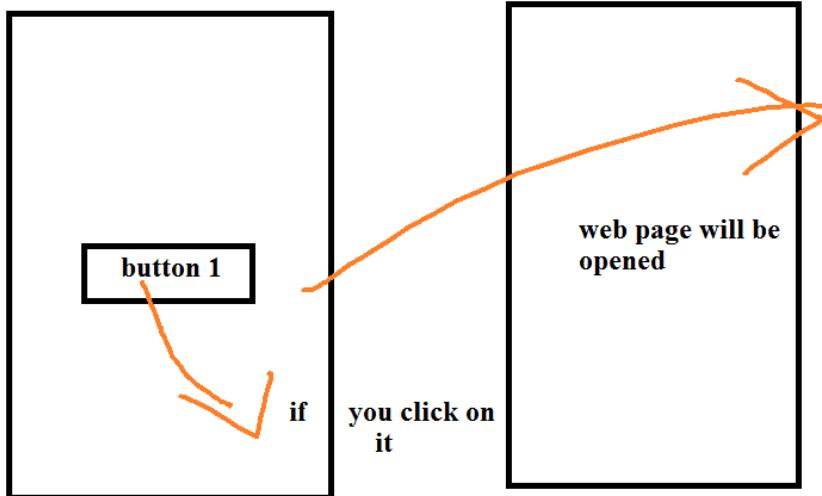
Enter the password and confirm the password

Note: always select Validity (years) > 25 years because in order to publish your app in Google play you need to select minimum years of 25.

After filling the details you press OK → then you will see GENERATE SIGNED APK window will be opened → press next → then you need to fill the master password (note: you need to remember master password because it is only the evidence the Google play will verify whether you are going to publish your app or not) → after filling the master password , then click on finish → after few minutes of Gradle building → you see the apk file in show folder.

\*\*\*\*\*

### How to open a website by clicking a button



First you need to open the manifest file and add the statement

```
<uses-permission android:name="android.permission.INTERNET" />
```

and you need to replace the existing codes in . xml file by the following codes:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:fitsSystemWindows="true"
    tools:context="com.example.manju.web.MainActivity"
    android:baselineAligned="false">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Browser"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="177dp"
        android:onClick="browser1" />

</LinearLayout>
```

And you should modify the codes below the package name in MainActivity.java as follows:

```
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.support.design.widget.FloatingActionButton;
import android.support.design.widget.Snackbar;
import android.support.v7.app.AppCompatActivity;
import android.support.v7.widget.Toolbar;
import android.view.View;
import android.view.Menu;
import android.view.MenuItem;
```

---

```

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void browser1(View view){
        Intent browserIntent = new Intent(Intent.ACTION_VIEW, Uri.parse("http://google.com.kh"));
        startActivity(browserIntent);
    }
}

```

Note: since <http://google.com.kh> is written , Google website will be opened.

Suppose you want to add two buttons (i.e., if you click on button 1, Google website should be opened and if you click on button 2, facebook website should be opened)

Then

Your .java file should take the form:

```

import android.content.Intent;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void browser1(View view){
        Intent browserIntent = new Intent(Intent.ACTION_VIEW, Uri.parse("http://google.com.kh"));
        startActivity(browserIntent);
    }

    public void browser2(View view){
        Intent browserIntent = new Intent(Intent.ACTION_VIEW,
        Uri.parse("http://facebook.com.kh"));
        startActivity(browserIntent);
    }
}

```

and your .xml file should appear as:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:fitsSystemWindows="true"
    tools:context="com.example.manju.web.MainActivity">

```

```

        android:baselineAligned="false">

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Browser"
    android:layout_alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginBottom="177dp"
    android:onClick="browser1" />

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Browser2"
    android:layout_alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginBottom="130dp"
    android:onClick="browser2" />

</LinearLayout>
*****

```

## How to make a phone call by clicking a button

First you NEED to open the manifest file and add the statement

```
<uses-permission android:name="android.permission.CALL_PHONE" />
```

and you need to replace the existing codes in activity\_main. xml file by the following codes:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:fitsSystemWindows="true"
    tools:context="com.example.manju.web.MainActivity"
    android:baselineAligned="false">

<Button
    android:id="@+id/buttonCall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Call1"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="200dp"
    android:onClick="call" />

<Button
    android:id="@+id/buttonCall1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Call2"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="150dp"
    android:onClick="call" />

</LinearLayout>

```

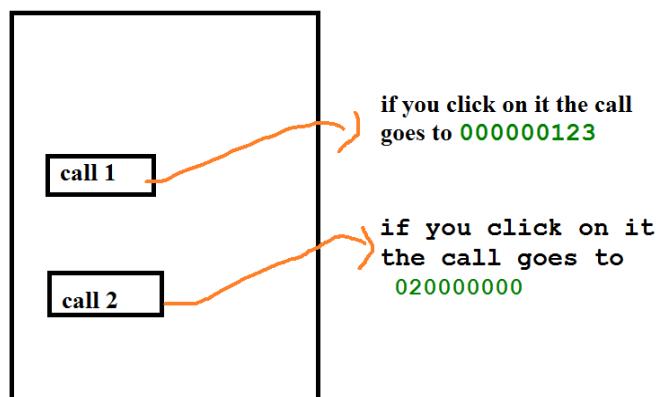
And you should modify the codes below the package name in `MainActivity.java` file as follows:

```
import android.content.Intent;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.view.View.OnClickListener;

public class MainActivity extends AppCompatActivity {
    private Button button;

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button = (Button) findViewById(R.id.buttonCall);
        button.setOnClickListener(new OnClickListener() {
            public void onClick(View arg0) {
                Intent callIntent = new Intent(Intent.ACTION_CALL, Uri.parse("tel:" +
"000000123"));
                startActivity(callIntent);
            }
        });
        button = (Button) findViewById(R.id.buttonCall1);
        button.setOnClickListener(new OnClickListener() {
            public void onClick(View arg0) {
                Intent callIntent = new Intent(Intent.ACTION_CALL, Uri.parse("tel:" +
"020000000"));
                startActivity(callIntent);
            }
        });
    }
}
```

The output on the screen is:



---

```
*****
```

## How to send SMS by clicking a button

First you need to open the manifest file and add the statement

```
<uses-permission android:name="android.permission.SEND_SMS" />
```

and you need to place the following codes in . xml file:

```
<Button  
    android:id="@+id/buttonSMS"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:text="sms"  
    android:layout_alignParentBottom="true"  
    android:layout_marginBottom="200dp"  
    android:onClick="SMS" />
```

And you should modify the codes below the package name in MainActivity.java file as follows:

```
import android.app.Activity;  
import android.content.Intent;  
import android.graphics.Color;  
import android.net.Uri;  
import android.os.Bundle;  
  
import android.support.v7.app.AppCompatActivity;  
import android.view.Menu;  
import android.view.MenuItem;  
import android.view.View;  
import android.widget.Button;  
import android.view.View.OnClickListener;  
  
public class MainActivity extends AppCompatActivity {  
    private Button button;  
  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
        button = (Button) findViewById(R.id.buttonSMS);  
        button.setOnClickListener(new OnClickListener() {  
            public void onClick(View arg0) {  
                Intent SMSIntent = new Intent(Intent.ACTION_SENDTO, Uri.parse("sms:" +  
"9844622855"));  
                startActivity(SMSIntent);  
            }  
        });  
    }  
}
```

Suppose you want to add two buttons (i.e., if you click on button 1, sms should be sent to one number and if you click on button 2, sms should be sent to another number)

Then

Your .java file should take the form:

```
import android.app.Activity;
import android.content.Intent;
import android.graphics.Color;
import android.net.Uri;
import android.os.Bundle;

import android.support.v7.app.AppCompatActivity;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.Button;
import android.view.View.OnClickListener;

public class MainActivity extends AppCompatActivity {
    private Button button;

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button = (Button) findViewById(R.id.buttonSMS);
        button.setOnClickListener(new OnClickListener() {
            public void onClick(View arg0) {
                Intent SMSIntent = new Intent(Intent.ACTION_SENDTO, Uri.parse("sms:" +
"00000002"));
                startActivity(SMSIntent);
            }
        });
        button = (Button) findViewById(R.id.buttonSMS1);
        button.setOnClickListener(new OnClickListener() {
            public void onClick(View arg0) {
                Intent SMSIntent = new Intent(Intent.ACTION_SENDTO, Uri.parse("sms:" +
"0000065660"));
                startActivity(SMSIntent);
            }
        });
    }
}
```

codes that should be added to .xml file:

```
<Button
    android:id="@+id/buttonSMS"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="sms"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="200dp"
    android:onClick="SMS" />

<Button
    android:id="@+id/buttonSMS1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="sms1"
    android:layout_alignParentBottom="true"
    android:layout_marginBottom="150dp"
    android:onClick="SMS" />
```

---

---

---

## How to create a calculator

activity main.xml file should take the form:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout1"
        android:layout_marginLeft="10pt"
        android:layout_marginRight="10pt"
        android:layout_marginTop="3pt">
        <EditText
            android:layout_weight="1"
            android:layout_height="wrap_content"
            android:layout_marginRight="5pt"
            android:id="@+id/etNum1"
            android:layout_width="match_parent"
            android:inputType="numberDecimal">
        </EditText>
        <EditText
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:layout_marginLeft="5pt"
            android:id="@+id/etNum2"
            android:layout_width="match_parent"
            android:inputType="numberDecimal">
        </EditText>
    </LinearLayout>
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout2"
        android:layout_marginTop="3pt"
        android:layout_marginLeft="5pt"
        android:layout_marginRight="5pt">
        <Button
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:layout_weight="1"
            android:text="+"
            android:textSize="8pt"
            android:id="@+id/btnAdd">
        </Button>
        <Button
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:layout_weight="1"
            android:text="-"
            android:textSize="8pt"
            android:id="@+id/btnSub">
        </Button>
        <Button
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:layout_weight="1"
            android:text="*"
            android:textSize="8pt"
            android:id="@+id/btnMul">
        </Button>
        <Button
            android:layout_height="wrap_content"
            android:layout_width="match_parent"
            android:layout_weight="1"
            android:text="/"
            android:textSize="8pt"
            android:id="@+id/btnDiv">
        </Button>
    </LinearLayout>
</LinearLayout>
```

```

        android:layout_weight="1"
        android:text="*"
        android:textSize="8pt"
        android:id="@+id/btnMult">
    </Button>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="/"
        android:textSize="8pt"
        android:id="@+id/btnDiv">
    </Button>

</LinearLayout>
<TextView
    android:layout_height="wrap_content"
    android:layout_width="match_parent"
    android:layout_marginLeft="5pt"
    android:layout_marginRight="5pt"
    android:textSize="12pt"
    android:layout_marginTop="3pt"
    android:id="@+id/tvResult"
    android:gravity="center_horizontal">
</TextView>

</LinearLayout>

```

And your .java file should take the form:

```

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.os.Bundle;
import android.app.Activity;
import android.text.TextUtils;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements OnClickListener {

    EditText etNum1;
    EditText etNum2;

    Button btnAdd;
    Button btnSub;
    Button btnMult;
    Button btnDiv;

    TextView tvResult;

    String oper = "";

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // find the elements
        etNum1 = (EditText) findViewById(R.id.etNum1);
        etNum2 = (EditText) findViewById(R.id.etNum2);

```

```

btnAdd = (Button) findViewById(R.id.btnAdd);
btnSub = (Button) findViewById(R.id.btnSub);
btnMult = (Button) findViewById(R.id.btnMult);
btnDiv = (Button) findViewById(R.id.btnDiv);

tvResult = (TextView) findViewById(R.id.tvResult);

// set a listener
btnAdd.setOnClickListener((OnClickListener) this);
btnSub.setOnClickListener(this);
btnMult.setOnClickListener(this);
btnDiv.setOnClickListener(this);

}

@Override
public void onClick(View v) {
    // TODO Auto-generated method stub
    float num1 = 0;
    float num2 = 0;
    float result = 0;

    // check if the fields are empty
    if (TextUtils.isEmpty(etNum1.getText().toString())
        || TextUtils.isEmpty(etNum2.getText().toString())) {
        return;
    }

    // read EditText and fill variables with numbers
    num1 = Float.parseFloat(etNum1.getText().toString());
    num2 = Float.parseFloat(etNum2.getText().toString());

    // defines the button that has been clicked and performs the corresponding operation
    // write operation into oper, we will use it later for output
    switch (v.getId()) {
        case R.id.btnAdd:
            oper = "+";
            result = num1 + num2;
            break;
        case R.id.btnSub:
            oper = "-";
            result = num1 - num2;
            break;
        case R.id.btnMult:
            oper = "*";
            result = num1 * num2;
            break;
        case R.id.btnDiv:
            oper = "/";
            result = num1 / num2;
            break;
        default:
            break;
    }

    // form the output line
    tvResult.setText(num1 + " " + oper + " " + num2 + " = " + result);
}
}

```

---

```
*****
```

## How to get location (latitude and longitude values) and city name?

Code in the MainActivity.java file:

```
import android.os.Bundle;
import android.app.Activity;
import java.io.IOException;
import java.util.List;
import java.util.Locale;

import android.app.Activity;
import android.app.AlertDialog;
import android.content.ContentResolver;
import android.content.Context;
import android.content.DialogInterface;
import android.content.Intent;
import android.content.pm.ActivityInfo;
import android.location.Address;
import android.location.Geocoder;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.provider.Settings;
import android.support.v7.app.AppCompatActivity;
import android.util.Log;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ProgressBar;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements OnClickListener {

    private LocationManager locationManager=null;
    private LocationListener locationListener=null;

    private Button btnGetLocation = null;
    private EditText editLocation = null;
    private ProgressBar pb =null;

    private static final String TAG = "Debug";
    private Boolean flag = false;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        //if you want to lock screen for always Portrait mode
        setRequestedOrientation(ActivityInfo
```

```

    .SCREEN_ORIENTATION_PORTRAIT);

pb = (ProgressBar) findViewById(R.id.progressBar1);
pb.setVisibility(View.INVISIBLE);

editLocation = (EditText) findViewById(R.id.editTextLocation);

btnGetLocation = (Button) findViewById(R.id.btnLocation);
btnGetLocation.setOnClickListener(this);

locationMangaer = (LocationManager)
        getSystemService(Context.LOCATION_SERVICE);

}

@Override
public void onClick(View v) {
    flag = displayGpsStatus();
    if (flag) {

        Log.v(TAG, "onClick");

        editLocation.setText("Please!! move your device to"+
                " see the changes in coordinates."+"\nWait..");

        pb.setVisibility(View.VISIBLE);
        locationListener = new MyLocationListener();

        locationMangaer.requestLocationUpdates(LocationManager.NETWORK_PROVIDER, 5000,
10,locationListener);

    } else {
        alertbox("Gps Status!!", "Your NETWORK is: OFF");
    }
}

/*----Method to Check GPS is enable or disable ----*/
private Boolean displayGpsStatus() {
    ContentResolver contentResolver = getBaseContext()
            .getContentResolver();
    boolean gpsStatus = Settings.Secure
            .isLocationProviderEnabled(contentResolver,
            LocationManager.NETWORK_PROVIDER);
    if (gpsStatus) {
        return true;

    } else {
        return false;
    }
}

/*-----Method to create an AlertBox -----*/
protected void alertbox(String title, String mymessage) {
    AlertDialog.Builder builder = new AlertDialog.Builder(this);
    builder.setMessage("Your Device's network is Disable")
            .setCancelable(false)
            .setTitle("** network Status **")

```

```

.setPositiveButton("network On",
    new DialogInterface.OnClickListener() {
        public void onClick(DialogInterface dialog, int id) {
            // finish the current activity
            // AlertBoxAdvance.this.finish();
            Intent myIntent = new Intent(
                Settings.ACTION_SECURITY_SETTINGS);
            startActivity(myIntent);
            dialog.cancel();
        }
    })
.setNegativeButton("Cancel",
    new DialogInterface.OnClickListener() {
        public void onClick(DialogInterface dialog, int id) {
            // cancel the dialog box
            dialog.cancel();
        }
    });
AlertDialog alert = builder.create();
alert.show();
}

/*-----Listener class to get coordinates -----*/
private class MyLocationListener implements LocationListener {
    @Override
    public void onLocationChanged(Location loc) {

        editLocation.setText("");
        pb.setVisibility(View.INVISIBLE);
        Toast.makeText(getApplicationContext(), "Location changed : Lat: " +
            loc.getLatitude()+" Lng: " + loc.getLongitude(),
            Toast.LENGTH_SHORT).show();
        String longitude = "Longitude: " +loc.getLongitude();
        Log.v(TAG, longitude);
        String latitude = "Latitude: " +loc.getLatitude();
        Log.v(TAG, latitude);

        /*-----to get City-Name from coordinates -----*/
        String cityName=null;
        Geocoder gcd = new Geocoder(getApplicationContext(),
            Locale.getDefault());
        List<Address> addresses;
        try {
            addresses = gcd.getFromLocation(loc.getLatitude(), loc
                .getLongitude(), 1);
            if (addresses.size() > 0)
                System.out.println(addresses.get(0).getLocality());
            cityName=addresses.get(0).getLocality();
        } catch (IOException e) {
            e.printStackTrace();
        }

        String s = longitude+"\n"+latitude +
            "\n\nCity name is: "+cityName;
        editLocation.setText(s);
    }

    @Override

```

---

```

public void onProviderDisabled(String provider) {
    // TODO Auto-generated method stub
}

@Override
public void onProviderEnabled(String provider) {
    // TODO Auto-generated method stub
}

@Override
public void onStatusChanged(String provider,
                            int status, Bundle extras) {
    // TODO Auto-generated method stub
}
}

}

```

Code that you need to add in the manifest file:

```

<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />

<uses-permission android:name="android.permission.INTERNET" />

```

Code in the activity\_main.xml file:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:weightSum="1">
    <TextView
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Get Current Location and City Name"
        android:layout_weight="0.20"
        android:gravity="center"
        android:textSize="20sp" />
    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="0.33"
        android:id="@+id/editTextLocation"
        android:editable="false"
        <requestFocus></requestFocus>
    </EditText>
    <LinearLayout
        android:id="@+id/layButtonH"
        android:layout_height="wrap_content"
        android:layout_width="fill_parent"
        android:gravity="center"
        android:layout_weight="0.15">
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Get Location"
            android:id="@+id/btnLocation"></Button>
    </LinearLayout>
    <LinearLayout
        android:id="@+id/layloadingH"

```

---

```

        android:layout_height="wrap_content"
        android:layout_weight="0.20"
        android:layout_width="fill_parent"
        android:gravity="center">
        <ProgressBar
            android:layout_width="wrap_content"
            android:id="@+id/progressBar1"
            android:layout_height="wrap_content"></ProgressBar>
    </LinearLayout>
</LinearLayout>

```

**Note:**

Suppose if you want to add the clock and text time to your app then your .xml file should take the form:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:weightSum="1">
    <TextView
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Get Current Location and City Name"
        android:layout_weight="0.20"
        android:gravity="center"
        android:textSize="20sp" />

    <TextClock
        android:layout_width="82dp"
        android:layout_height="43dp"
        android:id="@+id/textClock"
        android:layout_gravity="center_horizontal" />

    <AnalogClock
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:id="@+id/analogClock"
        android:layout_gravity="center_horizontal"
        android:layout_weight="0.20" />

    <EditText
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_weight="0.33"
        android:id="@+id/editTextLocation"
        android:editable="false">
        <requestFocus></requestFocus>
    </EditText>
    <LinearLayout
        android:id="@+id/layButtonH"
        android:layout_height="wrap_content"
        android:layout_width="fill_parent"
        android:gravity="center"
        android:layout_weight="0.15">
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="Get Location"
            android:id="@+id/btnLocation" />
    </LinearLayout>
</LinearLayout>

```

---

```

        android:id="@+id/layloadingH"
        android:layout_height="wrap_content"
        android:layout_weight="0.20"
        android:layout_width="fill_parent"
        android:gravity="center">
        <ProgressBar
            android:layout_width="wrap_content"
            android:id="@+id/progressBar1"
            android:layout_height="wrap_content"></ProgressBar>
    </LinearLayout>
</LinearLayout>

```

“As Android, iPhone and other mobile platforms grow, we are moving away from the page-based Internet. The new Internet is app centric and often message-centric: Keith Teare”

## How to get location and address line, country name, postal code etc.?

**Code in MainActivity .java file**

```

import android.os.Bundle;
import android.app.Activity;
import java.io.IOException;
import java.util.List;
import java.util.Locale;

import android.app.Activity;
import android.app.AlertDialog;
import android.content.ContentResolver;
import android.content.Context;
import android.content.DialogInterface;
import android.content.Intent;
import android.content.pm.ActivityInfo;
import android.location.Address;
import android.location.Geocoder;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.provider.Settings;
import android.support.v7.app.AppCompatActivity;
import android.util.Log;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ProgressBar;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements OnClickListener {

    private LocationManager locationMangaer=null;
    private LocationListener locationListener=null;

    private Button btnGetLocation = null;
    private EditText editLocation = null;
    private ProgressBar pb =null;

    private static final String TAG = "Debug";
    private Boolean flag = false;

    @Override
    public void onCreate(Bundle savedInstanceState) {

```

```

super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);

//if you want to lock screen for always Portrait mode
setRequestedOrientation(ActivityInfo
        .SCREEN_ORIENTATION_PORTRAIT);

pb = (ProgressBar) findViewById(R.id.progressBar1);
pb.setVisibility(View.INVISIBLE);

editLocation = (EditText) findViewById(R.id.editTextLocation);

btnGetLocation = (Button) findViewById(R.id.btnLocation);
btnGetLocation.setOnClickListener(this);

locationMangaer = (LocationManager)
        getSystemService(Context.LOCATION_SERVICE);

}

@Override
public void onClick(View v) {
    flag = displayGpsStatus();
    if (flag) {

        Log.v(TAG, "onClick");

        editLocation.setText("Please!! move your device to"+
                " see the changes in coordinates."+"\nWait...");

        pb.setVisibility(View.VISIBLE);
        locationListener = new MyLocationListener();

        locationMangaer.requestLocationUpdates(LocationManager.NETWORK_PROVIDER, 5000,
10,locationListener);

    } else {
        alertbox("Gps Status!!", "Your NETWORK is: OFF");
    }
}

/*----Method to Check GPS is enable or disable ----*/
private Boolean displayGpsStatus() {
    ContentResolver contentResolver = getBaseContext()
            .getContentResolver();
    boolean gpsStatus = Settings.Secure
            .isLocationProviderEnabled(contentResolver,
            LocationManager.NETWORK_PROVIDER);
    if (gpsStatus) {
        return true;

    } else {
        return false;
    }
}

/*-----Method to create an AlertBox -----*/
protected void alertbox(String title, String mymessage) {
    AlertDialog.Builder builder = new AlertDialog.Builder(this);
    builder.setMessage("Your Device's network is Disable")
            ..setCancelable(false)
            .setTitle("** network Status **")
            .setPositiveButton("network On",
                    new DialogInterface.OnClickListener() {

```

```

        public void onClick(DialogInterface dialog, int id) {
            // finish the current activity
            // AlertBoxAdvance.this.finish();
            Intent myIntent = new Intent(
                Settings.ACTION_SECURITY_SETTINGS);
            startActivity(myIntent);
            dialog.cancel();
        }
    })
.setNegativeButton("Cancel",
    new DialogInterface.OnClickListener() {
        public void onClick(DialogInterface dialog, int id) {
            // cancel the dialog box
            dialog.cancel();
        }
    });
AlertDialog alert = builder.create();
alert.show();
}

/*-----Listener class to get coordinates -----*/
private class MyLocationListener implements LocationListener {
    @Override
    public void onLocationChanged(Location loc) {

        editLocation.setText("");
        pb.setVisibility(View.INVISIBLE);
        Toast.makeText(getApplicationContext(), "Location changed : Lat: " +
            loc.getLatitude() + " Lng: " + loc.getLongitude(),
            Toast.LENGTH_SHORT).show();
        String longitude = "Longitude: " + loc.getLongitude();
        Log.v(TAG, longitude);
        String latitude = "Latitude: " + loc.getLatitude();
        Log.v(TAG, latitude);

        /*-----to get City-Name from coordinates -----*/
        String L = null;
        String M = null;
        String N = null;
        String O = null;
        String P = null;
        String Q = null;
        String A = null;
        Geocoder gcd = new Geocoder(getApplicationContext(),
            Locale.getDefault());
        List<Address> addresses;
        try {
            addresses = gcd.getFromLocation(loc.getLatitude(), loc
                .getLongitude(), 1);
            if (addresses.size() > 0)
                System.out.println(addresses.get(0).getLocality());
            L = addresses.get(0).getAddressLine(0);
            M = addresses.get(0).getSubLocality();
            N = addresses.get(0).getLocality();
            O = addresses.get(0).getSubAdminArea();
            P = addresses.get(0).getPostalCode();
            Q = addresses.get(0).getAdminArea();
            A = addresses.get(0).getCountryName();
        } catch (IOException e) {
            e.printStackTrace();
        }

        String s = longitude+"\n"+latitude +
            "\n\n" + L + "\n\n" + M + "\n\n" + N +"\n\n" + O + "\n\n" + P +
        "\n\n" + Q + "\n\n" + A;
    }
}

```

---

```

        editLocation.setText(s);
    }

    @Override
    public void onProviderDisabled(String provider) {
        // TODO Auto-generated method stub
    }

    @Override
    public void onProviderEnabled(String provider) {
        // TODO Auto-generated method stub
    }

    @Override
    public void onStatusChanged(String provider,
                               int status, Bundle extras) {
        // TODO Auto-generated method stub
    }
}

```

---

## Date & time display

**Code in MainActivity.java file:**

```

import java.util.Calendar;
import java.util.Date;

import android.app.Activity;
import android.os.Bundle;
import android.text.InputType;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    Button btnCTime;
    TextView txtCTime;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        btnCTime=(Button)findViewById(R.id.btnGenCurTime);
        txtCTime=(TextView)findViewById(R.id.txtShowCurTime);
        txtCTime.setInputType(InputType.TYPE_NULL);
        btnCTime.setOnClickListener(new OnClickListener() {
            @Override
            public void onClick(View vw) {
                txtCTime.setText(new Date().toString());
            }
        });
    }
}

```

**Code in activity\_main.xml file:**

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical" >

    <TextView
        android:id="@+id/txtShowCurTime"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >
        <requestFocus />
    </TextView>

    <Button
        android:id="@+id	btnGenCurTime"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="date" />

</LinearLayout>
*****

```

## How to open whatsapp on clicking the button

**Code in MainActivity.java file:**

```

import android.content.Intent;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;

public class MainActivity extends AppCompatActivity {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void browser1(View view){
        Intent launchIntent = getPackageManager().getLaunchIntentForPackage("com.whatsapp");
        startActivity(launchIntent);
    }
}

```

**Code that you need to add in manifest file:**

```
<uses-permission android:name="android.permission.INTERNET" />
```

**Code that you need to add in .xml file:**

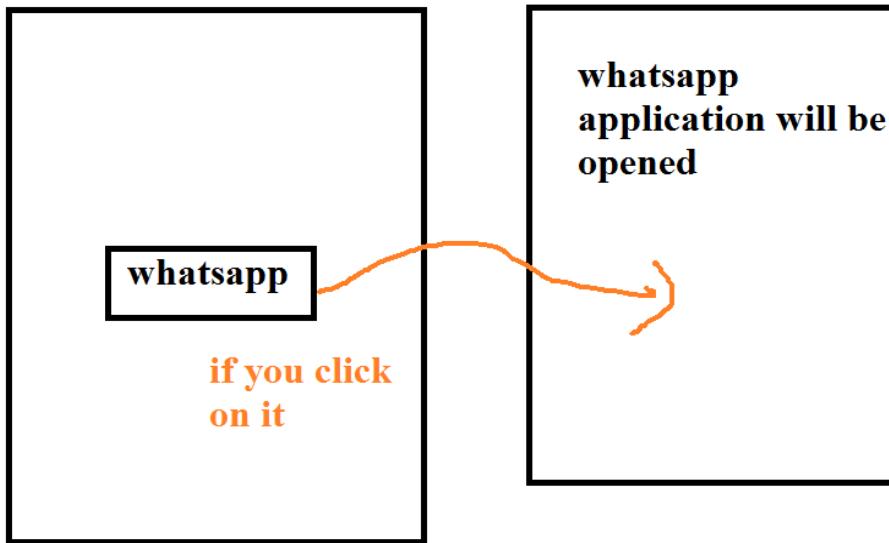
```

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="whatsapp"
    android:layout_alignParentBottom="true"
    android:layout_centerHorizontal="true"
    android:layout_marginBottom="177dp"
    android:onClick="browser1" />

```

---

**Note:** you have to download whatsapp application from the website: [www.whatsapp.com](http://www.whatsapp.com) and install it into your phone – then the output on the screen is:



\*\*\*\*\*

## How to set background?

First you need to copy the image file (say image\_name.jpg) and paste into drawable folder

Then add the following code into your activity\_main.xml file

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
    android:background="@drawable/image_name"

    android:weightSum="1">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="whatsapp"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="177dp"
        android:onClick="browser1" />
</LinearLayout>
```

\*\*\*\*\*

## How to create a Scientific CALCULATOR?

---

### Code in MainActivity.java file:

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.os.Bundle;
import android.app.Activity;
import android.text.TextUtils;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements OnClickListener {

    EditText etNum1;

    Button btnsqrt;
    Button btncbrt;
    Button btnln;
    Button btnlog;
    Button btnexp;
    Button btnsin;
    Button btncos;
    Button btntan;
    Button btnreci;
    Button btncosec;
    Button btnsec;
    Button btncot;
    Button btnsquare;
    Button btncube;
    Button btnfacto;

    TextView tvResult;

    String oper = "";

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // find the elements
        etNum1 = (EditText) findViewById(R.id.etNum1);

        btnsqrt = (Button) findViewById(R.id.btnsqrt);
        btncbrt = (Button) findViewById(R.id.btncbrt);
        btnln = (Button) findViewById(R.id.btnln);
        btnlog = (Button) findViewById(R.id.btnlog);
        btnexp = (Button) findViewById(R.id.btnexp);
        btnsin = (Button) findViewById(R.id.btnsin);
        btncos = (Button) findViewById(R.id.btncos);
        btntan = (Button) findViewById(R.id.btntan);
        btnreci = (Button) findViewById(R.id.btnreci);
        btncosec = (Button) findViewById(R.id.btncosec);
        btnsec = (Button) findViewById(R.id.btnsec);
        btncot = (Button) findViewById(R.id.btncot);
        btnsquare = (Button) findViewById(R.id.btnsquare);
        btncube = (Button) findViewById(R.id.btncube);
        btnfacto = (Button) findViewById(R.id.btnfacto);
```

```

tvResult = (TextView) findViewById(R.id.tvResult);

// set a listener
btngqrt.setOnClickListener(OnClickListener) this);
btncbrt.setOnClickListener(this);
btln.setClickListener(this);
btlog.setOnClickListener(this);
btnexp.setOnClickListener(this);
btnsin.setOnClickListener(this);
btncos.setOnClickListener(this);
btntan.setOnClickListener(this);
btncrci.setOnClickListener(this);
btncosec.setOnClickListener(this);
btncot.setOnClickListener(this);
btncsquare.setOnClickListener(this);
btncube.setOnClickListener(this);
btncfacto.setOnClickListener(this);

}

@Override
public void onClick(View v) {
    // TODO Auto-generated method stub
    double num1 = 0;
    double result = 0;

    // check if the fields are empty
    if (TextUtils.isEmpty(etNum1.getText().toString())) {
        return;
    }

    // read EditText and fill variables with numbers
    num1 = Double.parseDouble(etNum1.getText().toString());

    // defines the button that has been clicked and performs the corresponding operation
    // write operation into oper, we will use it later for output
    switch (v.getId()) {
        case R.id.btngqrt:
            oper = "sqrt";
            result = Math.sqrt(num1) ;
            break;
        case R.id.btncbrt:
            oper = "cbrt";
            result = Math.cbrt(num1);
            break;
        case R.id.btnln:
            oper = "ln";
            result = Math.log(num1);
            break;
        case R.id.btnlog:
            oper = "log";
            result = Math.log10(num1);
            break;
        case R.id.btnexp:
            oper = "exp";
            result = Math.exp(num1);
            break;
        case R.id.btnsin:
            oper = "sin";
            result = Math.sin(num1);
            break;
        case R.id.btncos:
            oper = "cos";

```

```

        result = Math.cos(num1);
        break;
    case R.id.btntan:
        oper = "tan";
        result = Math.tan(num1);
        break;
    case R.id.btnreci:
        oper = "1/x";
        result = 1/num1;
        break;
    case R.id.btncosec:
        oper = "cosec";
        result = 1/Math.sin(num1);
        break;
    case R.id.btnsec:
        oper = "sec";
        result = 1/ Math.cos(num1);
        break;
    case R.id.btncot:
        oper = "cot";
        result = 1/Math.tan(num1);
        break;
    case R.id.btnsquare:
        oper = "square";
        result = num1 * num1;
        break;
    case R.id.btncube:
        oper = "cube";
        result = num1 * num1 * num1;
        break;
    case R.id.btnfacto:
        oper = "fact";
        int i, fact =1;
        for(i=1;i<=num1;i++)
            fact = fact *i;
        result = fact;
        break;
    default:
        break;
    }
}

// form the output line
tvResult.setText( num1 + " " + oper + " = " + result);
}
}

```

#### code in activity\_main.xml file

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:id="@+id/linearLayout1"
        android:layout_marginLeft="10pt"
        android:layout_marginRight="10pt"
        android:layout_marginTop="3pt">
        <EditText
            android:layout_weight="1"
            android:layout_height="wrap_content"
            android:layout_marginRight="5pt"
            android:id="@+id/etNum1"

```

```
        android:layout_width="match_parent"
        android:inputType="numberDecimal">
    </EditText>
</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/linearLayout2"
    android:layout_marginTop="3pt"
    android:layout_marginLeft="5pt"
    android:layout_marginRight="5pt">

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="sqrt"
        android:textSize="8pt"
        android:id="@+id/btnsqrt">
    </Button>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="cbrt"
        android:textSize="8pt"
        android:id="@+id/btncbrt">
    </Button>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="ln"
        android:textSize="8pt"
        android:id="@+id/btnln">
    </Button>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="log"
        android:textSize="8pt"
        android:id="@+id/btnlog">
    </Button>

</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/linearLayout2"
    android:layout_marginTop="3pt"
    android:layout_marginLeft="5pt"
    android:layout_marginRight="5pt">

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="exp"
        android:textSize="8pt"
        android:id="@+id/btnexp">

```

```

</Button>

<Button
    android:layout_height="wrap_content"
    android:layout_width="match_parent"
    android:layout_weight="1"
    android:text="sin"
    android:textSize="8pt"
    android:id="@+id/btnsin">
</Button>

<Button
    android:layout_height="wrap_content"
    android:layout_width="match_parent"
    android:layout_weight="1"
    android:text="cos"
    android:textSize="8pt"
    android:id="@+id/btncos">
</Button>

<Button
    android:layout_height="wrap_content"
    android:layout_width="match_parent"
    android:layout_weight="1"
    android:text="tan"
    android:textSize="8pt"
    android:id="@+id/btntan">
</Button>

</LinearLayout>
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/linearLayout2"
    android:layout_marginTop="3pt"
    android:layout_marginLeft="5pt"
    android:layout_marginRight="5pt">

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="1/x"
        android:textSize="8pt"
        android:id="@+id/btnreci">
    </Button>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="cosec"
        android:textSize="8pt"
        android:id="@+id/btncosec">
    </Button>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="sec"
        android:textSize="8pt"
        android:id="@+id/btnsec">
    </Button>

    <Button

```

```

        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="cot"
        android:textSize="8pt"
        android:id="@+id/btncot">
    </Button>

</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/linearLayout2"
    android:layout_marginTop="3pt"
    android:layout_marginLeft="5pt"
    android:layout_marginRight="5pt">

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="square"
        android:textSize="8pt"
        android:id="@+id/btnsquare">
    </Button>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="cube"
        android:textSize="8pt"
        android:id="@+id/btncube">
    </Button>

    <Button
        android:layout_height="wrap_content"
        android:layout_width="match_parent"
        android:layout_weight="1"
        android:text="factorial"
        android:textSize="8pt"
        android:id="@+id/btnfacto">
    </Button>

</LinearLayout>

*****

```

## How to get Information about model number, API level, android version etc.

Code in MainActivity.java file:

```

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.text.Html;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    String ModelNumber, Board, Brand, Display, FingerPrint, ID, TAGS, Type,
           AndroidVersion, APILevel, CodeName, INCREMENTAL;

    TextView text;

```

```

@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    ModelNumber = android.os.Build.MODEL;
    Board = android.os.Build.BOARD;
    Brand = android.os.Build.BRAND;
    Display = android.os.Build.DISPLAY;
    FingerPrint = android.os.Build.FINGERPRINT;
    ID = android.os.Build.ID;
    TAGS = android.os.Build.TAGS;
    Type = android.os.Build.TYPE;

    AndroidVersion = android.os.Build.VERSION.RELEASE;
    APILevel = android.os.Build.VERSION.SDK;
    CodeName = android.os.Build.VERSION.CODENAME;
    INCREMENTAL = android.os.Build.VERSIONINCREMENTAL;

    text = (TextView) findViewById(R.id.textView2);

    text.setText(Html.fromHtml("Phone Type" +
        "<br/><br/><font color = 'red';>Model Number : </font></font>" + ModelNumber
        + "<br/><font color = 'red';>Board : </font>" + Board
        + "<br/><font color = 'red';>Brand : </font>" + Brand
        + "<br/><font color = 'red';>Display : </font>" + Display
        + "<br/><font color = 'red';>FingerPrint : </font>" + FingerPrint
        + "<br/><font color = 'red';>ID : </font>" + ID
        + "<br/><font color = 'red';>TAGS : </font>" + TAGS
        + "<br/><font color = 'red';>Type : </font>" + Type

        + "<br/>"
        + "<br/><font color = 'red';>Android Version : </font>" + AndroidVersion
        + "<br/><font color = 'red';>API Level : </font>" + APILevel
        + "<br/><font color = 'red';>CodeName : </font>" + CodeName
        + "<br/><font color = 'red';>INCREMENTAL : </font>" + INCREMENTAL));
}
}

```

**Code in activity\_main.XML file:**

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <TextView
        android:id="@+id/textView2"
        android:textColor="#4169E1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="10sp"
        android:layout_marginTop="20sp" />

</RelativeLayout>
*****

```

**How to take a photo and save it in gallery / SD card / image file in android phone ?**

---

### Code in MainActivity.java file:

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.content.ActivityNotFoundException;
import android.content.Intent;
import android.graphics.Bitmap;
import android.os.Bundle;
import android.provider.MediaStore;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {
    protected static final int CAMERA_REQUEST = 1;
    ImageView imgView;
    Button btnCamera;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        imgView = (ImageView) findViewById(R.id.imageView1);
        btnCamera = (Button) findViewById(R.id.btn_camera);
        btnCamera.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub
                // ***** code for take image

                Intent intent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);

                intent.putExtra(MediaStore.EXTRA_OUTPUT,
                               MediaStore.Images.Media.EXTERNAL_CONTENT_URI.toString());
                try {

                    intent.putExtra("return-data", true);
                    startActivityForResult(intent, CAMERA_REQUEST);

                } catch (ActivityNotFoundException e) {
                    // Do nothing for now
                }
            }
        });
    }

    protected void onActivityResult(int requestCode, int resultCode, Intent data) {
        if (requestCode == CAMERA_REQUEST) {
            Bundle extras = data.getExtras();
            if (extras != null) {
                Bitmap photo = extras.getParcelable("data");
                // display image in ImageView.
                imgView.setImageBitmap(photo);
                // saveBitmapToFile("/sdcard/crop/cropped_img.jpg", photo);
            }
        }
    }
}
```

---

**Code in activity\_main.XML file:**

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical" >

    <Button
        android:id="@+id	btn_camera"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="Take image" />

    <ImageView
        android:id="@+id	imageView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center" />

</LinearLayout>

*****
```

## IEMI number

**Code in MainActivity.java file:**

```
import android.content.Context;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.telephony.TelephonyManager;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    TelephonyManager tel;
    TextView imei;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        tel = (TelephonyManager) getSystemService(Context.TELEPHONY_SERVICE);

        imei = (TextView) findViewById(R.id.textView2);
        imei.setText(tel.getDeviceId().toString());
    }
}
```

**Code in activity\_main.XML file:**

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="50dp"
        android:textColor="#4169E1"
        android:textSize="18sp"
        android:text="IMEI Number" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerInParent="true"
        android:textSize="15sp"
        android:text="IMEI" />

</RelativeLayout>

```

**Code that you need to add in the manifest file**

```

<uses-permission android:name="android.permission.READ_PHONE_STATE" />
*****

```

## Gallery Creation

**Code in MainActivity.java file:**

```

import android.content.Context;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.view.ViewGroup;
import android.view.ViewGroup.LayoutParams;
import android.view.animation.AnimationUtils;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.BaseAdapter;
import android.widget.Gallery;
import android.widget.ImageSwitcher;
import android.widget.ImageView;
import android.widget.ViewSwitcher.ViewFactory;

public class MainActivity extends AppCompatActivity implements ViewFactory {

    int imgs[] =
    {
        R.drawable.image_name,
        R.drawable.image_name1,
    };

    ImageSwitcher imgSwitcher;

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        imgSwitcher = (ImageSwitcher) findViewById(R.id.imageSwitcher1);
        imgSwitcher.setFactory(this);
    }
}

```

```



```

#### Code in activity\_main.XML file:

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

```

```

<Gallery
    android:id="@+id/gallery1"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:layout_centerHorizontal="true" />

<ImageSwitcher
    android:id="@+id/imageSwitcher1"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:layout_below="@+id/gallery1"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="5dp" >
</ImageSwitcher>

</RelativeLayout>
*****

```

## How to get weather forecast inserting location

**Code in MainActivity.java file:**

```

import android.graphics.Typeface;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.text.Html;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    TextView cityField, detailsField, currentTemperatureField, humidity_field, pressure_field,
weatherIcon, updatedField;

    Typeface weatherFont;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        getSupportActionBar().hide();
        setContentView(R.layout.activity_main);

        weatherFont = Typeface.createFromAsset(getApplicationContext().getAssets(),
"fonts/weathericons-regular-webfont.ttf");

        cityField = (TextView)findViewById(R.id.city_field);
        updatedField = (TextView)findViewById(R.id.updated_field);
        detailsField = (TextView)findViewById(R.id.details_field);
        currentTemperatureField = (TextView)findViewById(R.id.current_temperature_field);
        humidity_field = (TextView)findViewById(R.id.humidity_field);
        pressure_field = (TextView)findViewById(R.id.pressure_field);
        weatherIcon = (TextView)findViewById(R.id.weather_icon);
        weatherIcon.setTypeface(weatherFont);

        Function.placeIdTask asyncTask =new Function.placeIdTask(new Function.AsyncResponse() {
            public void processFinish(String weather_city, String weather_description, String
weather_temperature, String weather_humidity, String weather_pressure, String weather_updatedOn,
String weather_iconText, String sun_rise) {

                cityField.setText(weather_city);
                updatedField.setText(weather_updatedOn);

```

```

        detailsField.setText(weather_description);
        currentTemperatureField.setText(weather_temperature);
        humidity_field.setText("Humidity: "+weather_humidity);
        pressure_field.setText("Pressure: "+weather_pressure);
        weatherIcon.setText(Html.fromHtml(weather_iconText));

    }

});
```

```

asyncTask.execute(
"25.223666 ", "-12.3669858"); // asyncTask.execute("Latitude", "Longitude")
```

```

}
```

#### Code in Function.java file:

```

import android.app.Activity;
import android.os.AsyncTask;
import android.util.Log;

import org.json.JSONException;
import org.json.JSONObject;

import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.net.HttpURLConnection;
import java.net.URL;
import java.text.DateFormat;
import java.util.Date;
import java.util.Locale;

public class Function extends Activity {

    private static final String OPEN_WEATHER_MAP_URL =
            "http://api.openweathermap.org/data/2.5/weather?lat=%s&lon=%s&units=metric";

    private static final String OPEN_WEATHER_MAP_API = "16f28aecfde1858cd9bda7e9444e54e8";

    public static String setWeatherIcon(int actualId, long sunrise, long sunset){
        int id = actualId / 100;
        String icon = "";
        if(actualId == 800){
            long currentTime = new Date().getTime();
            if(currentTime>=sunrise && currentTime<sunset) {
                icon = "\uf00d;";
            } else {
                icon = "\uf02e;";
            }
        } else {
            switch(id) {
                case 2 : icon = "\uf01e;";
                break;
                case 3 : icon = "\uf01c;";
                break;
                case 7 : icon = "\uf014;";
                break;
                case 8 : icon = "\uf013;";
            }
        }
        return icon;
    }
}
```

```

        break;
    case 6 : icon = "\u2601";
        break;
    case 5 : icon = "\u2600";
        break;
    }
}
return icon;
}

public interface AsyncResponse {

    void processFinish(String output1, String output2, String output3, String output4, String
output5, String output6, String output7, String output8);
}

public static class placeIdTask extends AsyncTask<String, Void, JSONObject> {

    public AsyncResponse delegate = null;//Call back interface

    public placeIdTask(AsyncResponse asyncResponse) {
        delegate = asyncResponse;//Assigning call back interface through constructor
    }

    @Override
    protected JSONObject doInBackground(String... params) {

        JSONObject jsonWeather = null;
        try {
            jsonWeather = getWeatherJSON(params[0], params[1]);
        } catch (Exception e) {
            Log.d("Error", "Cannot process JSON results", e);
        }

        return jsonWeather;
    }

    @Override
    protected void onPostExecute(JSONObject json) {
        try {
            if(json != null){
                JSONObject details = json.getJSONArray("weather").getJSONObject(0);
                JSONObject main = json.getJSONObject("main");
                DateFormat df = DateFormat.getDateInstance();
                String city = json.getString("name").toUpperCase(Locale.US) + ", " +
                json.getJSONObject("sys").getString("country");
                String description = details.getString("description").toUpperCase(Locale.US);
                String temperature = String.format("%.2f", main.getDouble("temp"))+ "°";
                String humidity = main.getString("humidity") + "%";
                String pressure = main.getString("pressure") + " hPa";
                String updatedOn = df.format(new Date(json.getLong("dt")*1000));
                String iconText = setWeatherIcon(details.getInt("id"),
                    json.getJSONObject("sys").getLong("sunrise") * 1000,
                    json.getJSONObject("sys").getLong("sunset") * 1000);

                delegate.processFinish(city, description, temperature, humidity, pressure,
updatedOn, iconText, ""+ (json.getJSONObject("sys").getLong("sunrise") * 1000));

            }
        } catch (JSONException e) {
            //Log.e(LOG_TAG, "Cannot process JSON results", e);
        }
    }
}

```

```

        }

    public static JSONObject getWeatherJSON(String lat, String lon){
        try {
            URL url = new URL(String.format(OPEN_WEATHER_MAP_URL, lat, lon));
            HttpURLConnection connection =
                (HttpURLConnection)url.openConnection();

            connection.addRequestProperty("x-api-key", OPEN_WEATHER_MAP_API);

            BufferedReader reader = new BufferedReader(
                new InputStreamReader(connection.getInputStream()));

            StringBuffer json = new StringBuffer(1024);
            String tmp="";
            while((tmp=reader.readLine())!=null)
                json.append(tmp).append("\n");
            reader.close();

            JSONObject data = new JSONObject(json.toString());

            // This value will be 404 if the request was not
            // successful
            if(data.getInt("cod") != 200){
                return null;
            }

            return data;
        }catch(Exception e){
            return null;
        }
    }
}

```

#### Code in activity\_main.XML file:

```

<?xml version="1.0"?>

<RelativeLayout
    android:padding="20dp"
    android:background="#3F51B5"
    android:layout_height="match_parent"
    android:layout_width="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:textColor="#FFFFFF"
        android:layout_centerHorizontal="true"
        android:layout_alignParentTop="true"
        android:id="@+id/city_field"/>

    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:textAppearance="?android:attr/textAppearanceMedium"
        android:textColor="#FFFFFF"

```

```

        android:layout_centerHorizontal="true"
        android:id="@+id/updated_field"
        android:textSize="13sp"
        android:layout_below="@+id/city_field"/>

    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:textColor="#FFFFFF"
        android:layout_centerHorizontal="true"
        android:id="@+id/weather_icon"
        android:textSize="90sp"
        android:layout_centerVertical="true"/>

    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:textColor="#FFFFFF"
        android:layout_centerHorizontal="true"
        android:id="@+id/current_temperature_field"
        android:textSize="50sp"
        android:layout_alignParentBottom="true"/>

    <TextView android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:textColor="#FFFFFF"
    android:layout_centerHorizontal="true"
    android:id="@+id/details_field"
    android:layout_below="@+id/weather_icon"/>

    <TextView android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:textColor="#FFFFFF"
    android:layout_centerHorizontal="true"
    android:id="@+id/humidity_field"
    android:layout_below="@+id/details_field"/>

    <TextView android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:textColor="#FFFFFF"
    android:layout_centerHorizontal="true"
    android:id="@+id/pressure_field"
    android:layout_below="@+id/humidity_field"/>

</RelativeLayout>

```

Code that you need to write in manifest.xml file:

```

<uses-permission android:name="android.permission.INTERNET" />

    <application android:theme="@style/AppTheme"
    android:label="@string/app_name"
    android:icon="@mipmap/ic_launcher"
    android:allowBackup="true">

        <activity
    android:name=".MainActivity"
    android:label="@string/app_name">

```

---

```

<intent-filter>

    <action
        android:name="android.intent.action.MAIN" />

    <category
        android:name="android.intent.category.LAUNCHER" />

</intent-filter>

</activity>

</application>

```

**File you need to insert:**

App → Src → main (paste it here)

\*\*\*\*\*

## How to create a Login page

**MainActivity.java:**

```

import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    Button b1,b2;
    EditText ed1,ed2;

    TextView tx1;
    int counter = 3;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        b1=(Button)findViewById(R.id.button);
        ed1=(EditText)findViewById(R.id.editText);
        ed2=(EditText)findViewById(R.id.editText2);

        b2=(Button)findViewById(R.id.button2);
        tx1=(TextView)findViewById(R.id.textView3);
        tx1.setVisibility(View.GONE);

        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if(ed1.getText().toString().equals("admin") &&

```

```

        ed2.getText().toString().equals("admin")) {

    Toast.makeText(getApplicationContext(),
"Redirecting...",Toast.LENGTH_SHORT).show();

    Intent i = new Intent(MainActivity.this, Display.class);
    startActivity(i);
}

else{
    Toast.makeText(getApplicationContext(), "Wrong
Credentials",Toast.LENGTH_SHORT).show();

    tx1.setVisibility(View.VISIBLE);
    tx1.setBackgroundColor(Color.RED);
    counter--;
    tx1.setText(Integer.toString(counter));

    if (counter == 0) {
        b1.setEnabled(false);
    }
}
});

b2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        finish();
    }
});
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.menu_main, menu);
    return true;
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    // Handle action bar item clicks here. The action bar will
    // automatically handle clicks on the Home/Up button, so long
    // as you specify a parent activity in AndroidManifest.xml.

    int id = item.getItemId();

    //noinspection SimplifiableIfStatement
    if (id == R.id.action_settings) {
        return true;
    }
    return super.onOptionsItemSelected(item);
}
}

```

### Display.java:

```

import android.app.Activity;
import android.os.Bundle;

public class Display extends Activity {

```

```

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.display);
}
}

```

### activity\_main.xml:

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" tools:context=".MainActivity">

    <TextView android:text="Login" android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/textview"
        android:textSize="35dp"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Tutorials point"
        android:id="@+id/textView"
        android:layout_below="@+id/textview"
        android:layout_centerHorizontal="true"
        android:textColor="#ff7aff24"
        android:textSize="35dp" />

    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/editText"
        android:hint="Enter Name"
        android:focusedable="true"
        android:textColorHighlight="#ff7eff15"
        android:textColorHint="#ffff25e6"
        android:layout_marginTop="46dp"
        android:layout_below="@+id/imageView"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentEnd="true" />

    <ImageView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/imageView"
        android:src="@drawable/ic_launcher"
        android:layout_below="@+id/textView"
        android:layout_centerHorizontal="true" />

    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:inputType="textPassword"
        android:ems="10"
        android:id="@+id/editText2"
        android:layout_below="@+id/editText"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:layout_alignRight="@+id/editText"

```

```

        android:layout_alignEnd="@+id/editText"
        android:textColorHint="#ffff299f"
        android:hint="Password" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Attempts Left:"
        android:id="@+id/textView2"
        android:layout_below="@+id/editText2"
        android:layout_alignParentLeft="true"
        android:layout_alignParentStart="true"
        android:textSize="25dp" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="New Text"
        android:id="@+id/textView3"
        android:layout_alignTop="@+id/textView2"
        android:layout_alignParentRight="true"
        android:layout_alignParentEnd="true"
        android:layout_alignBottom="@+id/textView2"
        android:layout_toEndOf="@+id/textview"
        android:textSize="25dp"
        android:layout_toRightOf="@+id/textview" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="login"
        android:id="@+id/button"
        android:layout_alignParentBottom="true"
        android:layout_toLeftOf="@+id/textview"
        android:layout_toStartOf="@+id/textview"
        android:onClick="onClick"

    />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Cancel"
        android:id="@+id/button2"
        android:layout_alignParentBottom="true"
        android:layout_toRightOf="@+id/textview"
        android:layout_toEndOf="@+id/textview" />

</RelativeLayout>

```

### display.xml:

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Our new activity has started"

```

```
    android:id="@+id/textView" />
</LinearLayout>
```

### String.xml file:

```
<resources>
    <string name="action_settings">Settings</string>
    <string name="hello_world">Hello world!</string>
</resources>
```

### Code in Manifest.xml file:

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.manju.myapplication123">

    <uses-permission android:name="android.permission.INTERNET" />

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity
            android:name=".MainActivity"
            android:label="@string/app_name"
            android:theme="@style/AppTheme.NoActionBar">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name = ".Display"></activity>
    </application>
</manifest>
```

## How to create LOGOUT and EXIT IN Android

### Display.java:

```
import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;

public class Display extends Activity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```

        super.onCreate(savedInstanceState);
        setContentView(R.layout.display);
    }
    public void logout(View view){
        Intent i = new Intent(Display.this, MainActivity.class);
        startActivity(i);
    }

    public void exit(View view){
        moveTaskToBack(true);
        Display.this.finish();      } }

```

**display.xml:**

```

<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".Display" >
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="146dp"
        android:onClick="logout"
        android:text="logout" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/button1"
        android:layout_alignParentTop="true"
        android:layout_marginTop="64dp"
        android:text="welcome"
        android:textAppearance="?android:attr/textAppearanceLarge" />
    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/button1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="43dp"
        android:onClick="exit"
        android:text="exit" />
</RelativeLayout>
*****
```

## How to create weather forecast application

---

### MainActivity.java:

```
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ProgressBar;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements
WeatherDownloader.WeatherDataDownloadListener {

    EditText cityName, cityId, coordinates, zipCode;
    TextView cityNameResult, cityIdResult, coordinatesResult, zipCodeResult;
    Button cityNameSearch, cityIdSearch, coordinatesSearch, zipCodeSearch;
    ProgressBar cityNameProgress, cityIdProgress, coordinatesProgress, zipCodeProgress;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        setTitle("Current Weather");

        //Bind the views
        cityName = (EditText) findViewById(R.id.city_name);
        cityId = (EditText) findViewById(R.id.city_id);
        coordinates = (EditText) findViewById(R.id.coordinates);
        zipCode = (EditText) findViewById(R.id.zip_code);

        cityNameResult = (TextView) findViewById(R.id.city_result);
        cityIdResult = (TextView) findViewById(R.id.city_id_result);
        coordinatesResult = (TextView) findViewById(R.id.coordinates_result);
        zipCodeResult = (TextView) findViewById(R.id.zip_code_result);

        cityNameSearch = (Button) findViewById(R.id.city_search);
        cityIdSearch = (Button) findViewById(R.id.city_id_search);
        coordinatesSearch = (Button) findViewById(R.id.coordinates_search);
        zipCodeSearch = (Button) findViewById(R.id.zip_code_search);

        cityNameProgress = (ProgressBar) findViewById(R.id.city_progress);
        cityIdProgress = (ProgressBar) findViewById(R.id.city_id_progress);
        coordinatesProgress = (ProgressBar) findViewById(R.id.coordinates_progress);
        zipCodeProgress = (ProgressBar) findViewById(R.id.zip_code_progress);

        cityNameSearch.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                cityNameProgress.setVisibility(View.VISIBLE);
                String cityNameQuery = cityName.getText().toString();
                if(cityNameQuery.length() > 0) {
                    WeatherDownloader downloader = new WeatherDownloader(MainActivity.this,
WeatherDownloader.Mode.CITYNAME);

                    downloader.getCurrentWeatherData(getResources().getString(R.string.weather_api_key),
cityNameQuery);
                }
            }
        });

        cityIdSearch.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

```

        cityIdProgress.setVisibility(View.VISIBLE);
        String cityIdQuery = cityId.getText().toString();
        if(cityIdQuery.length() > 0) {
            WeatherDownloader downloader = new WeatherDownloader(MainActivity.this,
WeatherDownloader.Mode.CITYID);

downloader.getCurrentWeatherData(getResources().getString(R.string.weather_api_key),
cityIdQuery);
        }
    });
}

coordinatesSearch.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        coordinatesProgress.setVisibility(View.VISIBLE);
        String coordinatesQuery = coordinates.getText().toString();
        if(coordinatesQuery.length() > 0) {
            WeatherDownloader downloader = new WeatherDownloader(MainActivity.this,
WeatherDownloader.Mode.COORDINATES);

downloader.getCurrentWeatherData(getResources().getString(R.string.weather_api_key),
coordinatesQuery);
        }
    });
}

zipCodeSearch.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        zipCodeProgress.setVisibility(View.VISIBLE);
        String zipCodeQuery = zipCode.getText().toString();
        if(zipCodeQuery.length() > 0) {
            WeatherDownloader downloader = new WeatherDownloader(MainActivity.this,
WeatherDownloader.Mode.ZIPCODE);

downloader.getCurrentWeatherData(getResources().getString(R.string.weather_api_key),
zipCodeQuery);
        }
    });
}

@Override
public void onWeatherDownloadComplete(WeatherData data, WeatherDownloader.Mode mode) {
    if (mode == WeatherDownloader.Mode.CITYNAME) {
        cityNameProgress.setVisibility(View.GONE);
        cityNameResult.setText(String.format("%.2f",
WeatherUnits.convertToCelsius(data.getMain().getTemp())));
    } else if (mode == WeatherDownloader.Mode.CITYID) {
        cityIdProgress.setVisibility(View.GONE);
        cityIdResult.setText(String.format("%.2f",
WeatherUnits.convertToFahrenheit(data.getMain().getTemp())));
    } else if (mode == WeatherDownloader.Mode.COORDINATES) {
        coordinatesProgress.setVisibility(View.GONE);
        coordinatesResult.setText(data.getMain().getTemp());
    } else if (mode == WeatherDownloader.Mode.ZIPCODE) {
        zipCodeProgress.setVisibility(View.GONE);
        zipCodeResult.setText(String.format("%.2f",
WeatherUnits.convertToFahrenheit(data.getMain().getTemp())));
    }
}

@Override

```

```
    public void onWeatherDownloadFailed(Exception e) {
        Toast.makeText(MainActivity.this, e.getMessage(), Toast.LENGTH_SHORT).show();
    }
}
```

#### Clouds.java:

```
public class Clouds {
    private String all;

    public String getAll () {
        return all;
    }

    public void setAll (String all) {
        this.all = all;
    }

    @Override
    public String toString() {
        return "Clouds[all = "+all+"]";
    }
}
```

#### Coord.java:

```
public class Coord {
    private String lon;

    private String lat;

    public String getLon () {
        return lon;
    }

    public void setLon (String lon) {
        this.lon = lon;
    }

    public String getLat () {
        return lat;
    }

    public void setLat (String lat) {
        this.lat = lat;
    }

    @Override
    public String toString() {
        return "Coord [lon = "+lon+", lat = "+lat+"]";
    }
}
```

#### JsonUtil.java:

```
import org.json.JSONArray;
import org.json.JSONException;
import org.json.JSONObject;
```

```

public class JsonUtil {
    public static Coord getCoordObjectFromJson(String json) throws JSONException {
        JSONObject jsonObject = new JSONObject(json);
        JSONObject coordJson = jsonObject.getJSONObject("coord");
        if(coordJson != null) {
            Coord coord = new Coord();
            coord.setLon(coordJson.getString("lon"));
            coord.setLat(coordJson.getString("lat"));
            return coord;
        } else {
            return null;
        }
    }

    public static Sys getSysObjectFromJson(String json) throws JSONException {
        JSONObject jsonObject = new JSONObject(json);
        JSONObject sysJson = jsonObject.getJSONObject("sys");
        if(sysJson != null) {
            Sys sys = new Sys();
            sys.setId(sysJson.getString("id"));
            sys.setType(sysJson.getString("type"));
            sys.setMessage(sysJson.getString("message"));
            sys.setCountry(sysJson.getString("country"));
            sys.setSunrise(sysJson.getString("sunrise"));
            sys.setSunset(sysJson.getString("sunset"));
            return sys;
        } else {
            return null;
        }
    }

    public static Weather[] getWeatherObjectFromJson(String json) throws JSONException {
        JSONObject jsonObject = new JSONObject(json);
        JSONArray weatherJsonArray = jsonObject.getJSONArray("weather");
        if(weatherJsonArray != null) {
            Weather[] weatherArray = new Weather[weatherJsonArray.length()];
            for (int i = 0; i < weatherJsonArray.length(); i++) {
                Weather weather = new Weather();
                JSONObject weatherJsonObject = weatherJsonArray.getJSONObject(i);
                weather.setId(weatherJsonObject.getString("id"));
                weather.setDescription(weatherJsonObject.getString("description"));
                weather.setIcon(weatherJsonObject.getString("icon"));
                weather.setMain(weatherJsonObject.getString("main"));
                weatherArray[i] = weather;
            }
            return weatherArray;
        } else {
            return null;
        }
    }

    public static Main getMainObjectFromJson(String json) throws JSONException {
        JSONObject jsonObject = new JSONObject(json);
        JSONObject mainJsonObject = jsonObject.getJSONObject("main");
        if(mainJsonObject != null) {
            Main main = new Main();
            main.setHumidity(mainJsonObject.getString("humidity"));
            main.setPressure(mainJsonObject.getString("pressure"));
            main.setTemp(mainJsonObject.getString("temp"));
            main.setTemp_max(mainJsonObject.getString("temp_max"));
            main.setTemp_min(mainJsonObject.getString("temp_min"));
            return main;
        } else {
            return null;
        }
    }
}

```

```

    }

    public static Wind getWindObjectFromJson(String json) throws JSONException {
        JSONObject jsonObject = new JSONObject(json);
        JSONObject windJson = jsonObject.getJSONObject("wind");
        if(windJson != null) {
            Wind wind = new Wind();
            wind.setDeg(windJson.getString("deg"));
            wind.setSpeed(windJson.getString("speed"));
            return wind;
        } else {
            return null;
        }
    }

    public static Clouds getCloudsObjectFromJson(String json) throws JSONException {
        JSONObject jsonObject = new JSONObject(json);
        JSONObject cloudsJson = jsonObject.getJSONObject("clouds");
        if(cloudsJson != null) {
            Clouds clouds = new Clouds();
            clouds.setAll(cloudsJson.getString("all"));
            return clouds;
        } else {
            return null;
        }
    }
}

```

### Main.java:

```

public class Main {
    private String humidity;

    private String pressure;

    private String temp_max;

    private String temp_min;

    private String temp;

    public String getHumidity () {
        return humidity;
    }

    public void setHumidity (String humidity) {
        this.humidity = humidity;
    }

    public String getPressure () {
        return pressure;
    }

    public void setPressure (String pressure) {
        this.pressure = pressure;
    }

    public String getTemp_max () {
        return temp_max;
    }

    public void setTemp_max (String temp_max) {
        this.temp_max = temp_max;
    }
}

```

```
}

public String getTemp_min () {
    return temp_min;
}

public void setTemp_min (String temp_min) {
    this.temp_min = temp_min;
}

public String getTemp () {
    return temp;
}

public void setTemp (String temp) {
    this.temp = temp;
}

@Override
public String toString() {
    return "Main [humidity = "+humidity+", pressure = "+pressure+", temp_max = "+temp_max+", temp_min = "+temp_min+", temp = "+temp+"]";
}
}
```

#### Rain.java:

```
public class Rain {  
}
```

#### Sys.java:

```
public class Sys {  
    private String message;  
  
    private String id;  
  
    private String sunset;  
  
    private String sunrise;  
  
    private String type;  
  
    private String country;  
  
    public String getMessage () {  
        return message;  
    }  
  
    public void setMessage (String message) {  
        this.message = message;  
    }  
  
    public String getId () {  
        return id;  
    }  
  
    public void setId (String id) {  
        this.id = id;  
    }  
}
```

```
public String getSunset () {
    return sunset;
}

public void setSunset (String sunset) {
    this.sunset = sunset;
}

public String getSunrise () {
    return sunrise;
}

public void setSunrise (String sunrise) {
    this.sunrise = sunrise;
}

public String getType () {
    return type;
}

public void setType (String type) {
    this.type = type;
}

public String getCountry () {
    return country;
}

public void setCountry (String country) {
    this.country = country;
}

@Override
public String toString() {
    return "Sys [message = "+message+", id = "+id+", sunset = "+sunset+", sunrise =
"+sunrise+", type = "+type+", country = "+country+"]";
}
}
```

### Weather.java:

```
public class Weather {
    private String id;

    private String icon;

    private String description;

    private String main;

    public String getId () {
        return id;
    }

    public void setId (String id) {
        this.id = id;
    }

    public String getIcon () {
        return icon;
    }

    public void setIcon (String icon) {
```

```
        this.icon = icon;
    }

    public String getDescription () {
        return description;
    }

    public void setDescription (String description) {
        this.description = description;
    }

    public String getMain () {
        return main;
    }

    public void setMain (String main) {
        this.main = main;
    }

    @Override
    public String toString() {
        return "Weather [id = "+id+", icon = "+icon+", description = "+description+", main =
"+main+"]";
    }
}
```

#### WeatherData.java:

```
import java.util.Arrays;

public class WeatherData {
    private String id;

    private String dt;

    private Clouds clouds;

    private Coord coord;

    private Wind wind;

    private String cod;

    private String visibility;

    private Sys sys;

    private String name;

    private String base;

    private Weather[] weather;

    //private Rain rain;

    private Main main;

    public String getId () {
        return id;
    }

    public void setId (String id) {
        this.id = id;
    }
```

```
public String getDt () {
    return dt;
}

public void setDt (String dt) {
    this.dt = dt;
}

public Clouds getClouds () {
    return clouds;
}

public void setClouds (Clouds clouds) {
    this.clouds = clouds;
}

public Coord getCoord () {
    return coord;
}

public void setCoord (Coord coord) {
    this.coord = coord;
}

public Wind getWind () {
    return wind;
}

public void setWind (Wind wind) {
    this.wind = wind;
}

public String getCod () {
    return cod;
}

public void setCod (String cod) {
    this.cod = cod;
}

public String getVisibility () {
    return visibility;
}

public void setVisibility (String visibility) {
    this.visibility = visibility;
}

public Sys getSys () {
    return sys;
}

public void setSys (Sys sys) {
    this.sys = sys;
}

public String getName () {
    return name;
}

public void setName (String name) {
    this.name = name;
}

public String getBase () {
```

---

```

        return base;
    }

    public void setBase (String base) {
        this.base = base;
    }

    public Weather[] getWeather () {
        return weather;
    }

    public void setWeather (Weather[] weather) {
        this.weather = weather;
    }

    /*public Rain getRain () {
        return rain;
    }

    public void setRain (Rain rain) {
        this.rain = rain;
    }*/
}

public Main getMain () {
    return main;
}

public void setMain (Main main) {
    this.main = main;
}

@Override
public String toString() {
    return "WeatherData [id = "+id+", dt = "+dt+", clouds = "+clouds+", coord = "+coord+", wind = "+wind+", cod = "+cod+", visibility = "+visibility+", sys = "+sys+", name = "+name+", base = "+base+", weather = "+ Arrays.toString(weather) +", main = "+main+"]";
}
}

```

### WeatherDataBuilder.java:

```

import android.util.Log;

import org.json.JSONException;
import org.json.JSONObject;

public class WeatherDataBuilder {
    private static final String LOG_TAG = "WeatherDownloader";
    public static WeatherData buildWeatherData(String response) {
        JSONObject jsonObject;
        try {
            jsonObject = new JSONObject(response);
        } catch (JSONException e) {
            Log.e(LOG_TAG, e.getMessage());
            return null;
        }

        WeatherData weatherData = new WeatherData();

        Clouds cloudsData = null;
        try {
            cloudsData = JsonUtil.getCloudsObjectFromJson(response);

```

```

        weatherData.setClouds(cloudsData);
    } catch (JSONException e) {
        Log.e(LOG_TAG, e.getMessage());
        weatherData.setClouds(cloudsData);
    }

    Coord coordData = null;
    try {
        coordData = JsonUtil.getCoordObjectFromJson(response);
        weatherData.setCoord(coordData);
    } catch (JSONException e) {
        Log.e(LOG_TAG, e.getMessage());
        weatherData.setCoord(coordData);
    }

    Main mainData = null;
    try {
        mainData = JsonUtil.getMainObjectFromJson(response);
        weatherData.setMain(mainData);
    } catch (JSONException e) {
        Log.e(LOG_TAG, e.getMessage());
        weatherData.setMain(mainData);
    }

    Sys sysData = null;
    try {
        sysData = JsonUtil.getSysObjectFromJson(response);
        weatherData.setSys(sysData);
    } catch (JSONException e) {
        weatherData.setSys(sysData);
        Log.e(LOG_TAG, e.getMessage());
    }

    Weather[] weatherObjectData = null;
    try {
        weatherObjectData = JsonUtil.getWeatherObjectFromJson(response);
        weatherData.setWeather(weatherObjectData);
    } catch (JSONException e) {
        weatherData.setWeather(weatherObjectData);
        Log.e(LOG_TAG, e.getMessage());
    }

    Wind windData = null;
    try {
        windData = JsonUtil.getWindObjectFromJson(response);
        weatherData.setWind(windData);
    } catch (JSONException e) {
        weatherData.setWind(windData);
        Log.e(LOG_TAG, e.getMessage());
    }

    try {
        weatherData.setBase(jsonObject.getString("base"));
    } catch (JSONException e) {
        Log.e(LOG_TAG, e.getMessage());
        weatherData.setBase(null);
    }
    try {
        weatherData.setVisibility(jsonObject.getString("visibility"));
    } catch (JSONException e) {
        Log.e(LOG_TAG, e.getMessage());
        weatherData.setVisibility(null);
    }
}

```

```

        try {
            weatherData.setDt(jsonObject.getString("dt"));
        } catch (JSONException e) {
            Log.e(LOG_TAG, e.getMessage());
            weatherData.setDt(null);
        }
        try {
            weatherData.setId(jsonObject.getString("id"));
        } catch (JSONException e) {
            Log.e(LOG_TAG, e.getMessage());
            weatherData.setId(null);
        }
        try {
            weatherData.setName(jsonObject.getString("name"));
        } catch (JSONException e) {
            Log.e(LOG_TAG, e.getMessage());
            weatherData.setName(null);
        }
        try {
            weatherData.setCod(jsonObject.getString("cod"));
        } catch (JSONException e) {
            Log.e(LOG_TAG, e.getMessage());
            weatherData.setCod(null);
        }
    }

    return weatherData;
}
}

```

### WeatherDownloader.java:

```

import android.net.Uri;
import android.os.AsyncTask;
import android.util.Log;

import java.io.BufferedInputStream;
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import java.net.HttpURLConnection;
import java.net.URL;

public class WeatherDownloader {
    public static final String LOG_TAG = "WeatherDownloader";
    private WeatherDataDownloadListener downloadListener;
    private Mode mode;

    private final String BASE_URL = "api.openweathermap.org";
    private final String DATA_PATH = "data";
    private final String VERSION_PATH = "2.5";
    private final String WEATHER_PATH = "weather";

    public WeatherDownloader(WeatherDataDownloadListener downloadListener, Mode mode) {
        this.downloadListener = downloadListener;
        this.mode = mode;
    }

    public void getCurrentWeatherData(String apiKey, String query) {
        if(apiKey != null) {
            try {

```

```

        String url = buildUrl(apiKey, mode, query);
        new DownloadCurrentData().execute(url);
    } catch (Exception e) {
        Log.e(LOG_TAG, e.getMessage());
    }
} else {
    Log.e(LOG_TAG, "ApiKey cannot be null");
}
}

private String buildUrl(String apiKey, Mode mode, String query) {
    Uri.Builder builder = new Uri.Builder();
    builder.scheme("http")
        .authority(BASE_URL)
        .appendPath(DATA_PATH)
        .appendPath(VERSION_PATH)
        .appendPath(WEATHER_PATH)
        .appendQueryParameter("appid", apiKey);
    switch (mode) {
        case CITYNAME:
            builder.appendQueryParameter("q", query);
            return builder.build().toString();
        case ZIPCODE:
            builder.appendQueryParameter("zip", query);
            return builder.build().toString();
        case COORDINATES:
            String[] coord = query.split(":");
            builder.appendQueryParameter("lat", coord[0]);
            builder.appendQueryParameter("lon", coord[1]);
            return builder.build().toString();
        case CITYID:
            builder.appendQueryParameter("id", query);
            return builder.build().toString();
        default:
            break;
    }
    return null;
}

public interface WeatherDataDownloadListener {
    void onWeatherDownloadComplete(WeatherData data, Mode mode);
    void onWeatherDownloadFailed(Exception e);
}

private class DownloadCurrentData extends AsyncTask<String, Void, String> {
    @Override
    protected String doInBackground(String... params) {
        InputStream inputStream = null;
        URL url;
        HttpURLConnection httpURLConnection = null;
        try {
            url = new URL(params[0]);
            httpURLConnection = (HttpURLConnection) url.openConnection();
            httpURLConnection.setConnectTimeout(15000); //15 sec
            inputStream = new BufferedInputStream(httpURLConnection.getInputStream());
            return convertInputStreamToString(inputStream);
        } catch (IOException e) {
            Log.e(LOG_TAG, e.getMessage());
        } finally {
            try {
                if (inputStream != null) {
                    inputStream.close();
                }
            } catch (IOException e) {
                httpURLConnection.disconnect();
            }
        }
    }
}

```

```

        }
    } catch (IOException e) {
        Log.e(LOG_TAG, e.getMessage());
    }
}
return null;
}

@Override
protected void onPostExecute(String response) {
    if(response == null){
        Log.e(LOG_TAG, "Response is null");
        downloadListener.onWeatherDownloadComplete(null, mode);
    } else {
        try {

downloadListener.onWeatherDownloadComplete(WeatherDataBuilder.buildWeatherData(response), mode);
        } catch (Exception e) {
            Log.e(LOG_TAG, "Invalid data");
            downloadListener.onWeatherDownloadFailed(e);
        }
    }
}

private String convertInputStreamToString(InputStream inputStream) throws IOException{
    BufferedReader bufferedReader = new BufferedReader(new
InputStreamReader(inputStream));
    String line;
    String result = "";
    while((line = bufferedReader.readLine()) != null) {
        result += line;
    }
    inputStream.close();
    return result;
}
}

public enum Mode {
    ZIPCODE,
    COORDINATES,
    CITYID,
    CITYNAME
}
}

```

### WeatherUnits.java:

```

public class WeatherUnits {
    public static Double convertToCelsius(String kelvin) throws NumberFormatException{
        double inKelvin;
        try {
            inKelvin = Double.parseDouble(kelvin);
        } catch (NumberFormatException e) {
            throw e;
        }
        return inKelvin - 273.15;
    }
    public static Double convertToFahrenheit(String kelvin) throws NumberFormatException{
        double inKelvin;
        try {
            inKelvin = Double.parseDouble(kelvin);
        } catch (NumberFormatException e) {
            throw e;
        }
    }
}

```

---

```

        }
        return (inKelvin - 273.15)* 1.8000 + 32.00;
    }
}

```

### Wind.java:

```

public class Wind {
    private String speed;

    private String deg;

    public String getSpeed () {
        return speed;
    }

    public void setSpeed (String speed) {
        this.speed = speed;
    }

    public String getDeg () {
        return deg;
    }

    public void setDeg (String deg) {
        this.deg = deg;
    }

    @Override
    public String toString() {
        return "Wind [speed = "+speed+", deg = "+deg+"]";
    }
}

```

### activity\_main.xml:

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout tools:context=".MainActivity"
    android:orientation="vertical"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:layout_height="match_parent"
    android:layout_width="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
        android:layout_width="match_parent">

        <TextView android:layout_height="wrap_content"
            android:layout_width="0dp"
            android:text="Search by name"
            android:layout_weight="1"/>

        <EditText android:layout_height="wrap_content"
            android:layout_width="0dp"
            android:layout_weight="1"

```

```

        android:inputType="textAutoCorrect"
        android:hint="city name"
        android:id="@+id/city_name"/>

    </LinearLayout>

    <LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
        android:layout_width="match_parent">

        <TextView android:layout_height="wrap_content"
            android:layout_width="0dp"
            android:layout_weight="1"
            android:id="@+id/city_result"/>

        <ProgressBar android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:id="@+id/city_progress"
            android:indeterminate="true"
            android:visibility="gone"/>

        <Button android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:text="Get Current Weather"
            android:id="@+id/city_search"/>

    </LinearLayout>

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceSmall"
        android:text="Celsius" />

    <LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
        android:layout_width="match_parent">

        <TextView android:layout_height="wrap_content"
            android:layout_width="0dp"
            android:text="Search by zip code"
            android:layout_weight="1"/>

        <EditText android:layout_height="wrap_content"
            android:layout_width="0dp"
            android:layout_weight="1"
            android:inputType="number"
            android:hint="zip code"
            android:id="@+id/zip_code"/>

    </LinearLayout>

    <LinearLayout
        android:orientation="horizontal"
        android:layout_height="wrap_content"
        android:layout_width="match_parent">

        <TextView android:layout_height="wrap_content"
            android:layout_width="0dp"

            android:layout_weight="1"
            android:id="@+id/zip_code_result"/>

        <ProgressBar android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:id="@+id/zip_code_progress"

```

```

        android:indeterminate="true"
        android:visibility="gone"/>

    <Button android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="Get Current Weather"
        android:id="@+id/zip_code_search"
        android:layout_gravity="end"/>

</LinearLayout>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceSmall"
    android:text="Fahrenheit" />

<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="match_parent">

    <TextView android:layout_height="wrap_content"
        android:layout_width="0dp"
        android:text="Search by coordinates"
        android:layout_weight="1"/>

    <EditText android:layout_height="wrap_content"
        android:layout_width="0dp"
        android:layout_weight="1"
        android:inputType="text"
        android:hint="lat:lon"
        android:id="@+id/coordinates"/>

</LinearLayout>

<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="match_parent">

    <TextView android:layout_height="wrap_content"
        android:layout_width="0dp"
        android:layout_weight="1"
        android:id="@+id/coordinates_result"/>

    <ProgressBar android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:id="@+id/coordinates_progress"
        android:indeterminate="true"
        android:visibility="gone"/>

    <Button android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="Get Current Weather"
        android:id="@+id/coordinates_search"
        android:layout_gravity="end"/>

</LinearLayout>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceSmall"
    android:text="Kelvin" />

<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="match_parent">

```

```

<TextView android:layout_height="wrap_content"
    android:layout_width="0dp"
    android:text="Search by City ID"
    android:layout_weight="1"/>

<EditText android:layout_height="wrap_content"
    android:layout_width="0dp"
    android:layout_weight="1"
    android:inputType="text"
    android:hint="city id"
    android:id="@+id/city_id"/>

</LinearLayout>

<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="match_parent">

    <TextView android:layout_height="wrap_content"
        android:layout_width="0dp"
        android:layout_weight="1"
        android:id="@+id/city_id_result"/>

    <ProgressBar android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:id="@+id/city_id_progress"
        android:indeterminate="true"
        android:visibility="gone"/>

    <Button android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text="Get Current Weather"
        android:id="@+id/city_id_search"
        android:layout_gravity="end"/>

</LinearLayout>

<TextView
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:textAppearance="?android:attr/textAppearanceSmall"
    android:text="Fahrenheit" />

</LinearLayout>

```

Create a resource file in values i.e., create

**key.xml** and add the following codes:

```

<?xml version="1.0" encoding="utf-8"?>
<resources>

<string name="weather_api_key">16f28aecfde1858cd9bda7e9444e54e8</string>

</resources>

```

In manifest file, you need to add the following permission code:

```
<uses-permission android:name="android.permission.INTERNET" />
```

---

```
*****
```

## How to create a compass application

Main activity.java:

```
import android.content.Context;
import android.hardware.GeomagneticField;
import android.hardware.Sensor;
import android.hardware.SensorEvent;
import android.hardware.SensorEventListener;
import android.hardware.SensorManager;
import android.location.Location;
import android.location.LocationManager;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.WindowManager;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements SensorEventListener {

    public static final String NA = "N/A";
    public static final String FIXED = "FIXED";
    // location min time
    private static final int LOCATION_MIN_TIME = 30 * 1000;
    // location min distance
    private static final int LOCATION_MIN_DISTANCE = 10;
    // Gravity for accelerometer data
    private float[] gravity = new float[3];
    // magnetic data
    private float[] geomagnetic = new float[3];
    // Rotation data
    private float[] rotation = new float[9];
    // orientation (azimuth, pitch, roll)
    private float[] orientation = new float[3];
    // smoothed values
    private float[] smoothed = new float[3];
    // sensor manager
    private SensorManager sensorManager;
    // sensor gravity
    private Sensor sensorGravity;
    private Sensor sensorMagnetic;
    private LocationManager locationManager;
    private Location currentLocation;
    private GeomagneticField geomagneticField;
    private double bearing = 0;
    private TextView textDirection, textLat, textLong;
    private CompassView compassView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        textDirection = (TextView) findViewById(R.id.text);
        compassView = (CompassView) findViewById(R.id.compass);
        // keep screen light on (wake lock light)
        getWindow().addFlags(WindowManager.LayoutParams.FLAG_KEEP_SCREEN_ON);
    }

    @Override
    protected void onStart() {
        super.onStart();
        sensorManager = (SensorManager) getSystemService(Context.SENSOR_SERVICE);
        sensorGravity = sensorManager.getDefaultSensor(Sensor.TYPE_ACCELEROMETER);
```

```

sensorMagnetic = sensorManager.getDefaultSensor(Sensor.TYPE_MAGNETIC_FIELD);

// listen to these sensors
sensorManager.registerListener(this, sensorGravity,
    SensorManager.SENSOR_DELAY_NORMAL);
sensorManager.registerListener(this, sensorMagnetic,
    SensorManager.SENSOR_DELAY_NORMAL);
}

@Override
public void onSensorChanged(SensorEvent event) {
    boolean accelOrMagnetic = false;

    // get accelerometer data
    if (event.sensor.getType() == Sensor.TYPE_ACCELEROMETER) {
        // we need to use a low pass filter to make data smoothed
        smoothed = LowPassFilter.filter(event.values, gravity);
        gravity[0] = smoothed[0];
        gravity[1] = smoothed[1];
        gravity[2] = smoothed[2];
        accelOrMagnetic = true;
    } else if (event.sensor.getType() == Sensor.TYPE_MAGNETIC_FIELD) {
        smoothed = LowPassFilter.filter(event.values, geomagnetic);
        geomagnetic[0] = smoothed[0];
        geomagnetic[1] = smoothed[1];
        geomagnetic[2] = smoothed[2];
        accelOrMagnetic = true;
    }

    // get rotation matrix to get gravity and magnetic data
    SensorManager.getRotationMatrix(rotation, null, gravity, geomagnetic);
    // get bearing to target
    SensorManager.getOrientation(rotation, orientation);
    // east degrees of true North
    bearing = orientation[0];
    // convert from radians to degrees
    bearing = Math.toDegrees(bearing);

    // fix difference between true North and magnetical North
    if (geomagneticField != null) {
        bearing += geomagneticField.getDeclination();
    }

    // bearing must be in 0-360
    if (bearing < 0) {
        bearing += 360;
    }

    // update compass view
    compassView.setBearing((float) bearing);

    if (accelOrMagnetic) {
        compassView.postInvalidate();
    }
}

updateTextDirection(bearing); // display text direction on screen
}

private void updateTextDirection(double bearing) {
    int range = (int) (bearing / (360f / 16f));
    String dirTxt = "";
}

```

```

        if (range == 15 || range == 0)
            dirTxt = "N";
        if (range == 1 || range == 2)
            dirTxt = "NE";
        if (range == 3 || range == 4)
            dirTxt = "E";
        if (range == 5 || range == 6)
            dirTxt = "SE";
        if (range == 7 || range == 8)
            dirTxt = "S";
        if (range == 9 || range == 10)
            dirTxt = "SW";
        if (range == 11 || range == 12)
            dirTxt = "W";
        if (range == 13 || range == 14)
            dirTxt = "NW";

        textDirection.setText(" " + ((int) bearing) + ((char) 176) + " "
            + dirTxt); // char 176 ) = degrees ...
    }

    @Override
    public void onAccuracyChanged(Sensor sensor, int accuracy) {
        if (sensor.getType() == Sensor.TYPE_MAGNETIC_FIELD
            && accuracy == SensorManager.SENSOR_STATUS_UNRELIABLE) {
            // manage fact that compass data are unreliable ...
            // toast ? display on screen ?
        }
    }
}

```

### CompassView.java:

```

import android.content.Context;
import android.graphics.Bitmap;
import android.graphics.BitmapFactory;
import android.graphics.Canvas;
import android.graphics.Matrix;
import android.graphics.Paint;
import android.util.AttributeSet;
import android.view.View;

public class CompassView extends View {

    private static final Paint paint = new Paint(Paint.ANTI_ALIAS_FLAG);
    private int width = 0;
    private int height = 0;
    private Matrix matrix; // to manage rotation of the compass view
    private Bitmap bitmap;
    private float bearing; // rotation angle to North

    public CompassView(Context context) {
        super(context);
        initialize();
    }

    public CompassView(Context context, AttributeSet attr) {
        super(context, attr);
        initialize();
    }

    private void initialize() {
        matrix = new Matrix();
        // create bitmap for compass icon

```

```

        bitmap = BitmapFactory.decodeResource(getResources(),
            R.drawable.compass_icon);
    }

    public void setBearing(float b) {
        bearing = b;
    }

    @Override
    protected void onMeasure(int widthMeasureSpec, int heightMeasureSpec) {
        super.onMeasure(widthMeasureSpec, heightMeasureSpec);
        width = MeasureSpec.getSize(widthMeasureSpec);
        height = MeasureSpec.getSize(heightMeasureSpec);
        setMeasuredDimension(width, height);
    }

    @Override
    protected void onDraw(Canvas canvas) {
        int bitmapWidth = bitmap.getWidth();
        int bitmapHeight = bitmap.getHeight();
        int canvasWidth = canvas.getWidth();
        int canvasHeight = canvas.getHeight();

        if (bitmapWidth > canvasWidth || bitmapHeight > canvasHeight) {
            // resize bitmap to fit in canvas
            bitmap = Bitmap.createScaledBitmap(bitmap,
                (int) (bitmapWidth * 0.85), (int) (bitmapHeight * 0.85), true);
        }

        // center
        int bitmapX = bitmap.getWidth() / 2;
        int bitmapY = bitmap.getHeight() / 2;
        int parentX = width / 2;
        int parentY = height / 2;
        int centerX = parentX - bitmapX;
        int centerY = parentY - bitmapY;

        // calculate rotation angle
        int rotation = (int) (360 - bearing);

        // reset matrix
        matrix.reset();
        matrix.setRotate(rotation, bitmapX, bitmapY);
        // center bitmap on canvas
        matrix.postTranslate(centerX, centerY);
        // draw bitmap
        canvas.drawBitmap(bitmap, matrix, paint);
    }
}

```

### LowPassFilter.java:

```

public class LowPassFilter {
    private static final float ALPHA = 0.2f;
    private LowPassFilter(){
    }

    public static float[] filter(float[] input, float[] output){
        if (output==null)
            return input;
        for(int i=0; i<input.length;i++){
            output[i] = output[i] + ALPHA + (input[i]-output[i]);
        }
    }
}

```

```

        }

        return output;

    }

}

```

**activity\_main.xml:**

```

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@drawable/background"
    android:orientation="vertical"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="manju.example.com.myapplicationcompass.MainActivity" >

    <RelativeLayout
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="15dp" >

        <TextView
            android:id="@+id/text"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_centerInParent="true"
            android:textSize="@dimen/dirSize" />
    </RelativeLayout>

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center_horizontal"
        android:layout_marginTop="10dp"
        android:orientation="horizontal" >

    </LinearLayout>

    <RelativeLayout
        android:layout_width="fill_parent"
        android:layout_height="fill_parent" >

        <manju.example.com.myapplicationcompass.CompassView
            android:id="@+id/compass"
            android:layout_width="fill_parent"
            android:layout_height="fill_parent"
            android:layout_centerInParent="true" />
    </RelativeLayout>

</LinearLayout>

```

**In manifest file – the following permissions should be added**

---

```

<uses-feature
    android:name ="android.hardware.sensor.accelerometer"
    android:required ="true"/>
<uses-feature
    android:name ="android.hardware.sensor.compass"
    android:required ="true"/>
```

**dimens.xml (in values folder):**

```
<dimen name="dirSize">32dp</dimen>
```

---

## Download (via internet) on button click

**Code in MainActivity.java:**

```

import android.app.DownloadManager;
import android.app.DownloadManager.Query;
import android.app.DownloadManager.Request;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.database.Cursor;
import android.net.Uri;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;

public class MainActivity extends AppCompatActivity {

    private long enqueue;
    private DownloadManager dm;

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        BroadcastReceiver receiver = new BroadcastReceiver() {
            @Override
            public void onReceive(Context context, Intent intent) {
                String action = intent.getAction();
                if (DownloadManager.ACTION_DOWNLOAD_COMPLETE.equals(action)) {
                    long downloadId = intent.getLongExtra(
                        DownloadManager.EXTRA_DOWNLOAD_ID, 0);
                    Query query = new Query();
                    query.setFilterById(enqueue);
                    Cursor c = dm.query(query);
                    if (c.moveToFirst()) {
                        int columnIndex = c
                            .getColumnIndex(DownloadManager.COLUMN_STATUS);
                    }
                }
            }
        };
    }
}
```

```

        registerReceiver(receiver, new IntentFilter(
            DownloadManager.ACTION_DOWNLOAD_COMPLETE));
    }

    public void onClick(View view) {
        dm = (DownloadManager) getSystemService(DOWNLOAD_SERVICE);
        Request request = new Request(
            Uri.parse("http://programmerguru.com/android-tutorial/wp-
content/uploads/2014/01/jai_ho.mp3"));
        enqueue = dm.enqueue(request);
    }

    public void showDownload(View view) {
        Intent i = new Intent();
        i.setAction(DownloadManager.ACTION_VIEW_DOWNLOADS);
        startActivity(i);
    }
}

```

**In manifest file – you need to add the following permission:**

```
<uses-permission android:name="android.permission.INTERNET" />
```

**activity\_main.xml:**

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:weightSum="1">
    <Button android:text="Start Download" android:id="@+id/button1"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:onClick="onClick"
        android:layout_gravity="center_horizontal"></Button>
    <Button android:text="View Downloads" android:id="@+id/button2"
        android:layout_width="wrap_content" android:layout_height="wrap_content"
        android:onClick="showDownload"
        android:layout_gravity="center_horizontal"></Button>
    <ImageView android:layout_height="195dp"
        android:src="@mipmap/ic_launcher"
        android:layout_width="match_parent"></ImageView>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Next"
        android:id="@+id/button"
        android:layout_gravity="center_horizontal" />
</LinearLayout>

```

```
*****
```

**Tap to share something you wish**

**MainActivity.java:**

```

import android.content.Intent;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;

```

```

import android.view.Menu;
import android.view.View;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {
    private ImageView img;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        img = (ImageView) findViewById(R.id.imageView1);
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }
    public void open(View view){
        Intent shareIntent = new Intent();
        shareIntent.setAction(Intent.ACTION_SEND);
        shareIntent.setType("text/plain");
        shareIntent.putExtra(Intent.EXTRA_TEXT, "Hello, How r u ");
        startActivity(Intent.createChooser(shareIntent, "Share your thoughts"));
    }
}

```

#### activity\_main.xml:

```

<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".MainActivity" >
    <ImageView
        android:id="@+id/imageView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentTop="true"
        android:layout_marginLeft="98dp"
        android:layout_marginTop="139dp"
        android:onClick="open"
        android:src="@drawable/ic_launcher" />

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="48dp"
        android:text="@string/tap"
        android:textAppearance="?android:attr/textAppearanceLarge" />
</RelativeLayout>

```

#### String.xml:

---

```

<resources>
    <string name="hello_world">Hello world!</string>
    <string name="tap">Tap the button to share something</string>
</resources>

```

In manifest file – you need to add the following permission:

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## Start, stop and play the Audio

**Main Activity.java:**

```

import android.content.Intent;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.Menu;
import android.view.View;
import java.io.File;
import java.io.IOException;
import android.media.MediaPlayer;
import android.media.MediaRecorder;
import android.os.Bundle;
import android.os.Environment;
import android.app.Activity;
import android.view.Menu;
import android.view.View;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {
    private MediaRecorder myAudioRecorder;
    private String outputFile = null;
    private Button start,stop,play;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        start = (Button)findViewById(R.id.button1);
        stop = (Button)findViewById(R.id.button2);
        play = (Button)findViewById(R.id.button3);
        stop.setEnabled(false);
        play.setEnabled(false);
        outputFile = Environment.getExternalStorageDirectory().
                getAbsolutePath() + "/myrecording.3gp";
        myAudioRecorder = new MediaRecorder();
        myAudioRecorder.set AudioSource(MediaRecorder.AudioSource.MIC);
        myAudioRecorder.setOutputFormat(MediaRecorder.OutputFormat.THREE_GPP);
        myAudioRecorder.setAudioEncoder(MediaRecorder.OutputFormat.AMR_NB);
        myAudioRecorder.setOutputFile(outputFile);
    }
    public void start(View view){
        try {
            myAudioRecorder.prepare();
            myAudioRecorder.start();
        } catch (IllegalStateException e) {

```

```

        // TODO Auto-generated catch block
        e.printStackTrace();
    } catch (IOException e) {
        // TODO Auto-generated catch block
        e.printStackTrace();
    }
    start.setEnabled(false);
    stop.setEnabled(true);
    Toast.makeText(getApplicationContext(),
            "Recording started", Toast.LENGTH_LONG).show();
}
public void stop(View view){
    myAudioRecorder.stop();
    myAudioRecorder.release();
    myAudioRecorder = null;
    stop.setEnabled(false);
    play.setEnabled(true);
    Toast.makeText(getApplicationContext(),
            "Audio recorded successfully",
            Toast.LENGTH_LONG).show();
}
@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.menu_main, menu);
    return true;
}
public void play(View view) throws IllegalArgumentException,
        SecurityException, IllegalStateException, IOException{
    MediaPlayer m = new MediaPlayer();
    m.setDataSource(outputFile);
    m.prepare();
    m.start();
    Toast.makeText(getApplicationContext(), "Playing audio", Toast.LENGTH_LONG).show();
}
}

```

#### activity\_main.xml:

```

<RelativeLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".MainActivity" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentTop="true"
        android:layout_marginTop="32dp"
        android:text="@string/Recording"
        android:textAppearance="?android:attr/textAppearanceMedium" />

    <ImageView
        android:id="@+id/imageView1"
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_below="@+id/textView1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="37dp"

```

```

        android:scaleType="fitXY"
        android:src="@android:drawable/presence_audio_online" />
<Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/imageView1"
    android:layout_marginTop="67dp"
    android:layout_toLeftOf="@+id/imageView1"
    android:onClick="start"
    android:text="@string/start" />
<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBaseline="@+id/button1"
    android:layout_alignBottom="@+id/button1"
    android:layout_alignRight="@+id/textView1"
    android:layout_marginRight="40dp"
    android:onClick="stop"
    android:text="@string/stop" />
<Button
    android:id="@+id/button3"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button2"
    android:layout_centerHorizontal="true"
    android:onClick="play"
    android:text="@string/play" />
</RelativeLayout>
```

#### Permissions in manifest file:

```

<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.RECORD_AUDIO" />
```

#### String.xml:

```

<resources>
    <string name="Recording">Android Audio Recording Application</string>
    <string name="start">start</string>
    <string name="stop">stop</string>
    <string name="play">play</string>
</resources>
```

\*\*\*\*\*

## Google Map

First you need to update Google play services



After Gradle build, open `Google_maps_api.xml` in layout folder and note Finger print and package name i.e.,

`Google_maps_api.xml`

<!--

*TODO: Before you run your application, you need a Google Maps API key.*

*To get one, follow this link, follow the directions and press "Create" at the end:*

`https://console.developers.google.com/flows/enableapi?apiId=maps_android_backend&keyType=CLIENT_SIDE_ANDROID&r=A0:4D:F6:41:65:95:F3:59:F7:E1:03:24:44:56:26:87:C8:ED:37:6C%3Bcom.example.manju.myapplication`

*You can also add your credentials to an existing key, using this line:*

`A0:4D:F6:41:65:95:F3:59:F7:E1:03:24:44:56:26:87:C8:ED:37:6C;com.example.manju.myapplication`

*Alternatively, follow the directions here:*

`https://developers.google.com/maps/documentation/android/start#get-key`

*Once you have your key (it starts with "AIza"), replace the "google\_maps\_key" string in this file.*

-->

And after noting finger print (A0:4D:F6:41:65:95:F3:59:F7:E1:03:24:44:56:26:87:C8:ED:37:6C) and package name (`com.example.manju.myapplication`)— Go to Google Developer Console (

<https://code.google.com/apis/console/?pli=1>

)

Then go to CREATE PROJECT → New Project (enter project name) → create → Under API Manager → go to Credentials → APIs Credentials → API key → Android key → Add package name and finger print → fill package name and finger print → create → Note down your API key

After noting down the API key—you need to enter it in the Manifest.xml file as follows:

```
<meta-data  
    android:name="com.google.android.geo.API_KEY"  
    android:value="AIzaSyDWOTqYHHYlrziUPoF4IshFKNxKx1o91PM" />
```

And you need to add the following permissions to your manifest file:

```
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />  
<uses-permission android:name="android.permission.INTERNET" />
```

\*\*\*\*\*

## SCROLL VIEW

```
<ScrollView  
  
    xmlns:android="http://schemas.android.com/apk/res/android"  
  
    android:layout_width="fill_parent"  
  
    android:layout_height="wrap_content" >
```

```
<LinearLayout  
  
    android:layout_width="fill_parent"  
  
    android:layout_height="fill_parent"  
  
    android:orientation="vertical" >
```

```
<Button  
  
    android:id="@+id/button1"  
  
    android:layout_width="wrap_content"  
  
    android:layout_height="wrap_content"  
  
    android:layout_marginTop="20dp"  
  
    android:layout_marginLeft="20dp"  
  
    android:text="Button 1" />
```

```
<Button  
  
    android:id="@+id/button2"
```

```
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="20dp"  
    android:layout_marginLeft="20dp"  
    android:text="Button 2"  
  />
```

```
<Button  
    android:id="@+id/button3"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="20dp"  
    android:layout_marginLeft="20dp"  
    android:text="Button 3"  
  />
```

```
<Button  
    android:id="@+id/button4"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="20dp"  
    android:layout_marginLeft="20dp"  
    android:text="Button 4"  
  />
```

```
<Button  
    android:id="@+id/button5"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:layout_marginTop="20dp"
```

```
    android:layout_marginLeft="20dp"
    android:text="Button 5"
/>
<Button
    android:id="@+id/button6"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_marginLeft="20dp"
    android:text="Button 6"
/>
<Button
    android:id="@+id/button7"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_marginLeft="20dp"
    android:text="Button 7"
/>
<Button
    android:id="@+id/button8"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_marginLeft="20dp"
    android:text="Button 8"
/>

```

```

<Button
    android:id="@+id/button9"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_marginLeft="20dp"
    android:text="Button 9"
/>
<Button
    android:id="@+id/button10"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="20dp"
    android:layout_marginLeft="20dp"
    android:text="Button 10"
/>
</LinearLayout>
</ScrollView>
*****
```

## WEB VIEW

### Code in MainActivity.java:

```

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.webkit.WebSettings;
import android.webkit.WebView;

public class MainActivity extends AppCompatActivity {
    private WebView mWebView;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        mWebView = (WebView) findViewById(R.id.activity_main_webview);
        // Enable Javascript
        WebSettings webSettings = mWebView.getSettings();
        webSettings.setJavaScriptEnabled(true);
        mWebView.loadUrl("http://google.com/");
    }
}

```

**activity\_main.xml:**

```

<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/container"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
      

    <WebView
        android:id="@+id/activity_main_webview"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />
</FrameLayout>

```

**Permission you need to add to your manifest.xml file:**

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## HOW TO CREATE A SIMPLE GAME

**MainActivity.java:**

```

import android.content.Intent;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;

public class MainActivity extends AppCompatActivity {

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}

```

```
}

public void play(View v)
{
    Intent i=new Intent(this,Game.class);
    startActivity(i);
}

public void highscore(View v)
{
    Intent i=new Intent(this,Highscore.class);
    startActivity(i);
}

public void setting(View v)
{
    Intent i=new Intent(this,Setting.class);
    startActivity(i);
}

public void exit(View v)
{
    System.exit(0);
}

}
```

**Game.java:**

```
import android.annotation.SuppressLint;
import android.app.Activity;
import android.content.Context;
```

```
import android.content.SharedPreferences;
import android.content.SharedPreferences.Editor;
import android.graphics.Bitmap;
import android.graphics.BitmapFactory;
import android.graphics.Canvas;
import android.graphics.Color;
import android.graphics.Paint;
import android.graphics.Paint.Align;
import android.media.MediaPlayer;
import android.os.Bundle;
import android.telephony.PhoneStateListener;
import android.telephony.TelephonyManager;
import android.view.Display;
import android.view MotionEvent;
import android.view.SurfaceHolder;
import android.view.SurfaceView;
import android.view.Window;
import android.view.WindowManager;

public class Game extends Activity {
    MediaPlayer mp1,jump,takecoin;
    gameloop gameLoopThread;
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        //phone state
        TelephonyManager TelephonyMgr = (TelephonyManager)
getSystemService(Context.TELEPHONY_SERVICE);
        TelephonyMgr.listen(new TeleListener(),PhoneStateListener.LISTEN_CALL_STATE);
        //for no title
        this.requestWindowFeature(Window.FEATURE_NO_TITLE);
```

```
    this.getWindow().setFlags(WindowManager.LayoutParams.FLAG_FULLSCREEN,
WindowManager.LayoutParams.FLAG_FULLSCREEN);

    setContentView(new GameView(this));

}

public class GameView extends SurfaceView{

    Bitmap bmp,pause;

    Bitmap background,kinfe,note1,powerimg,note2;

    Bitmap run1;

    Bitmap run2;

    Bitmap run3;

    Bitmap coin;

    Bitmap exit;

    private SurfaceHolder holder;

    private int x = 0,y=0,z=0,delay=0,getx,getY,sound=1;

    int show=0,sx,sy;

    int cspeed=0,kspeed=0,gameover=0;

    int score=0,health=100,reset=0;

    int pausecount=0,volume,power=0,powerrun=0,shieldrun=0;

    @SuppressWarnings("deprecation")

    @SuppressLint("NewApi")

    public GameView(Context context)

    {

        super(context);

        gameLoopThread = new gameloop(this);

        holder = getHolder();

    }

}
```

```
holder.addCallback(new SurfaceHolder.Callback() {  
    @SuppressWarnings("deprecation")  
    @Override  
    public void surfaceDestroyed(SurfaceHolder holder)  
    {  
        //for stoping the game  
        gameLoopThread.setRunning(false);  
        gameLoopThread.getThreadGroup().interrupt();  
    }  
  
    @SuppressLint("WrongCall")  
    @Override  
    public void surfaceCreated(SurfaceHolder holder)  
    {  
        gameLoopThread.setRunning(true);  
        gameLoopThread.start();  
    }  
    @Override  
    public void surfaceChanged(SurfaceHolder holder, int format,int width, int  
height)  
    {  
    }  
});  
  
//getting the screen size  
Display display = getWindowManager().getDefaultDisplay();  
  
sx = display.getWidth();
```

```

sy = display.getHeight();;

cspeed=sx/2;

kspeed=sx/2;

powerrun=(3*sx/4);

shieldrun=sx/8;

background = BitmapFactory.decodeResource(getResources(), R.drawable.back);

run1=BitmapFactory.decodeResource(getResources(), R.drawable.run1);

run2=BitmapFactory.decodeResource(getResources(), R.drawable.run2);

run3=BitmapFactory.decodeResource(getResources(), R.drawable.run3);

coin=BitmapFactory.decodeResource(getResources(), R.drawable.coin);

exit=BitmapFactory.decodeResource(getResources(), R.drawable.exit);

kinfe=BitmapFactory.decodeResource(getResources(), R.drawable.kinfe);

note1=BitmapFactory.decodeResource(getResources(), R.drawable.note1);

pause=BitmapFactory.decodeResource(getResources(), R.drawable.pause);

powerimg=BitmapFactory.decodeResource(getResources(), R.drawable.power);

note2=BitmapFactory.decodeResource(getResources(), R.drawable.note2);

exit=Bitmap.createScaledBitmap(exit, 25,25, true);

pause=Bitmap.createScaledBitmap(pause, 25,25, true);

powerimg=Bitmap.createScaledBitmap(powerimg, 25,25, true);

note2=Bitmap.createScaledBitmap(note2, sx,sy, true);

run1=Bitmap.createScaledBitmap(run1, sx/9,sy/7, true);

run2=Bitmap.createScaledBitmap(run2, sx/9,sy/7, true);

run3=Bitmap.createScaledBitmap(run3, sx/9,sy/7, true);

coin=Bitmap.createScaledBitmap(coin, sx/16,sy/24, true);

background=Bitmap.createScaledBitmap(background, 2*sx,sy, true);

//health dec

note1=Bitmap.createScaledBitmap(note1, sx,sy, true);

mp1=MediaPlayer.create(Game.this,R.raw.game);

```

---

```

        jump=MediaPlayer.create(Game.this,R.raw.jump);

        takecoin=MediaPlayer.create(Game.this,R.raw.cointake);

    }

// on touch method

@Override

public boolean onTouchEvent(MotionEvent event) {

    if(event.getAction()==MotionEvent.ACTION_DOWN)

    {

        show=1;

        getx=(int) event.getX();

        gety=(int) event.getY();

        //exit

        if(getx<25&&gety<25)

        {

            //high score

            SharedPreferences pref
                =
getApplicationContext().getSharedPreferences("higher", MODE_PRIVATE);

            Editor editor = pref.edit();

            editor.putInt("score", score);

            editor.commit();

            System.exit(0);

        }

        // restart game

        if(getx>91&&gety<25)

        {

    }
}

```

```
if(health<=0)

{
    gameLoopThread.setPause(0);

    health=100;

    score=0;

}

//pause game

if((getx>(sx-25)&&gety<25&&pausecount==0))

{
    gameLoopThread.setPause(1);

    mpl.stop();

    pausecount=1;

}

else if(getx>(sx-25)&&gety<25&&pausecount==1)

{
    gameLoopThread.setPause(0);

    mpl.start();

    pausecount=0;

}

}

return true;
}

@Override
@SuppressLint("WrongCall")
```

```
protected void onDraw(Canvas canvas)
{
    //volume

    SharedPreferences pref = getApplicationContext().getSharedPreferences("higher",
MODE_PRIVATE);

    Editor editor = pref.edit();

    volume=pref.getInt("vlooume", 0);

    if(volume==0)

    {
        sound=0;
    }

    canvas.drawColor(Color.BLACK);

    //background moving

    z=z-10;

    if(z== -sx)

    {
        z=0;

        canvas.drawBitmap(background, z, 0, null);
    }

    else

    {
        canvas.drawBitmap(background, z, 0, null);
    }

    //running player
```

```
x+=5;

if(x==20)
{
    x=5;
}

if(show==0)
{
    if(x%2==0)
    {
        canvas.drawBitmap(run3, sx/16, 15*sy/18, null);
    }
    else
    {
        canvas.drawBitmap(run1, sx/16, 15*sy/18, null);
    }
}

//knife hit
if(kspeed==20)
{
    kspeed=sx;
    health-=25;
    canvas.drawBitmap(note1, 0, 0, null);
}

//power take
if(powerrun==30)
```

```

    {

        powerrun=3*sx;

        health+=25;

        canvas.drawBitmap(note2, 0, 0, null);

    }

}

//power

powerrun=powerrun-10;

canvas.drawBitmap(powerimg, powerrun, 15*sy/18, null);


if(powerrun<0)

{

    powerrun=3*sx/4;

}

//kinfe

kspeed=kspeed-20;

canvas.drawBitmap(kinfe, kspeed, 15*sy/18, null);

if(kspeed<0)

{

    kspeed=sx;

}

// for jump

if(show==1)

{

    if(sound==1)

    {

        jump.start();

    }

}

```

---

```
    canvas.drawBitmap(run2, sx/16, 3*sy/4, null);

    //score

    if(cspeed<=sx/8&&cspeed>=sx/16)

    {

        if(sound==1)

        {

            takecoin.start();

            }

        cspeed=sx/2;

        score+=10;

    }

}

// jump-hold

delay+=1;

if(delay==3)

{

    show=0;

    delay=0;

}

}

//for coins

cspeed=cspeed-5;

if(cspeed== -sx/2)

{
```

```

    cspeed=sx/2;

    canvas.drawBitmap(coin, cspeed, 3*sy/4, null);

}

else

{

    canvas.drawBitmap(coin, cspeed, 3*sy/4, null);

}

//score

Paint paint = new Paint();

paint.setColor(Color.BLUE);

paint.setAntiAlias(true);

paint.setFakeBoldText(true);

paint.setTextSize(15);

paint.setTextAlign(Align.LEFT);

canvas.drawText("Score :" + score, 3*sx/4, 20, paint);

//exit

canvas.drawBitmap(exit, 0, 0, null);

if(sound==1)

{

    mp1.start();

    mp1.setLooping(true);

}

else

{

    mp1.stop();

}

//health

Paint myPaint = new Paint();

```

```

myPaint.setColor(Color.RED);

myPaint.setStrokeWidth(10);

myPaint.setAntiAlias(true);

myPaint.setFakeBoldText(true);

canvas.drawText("Health :" + health, 0, (sy/8)-5, myPaint);

canvas.drawRect(0, sy/8, health, sy/8+10, myPaint);

//game over

if(health<=0)

{

    gameover=1;

    mp1.stop();

    //high score

    editor.putInt("score", score);

    editor.commit();

    canvas.drawText("GAMEOVER OVER", sx/2, sy/2, myPaint);

    canvas.drawText("YOUR SCORE : "+score, sx/2, sy/4, myPaint);

    canvas.drawText("Restart", 91, 25, myPaint);

    gameLoopThread.setPause(1);

    canvas.drawBitmap(background, sx, sy, null);

}

// restart

if(reset==1)

{

    gameLoopThread.setPause(0);

    health=100;

    score=0;

```

```
        }

        canvas.drawBitmap(pause, (sx-25), 0, null);

    }

}

//phone state

public class TeleListener extends PhoneStateListener

{

    public void onCallStateChanged(int state, String incomingNumber)

    {

        if(state==TelephonyManager.CALL_STATE_RINGING)

        {

            mp1.stop();

            System.exit(0);

        }

    }

}

}
```

### gameloop.java:

```
import android.annotation.SuppressLint;

import android.graphics.Canvas;

public class gameloop extends Thread {

    private Game.GameView view;
```

```
static final long FPS = 10;

private boolean running = false;

boolean isPaused;

public gameloop(Game.GameView view) {

    this.view = view;

}

public void setRunning(boolean run) {

    running = run;

}

public void setPause(int i)

{

    synchronized (view.getHolder())

    {

        if(i==0)

        {

            isPaused=false;

        }

        if(i==1)

        {

            isPaused = true;

        }

    }

}
```

---

```
@SuppressLint("WrongCall")
@Override

public void run() {
    long ticksPS = 100;
    long startTime = 0;
    long sleepTime;
    while (running) {
        //pause and resume

        if (isPaused)
        {
            try
            {
                this.sleep(50);
            }
            catch (InterruptedException e)
            {
                e.printStackTrace();
            }
        }
        else
        {
            Canvas c = null;
            startTime = System.currentTimeMillis();
            try {
                c = view.getHolder().lockCanvas();

```

```
    synchronized (view.getHolder())  
    {  
        view.onDraw(c);  
    }  
  
}  
  
finally  
{  
    if (c != null)  
    {  
        view.getHolder().unlockCanvasAndPost(c);  
    }  
}  
}  
  
sleepTime = ticksPS-(System.currentTimeMillis() - startTime);  
  
try {  
  
    if (sleepTime > 0)  
        sleep(sleepTime);  
    else  
        sleep(10);  
}  
  
catch (Exception e) {}  
  
}  
  
}
```

---

---

### **Highscore.java:**

```
import android.R.string;
import android.os.Bundle;
import android.app.Activity;
import android.content.SharedPreferences;
import android.content.SharedPreferences.Editor;
import android.view.Menu;
import android.widget.TextView;

public class Highscore extends Activity {

    TextView t1;
    int score,hscore;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_highscore);
        SharedPreferences     pref      =      getApplicationContext().getSharedPreferences("higher",
        MODE_PRIVATE);
        Editor editor = pref.edit();
        score=pref.getInt("score", 0);
        hscore=pref.getInt("hscore", 0);
        if(score>hscore)
        {
            editor.putInt("hscore", score);
            editor.commit();
        }
        hscore=pref.getInt("hscore", 0);
```

```
t1=(TextView) findViewById(R.id.textView1);  
t1.setText("Highscore :" +hscore);  
}  
}
```

**Setting.java:**

```
import android.os.Bundle;  
  
import android.app.Activity;  
  
import android.content.SharedPreferences;  
  
import android.content.SharedPreferences.Editor;  
  
import android.view.Menu;  
  
import android.view.View;  
  
import android.widget.CheckBox;  
  
import android.widget.Toast;  
  
  
public class Setting extends Activity {  
  
    CheckBox ch1;  
  
    int volume;  
  
    @Override  
  
    protected void onCreate(Bundle savedInstanceState) {  
  
        super.onCreate(savedInstanceState);  
  
        setContentView(R.layout.activity_setting);  
  
        ch1=(CheckBox) findViewById(R.id.checkBox1);  
  
  
        SharedPreferences     pref      =      getApplicationContext().getSharedPreferences("higher",  
        MODE_PRIVATE);  
  
        Editor editor = pref.edit();  
  
        volume=pref.getInt("volume", 0);  
  
  
        if(volume==1)  
    }
```

```
{  
    ch1.setChecked(true);  
}  
}  
  
public void volume(View v) {  
  
    ch1 = (CheckBox)v;  
  
    Sharedpreferences      pref      =      getApplicationContext().getSharedpreferences("higher",  
MODE_PRIVATE);  
  
    Editor editor = pref.edit();  
  
    if(ch1.isChecked())  
    {  
        editor.putInt("vlooume", 1);  
        editor.commit();  
  
        Toast.makeText(this,"volume on", Toast.LENGTH_LONG).show();  
    }  
  
    else  
    {  
        editor.putInt("vlooume", 0);  
        editor.commit();  
    }  
}  
  
@Override  
  
public boolean onCreateOptionsMenu(Menu menu) {  
  
    // Inflate the menu; this adds items to the action bar if it is present.  
    getMenuInflater().inflate(R.menu.setting, menu);  
  
    return true;  
}  
  
}
```

---

## LAYOUT FILES:

### activity\_main.xml:

```
<?xml version="1.0"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin" tools:context=".MainActivity"
    android:background="@drawable/back"><Button
        android:layout_height="wrap_content"
        android:layout_below="@+id/button4" android:layout_centerHorizontal="true"
        android:layout_marginTop="23dp" android:onClick="setting" android:layout_marginTop="16dp"
        android:layout_width="wrap_content" android:id="@+id/button2"
        android:text="@string/set" /><Button
        android:layout_height="wrap_content"
        android:layout_below="@+id/button2" android:layout_centerHorizontal="true"
        android:layout_marginTop="19dp" android:onClick="highscore" android:layout_marginTop="43dp"
        android:layout_width="wrap_content" android:id="@+id/button4"
        android:text="@string/ex" /><Button
        android:layout_height="wrap_content"
        android:layout_below="@+id/button1" android:layout_centerHorizontal="true"
        android:layout_marginTop="19dp" android:onClick="highscore" android:layout_marginTop="55dp"
        android:layout_width="wrap_content" android:id="@+id/button3"
        android:text="@string/highscore" /><Button
        android:layout_height="wrap_content"
        android:layout_below="@+id/button3" android:layout_centerHorizontal="true"
        android:layout_marginTop="20dp" android:onClick="play" android:layout_alignLeft="@+id/button4"
        android:layout_alignParentTop="true" /></RelativeLayout>
```

### activity\_game.xml:

```
<?xml version="1.0"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin" tools:context=".Game" > </RelativeLayout>
```

### activity\_highscore.xml:

```
<?xml version="1.0"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin" tools:context=".Highscore"
    android:background="@drawable/back"><TextView
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true" android:layout_alignParentTop="true"
        android:layout_marginLeft="20dp" android:layout_marginTop="55dp" android:text="@string/hs"
        android:textAppearance="?android:attr/textAppearanceLarge" /></RelativeLayout>
```

### activity\_setting.xml:

```

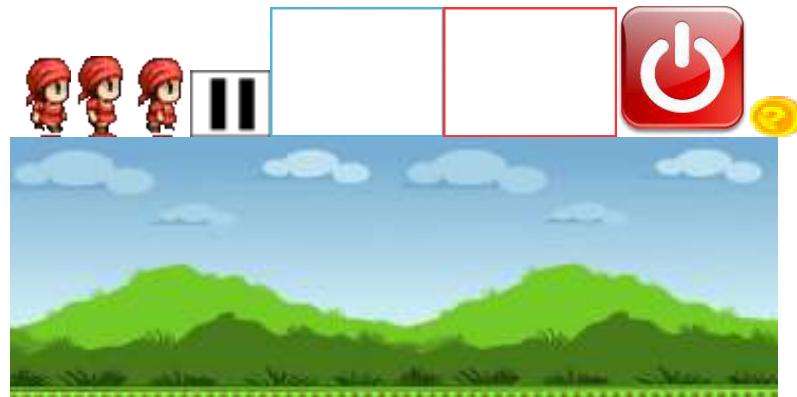
<?xml version="1.0"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:background="@drawable/back"><CheckBox
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_marginTop="45dp"
        android:onClick="volume" /></RelativeLayout>

```

## Menu



## drawable folder



## raw folder:



### **strings.xml:**

```
<?xml version="1.0" encoding="UTF-8"?>
<resources>

<string name="hello_world">Hello world!</string><string
name="title_activity_about">MainActivity</string><string
name="title_activity_game">Game</string><string name="play">Play Now...</string><string
name="set">Setting</string><string name="ex">Exit</string><string
name="title_activity_setting">Setting</string><string name="vol">Volume</string><string
name="test">test</string><string name="title_activity_highscore">Highscore</string><string
name="hs">Highscore :</string><string name="score">HighScore</string></resources>
```

### **Code in manifest.xml file:**

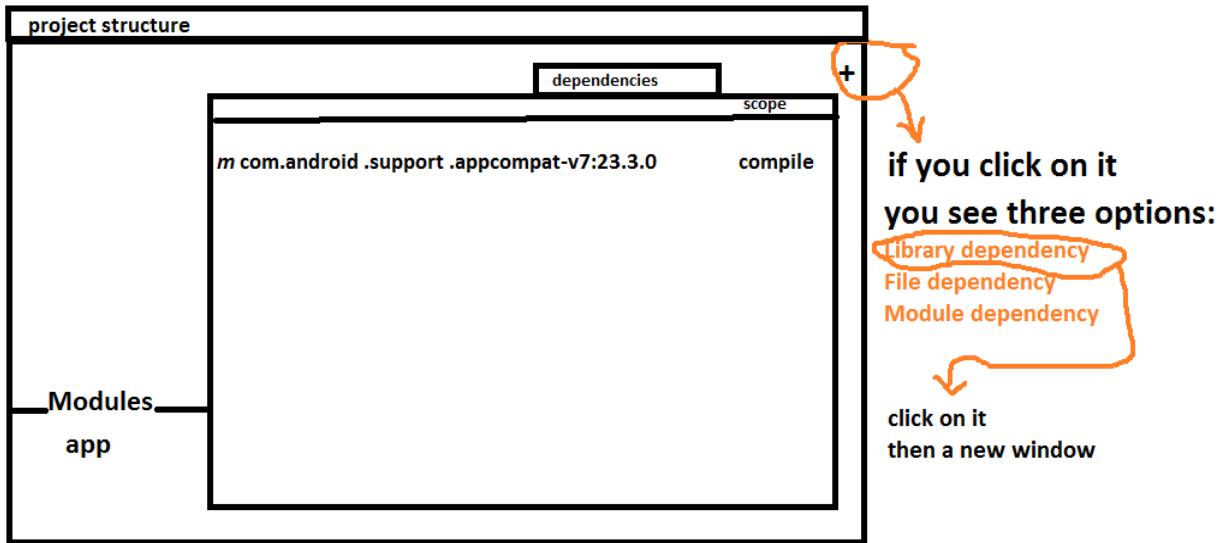
```
<?xml version="1.0" encoding="UTF-8"?>
<manifest package="manju.example.com.game"
xmlns:android="http://schemas.android.com/apk/res/android"><uses-permission
android:name="android.permission.READ_PHONE_STATE"/><application android:theme="@style/AppTheme"
android:supportsRtl="true" android:label="@string/app_name" android:icon="@mipmap/ic_launcher"
android:allowBackup="true"><activity android:name=".MainActivity"
android:theme="@style/AppTheme.NoActionBar" android:label="@string/app_name"><intent-
filter><action android:name="android.intent.action.MAIN"/><category
android:name="android.intent.category.LAUNCHER"/></intent-filter></activity><activity
android:name="manju.example.com.game.Game" android:label="@string/title_activity_game"
android:screenOrientation="landscape"> </activity><activity
android:name="manju.example.com.game.Settings" android:label="@string/title_activity_setting"
android:screenOrientation="portrait"> </activity><activity
android:name="manju.example.com.game.Highscore" android:label="@string/title_activity_highscore">
</activity></application></manifest>
```

\*\*\*\*\*

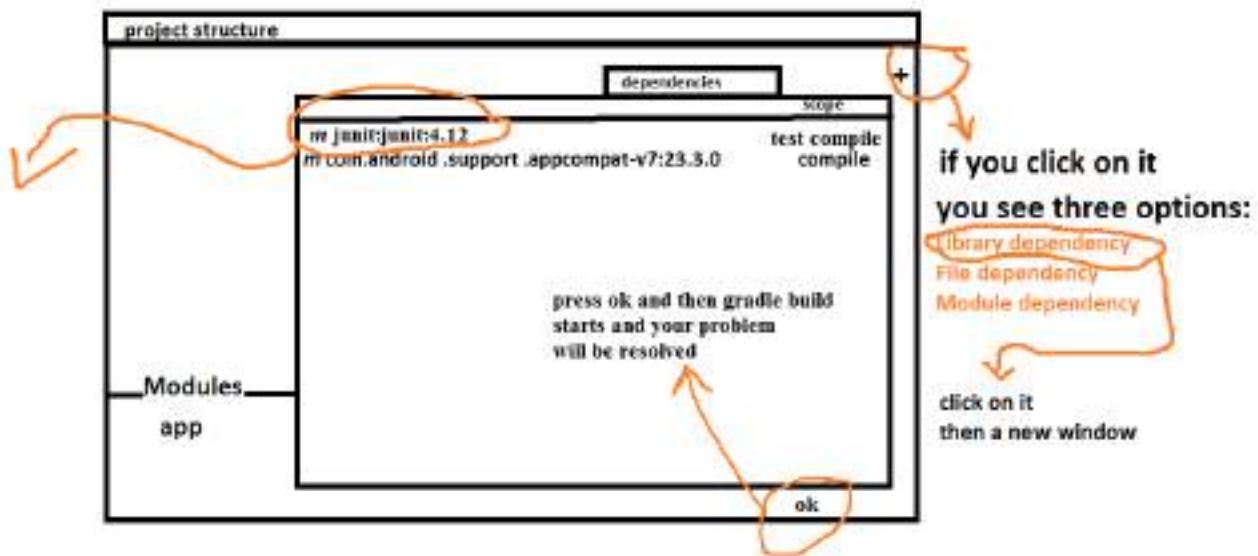
**After installing android studio into your system (say computer or laptop) —and after installation, when you open the android studio to create some project / application – you usually observe an error stating that: junit cannot be resolved. In order to solve this error, you need to go to C drive → and under C drive – you need to go to users → and under users – you need to go to manju folder → and under manju folder – you need to go to AndroidStudioProjects→ and under AndroidStudioProjects → you need to open Application folder → and you need to go to app folder → and under app folder → you need to open libs folder → and in libs folder – you need to place junit (executable jar file**



– which can be downloaded on internet). And you need to open android studio → and you need to go to file → project structure → app → dependencies (if you click on it) – a window :



Choose library dependency will be opened and in that window you need to choose *m junit:junit:4.12* and press ok and that window will be disappeared. But you will notice



## Battery temperature

JAVA FILES:

---

### MainActivity.java

```
import android.os.Bundle;

import android.support.v7.app.AppCompatActivity;
import android.content.IntentFilter;
import android.os.Bundle;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    TemperatureReceiver receiver=new TemperatureReceiver(this);
    TextView tempDisplay=null;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tempDisplay=(TextView) findViewById(R.id.tempDisplay);

        IntentFilter localIntentFilter = new IntentFilter();
        localIntentFilter.addAction("android.intent.action.BATTERY_CHANGED");
        registerReceiver(receiver, localIntentFilter);
    }
}
```

### TemperatureReceiver.java

```
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;

public class TemperatureReceiver extends BroadcastReceiver{
    MainActivity activity=null;
    public TemperatureReceiver(MainActivity mainActivity) {
        activity=mainActivity;
    }
    @Override
    public void onReceive(Context arg0, Intent arg1) {
        activity.tempDisplay.setText(arg1.getIntExtra("temperature", 0)/10.0D+" ");
    }
}
```

## LAYOUT FILES

### activity\_main.xml

```
<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
```

```

    android:text="Temperature " android:layout_alignParentLeft="true" android:id="@+id/textView1" />

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="0" android:id="@+id/tempDisplay" android:layout_centerHorizontal="true"
    android:layout_alignBottom="@+id/textView1"/>

</RelativeLayout>

```

\*\*\*\*\*

## Web Search engine

### **.JAVA FILE:**

#### **MainActivity.java**

```

import android.os.Bundle;

import android.support.v7.app.AppCompatActivity;

import android.view.View;
import android.view.Menu;
import android.view.MenuItem;

import android.app.SearchManager;
import android.content.Intent;

import android.view.View.OnClickListener;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        //attach an instance of HandleClick to the Button
        findViewById(R.id.imageView1).setOnClickListener(new HandleClick());
    }
    private class HandleClick implements OnClickListener{
        public void onClick(View arg0) {
            String searchFor=((EditText) findViewById(R.id.editText1)).getText().toString();
            Intent viewSearch = new Intent(Intent.ACTION_WEB_SEARCH);
            viewSearch.putExtra(SearchManager.QUERY, searchFor);
            startActivity(viewSearch);
        }
    }
}

```

### **LAYOUT FILE**

#### **activity\_main.xml**

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="fill_parent"
    android:textSize="20dp" android:text="@string/prompt"/>

```

```

<EditText android:layout_height="wrap_content" android:layout_width="fill_parent"
    android:id="@+id/editText1">

    <requestFocus/>

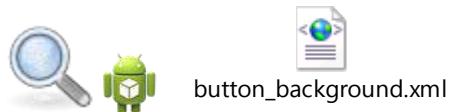
</EditText>

<ImageView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:id="@+id/imageView1" android:src="@drawable/magglass"
    android:background="@drawable/button_background"/>

</LinearLayout>

```

### Drawable folder



### Android manifest.xml

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## Display of WEBSITE link on layout file

### Code in layout file:

```
<TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:textStyle="bold" android:text="http://androidSRC.net/" android:autoLink="web"
    android:layout_marginBottom="20dp" android:layout_marginTop="20dp"
    android:layout_gravity="center_horizontal"/>
```

### Android manifest.xml

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## SIM Number display

### JAVA FILES

#### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
```

---

```

import android.view.View;
import android.content.Intent;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void onButtonClick(View v) {
        if (v.getId() == R.id.Bdisplay)

        {
            Intent i = new Intent(MainActivity.this, Sendmsg.class);
            startActivity(i);
        }
    }
}

```

### Sendmsg.java

```

import android.os.Bundle;
import android.app.Activity;
import android.content.Context;
import android.content.SharedPreferences;
import android.telephony.TelephonyManager;
import android.widget.TextView;
import android.widget.Toast;

public class Sendmsg extends Activity {

    SharedPreferences sp=null;
    SharedPreferences.Editor edit;
    TelephonyManager telemananger=null;
    TelephonyManager telemanager2=null;
    String anothervar=null;
    String var=null;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.sendms);
        telemananger = (TelephonyManager) getSystemService(Context.TELEPHONY_SERVICE);
        anothervar = telemananger.getSimSerialNumber();

        sp=getSharedPreferences("share1",Activity.MODE_APPEND);
        edit=sp.edit();

        var=sp.getString("sim_no",null);
        if(var==null)
        {

            sp.edit().putString("sim_no",anothervar).commit();
            var=sp.getString("sim_no",null);
            TextView tv=(TextView)findViewById(R.id.textView2);
            tv.setText(String.valueOf(anothervar));
        }
        else
            Toast.makeText(this, "hi..", Toast.LENGTH_LONG).show();
        TextView tv=(TextView)findViewById(R.id.textView4);
        tv.setText(String.valueOf("this is the value of shared preferences..... =" +var));
    }
}

```

```
    }  
}
```

### Comp.java

```
import android.content.BroadcastReceiver;  
import android.content.Context;  
import android.content.Intent;  
  
public class Comp extends BroadcastReceiver {  
    @Override  
    public void onReceive(Context c, Intent i)  
    {  
        Intent a=new Intent(c,Sendmsg.class);  
        a.addFlags(Intent.FLAG_ACTIVITY_NEW_TASK);  
        c.startActivity(a);  
    }  
}
```

### LAYOUT FILES

#### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
    xmlns:tools="http://schemas.android.com/tools"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    android:paddingBottom="@dimen/activity_vertical_margin"  
    android:paddingLeft="@dimen/activity_horizontal_margin"  
    android:paddingRight="@dimen/activity_horizontal_margin"  
    android:paddingTop="@dimen/activity_vertical_margin"  
    tools:context=".MainActivity">  
  
    <Button  
        android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:text="Button1"  
        android:id="@+id/Bdisplay"  
        android:layout_alignParentBottom="true"  
        android:layout_centerHorizontal="true"  
        android:layout_marginBottom="177dp"  
        android:onClick="onButtonClick" />  
  
</RelativeLayout>
```

#### sendms.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    android:orientation="vertical" >  
  
    <TextView  
        android:id="@+id/textView1"  
        android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"
        android:text="Sim Number:" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="New Sim Number:"
        android:textAppearance="?android:attr/textAppearanceLarge" />

    <TextView
        android:id="@+id/textView4"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="" />

</LinearLayout>

```

### Android manifest.xml

```

<uses-permission android:name="android.permission.READ_PHONE_STATE"/>

<uses-permission android:name="android.permission.RECEIVE_BOOT_COMPLETED"/>

<activity android:name=".Sendmsg"/>

<receiver android:name=".Comp"/>

```

\*\*\*\*\*

## Popup window

### JAVA FILES

#### MainActivity.java

```

import android.content.Intent;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.app.Activity;
import android.content.Context;
import android.os.Bundle;
import android.view.Gravity;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.PopupWindow;

```

```

public class MainActivity extends AppCompatActivity {

```

```

Button btnClosePopup;
Button btnCreatePopup;

/** Called when the activity is first created. */
@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);
    btnCreatePopup = (Button) findViewById(R.id.button1);
    btnCreatePopup.setOnClickListener(new OnClickListener() {

        @Override
        public void onClick(View v) {
// TODO Auto-generated method stub
            initiatePopupWindow();
        }
    });
}

private PopupWindow pwindo;

private void initiatePopupWindow() {
    try {
// We need to get the instance of the LayoutInflator
        LayoutInflater inflater = (LayoutInflater) MainActivity.this
            .getSystemService(Context.LAYOUT_INFLATER_SERVICE);
        View layout = inflater.inflate(R.layout.screen_popup,
            (ViewGroup) findViewById(R.id.popup_element));
        pwindo = new PopupWindow(layout, 300, 370, true);
        pwindo.showAtLocation(layout, Gravity.CENTER, 0, 0);

        btnClosePopup = (Button) layout.findViewById(R.id.btn_close_popup);
        btnClosePopup.setOnClickListener(cancel_button_click_listener);

    } catch (Exception e) {
        e.printStackTrace();
    }
}

private OnClickListener cancel_button_click_listener = new OnClickListener() {
    public void onClick(View v) {
        pwindo.dismiss();
    }
};

}

```

## LAYOUT FILE

### activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical"
    android:weightSum="1">

```

```

<TextView
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:text="@string/hello" />

<Button
    android:id="@+id/button1"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Button" />

</LinearLayout>

```

### screen\_popup.xml

```

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/popup_element"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:background="#444444"
    android:orientation="vertical"
    android:padding="10sp" >

    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"></TableLayout>

    <Button
        android:layout_marginTop="50dp"
        android:id="@+id/btn_close_popup"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="Close" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button1"
        android:id="@+id/Bdisplay"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="177dp"
        android:onClick="onButtonClick"
        android:layout_gravity="center_horizontal" />

</LinearLayout>

```

\*\*\*\*\*

## LIST VIEW

### JAVA FILE

#### MainActivity.java

---

```

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.ListView;

public class MainActivity extends AppCompatActivity {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        ListView list = (ListView) findViewById(R.id.list1);
        String[] days = { "Sunday", "Monday", "Tuesday", "Wednesday",
            "Thursday", "Friday", "Saturday", "Sunday", "Monday", "Tuesday", "Wednesday",
            "Thursday", "Friday", "Saturday"
        };
        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
            android.R.layout.simple_list_item_1, days);
        list.setAdapter(adapter);
    }
}

```

## LAYOUT FILE

### activity\_main.xml

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >
    <ListView
        android:id="@+id/list1"
        android:layout_width="match_parent"
        android:layout_height="match_parent" >
    </ListView>
</RelativeLayout>

```

\*\*\*\*\*

## AGE CALCULATOR

### JAVA FILES

#### MainActivity.java

```

import java.util.Calendar;
import java.util.Timer;

import android.os.Bundle;
import android.app.Activity;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.DatePicker;
import android.widget.TextView;

```

```

import android.widget.Toast;

public class MainActivity extends Activity implements OnClickListener{
    private Button btnStart;
    static final int DATE_START_DIALOG_ID = 0;
    private int startYear=1970;
    private int startMonth=6;
    private int startDay=15;
    private AgeCalculation age = null;
    private TextView currentDate;
    private TextView birthDate;
    private TextView result;
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        age=new AgeCalculation();
        currentDate=(TextView) findViewById(R.id.textView1);
        currentDate.setText("Current Date(DD/MM/YY) : "+age.getCurrentDate());
        birthDate=(TextView) findViewById(R.id.textView2);
        result=(TextView) findViewById(R.id.textView3);
        btnStart=(Button) findViewById(R.id.button1);
        btnStart.setOnClickListener(this);
    }

    @Override
    protected Dialog onCreateDialog(int id) {
        switch (id) {
            case DATE_START_DIALOG_ID:
                return new DatePickerDialog(this,
                    mDateSetListener,
                    startYear, startMonth, startDay);
        }
        return null;
    }

    private DatePickerDialog.OnDateSetListener mDateSetListener
        = new DatePickerDialog.OnDateSetListener() {
        public void onDateSet(DatePicker view, int selectedYear,
            int selectedMonth, int selectedDay) {
            startYear=selectedYear;
            startMonth=selectedMonth;
            startDay=selectedDay;
            age.setDateOfBirth(startYear, startMonth, startDay);
            birthDate.setText("Date of Birth(DD/MM/YY):
"+selectedDay+":"
+(startMonth+1)+":"
+startYear);
            calculateAge();
        }
    };
    public void onClick(View v) {
        // TODO Auto-generated method stub
        switch (v.getId()) {
            case R.id.button1:
                showDialog(DATE_START_DIALOG_ID);
                break;

            default:
                break;
        }
    }
    private void calculateAge()
    {
        age.calculalteYear();
        age.calculalteMonth();
        age.calculalteDay();
    }
}

```

```

        Toast.makeText(getApplicationContext(), "click the resulted button"+age.getResult() ,
Toast.LENGTH_SHORT).show();
        result.setText("AGE (DD/MM/YY) :" +age.getResult());
    }
}

```

### AgeCalculation.java

```

import java.util.Calendar;
import java.util.Date;

public class AgeCalculation {
    private int startYear;
    private int startMonth;
    private int startDay;
    private int endYear;
    private int endMonth;
    private int endDay;
    private int resYear;
    private int resMonth;
    private int resDay;
    private Calendar start;
    private Calendar end;
    public String getCurrentDate()
    {
        end=Calendar.getInstance();
        endYear=end.get(Calendar.YEAR);
        endMonth=end.get(Calendar.MONTH);
        endMonth++;
        endDay=end.get(Calendar.DAY_OF_MONTH);
        return endDay+":"+endMonth+":"+endYear;
    }
    public void setDateOfBirth(int sYear, int sMonth, int sDay)
    {
        startYear=sYear;
        startMonth=sMonth;
        startMonth++;
        startDay=sDay;
    }
    public void calcualteYear()
    {
        resYear=endYear-startYear;
    }
    public void calcualteMonth()
    {
        if(endMonth>=startMonth)
        {
            resMonth= endMonth-startMonth;
        }
        else
        {
            resMonth=endMonth-startMonth;
            resMonth=12+resMonth;
            resYear--;
        }
    }
    public void calcualteDay()
    {
        if(endDay>=startDay)
        {

```

```

        resDay= endDay-startDay;
    }
    else
    {
        resDay=endDay-startDay;
        resDay=30+resDay;
        if(resMonth==0)
        {
            resMonth=11;
            resYear--;
        }
        else
        {
            resMonth--;
        }
    }
}

public String getResult()
{
    return resDay+":"+resMonth+":"+resYear;
}
public long getSeconde()
{
    start=Calendar.getInstance();
    start.set(Calendar.YEAR, startYear);
    start.set(Calendar.MONTH, startMonth);
    start.set(Calendar.DAY_OF_MONTH, startDay);
    start.set(Calendar.HOUR, 12);
    start.set(Calendar.MINUTE, 30);
    start.set(Calendar.SECOND, 30);
    start.set(Calendar.MILLISECOND, 30);
    long now=end.getTimeInMillis();
    long old=start.getTimeInMillis();
    long diff=old-now;
    return diff/1000;
}
}

```

## LAYOUT FILE

### activity\_main.xml

```

<?xml version="1.0"?>

<RelativeLayout android:layout_height="match_parent" android:layout_width="match_parent"
xmlns:tools="http://schemas.android.com/tools"
xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
android:text="Date Of Birth" android:layout_alignParentTop="true"
android:layout_alignParentRight="true" android:layout_alignParentLeft="true"
android:id="@+id/button1"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
android:text="Current Date" android:layout_alignParentLeft="true" android:id="@+id/textView1"
android:layout_marginTop="23dp" android:layout_below="@+id/button1"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
android:text="Birth Date" android:layout_alignParentLeft="true" android:id="@+id/textView2"
android:layout_marginTop="18dp" android:layout_below="@+id/textView1"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"

```

---

```

    android:text="Result" android:layout_alignParentLeft="true" android:id="@+id/textView3"
    android:layout_marginTop="16dp" android:layout_below="@+id/textView2"/>

</RelativeLayout>

*****

```

## Send sms

### JAVA FILE

#### MainActivity.java

```

import android.os.Bundle;

import android.support.v7.app.AppCompatActivity;
import android.app.Activity;
import android.os.Bundle;
import android.telephony.gsm.SmsManager;
import android.view.Menu;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import android.view.View;
import android.view.Menu;

```

```

public class MainActivity extends AppCompatActivity {

    Button btnSend;
    EditText txtPhoneNo;
    EditText txtSMS;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.content_main);

        btnSend=(Button) findViewById(R.id.buttonSend);
        txtPhoneNo=(EditText) findViewById(R.id.editTextPhoneNo);
        txtSMS=(EditText) findViewById(R.id.editTextSMS);

        btnSend.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub
                String phoneNo=txtPhoneNo.getText().toString();
                String SMS=txtSMS.getText().toString();

                try {
                    SmsManager smsManager=SmsManager.getDefault();
                    smsManager.sendTextMessage(phoneNo, null, SMS, null, null);
                    Toast.makeText(getApplicationContext(),"SMS
Sent!...",Toast.LENGTH_LONG).show();

                } catch (Exception e) {
                    Toast.makeText(getApplicationContext(),"SMS failed, please try again
later!",Toast.LENGTH_LONG).show();
                    e.printStackTrace();
                }
            }
        });
    }
}

```

```

        }
    });
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.menu_main, menu);
    return true;
}
}

```

## LAYOUT FILE

### activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout
    android:orientation="vertical"
    android:layout_height="fill_parent"
    android:layout_width="fill_parent"
    android:id="@+id/linearLayout1" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:id="@+id/textViewPhoneNo" android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Enter Phone Number : "/>

    <EditText android:layout_height="wrap_content"
        android:layout_width="fill_parent"
        android:id="@+id/editTextPhoneNo"
        android:phoneNumber="true" /> </EditText>

    <TextView
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:id="@+id/textViewSMS" android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="Enter SMS Message : "/>

    <EditText
        android:layout_height="wrap_content"
        android:layout_width="fill_parent"
        android:id="@+id/editTextSMS"
        android:gravity="top"
        android:lines="5"
        android:inputType="textMultiLine" />

    <Button
        android:layout_height="wrap_content"
        android:layout_width="fill_parent"
        android:id="@+id/buttonSend"
        android:text="Send" />

</LinearLayout>

```

### Android manifest .xml

```
<uses-permission android:name="android.permission.SEND_SMS" />

*****
```

## Flash light (torch)

### JAVA FILE

#### MainActivity.java

```
import android.app.Activity;
import android.app.AlertDialog;
import android.content.DialogInterface;
import android.content.pm.PackageManager;
import android.hardware.Camera;
import android.hardware.Camera.Parameters;
import android.media.MediaPlayer;
import android.media.MediaPlayer.OnCompletionListener;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.util.Log;
import android.view.View;
import android.widget.ImageButton;

public class MainActivity extends AppCompatActivity {

    private ImageButton btnSwitch;

    private Camera camera;
    private boolean isFlashOn;
    private boolean hasFlash;
    private Parameters params;
    private MediaPlayer mp;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.content_main);

        // flash switch button
        btnSwitch = (ImageButton) findViewById(R.id.btnSwitch);

        /*
         * First check if device is supporting flashlight or not
         */
        hasFlash = getApplicationContext().getPackageManager()
            .hasSystemFeature(PackageManager.FEATURE_CAMERA_FLASH);

        if (!hasFlash) {
            // device doesn't support flash
            // Show alert message and close the application
            AlertDialog alert = new AlertDialog.Builder(MainActivity.this)
                .create();
            alert.setTitle("Error");
            alert.setMessage("Sorry, your device doesn't support flash light!");
            alert.setPositiveButton("OK", new DialogInterface.OnClickListener() {
                public void onClick(DialogInterface dialog, int which) {
                    // closing the application
                    finish();
                }
            });
            alert.show();
        }
    }
}
```

```

        return;
    }

    // get the camera
    getCamera();

    // displaying button image
    toggleButtonImage();

    /*
     * Switch button click event to toggle flash on/off
     */
    btnSwitch.setOnClickListener(new View.OnClickListener() {

        @Override
        public void onClick(View v) {
            if (isFlashOn) {
                // turn off flash
                turnOffFlash();
            } else {
                // turn on flash
                turnOnFlash();
            }
        }
    });
}

/*
 * Get the camera
*/
private void getCamera() {
    if (camera == null) {
        try {
            camera = Camera.open();
            params = camera.getParameters();
        } catch (RuntimeException e) {
            Log.e("Camera Error. Failed to Open. Error: ", e.getMessage());
        }
    }
}

/*
 * Turning On flash
*/
private void turnOnFlash() {
    if (!isFlashOn) {
        if (camera == null || params == null) {
            return;
        }
        // play sound
        playSound();

        params = camera.getParameters();
        params.setFlashMode(Parameters.FLASH_MODE_TORCH);
        camera.setParameters(params);
        camera.startPreview();
        isFlashOn = true;

        // changing button/switch image
        toggleButtonImage();
    }
}

/*
 * Turning Off flash
*/

```

```

/*
private void turnOffFlash() {
    if (isFlashOn) {
        if (camera == null || params == null) {
            return;
        }
        // play sound
        playSound();

        params = camera.getParameters();
        params.setFlashMode(Parameters.FLASH_MODE_OFF);
        camera.setParameters(params);
        camera.stopPreview();
        isFlashOn = false;

        // changing button/switch image
        toggleButtonImage();
    }
}

/*
 * Playing sound will play button toggle sound on flash on / off
 */
private void playSound() {
    if (isFlashOn) {
        mp = MediaPlayer.create(MainActivity.this, R.raw.light_switch_off);
    } else {
        mp = MediaPlayer.create(MainActivity.this, R.raw.light_switch_on);
    }
    mp.setOnCompletionListener(new OnCompletionListener() {

        @Override
        public void onCompletion(MediaPlayer mp) {
            // TODO Auto-generated method stub
            mp.release();
        }
    });
    mp.start();
}

/*
 * Toggle switch button images changing image states to on / off
 */
private void toggleButtonImage() {
    if (isFlashOn) {
        btnSwitch.setImageResource(R.drawable.btn_switch_on);
    } else {
        btnSwitch.setImageResource(R.drawable.btn_switch_off);
    }
}

@Override
protected void onDestroy() {
    super.onDestroy();
}

@Override
protected void onPause() {
    super.onPause();

    // on pause turn off the flash
    turnOffFlash();
}

@Override
protected void onRestart() {

```

```

        super.onRestart();
    }

@Override
protected void onResume() {
    super.onResume();

    // on resume turn on the flash
    if (hasFlash)
        turnOnFlash();
}

@Override
protected void onStart() {
    super.onStart();

    // on starting the app get the camera params
    getCamera();
}

@Override
protected void onStop() {
    super.onStop();

    // on stop release the camera
    if (camera != null) {
        camera.release();
        camera = null;
    }
}
}

```

## LAYOUT FILE

### activity\_main.xml

```

<?xml version="1.0"?>

<LinearLayout tools:context=".MainActivity" android:orientation="vertical"
    android:gravity="center" android:background="@android:color/darker_gray"
    android:layout_height="match_parent" android:layout_width="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <ImageButton android:background="@null" android:layout_height="wrap_content"
        android:layout_width="wrap_content" android:src="@drawable	btn_switch_on"
        android:contentDescription="@null" android:id="@+id/btnSwitch" />

</LinearLayout>

```

### Android manifest.xml

```

<uses-permission android:name="android.permission.CAMERA" />

<uses-feature android:name="android.hardware.camera" />

```

### Drawable folder



### Raw folder

 light\_switch\_on.mp3     light\_switch\_off.mp3

\*\*\*\*\*

## Bluetooth activation

### JAVA FILE

#### MainActivity.java

```
import android.os.Bundle;
import android.os.Bundle;
import android.view.View;
import android.widget.Toast;
import android.app.Activity;
import android.bluetooth.BluetoothAdapter;

import android.support.v7.app.AppCompatActivity;

import android.view.View;

public class MainActivity extends AppCompatActivity {

    BluetoothAdapter bt = null;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        //initialize bluetooth adapter object
        bt = BluetoothAdapter.getDefaultAdapter();
    }

    //this method will call when we click on button
    public void action(View v) {
        //if bluetooth not found
        if (bt == null) {
            Toast.makeText(this, "No bluetooth found.." + bt,
                    Toast.LENGTH_LONG).show();
        } else {
            if (!bt.isEnabled()) {
                //*****first method to enable bluetooth*****
                //enable bluetooth without pop-up any dialog box
                bt.enable();
                //*****Second method to enable bluetooth*****
            }
        }
    }
}
```

```
//Pop-up dialog box to confirm to enable bluetooth
/*Intent i=new Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);
startActivity(i); */
    //Display bluetooth device value on Toast
    Toast.makeText(this, "bluetooth found.." + bt, Toast.LENGTH_LONG).show();
} else {
    //disable bluetooth
    bt.disable();
}
}
```

## Layout file

## activity\_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#024" >
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:onClick="action"
        android:text="Enable and disable bluetooth"
        android:textSize="18sp" />
</RelativeLayout>
```

## Android manifest.xml

```
<uses-permission android:name="android.permission.BLUETOOTH"/>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/>
```

\*\*\*\*\*

## Wifi activation

## JAVA FILE

## MainActivity.java

```
import android.net.wifi.WifiManager;
import android.os.Bundle;

import android.view.View;
import android.widget.Button;
import android.support.v7.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    WifiManager vm;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
    }
}
```

```

        setContentView(R.layout.activity_main);
    }
    //this method will call on button click
    public void wwf(View v)
    {
        Button b1=(Button)findViewById(R.id.button1);
        //get Wifi service
        wm=(WifiManager) getSystemService(WIFI_SERVICE);
        //Check Wifi is on or off
        if(wm.isWifiEnabled())
        {
            b1.setText("Wifi OFF");
            //enable or disable Wifi
            //for enable pass true value
            //for disable pass false value
            wm.setWifiEnabled(false);
        }
        else
        {
            b1.setText("Wifi ON");
            wm.setWifiEnabled(true);
        }
    }
}

```

### Layout file

#### activity\_main.xml

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#b21"
    >
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_centerVertical="true"
        android:onClick="wwf"
        android:text="Wifi OFF"
        android:textSize="30sp" />
</RelativeLayout>

```

#### Android manifest.xml

```

<uses-permission android:name="android.permission.ACCESS_WIFI_STATE"/>
<uses-permission android:name="android.permission.CHANGE_WIFI_STATE"/>

```

\*\*\*\*\*

## Login form using sqlite database

### JAVA FILES

### Main activity.java

```
import android.os.Bundle;
import android.view.View;
import android.app.Activity;
import android.content.Intent;

public class MainActivity extends Activity {

    Intent i=null;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void login_sigin(View v)
    {
        switch(v.getId())
        {
            case R.id.log_in:
                i=new Intent(this,Login.class);
                startActivityForResult(i, 500);
                overridePendingTransition(R.anim.slide_in_right, R.anim.slide_out_left);
                break;
            case R.id.sign_in:
                i=new Intent(this,Signin.class);
                startActivityForResult(i, 500);
                overridePendingTransition(R.anim.slide_in_right, R.anim.slide_out_left);
                break;
        }
    }
    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent data) {
        overridePendingTransition(R.anim.slide_in_left, R.anim.slide_out_right);
    }
}
```

### Login.java

```
import android.app.Activity;
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.text.InputType;
import android.view.View;
import android.widget.EditText;
import android.widget.ImageView;
import android.widget.Toast;

public class Login extends Activity{
    Intent i=null;
    ImageView im=null;
    EditText tv1,tv4;
    boolean flag=false;
    SQLiteDatabase db=null;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.login);
        im=(ImageView)findViewById(R.id.show_hide2);
```

```

tv1=(EditText)findViewById(R.id.phone2);
tv4=(EditText)findViewById(R.id.password2);
db=openOrCreateDatabase("mydb", MODE_PRIVATE, null);
// db.execSQL("create table if not exists login(name varchar,mobile_no varchar,email_id
varchar,password varchar,flag varchar)");

im.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View arg0) {

        if(flag==false)
        {
            im.setImageResource(R.drawable.hide);
            tv4.setInputType(InputType.TYPE_TEXT_VARIATION_PASSWORD);
            flag=true;
        }
        else
        {
            im.setImageResource(R.drawable.show);
            tv4.setInputType(129);
            flag=false;
        }
    }
});

public void action(View v)
{
    switch(v.getId())
    {
        case R.id.signin2:
            i=new Intent(this,Signin.class);
            startActivityForResult(i, 500);
            overridePendingTransition(R.anim.slide_in_top, R.anim.slide_out_bottom);
            finish();
            break;
        case R.id.start:
            String mobile_no=tv1.getText().toString();
            String password=tv4.getText().toString();
            if(mobile_no==null||mobile_no=="'||mobile_no.length()<10)
            {
                show("Please Enter Correct mobile number.");
            }
            else if(password==null||password=="'||password.length()<6)
            {
                show("Please Enter Correct Password.");
            }
            else
            {
                Cursor c=db.rawQuery("select * from login where mobile_no='"+mobile_no+"' and
password='"+password+"'",null);
                c.moveToFirst();
                if(c.getCount()>0)
                {
                    i=new Intent(this,Welcome.class);
                    startActivityForResult(i,500);
                    overridePendingTransition(R.anim.slide_in_right, R.anim.slide_out_left);
                    db.close();
                    finish();
                }
                else
                    show("Wrong Password or Mobile number.");
            }
            break;
    }
}

```

```

        }
    }
    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent data) {
        overridePendingTransition(R.anim.slide_in_left, R.anim.slide_out_right);
    }

    public void show(String str)
    {
        Toast.makeText(this, str, Toast.LENGTH_LONG).show();
    }
}

```

### Signin.java

```

import android.app.Activity;
import android.content.Intent;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.text.InputType;
import android.view.View;
import android.widget.EditText;
import android.widget.ImageView;
import android.widget.Toast;

public class Signin extends Activity{
    Intent i=null;
    ImageView im=null;
    EditText tv1,tv2,tv3,tv4;
    boolean flag=false;
    SQLiteDatabase db=null;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.signin);
        im=(ImageView)findViewById(R.id.show_hide);
        tv1=(EditText)findViewById(R.id.name);
        tv2=(EditText)findViewById(R.id.email_id);
        tv3=(EditText)findViewById(R.id.phone);
        tv4=(EditText)findViewById(R.id.password);
        db=openOrCreateDatabase("mydb", MODE_PRIVATE, null);
        db.execSQL("create table if not exists login(name varchar,mobile_no varchar,email_id
varchar,password varchar,flag varchar)");

        im.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View arg0) {

                if(flag==false)
                {
                    im.setImageResource(R.drawable.hide);
                    tv4.setInputType(InputType.TYPE_TEXT_VARIATION_PASSWORD);
                    flag=true;
                }
                else
                {
                    im.setImageResource(R.drawable.show);
                    tv4.setInputType(129);
                    flag=false;
                }
            }
        });
    }
}

```

```

        }

    public void action(View v)
    {
        switch(v.getId())
        {
            case R.id.login:
                i=new Intent(this,Login.class);
                startActivityForResult(i, 500);
                overridePendingTransition(R.anim.slide_in_top, R.anim.slide_out_bottom);
                finish();
                break;
            case R.id.signin:
                String name=tv1.getText().toString();
                String email_id=tv2.getText().toString();
                String mobile_no=tv3.getText().toString();
                String password=tv4.getText().toString();
                if(name==null || name=="") || name.length()<3)
                {
                    show("Please Enter Correct Name.");
                }
                else if(mobile_no==null || mobile_no=="") || mobile_no.length()<10)
                {
                    show("Please Enter Correct mobile number.");
                }
                else if(email_id==null || email_id=="") || email_id.length()<10)
                {
                    show("Please Enter Correct Email id.");
                }
                else if(password==null || password=="") || password.length()<6)
                {
                    show("Please Enter Strong Password.");
                }
                else
                {
                    db.execSQL("insert into login
values('"+name+"','"+mobile_no+"','"+email_id+"','"+password+"','nothing')");
                    i=new Intent(this,Welcome.class);
                    startActivityForResult(i, 500);
                    overridePendingTransition(R.anim.slide_in_right, R.anim.slide_out_left);
                    db.close();
                    finish();
                }
                break;
        }
    }

    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent data) {
        overridePendingTransition(R.anim.slide_in_left, R.anim.slide_out_right);
    }

    public void show(String str)
    {
        Toast.makeText(this, str, Toast.LENGTH_LONG).show();
    }
}

```

### Welcome.java

```

import android.app.Activity;
import android.os.Bundle;

public class Welcome extends Activity{

```

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.welcome);
}
}
```

## LAYOUT FILES:

### activity\_main.xml

```
<?xml version="1.0"?>

<RelativeLayout android:background="#999999"
    android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <LinearLayout
        android:layout_height="wrap_content"
        android:layout_width="fill_parent"
        android:layout_alignParentBottom="true">

        <Button
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:onClick="login_sigin"
            android:text="Sign In"
            android:textSize="20sp"
            android:layout_weight="1"
            android:id="@+id/sign_in"/>

        <Button
            android:layout_height="wrap_content"
            android:layout_width="wrap_content"
            android:onClick="login_sigin"
            android:text="Log In"
            android:textSize="20sp"
            android:layout_weight="1"
            android:id="@+id/log_in"/>

    </LinearLayout>

    <TextView android:background="#CCCCCC"
        android:layout_height="wrap_content"
        android:layout_width="wrap_content"
        android:text=" Welcome "
        android:textSize="25sp"
        android:id="@+id/text"
        android:textColor="#333333"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:gravity="center"
        android:layout_alignParentTop="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentLeft="true"/>

</RelativeLayout>
```

### login.xml

```

<?xml version="1.0"?>

    <RelativeLayout android:background="#999999" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

        <RelativeLayout
    android:background="@android:drawable/edit_text"
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:gravity="center_vertical"
    android:baselineAligned="false"
    android:addStatesFromChildren="true"
    android:layout_centerVertical="true"
    android:layout_alignRight="@+id/phone2"
    android:layout_alignLeft="@+id/phone2"
    android:id="@+id/rl">

            <ImageView
    android:background="@drawable/show"
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:id="@+id/show_hide2"
    android:layout_marginTop="4dp"
    android:layout_alignParentTop="true"
    android:layout_alignBottom="@+id/rl"
    android:layout_alignParentRight="true"
    style="@android:style/Widget.Button.Inset"/>

            <EditText
    android:background="@null"
    android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:id="@+id/password2"
    android:layout_alignParentTop="true"
    android:layout_alignBottom="@+id/rl"
    android:singleLine="true"
    android:maxLines="1"
    android:inputType="textPassword"
    android:hint="Password"
    android:focusableInTouchMode="true"
    android:focusable="true"
    android:maxLength="40"
    android:ems="10"
    android:layout_toLeftOf="@+id/show_hide2"
    android:layout_alignParentLeft="true"/>

        </RelativeLayout>

        <EditText android:layout_height="wrap_content"
    android:layout_width="wrap_content"
    android:id="@+id/phone2"
    android:inputType="phone"
    android:hint="Mobile No."
    android:maxLength="10"
    android:ems="10"
    android:layout_centerHorizontal="true"
    android:layout_above="@+id/rl">

            <requestFocus/>

        </EditText>

        <Button
    android:layout_height="wrap_content"

```

```

        android:layout_width="wrap_content" android:id="@+id/signin2"
        android:layout_alignParentTop="true" android:layout_alignParentRight="true"
        android:layout_alignParentLeft="true" android:textSize="20sp" android:onClick="action"
        android:text="Sign in"/>

        <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:layout_alignRight="@+id/r1" android:layout_alignLeft="@+id/r1" android:id="@+id/start"
        android:layout_marginTop="10dp" android:textSize="20sp" android:onClick="action"
        android:text="Continue.." android:layout_below="@+id/r1"/>

</RelativeLayout>

```

### signin.xml

```

<?xml version="1.0"?>

    <RelativeLayout android:background="#999999" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

        <EditText android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:inputType="textEmailAddress" android:maxLength="40" android:hint="Email id"
        android:ems="10" android:layout_centerVertical="true" android:layout_alignLeft="@+id/phone"
        android:id="@+id/email_id" > </EditText>

        <EditText android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:inputType="number" android:maxLength="10" android:hint="Mobile No." android:ems="10"
        android:id="@+id/phone" android:layout_centerHorizontal="true"
        android:layout_above="@+id/email_id" />

        <EditText android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:inputType="textPersonName" android:maxLength="30" android:hint="Name" android:ems="10"
        android:id="@+id/name" android:layout_centerHorizontal="true" android:layout_above="@+id/phone">
            <requestFocus/>
        </EditText>

        <RelativeLayout android:background="@android:drawable/edit_text"
        android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:layout_alignLeft="@+id/email_id" android:id="@+id/r1" android:gravity="center_vertical"
        android:baselineAligned="false" android:addStatesFromChildren="true"
        android:layout_below="@+id/email_id" android:layout_alignRight="@+id/email_id">

            <ImageView android:background="@drawable/show" android:layout_height="wrap_content"
            android:layout_width="wrap_content" android:id="@+id/show_hide" android:layout_marginTop="4dp"
            android:layout_alignParentTop="true" android:layout_alignBottom="@+id/r1"
            android:layout_alignParentRight="true" style="@android:style/Widget.Button.Inset"/>

            <EditText android:background="@null" android:layout_height="wrap_content"
            android:layout_width="wrap_content" android:inputType="textPassword" android:maxLength="40"
            android:hint="Password" android:ems="10" android:id="@+id/password"
            android:layout_alignParentTop="true" android:layout_alignBottom="@+id/r1"
            android:singleLine="true" android:maxLength="1" android:focusableInTouchMode="true"
            android:focused="true" android:layout_toLeftOf="@+id/show_hide"
            android:layout_alignParentLeft="true"/>

        </RelativeLayout>

        <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:id="@+id/login" android:layout_alignParentTop="true"
        android:layout_alignParentRight="true" android:layout_alignParentLeft="true"
        android:textSize="20sp" android:onClick="action" android:text="Log in"/>

```

```

        <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:layout_alignLeft="@+id/r1" android:id="@+id/signin" android:layout_below="@+id/r1"
    android:layout_alignRight="@+id/r1" android:layout_marginTop="10dp" android:textSize="20sp"
    android:onClick="action" android:text="Continue.."/>

</RelativeLayout>

```

### Welcome.xml

```

<?xml version="1.0"?>

<RelativeLayout android:background="#999999" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <ImageButton android:layout_height="50dp" android:layout_width="50dp"
        android:src="@drawable/ic_launcher" android:layout_alignParentTop="true"
        android:layout_alignParentLeft="true" android:id="@+id/w_image"/>

    <TextView android:background="#444444" android:layout_height="wrap_content"
        android:layout_width="wrap_content" android:layout_alignParentTop="true"
        android:id="@+id/w_welcome" android:textAppearance="?android:attr/textAppearanceLarge"
        android:gravity="center" android:text="Welcome Mohsin" android:layout_toRightOf="@+id/w_image"
        android:layout_alignParentRight="true" android:layout_alignBottom="@+id/w_image"/>

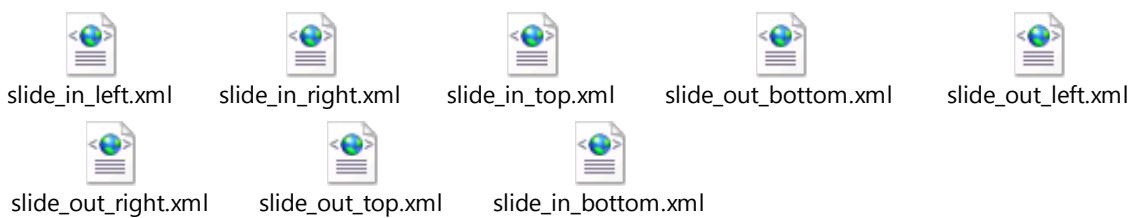
</RelativeLayout>

```

### Drawable FOLDER



### anim FOLDER



### Android manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.manju.myapplication">
    <uses-permission android:name="android.permission.INTERNET" />
    <application
        android:allowBackup="true"

```

---

```

        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
    <activity
        android:name=".MainActivity"
        android:label="@string/app_name"
        android:theme="@style/AppTheme.NoActionBar">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />

            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>

    <activity android:name="com.example.manju.myapplication.Login"/>

    <activity android:name="com.example.manju.myapplication.Signin"/>

    <activity android:name="com.example.manju.myapplication.Welcome"/>

</application>
</manifest>

```

---

## Google map directions

### JAVA FILES

#### MainActivity.java

```

import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import java.net.HttpURLConnection;
import java.net.URL;
import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;

import org.json.JSONObject;

import android.graphics.Color;
import android.os.AsyncTask;
import android.os.Bundle;
import android.support.v4.app.FragmentActivity;
import android.util.Log;
import android.view.Menu;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.RadioGroup.OnCheckedChangeListener;
import android.widget.Toast;

import com.google.android.gms.maps.GoogleMap;
import com.google.android.gms.maps.GoogleMap.OnMapClickListener;
import com.google.android.gms.maps.SupportMapFragment;
import com.google.android.gms.maps.model.BitmapDescriptorFactory;
import com.google.android.gms.maps.model.LatLng;
import com.google.android.gms.maps.model.MarkerOptions;

```

```

import com.google.android.gms.maps.model.PolylineOptions;

public class MainActivity extends FragmentActivity {

    GoogleMap map;
    RadioButton rbDriving;
    RadioButton rbBiCycling;
    RadioButton rbWalking;
    RadioGroup rgModes;
    ArrayList<LatLng> markerPoints;
    int mMode=0;
    final int MODE_DRIVING=0;
    final int MODE_BICYCLING=1;
    final int MODE_WALKING=2;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Getting reference to rb_driving
        rbDriving = (RadioButton) findViewById(R.id.rb_driving);

        // Getting reference to rb_bicylcing
        rbBiCycling = (RadioButton) findViewById(R.id.rb_bicycling);

        // Getting reference to rb_walking
        rbWalking = (RadioButton) findViewById(R.id.rb_walking);

        // Getting Reference to rg_modes
        rgModes = (RadioGroup) findViewById(R.id.rg_modes);

        rgModes.setOnCheckedChangeListener(new OnCheckedChangeListener() {

            @Override
            public void onCheckedChanged(RadioGroup group, int checkedId) {

                // Checks, whether start and end locations are captured
                if(markerPoints.size() >= 2){
                    LatLng origin = markerPoints.get(0);
                    LatLng dest = markerPoints.get(1);

                    // Getting URL to the Google Directions API
                    String url = getDirectionsUrl(origin, dest);

                    DownloadTask downloadTask = new DownloadTask();

                    // Start downloading json data from Google Directions API
                    downloadTask.execute(url);
                }
            }
        });
    }

    // Initializing
    markerPoints = new ArrayList<LatLng>();

    // Getting reference to SupportMapFragment of the activity_main
    SupportMapFragment fm =
    (SupportMapFragment) getSupportFragmentManager().findFragmentById(R.id.map);

    // Getting Map for the SupportMapFragment
    map = fm.getMap();

    // Enable MyLocation Button in the Map
    map.setMyLocationEnabled(true);
}

```

```

// Setting onclick event listener for the map
map.setOnMapClickListener(new OnMapClickListener() {

    @Override
    public void onMapClick(LatLng point) {

        // Already two locations
        if(markerPoints.size()>1){
            markerPoints.clear();
            map.clear();
        }

        // Adding new item to the ArrayList
        markerPoints.add(point);

        // Draws Start and Stop markers on the Google Map
        drawStartStopMarkers();

        // Checks, whether start and end locations are captured
        if(markerPoints.size() >= 2){
            LatLng origin = markerPoints.get(0);
            LatLng dest = markerPoints.get(1);

            // Getting URL to the Google Directions API
            String url = getDirectionsUrl(origin, dest);

            DownloadTask downloadTask = new DownloadTask();

            // Start downloading json data from Google Directions API
            downloadTask.execute(url);
        }
    }
});

// Drawing Start and Stop locations
private void drawStartStopMarkers(){

    for(int i=0;i<markerPoints.size();i++){

        // Creating MarkerOptions
        MarkerOptions options = new MarkerOptions();

        // Setting the position of the marker
        options.position(markerPoints.get(i));

        /**
         * For the start location, the color of marker is GREEN and
         * for the end location, the color of marker is RED.
         */
        if(i==0){

options.icon(BitmapDescriptorFactory.defaultMarker(BitmapDescriptorFactory.HUE_GREEN));
} else if(i==1){

options.icon(BitmapDescriptorFactory.defaultMarker(BitmapDescriptorFactory.HUE_RED));
}

        // Add new marker to the Google Map Android API V2
        map.addMarker(options);
    }
}
private String getDirectionsUrl(LatLng origin,LatLng dest){

    // Origin of route
    String str_origin = "origin="+origin.latitude+","+origin.longitude;

```

```

// Destination of route
String str_dest = "destination="+dest.latitude+","+dest.longitude;

// Sensor enabled
String sensor = "sensor=false";

// Travelling Mode
String mode = "mode=driving";

if(rbDriving.isChecked()){
    mode = "mode=driving";
    mMode = 0 ;
} else if(rbBicycling.isChecked()){
    mode = "mode=bicycling";
    mMode = 1 ;
} else if(rbWalking.isChecked()){
    mode = "mode=walking";
    mMode = 2 ;
}

// Building the parameters to the web service
String parameters = str_origin+"&"+str_dest+"&"+sensor+"&"+mode;

// Output format
String output = "json";

// Building the url to the web service
String url = "https://maps.googleapis.com/maps/api/directions/"+output+"?"+parameters;

return url;
}

/** A method to download json data from url */
private String downloadUrl(String strUrl) throws IOException{
    String data = "";
    InputStream iStream = null;
    HttpURLConnection urlConnection = null;
    try{
        URL url = new URL(strUrl);

        // Creating an http connection to communicate with url
        urlConnection = (HttpURLConnection) url.openConnection();

        // Connecting to url
        urlConnection.connect();

        // Reading data from url
        iStream = urlConnection.getInputStream();

        BufferedReader br = new BufferedReader(new InputStreamReader(iStream));

        StringBuffer sb = new StringBuffer();

        String line = "";
        while( ( line = br.readLine() ) != null){
            sb.append(line);
        }

        data = sb.toString();

        br.close();
    }catch(Exception e){
        Log.d("Exception while downloading url", e.toString());
    }finally{

```

```

        iStream.close();
        urlConnection.disconnect();
    }
    return data;
}

// Fetches data from url passed
private class DownloadTask extends AsyncTask<String, Void, String>{

    // Downloading data in non-ui thread
    @Override
    protected String doInBackground(String... url) {

        // For storing data from web service
        String data = "";

        try{
            // Fetching the data from web service
            data = downloadUrl(url[0]);
        }catch(Exception e){
            Log.d("Background Task",e.toString());
        }
        return data;
    }

    // Executes in UI thread, after the execution of
    // doInBackground()
    @Override
    protected void onPostExecute(String result) {
        super.onPostExecute(result);

        ParserTask parserTask = new ParserTask();

        // Invokes the thread for parsing the JSON data
        parserTask.execute(result);
    }
}

/** A class to parse the Google Places in JSON format */
private class ParserTask extends AsyncTask<String, Integer,
List<List<HashMap<String, String>>> >{

    // Parsing the data in non-ui thread
    @Override
    protected List<List<HashMap<String, String>>> doInBackground(String... jsonData) {

        JSONObject jObject;
        List<List<HashMap<String, String>>> routes = null;

        try{
            jObject = new JSONObject(jsonData[0]);
            DirectionsJSONParser parser = new DirectionsJSONParser();

            // Starts parsing data
            routes = parser.parse(jObject);
        }catch(Exception e){
            e.printStackTrace();
        }
        return routes;
    }

    // Executes in UI thread, after the parsing process
    @Override
    protected void onPostExecute(List<List<HashMap<String, String>>> result) {
        ArrayList<LatLng> points = null;
        PolylineOptions lineOptions = null;

```

```

MarkerOptions markerOptions = new MarkerOptions();

// Traversing through all the routes
for(int i=0;i<result.size();i++){
    points = new ArrayList<LatLng>();
    lineOptions = new PolylineOptions();

    // Fetching i-th route
    List<HashMap<String, String>> path = result.get(i);

    // Fetching all the points in i-th route
    for(int j=0;j<path.size();j++){
        HashMap<String, String> point = path.get(j);

        double lat = Double.parseDouble(point.get("lat"));
        double lng = Double.parseDouble(point.get("lng"));
        LatLng position = new LatLng(lat, lng);

        points.add(position);
    }

    // Adding all the points in the route to LineOptions
    lineOptions.addAll(points);
    lineOptions.width(2);

    // Changing the color polyline according to the mode
    if(mMode==MODE_DRIVING)
        lineOptions.color(Color.RED);
    else if(mMode==MODE_BICYCLING)
        lineOptions.color(Color.GREEN);
    else if(mMode==MODE_WALKING)
        lineOptions.color(Color.BLUE);
    }

    if(result.size()<1){
        Toast.makeText(getApplicationContext(), "No Points", Toast.LENGTH_SHORT).show();
        return;
    }

    // Drawing polyline in the Google Map for the i-th route
    map.addPolyline(lineOptions);
}
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    // Inflate the menu; this adds items to the action bar if it is present.
    getMenuInflater().inflate(R.menu.menu_main, menu);
    return true;
}
}

```

### DirectionsJSONParser.java

```

import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;

import org.json.JSONArray;
import org.json.JSONException;
import org.json.JSONObject;

import com.google.android.gms.maps.model.LatLng;

```

```

public class DirectionsJSONParser {

    /** Receives a JSONObject and returns a list of lists containing latitude and longitude */
    public List<List<HashMap<String, String>>> parse(JSONObject jobject){

        List<List<HashMap<String, String>>> routes = new
        ArrayList<List<HashMap<String, String>>>();
        JSONArray jRoutes = null;
        JSONArray jLegs = null;
        JSONArray jSteps = null;

        try {

            jRoutes = jobject.getJSONArray("routes");

            /** Traversing all routes */
            for(int i=0;i<jRoutes.length();i++){
                jLegs = ( (JSONObject)jRoutes.get(i)).getJSONArray("legs");
                List path = new ArrayList<HashMap<String, String>>();

                /** Traversing all legs */
                for(int j=0;j<jLegs.length();j++){
                    jSteps = ( (JSONObject)jLegs.get(j)).getJSONArray("steps");

                    /** Traversing all steps */
                    for(int k=0;k<jSteps.length();k++){
                        String polyline = "";
                        polyline =
(String)((JSONObject)((JSONObject)jSteps.get(k)).get("polyline")).get("points");
                        List<LatLng> list = decodePoly(polyline);

                        /** Traversing all points */
                        for(int l=0;l<list.size();l++){
                            HashMap<String, String> hm = new HashMap<String, String>();
                            hm.put("lat", Double.toString(((LatLng)list.get(l)).latitude) );
                            hm.put("lng", Double.toString(((LatLng)list.get(l)).longitude) );
                            path.add(hm);
                        }
                    }
                    routes.add(path);
                }
            }
        } catch (JSONException e) {
            e.printStackTrace();
        }catch (Exception e){
        }
        return routes;
    }

    /**
     * Method to decode polyline points
     * Courtesy : jeffreysambells.com/2010/05/27/decoding-polylines-from-google-maps-direction-
     api-with-java
     */
    private List<LatLng> decodePoly(String encoded) {

        List<LatLng> poly = new ArrayList<LatLng>();
        int index = 0, len = encoded.length();
        int lat = 0, lng = 0;

        while (index < len) {
            int b, shift = 0, result = 0;
            do {
                b = encoded.charAt(index++) - 63;
                result |= (b & 0x1f) << shift;
            }

```

```

        shift += 5;
    } while (b >= 0x20);
    int dlat = ((result & 1) != 0 ? ~(result >> 1) : (result >> 1));
    lat += dlat;

    shift = 0;
    result = 0;
    do {
        b = encoded.charAt(index++) - 63;
        result |= (b & 0x1f) << shift;
        shift += 5;
    } while (b >= 0x20);
    int dlng = ((result & 1) != 0 ? ~(result >> 1) : (result >> 1));
    lng += dlng;

    LatLng p = new LatLng(((double) lat / 1E5),
                          (((double) lng / 1E5)));
    poly.add(p);
}
return poly;
}
}

```

#### AYOUT FILE:

##### activity\_main.xml

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity" >

    <RadioGroup
        android:id="@+id/rg_modes"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:orientation="horizontal" >

        <RadioButton android:id="@+id/rb_driving"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/str_rb_driving"
            android:checked="true" />

        <RadioButton android:id="@+id/rb_bicycling"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/str_rb_bicycling" />

        <RadioButton android:id="@+id/rb_walking"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/str_rb_walking" />

    </RadioGroup>

    <fragment
        android:id="@+id/map"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_above="@+id/rg_modes" >

```

```
        class="com.google.android.gms.maps.SupportMapFragment" />  
</RelativeLayout>
```

### Android Manifest.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
    package="com.example.manju.myapplication">  
  
    <permission  
        android:name="com.example.manju.myapplication.permission.MAPS_RECEIVE"  
        android:protectionLevel="signature" />  
  
    <uses-permission android:name="com.example.manju.myapplication.permission.MAPS_RECEIVE" />  
  
    <uses-permission android:name="android.permission.INTERNET" />  
    <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />  
    <uses-permission android:name="com.google.android.providers.gsf.permission.READ_GSERVICES" />  
    <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />  
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />  
  
    <application  
        android:allowBackup="true"  
        android:icon="@mipmap/ic_launcher"  
        android:label="@string/app_name"  
        android:supportsRtl="true"  
        android:theme="@style/AppTheme">  
        <activity  
            android:name=".MainActivity"  
            android:label="@string/app_name"  
            android:theme="@style/AppTheme.NoActionBar">  
            <intent-filter>  
                <action android:name="android.intent.action.MAIN" />  
  
                <category android:name="android.intent.category.LAUNCHER" />  
            </intent-filter>  
        </activity>  
  
        <meta-data  
            android:name="com.google.android.maps.v2.API_KEY"  
            android:value="AIzaSyChFgoCG01fzZeXxxEvL-f7yElcekl3vwA" />  
    </application>  
</manifest>
```

### String.xml

```
<string name="hello_world">Hello world!</string>  
<string name="str_rb_driving">Driving</string>  
<string name="str_rb_bicycling">BiCycling</string>  
<string name="str_rb_walking">Walking</string>
```

\*\*\*\*\*

## Class Time Table

### JAVA FILES:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.content.Intent;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void onButtonClick(View v) {
        if (v.getId() == R.id.Bdisplay)

        {
            Intent i = new Intent(MainActivity.this, ListBatchesActivity.class);
            startActivity(i);
        }
    }
}
```

### List batches Activity

```
import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.ListView;

public class ListBatchesActivity extends Activity {

    ListView listBatches;
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.listbatches);
    }

    @Override
    public void onStart() {
        super.onStart();
        listBatches = (ListView) this.findViewById(R.id.listBatches);
        BatchesAdapter adapter = new BatchesAdapter(this);
        listBatches.setAdapter(adapter);
    }

    public void addBatch(View v) {
        Intent intent = new Intent(this, AddBatchActivity.class);
        startActivity(intent);
    }
}
```

## AddBatchActivity

```
import java.util.Calendar;

import android.app.Activity;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.app.TimePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.TimePicker;
import android.widget.Toast;

public class AddBatchActivity extends Activity {
    private static final int DATE_DIALOG = 1;
    private static final int TIME_DIALOG = 2;
    private int day, month, year, hours, mins;
    private TextView textStartDate, textStartTime;
    private EditText editBatchcode,editCourse,editPeriod,editClasses,editClassesPerWeek,
    editRemarks;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.addbatch);

        textStartDate = (TextView) this.findViewById(R.id.textStartDate);
        textStartTime = (TextView) this.findViewById(R.id.textStartTime);

        editBatchcode = (EditText) this.findViewById(R.id.editBatchCode) ;
        editCourse = (EditText) this.findViewById(R.id.editCourse) ;
        editPeriod = (EditText) this.findViewById(R.id.editPeriod) ;
        editClasses = (EditText) this.findViewById(R.id.editClasses) ;
        editClassesPerWeek = (EditText) this.findViewById(R.id.editClassesPerWeek) ;
        editRemarks = (EditText) this.findViewById(R.id.editRemarks) ;

        setDateToSysdate();
        updateDateDisplay();

    }

    private void setDateToSysdate() {
        Calendar c = Calendar.getInstance();
        day = c.get(Calendar.DAY_OF_MONTH);
        month = c.get(Calendar.MONTH);
        year = c.get(Calendar.YEAR);
    }

    public void addBatch(View v) {
        boolean done = Database.addBatch(this,
            editBatchcode.getText().toString(),
            editCourse.getText().toString(),
            textStartDate.getText().toString(),
            textStartTime.getText().toString(),
            editClasses.getText().toString(),
            editPeriod.getText().toString(),
            editClassesPerWeek.getText().toString(),
            editRemarks.getText().toString());

        if ( done )
            Toast.makeText(this,"Added batch successfully!", Toast.LENGTH_LONG).show();
    }
}
```

```

        else
            Toast.makeText(this,"Sorry! Could not add batch!", Toast.LENGTH_LONG).show();
    }

    public void showDatePicker(View v) {
        showDialog(DATE_DIALOG);
    }

    public void showTimePicker(View v) {
        showDialog(TIME_DIALOG);
    }

    @Override
    protected Dialog onCreateDialog(int id) {
        super.onCreateDialog(id);

        switch (id) {
            case DATE_DIALOG:
                return new DatePickerDialog(this, dateSetListener, year, month, day);
            case TIME_DIALOG:
                return new TimePickerDialog(this, timeSetListener, hours,mins, false);
        }
        return null;
    }

    private DatePickerDialog.OnDateSetListener dateSetListener = new
DatePickerDialog.OnDateSetListener() {

        public void onDateSet(DatePicker view, int pYear, int pMonth, int pDay) {
            year = pYear;
            month = pMonth;
            day = pDay;
            updateDateDisplay();
        }
    };

    private TimePickerDialog.OnTimeSetListener timeSetListener =
new TimePickerDialog.OnTimeSetListener() {

        @Override
        public void onTimeSet(TimePicker arg0, int pHours, int pMins) {
            hours = pHours;
            mins = pMins;
            updateTimeDisplay();
        }
    };

    private void updateDateDisplay() {
        // Month is 0 based so add 1
        textStartDate.setText(String.format("%04d-%02d-%02d", year, month + 1,day));
    }

    private void updateTimeDisplay() {
        // Month is 0 based so add 1
        textStartTime.setText(String.format("%02d:%02d", hours,mins));
    }
}

```

## AddClassActivity

```
import java.util.Calendar;

import android.app.Activity;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.app.TimePickerDialog;
import android.os.Bundle;
import android.view.View;
import android.widget.CheckBox;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.TimePicker;
import android.widget.Toast;

public class AddClassActivity extends Activity {
    private static final int DATE_DIALOG = 1;
    private static final int TIME_DIALOG = 2;
    private int day, month, year, hours, mins;
    private TextView textBatchCode, textClassDate, textClassTime;
    private EditText editPeriod, editRemarks, editTopics;
    private CheckBox chkAdjust;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.addclass);

        textBatchCode = (TextView) this.findViewById(R.id.textBatchCode);
        textClassDate = (TextView) this.findViewById(R.id.textClassDate);
        textClassTime = (TextView) this.findViewById(R.id.textClassTime);

        editPeriod = (EditText) this.findViewById(R.id.editPeriod);
        editRemarks = (EditText) this.findViewById(R.id.editRemarks);
        editTopics = (EditText) this.findViewById(R.id.editTopics);

        chkAdjust = (CheckBox) this.findViewById(R.id.chkAdjust);

        textBatchCode.setText(getIntent().getStringExtra("batchcode"));
        setDateToSysdate();
        updateDateDisplay();
    }

    private void setDateToSysdate() {
        Calendar c = Calendar.getInstance();
        day = c.get(Calendar.DAY_OF_MONTH);
        month = c.get(Calendar.MONTH);
        year = c.get(Calendar.YEAR);
    }

    public void addClass(View v) {
        boolean done = Database.addClass(this,
            textBatchCode.getText().toString(),
            textClassDate.getText().toString(),
            textClassTime.getText().toString(),
            editPeriod.getText().toString(),
            editTopics.getText().toString(),
            editRemarks.getText().toString(),
            chkAdjust.isChecked());
    }

    if (done)
        Toast.makeText(this, "Added Class Successfully!", Toast.LENGTH_LONG).show();
    else
        Toast.makeText(this, "Sorry! Could not add class!", Toast.LENGTH_LONG).show();
}
```

```

}

public void showDatePicker(View v) {
    showDialog(DATE_DIALOG);
}

public void showTimePicker(View v) {
    showDialog(TIME_DIALOG);
}

@Override
protected Dialog onCreateDialog(int id) {
    super.onCreateDialog(id);

    switch (id) {
        case DATE_DIALOG:
            return new DatePickerDialog(this, dateSetListener, year, month, day);
        case TIME_DIALOG:
            return new TimePickerDialog(this, timeSetListener, hours, mins, false);
    }
    return null;
}

private DatePickerDialog.OnDateSetListener dateSetListener = new
DatePickerDialog.OnDateSetListener() {

    public void onDateSet(DatePicker view, int pYear, int pMonth, int pDay) {
        year = pYear;
        month = pMonth;
        day = pDay;
        updateDateDisplay();
    }
};

private TimePickerDialog.OnTimeSetListener timeSetListener =
new TimePickerDialog.OnTimeSetListener() {

    @Override
    public void onTimeSet(TimePicker arg0, int pHours, int pMins) {
        hours = pHours;
        mins = pMins;
        updateTimeDisplay();
    }
};

private void updateDateDisplay() {
    // Month is 0 based so add 1
    textClassDate.setText(String.format("%04d-%02d-%02d", year, month + 1, day));
}

private void updateTimeDisplay() {
    // Month is 0 based so add 1
    textClassTime.setText(String.format("%02d:%02d", hours, mins));
}
}

```

## Batch

```
public class Batch {

    private String code, course, startdate,
enddate, starttime, classes, period, classesperweek, remarks;

    public String getCode() {
        return code;
    }

    public void setCode(String code) {
        this.code = code;
    }

    public String getCourse() {
        return course;
    }

    public void setCourse(String course) {
        this.course = course;
    }

    public String getStartdate() {
        return startdate;
    }

    public void setStartdate(String startdate) {
        this.startdate = startdate;
    }

    public String getEnddate() {
        return enddate;
    }

    public void setEnddate(String enddate) {
        this.enddate = enddate;
    }

    public String getstarttime() {
        return starttime;
    }

    public void setstarttime(String starttime) {
        this.starttime = starttime;
    }

    public String getClasses() {
        return classes;
    }

    public void setClasses(String classes) {
        this.classes = classes;
    }

    public String getPeriod() {
        return period;
    }

    public void setPeriod(String period) {
        this.period = period;
    }

    public String getClassesperweek() {
        return classesperweek;
    }
}
```

---



---

```

    public void setClassesperweek(String classesperweek) {
        this.classesperweek = classesperweek;
    }

    public String getRemarks() {
        return remarks;
    }

    public void setRemarks(String remarks) {
        this.remarks = remarks;
    }

}

```

## BatchesAdapter

```

import java.util.ArrayList;

import android.content.Context;
import android.content.Intent;
import android.view.LayoutInflater;
import android.view.View;
import android.view.View.OnClickListener;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.Button;
import android.widget.TextView;

public class BatchesAdapter extends BaseAdapter {
    private LayoutInflater inflater;
    private ArrayList<Batch> batches;

    public BatchesAdapter(Context ctx) {
        inflater = LayoutInflater.from(ctx);
        batches = Database.getBatches(ctx);
    }

    @Override
    public int getCount() {
        return batches.size();
    }

    @Override
    public Object getItem(int pos) {
        return batches.get(pos);
    }

    @Override
    public long getItemId(int position) {
        return 0;
    }

    @Override
    public View getView(int position, View convertView, ViewGroup parent) {
        if (convertView == null) {
            convertView = inflater.inflate(R.layout.batch, null);
            Button btnClasses = (Button) convertView.findViewById(R.id.btnClasses);
            Button btnUpdate = (Button) convertView.findViewById(R.id.btnUpdate);
            Button btnAddClass = (Button) convertView.findViewById(R.id.btnAddClass);

            final Batch batch = batches.get(position);

```

```

TextView textCode = (TextView) convertView.findViewById(R.id.textCode);
textCode.setText( batch.getCode());

TextView textCourse = (TextView) convertView.findViewById(R.id.textCourse);
textCourse.setText( batch.getCourse());

TextView textStartDate = (TextView) convertView.findViewById(R.id.textStartDate);
textStartDate.setText(batch.getStartdate());

TextView textEndDate = (TextView) convertView.findViewById(R.id.textEndDate);
textEndDate.setText(batch.getEnddate());

btnClasses.setOnClickListener(new OnClickListener() {
    @Override
    public void onClick(View view) {
        Context context = view.getContext();
        Intent intent = new Intent(context, ListClassesActivity.class);
        intent.putExtra("batchcode",batch.getCode());
        context.startActivity(intent);
    }
});

btnAddClass.setOnClickListener(new OnClickListener() {
    @Override
    public void onClick(View view) {
        Context context = view.getContext();
        Intent intent = new Intent(context, AddClassActivity.class);
        intent.putExtra("batchcode",batch.getCode());
        context.startActivity(intent);
    }
});

btnUpdate.setOnClickListener(new OnClickListener() {
    @Override
    public void onClick(View view) {
        Context context = view.getContext();
        Intent intent = new Intent(context, UpdateBatchActivity.class);
        intent.putExtra("batchcode",batch.getCode());
        context.startActivity(intent);
    }
});
return convertView;
}
}

```

## Class

```

public class Class {

    private String classno, classId, classDate, classTime, period, topics, remarks, batchCode;

    public String getBatchCode() {
        return batchCode;
    }

    public void setBatchCode(String batchCode) {
        this.batchCode = batchCode;
    }
}

```

```
public String getClassId() {
    return classId;
}

public void setClassId(String classId) {
    this.classId = classId;
}

public String getClassno() {
    return classno;
}

public void setClassno(String classno) {
    this.classno = classno;
}

public String getClassDate() {
    return classDate;
}

public void setClassDate(String classDate) {
    this.classDate = classDate;
}

public String getClassTime() {
    return classTime;
}

public void setClassTime(String classTime) {
    this.classTime = classTime;
}

public String getPeriod() {
    return period;
}

public void setPeriod(String period) {
    this.period = period;
}

public String getTopics() {
    return topics;
}

public void setTopics(String topics) {
    this.topics = topics;
}

public String getRemarks() {
    return remarks;
}

public void setRemarks(String remarks) {
    this.remarks = remarks;
}

}
```

### ClassSchedulerActivity

```
import android.app.Activity;
import android.database.sqlite.SQLiteDatabase;
```

---

```

import android.os.Bundle;

public class ClassSchedulerActivity extends Activity {
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getWritableDatabase();
        db.close();
    }
}

```

## Database

```

import java.util.ArrayList;
import java.util.Calendar;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.util.Log;

public class Database {
    public static final String BATCHES_TABLE_NAME = "batches";
    public static final String BATCHES_ID = "_id";
    public static final String BATCHES_BATCHCODE = "batchcode";
    public static final String BATCHES_COURSE = "course";
    public static final String BATCHES_STARTDATE = "startdate";
    public static final String BATCHES_STARTTIME = "starttime";
    public static final String BATCHES_CLASSES = "classes";
    public static final String BATCHES_PERIOD = "period";
    public static final String BATCHES_CLASSESPERWEEK = "classespерweek";
    public static final String BATCHES_REMARKS = "remarks";

    public static final String CLASSES_TABLE_NAME = "classes";
    public static final String CLASSES_CLASSES_ID = "_id";

    public static final String CLASSES_BATCHCODE = "batchcode";
    public static final String CLASSES_CLASSDATE = "classdate";
    public static final String CLASSES_CLASSTIME = "classtime";
    public static final String CLASSES_CLASSPERIOD = "period";
    public static final String CLASSES_TOPICS = "topics";
    public static final String CLASSES_REMARKS = "remarks";

    public static Batch cursorToBatch(Cursor batches) {

        Batch batch = new Batch();
        batch.setCode(batches.getString(batches
            .getColumnIndex(Database.BATCHES_BATCHCODE)));
        batch.setCourse(batches.getString(batches
            .getColumnIndex(Database.BATCHES_COURSE)));
        batch.setStartdate(batches.getString(batches
            .getColumnIndex(Database.BATCHES_STARTDATE)));
        batch.setStarttime(batches.getString(batches
            .getColumnIndex(Database.BATCHES_STARTTIME)));
        batch.setClasses(batches.getString(batches
            .getColumnIndex(Database.BATCHES_CLASSES)));
        batch.setClassespерweek(batches.getString(batches
            .getColumnIndex(Database.BATCHES_CLASSESPERWEEK)));
        batch.setPeriod(batches.getString(batches
            .getColumnIndex(Database.BATCHES_PERIOD)));
    }
}

```

```

        .getColumnIndex(Database.BATCHES_PERIOD)));
batch.setRemarks(batches.getString(batches
        .getColumnIndex(Database.BATCHES_REMARKS)));
return batch;
}

public static Class cursorToClass(Cursor classes) {
    Class cls = new Class();
    cls.setClassId( classes.getString( classes.getColumnIndex(Database.CLASSES_CLASSES_ID)));
    cls.setBatchCode( classes.getString(
classes.getColumnIndex(Database.CLASSES_BATCHCODE)));
    cls.setClassDate( classes.getString(
classes.getColumnIndex(Database.CLASSES_CLASSDATE)));
    cls.setClassTime( classes.getString(
classes.getColumnIndex(Database.CLASSES_CLASSTIME)));
    cls.setPeriod( classes.getString( classes.getColumnIndex(Database.CLASSES_CLASSPERIOD)));
    cls.setTopics( classes.getString( classes.getColumnIndex(Database.CLASSES_TOPICS)));
    cls.setRemarks( classes.getString( classes.getColumnIndex(Database.CLASSES_REMARKS)));
return cls;
}

public static boolean addClass(Context context, String batchCode, String classDate, String
classTime, String period, String topics, String remarks, boolean adjust) {
    DBHelper dbhelper = null;
    SQLiteDatabase db = null;
    try {
        dbhelper = new DBHelper(context);
        db = dbhelper.getWritableDatabase();
        db.beginTransaction();

        if ( adjust ) {
            // delete last class for the batch
            boolean deleted = deleteLastClass(db,batchCode);
            if ( !deleted) {
                db.endTransaction();
                return false;
            }
        }

        // add new class with the given details

        ContentValues values = new ContentValues();
        values.put(Database.CLASSES_BATCHCODE, batchCode);
        values.put(Database.CLASSES_CLASSDATE, classDate);
        values.put(Database.CLASSES_CLASSTIME, classTime);
        values.put(Database.CLASSES_CLASSPERIOD, period);
        values.put(Database.CLASSES_REMARKS,remarks);
        values.put(Database.CLASSES_TOPICS,topics);

        long rowid = db.insert(Database.CLASSES_TABLE_NAME, null,values);

        if ( rowid >=0 ) {
            db.setTransactionSuccessful();
            db.endTransaction();
            return true;
        }
        else {
            db.endTransaction();
            return false;
        }
    }
    catch(Exception ex) {
        Log.d("CS", "Error in addClass -->" + ex.getMessage());
        return false;
    }
}

```

```

        finally {
            if (db != null && db.isOpen()) {
                db.close();
            }
        }
    }

    public static boolean deleteLastClass(SQLiteDatabase db, String batchcode) {
        try {
            // find out classid for last class and then delete it
            boolean done = false;
            Cursor lastClass = db.query(Database.CLASSES_TABLE_NAME,
null,Database.CLASSES_BATCHCODE + " = ?",
                new String[] { batchcode },
                null, null, Database.CLASSES_CLASSDATE + " desc " , "1");

            String classid = null;

            if ( lastClass.moveToFirst() ) {
                classid = lastClass.getString( lastClass.getColumnIndex(
Database.CLASSES_CLASSES_ID));
                int rows = db.delete(Database.CLASSES_TABLE_NAME,Database.CLASSES_CLASSES_ID + " =
?",  

                new String[] { classid} );
                done = rows == 1;
            }
            lastClass.close();
            return done;
        }
        catch (Exception ex) {
            Log.d("Account", "Error in deleteLastClass-->" + ex.getMessage());
            return false;
        }
    } // deleteLastClass

    public static String calendarToString(Calendar c) {
        return String.format("%04d-%02d-%02d", c.get(Calendar.YEAR), c.get(Calendar.MONTH) + 1,
c.get(Calendar.DAY_OF_MONTH));
    }

    public static boolean cancelClass(Context context, String batchCode, String classid) {

        DBHelper dbhelper = null;
        SQLiteDatabase db = null;
        try {
            dbhelper = new DBHelper(context);
            db = dbhelper.getWritableDatabase();
            db.beginTransaction();

            int rows = db.delete(Database.CLASSES_TABLE_NAME,Database.CLASSES_CLASSES_ID + " =
?",  

            new String[] { classid} );
            if ( rows == 1 )
            {
                // add a class after the last class
                if ( addAfterLastClass(db,batchCode))
                {
                    db.setTransactionSuccessful();
                    db.endTransaction();
                    return true;
                }
            }
            db.endTransaction();
        }
    }
}

```

```

        return false;
    }
    catch (Exception ex) {
        Log.d("CS", "Error in cancelClass-->" + ex.getMessage());
        return false;
    }
    finally {
        if (db != null && db.isOpen()) {
            db.close();
        }
    }
}

public static boolean addAfterLastClass(SQLiteDatabase db, String batchcode) {
    try {
        // find out last class date
        boolean done = false;
        Batch batch = null;

        Cursor lastClass = db.query(Database.CLASSES_TABLE_NAME,
null,Database.CLASSES_BATCHCODE + " = ?",
        new String[] { batchcode },
        null, null, Database.CLASSES_CLASSDATE + " desc " , "1");

        String classdate = null;
        if ( lastClass.moveToFirst() ) {
            classdate = lastClass.getString(lastClass.getColumnIndex(
Database.CLASSES_CLASSDATE));
            // get details of the batch
            batch = getBatch(db,batchcode);
            // find out next date after the last class
            Calendar c = getCalendar(classdate);

            int classesperweek = Integer.parseInt( batch.getClassesperweek());
            c.add( Calendar.DAY_OF_MONTH,1);

            int dow = getDayOfWeek(c.get(Calendar.DAY_OF_WEEK));

            if ( dow == 7 && classesperweek == 6) {
                c.add( Calendar.DAY_OF_MONTH,1); // add one more day
            }
            else
            if ( dow == 6 && classesperweek == 5)
                c.add( Calendar.DAY_OF_MONTH,2); // add two more day

            // insert with new data

            lastClass.close();
            ContentValues values = new ContentValues();
            values.put(Database.CLASSES_BATCHCODE, batch.getCode());
            values.put(Database.CLASSES_CLASSDATE, calendarToString(c));
            values.put(Database.CLASSES_CLASSTIME, batch.getStarttime());
            values.put(Database.CLASSES_CLASSPERIOD, batch.getPeriod());
            values.put(Database.CLASSES_REMARKS,"");
            values.put(Database.CLASSES_TOPICS,"");

            long rowid = db.insert(Database.CLASSES_TABLE_NAME, null,values);
            return rowid >= 0;
        }
        else
            return false;
    }
    catch (Exception ex) {
        Log.d("Account", "Error in deleteLastClass-->" + ex.getMessage());
    }
}

```

```

        return false;
    }
} // deleteLastClass

public static boolean deleteClass(Context context, String classid) {
    DBHelper dbhelper = null;
    SQLiteDatabase db = null;
    try {
        dbhelper = new DBHelper(context);
        db = dbhelper.getWritableDatabase();
        int rows = db.delete(Database.CLASSES_TABLE_NAME, Database.CLASSES_CLASSES_ID + " = ?",
                new String[] { classid } );
        return rows == 1;
    }
    catch (Exception ex) {
        Log.d("CS", "Error in deleteClass-->" + ex.getMessage());
        return false;
    }
    finally {
        if (db != null && db.isOpen()) {
            db.close();
        }
    }
} // deleteClass

public static boolean addBatch(Context context, String batchcode,
                               String course, String startdate, String starttime, String
classes,
                               String period, String classesperweek, String remarks) {

    DBHelper dbhelper = null;
    SQLiteDatabase db = null;
    try {
        dbhelper = new DBHelper(context);
        db = dbhelper.getWritableDatabase();
        db.beginTransaction();

        // execute insert command
        ContentValues values = new ContentValues();
        values.put(Database.BATCHES_BATCHCODE, batchcode);
        values.put(Database.BATCHES.Course, course);
        values.put(Database.BATCHES_STARTDATE, startdate);
        values.put(Database.BATCHES_STARTTIME, starttime);
        values.put(Database.BATCHES_CLASSES, classes);
        values.put(Database.BATCHES_PERIOD, period);
        values.put(Database.BATCHES_CLASSESPERWEEK, classesperweek);
        values.put(Database.BATCHES_REMARKS, remarks);

        long rowid = db.insert(Database.BATCHES_TABLE_NAME, null, values);
        Log.d("CS", "Inserted into BATCHES " + rowid);

        addClasses(db, batchcode, startdate, starttime, classes, period,
                  classesperweek);

        db.setTransactionSuccessful();
        db.endTransaction();
        return true;
    } catch (Exception ex) {
        Log.d("Account", "Error in addTransaction -->" + ex.getMessage());
        return false;
    } finally {
        if (db != null && db.isOpen()) {
            db.close();
        }
    }
}

```

```

        }

    } // addBatch

    public static boolean updateBatch(Context context, String batchcode,
                                     String course, String starttime, String period, String
remarks) {

    DBHelper dbhelper = null;
    SQLiteDatabase db = null;
    try {
        dbhelper = new DBHelper(context);
        db = dbhelper.getWritableDatabase();
        db.beginTransaction();

        // execute insert command
        ContentValues values = new ContentValues();
        values.put(Database.BATCHES_BATCHCODE, batchcode);
        values.put(Database.BATCHES.Course, course);
        values.put(Database.BATCHES_STARTTIME, starttime);
        values.put(Database.BATCHES_PERIOD, period);
        values.put(Database.BATCHES_REMARKS, remarks);

        int rows = db.update(Database.BATCHES_TABLE_NAME, values, Database.BATCHES_BATCHCODE
+ " = ?",
                new String[] { batchcode} );
        if ( rows == 1)
            db.setTransactionSuccessful();

        db.endTransaction();
        return true;
    } catch (Exception ex) {
        Log.d("Account", "Error in updateBatch-->" + ex.getMessage());
        return false;
    } finally {
        if (db != null && db.isOpen())
            db.close();
    }
} // updateBatch

    public static boolean updateClass(Context context, String classid, String classTime, String
period, String topics, String remarks) {

    DBHelper dbhelper = null;
    SQLiteDatabase db = null;
    try {
        dbhelper = new DBHelper(context);
        db = dbhelper.getWritableDatabase();

        // execute insert command
        ContentValues values = new ContentValues();
        values.put(Database.CLASSES_CLASSTIME, classTime);
        values.put(Database.CLASSES_CLASSPERIOD, period);
        values.put(Database.CLASSES_TOPICS, topics);
        values.put(Database.CLASSES_REMARKS, remarks);

        int rows = db.update(Database.CLASSES_TABLE_NAME, values, Database.CLASSES_CLASSES_ID
+ " = ?",
                new String[] { classid} );
        if ( rows == 1)
            return true;
        else
            return false;
    } catch (Exception ex) {
        Log.d("Account", "Error in updateClass-->" + ex.getMessage());
    }
}

```

```

        return false;
    } finally {
        if (db != null && db.isOpen()) {
            db.close();
        }
    }
} // updateBatch

public static boolean deleteBatch(Context context, String batchcode) {
    DBHelper dbhelper = null;
    SQLiteDatabase db = null;
    try {
        dbhelper = new DBHelper(context);
        db = dbhelper.getWritableDatabase();
        db.beginTransaction();

        int rows = db.delete(Database.CLASSES_TABLE_NAME, Database.BATCHES_BATCHCODE + " = ?",
                new String[] { batchcode });

        rows = db.delete(Database.BATCHES_TABLE_NAME, Database.BATCHES_BATCHCODE + " = ?",
                new String[] { batchcode });
        if (rows == 1)
            db.setTransactionSuccessful();

        db.endTransaction();
        return true;
    } catch (Exception ex) {
        Log.d("Account", "Error in deleteBatch-->" + ex.getMessage());
        return false;
    } finally {
        if (db != null && db.isOpen())
            db.close();
    }
} // deleteBatch

private static int getDayOfWeek(int dow) {
    if (dow == 1)
        return 7;
    else
        return dow - 1;
}

public static void addClasses(SQLiteDatabase db, String batchcode,
                             String startdate, String starttime, String classes, String
period,
                             String classesperweek) throws Exception {
    try {

        // execute insert command
        ContentValues values = new ContentValues();
        values.put(Database.CLASSES_BATCHCODE, batchcode);
        values.put(Database.CLASSES_CLASSTIME, starttime);
        values.put(Database.CLASSES_CLASSPERIOD, period);
        values.put(Database.CLASSES_REMARKS, "");
        values.put(Database.CLASSES_TOPICS, "");

        String[] parts = startdate.split("-");
        int year = Integer.parseInt(parts[0]);
        int month = Integer.parseInt(parts[1]) - 1; // zero based month
        int day = Integer.parseInt(parts[2]);
    }
}

```

```

Calendar c = Calendar.getInstance();
c.set(year, month, day);

int noclasses = Integer.parseInt(classes);
int cpw = Integer.parseInt(classesperweek);

int classnumber = 1;

do {
    int dow = c.get(Calendar.DAY_OF_WEEK);

    if (getDayOfWeek(dow) <= cpw) {
        values.put(Database.CLASSES_CLASSDATE, String.format(
            "%04d-%02d-%02d", c.get(Calendar.YEAR),
            c.get(Calendar.MONTH) + 1,
            c.get(Calendar.DAY_OF_MONTH)));
    }

    long rowid = db.insert(Database.CLASSES_TABLE_NAME, null,
        values);
    Log.d("CS", "Inserted into CLASSES" + rowid);
    classnumber++;
}

c.add(Calendar.DAY_OF_MONTH, 1); // increment
} while (classnumber <= noclasses);
} catch (Exception ex) {
    Log.d("CS", "Error in addClasses -->" + ex.getMessage());
    throw ex;
}
}

// addClasses

public static ArrayList<Batch> getBatches(Context context) {
    DBHelper dbhelper = new DBHelper(context);
    SQLiteDatabase db = dbhelper.getReadableDatabase();
    Cursor batches = db.query(Database.BATCHES_TABLE_NAME, null, null,
        null, null, null, null);
    ArrayList<Batch> list = new ArrayList<Batch>();

    while (batches.moveToNext()) {
        Batch batch = Database.cursorToBatch(batches);
        String enddate = getEndDate(db, batch.getCode());
        batch.setEnddate(enddate);
        list.add(batch);
    }
    batches.close();
    db.close();
    dbhelper.close();
    return list;
}
// getBatches

public static ArrayList<Class> getClasses(Context context, String batchcode) {
    DBHelper dbhelper = new DBHelper(context);
    SQLiteDatabase db = dbhelper.getReadableDatabase();
    Cursor classes = db.query(Database.CLASSES_TABLE_NAME, null,
        Database.CLASSES_BATCHCODE + " = ?",
        new String[] { batchcode },
        null, null, Database.CLASSES_CLASSDATE, null);

    ArrayList<Class> list = new ArrayList<Class>();

    while (classes.moveToNext()) {
        Class cls = Database.cursorToClass(classes);
        list.add(cls);
    }
}

```

```

    }

    classes.close();
    db.close();
    dbhelper.close();
    return list;
} // getBatches

public static String getEndDate(SQLiteDatabase db, String batchcode) {
    Cursor cursor = db.query(Database.CLASSES_TABLE_NAME,
        new String[] { Database.CLASSES_CLASSDATE },
        Database.CLASSES_BATCHCODE + "=?",
        new String[] { batchcode },
        null, null, Database.CLASSES_CLASSDATE + " desc", "1");
    cursor.moveToFirst();
    String enddate = cursor.getString(cursor.getColumnIndex(Database.CLASSES_CLASSDATE));
    cursor.close();
    return enddate;
}

public static Batch getBatch (SQLiteDatabase db, String batchcode) {
    Cursor batches = db.query(Database.BATCHES_TABLE_NAME, null,
        Database.BATCHES_BATCHCODE + " = ?",
        new String [] { batchcode },
        null, null, null);
    Batch batch;
    if ( batches.moveToFirst() )
        batch = Database.cursorToBatch(batches);
    else
        batch = null;
    batches.close();
    return batch;
}

public static Batch getBatch(Context context, String batchcode) {
    DBHelper dbhelper = new DBHelper(context);
    SQLiteDatabase db = dbhelper.getReadableDatabase();
    Batch batch = getBatch(db,batchcode);
    db.close();
    dbhelper.close();
    return batch;
}

} // getBatch

public static Calendar getCalendar(String date) {

    String [] parts = date.split("-");
    Calendar c = Calendar.getInstance();
    c.set( Integer.parseInt( parts[0] ), Integer.parseInt( parts[1] ) -1, Integer.parseInt(
parts[2]));
    return c;
}

public static Class getClass(Context context, String classid) {
    DBHelper dbhelper = new DBHelper(context);
    SQLiteDatabase db = dbhelper.getReadableDatabase();
    Cursor classes = db.query(Database.CLASSES_TABLE_NAME, null,
        Database.CLASSES_CLASSES_ID + " = ?",
        new String [] { classid },
        null, null, null);
    Class clas;
    if ( classes.moveToFirst() )
        clas = Database.cursorToClass(classes);
    else
        clas = null;

    classes.close();
    db.close();
}

```

```

        dbhelper.close();
        return clas;
    } // getBatch
}

```

## DBHelper

```

import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.util.Log;

public class DBHelper extends SQLiteOpenHelper {
    public static final int DB_VERSION = 1;
    public static final String DB_NAME = "cs.db";

    public DBHelper(Context ctx) {
        super(ctx, DB_NAME, null, DB_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        createTables(db);
    }

    @Override
    public void onUpgrade(SQLiteDatabase arg0, int arg1, int arg2) {
    }

    public void createTables(SQLiteDatabase database) {
        String batches_table_sql = "create table " + Database.BATCHES_TABLE_NAME + " ( " +
            Database.BATCHES_ID + " integer primary key autoincrement," +
            Database.BATCHES_BATCHCODE + " TEXT," +
            Database.BATCHES_COURSE + " TEXT," +
            Database.BATCHES_STARTDATE + " TEXT," +
            Database.BATCHES_STARTTIME + " TEXT," +
            Database.BATCHES_CLASSES + " integer," +
            Database.BATCHES_PERIOD + " integer," +
            Database.BATCHES_CLASSESPERWEEK + " integer," +
            Database.BATCHES_REMARKS + " TEXT)";

        String classes_table_sql = "create table " + Database.CLASSES_TABLE_NAME + " ( " +
            Database.CLASSES_CLASSES_ID + " integer primary key autoincrement," +
            Database.CLASSES_BATCHCODE + " TEXT," +
            Database.CLASSES_CLASSDATE + " TEXT," +
            Database.CLASSES_CLASSTIME + " TEXT," +
            Database.CLASSES_CLASSPERIOD + " integer," +
            Database.CLASSES_TOPICS + " TEXT," +
            Database.CLASSES_REMARKS + " TEXT)";

        try {
            database.execSQL(batches_table_sql);
            database.execSQL("insert into batches (batchcode,course,
startdate,starttime,classes,period,classestperweek,remarks)"
                + "values ('HB2404','Hibernate','2012-04-24','19:00',6,90,6,'Short
course')");
        }
    }
}

```

```

        database.execSQL(classes_table_sql);

        database.execSQL("insert into classes
(batchcode,classdate,classtime,period,topics,remarks)"
        + "values ('HB2404','2012-04-24','19:00',90,null,null)");
        database.execSQL("insert into classes
(batchcode,classdate,classtime,period,topics,remarks)"
        + "values ('HB2404','2012-04-25','19:00',90,null,null)");
        database.execSQL("insert into classes
(batchcode,classdate,classtime,period,topics,remarks)"
        + "values ('HB2404','2012-04-26','19:00',90,null,null)");
        database.execSQL("insert into classes
(batchcode,classdate,classtime,period,topics,remarks)"
        + "values ('HB2404','2012-04-27','19:00',90,null,null)");
        database.execSQL("insert into classes
(batchcode,classdate,classtime,period,topics,remarks)"
        + "values ('HB2404','2012-04-28','19:00',90,null,null)");
        database.execSQL("insert into classes
(batchcode,classdate,classtime,period,topics,remarks)"
        + "values ('HB2404','2012-04-30','19:00',90,null,'Last class')");

        Log.d("CS","Tables created!");

    }
    catch(Exception ex) {
        Log.d("CS", "Error in DBHelper.onCreate() : " + ex.getMessage());
    }
}
}

```

### ListBatchesActivity

```

import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.ListView;

public class ListBatchesActivity extends Activity {

    ListView listBatches;
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.listbatches);
    }

    @Override
    public void onStart() {
        super.onStart();
        listBatches = (ListView) this.findViewById(R.id.listBatches);
        BatchesAdapter adapter = new BatchesAdapter(this);
        listBatches.setAdapter(adapter);
    }

    public void addBatch(View v) {
        Intent intent = new Intent(this, AddBatchActivity.class);
        startActivity(intent);
    }
}

```

## ListClassesActivity

```
import android.app.Activity;
import android.content.Intent;
import android.graphics.Color;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.widget.ImageButton;
import android.widget.TableLayout;
import android.widget.TableRow;
import android.widget.TextView;

import java.util.List;

public class ListClassesActivity extends Activity {

    String batchcode;
    TableLayout tableClasses;
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.listclasses);

        // get batchcode using intent
        batchcode = getIntent().getStringExtra("batchcode");
        tableClasses = (TableLayout) this.findViewById( R.id.tableClasses );
    }

    @Override
    public void onStart() {
        super.onStart();
        deleteRowsFromTable();
        addRowsToTable(tableClasses,batchcode);
    }

    public void deleteRowsFromTable() {
        if ( tableClasses.getChildCount() > 2)
            tableClasses.removeViews(2,tableClasses.getChildCount() - 2);
    }

    private void addRowsToTable(TableLayout table, String batchcode) {

        List<Class> classes = Database.getClasses(this, batchcode);

        TableRow tr = new TableRow(this);
        tr.setLayoutParams(new TableLayout.LayoutParams(TableLayout.LayoutParams.MATCH_PARENT,
        TableLayout.LayoutParams.WRAP_CONTENT));

        int classno = 1;
        for(final Class c : classes) {
            TableRow row = (TableRow) LayoutInflater.from(this).inflate(R.layout.classrow, null);

            ((TextView)row.findViewById(R.id.textNo)).setText( String.valueOf(classno));
            ((TextView)row.findViewById(R.id.textDate)).setText(c.getClassDate());
            ((TextView)row.findViewById(R.id.textTime)).setText(c.getClassTime());

            // handle update button
            ImageButton btnUpdate = (ImageButton) row.findViewById(R.id.btnUpdate);
            btnUpdate.setOnClickListener( new View.OnClickListener() {
                @Override
                public void onClick(View v) {
                    Intent intent = new Intent(
ListClassesActivity.this,UpdateClassActivity.class);
                    intent.putExtra("classid", c.getId());
                    startActivity(intent);
                }
            });
        }
    }
}
```

```

        });
    });

    table.addView(row);

    TableRow line = new TableRow(this);
    TextView tv = new TextView(this);
    tv.setBackgroundColor(Color.RED);
    TableRow.LayoutParams lp = new
    TableRow.LayoutParams(TableLayout.LayoutParams.MATCH_PARENT, 3);
    lp.span = 4;
    tv.setLayoutParams(lp);

    line.addView(tv);

    table.addView(line);

    classno++;
}
}

}

```

### UpdateBatchActivity

```

import android.app.Activity;
import android.app.AlertDialog;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.app.TimePickerDialog;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.TimePicker;
import android.widget.Toast;

public class UpdateBatchActivity extends Activity {
    private static final int DATE_DIALOG = 1;
    private static final int TIME_DIALOG = 2;
    private static final int DELETE_ALERT_DIALOG = 3;

    private int day, month, year, hours, mins;
    private TextView textStartDate, textStartTime, textClasses, textClassesPerWeek;
    private EditText editBatchcode, editCourse, editPeriod, editRemarks;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.updatebatch);

        textStartDate = (TextView) this.findViewById(R.id.textStartDate);
        textStartTime = (TextView) this.findViewById(R.id.textStartTime);

        editBatchcode = (EditText) this.findViewById(R.id.editBatchCode);
        editCourse = (EditText) this.findViewById(R.id.editCourse);
        editPeriod = (EditText) this.findViewById(R.id.editPeriod);
        textClasses = (TextView) this.findViewById(R.id.textClasses);
        textClassesPerWeek = (TextView) this.findViewById(R.id.textClassesPerWeek);
        editRemarks = (EditText) this.findViewById(R.id.editRemarks);
    }
}

```

```

// get details from database
String batchcode = getIntent().getStringExtra("batchcode");
Batch batch = Database.getBatch(this, batchcode);
if ( batch == null)
{
    // error
}
else
{
    editBatchcode.setText( batch.getCode());
    editCourse.setText( batch.getCourse());
    textStartDate.setText( batch.getStartdate());
    textStartTime.setText( batch.getStarttime());
    editPeriod.setText( batch.getPeriod());
    textClasses.setText( batch.getClasses());
    textClassesPerWeek.setText( batch.getClassesperweek());
    editRemarks.setText( batch.getRemarks());

    setDateToStartdate( batch.getStartdate());
    setTimeToStartTime( batch.getStarttime());
}
}

private void setDateToStartdate(String startdate) {
    String [] parts = startdate.split("-");
    day = Integer.parseInt( parts[2]);
    month =Integer.parseInt( parts[1]);
    year = Integer.parseInt( parts[0]);
}

private void setTimeToStartTime(String starttime) {
    String [] parts = starttime.split(":");
    hours = Integer.parseInt( parts[0]);
    mins =Integer.parseInt( parts[1]);
}

public void updateBatch(View v) {

    boolean done = Database.updateBatch(this,
        editBatchcode.getText().toString(),
        editCourse.getText().toString(),
        textStartTime.getText().toString(),
        editPeriod.getText().toString(),
        editRemarks.getText().toString());

    if ( done )
        Toast.makeText(this,"Updated batch successfully!", Toast.LENGTH_LONG).show();
    else
        Toast.makeText(this,"Sorry! Could not update batch!", Toast.LENGTH_LONG).show();
}

public void deleteBatch(View v) {
    this.showDialog(DELETE_ALERT_DIALOG);
}

public void showDatePicker(View v) {
    showDialog(DATE_DIALOG);
}

public void showTimePicker(View v) {

```

```

        showAlertDialog(TIME_DIALOG);
    }

    @Override
    protected Dialog onCreateDialog(int id) {
        super.onCreateDialog(id);

        switch (id) {
            case DATE_DIALOG:
                return new DatePickerDialog(this, dateSetListener, year, month, day);
            case TIME_DIALOG:
                return new TimePickerDialog(this, timeSetListener, hours, mins, false);
            case DELETE_ALERT_DIALOG:
                return getAlertDialog();
        }
        return null;
    }

    private DatePickerDialog.OnDateSetListener dateSetListener = new
DatePickerDialog.OnDateSetListener() {

    public void onDateSet(DatePicker view, int pYear, int pMonth, int pDay) {
        year = pYear;
        month = pMonth;
        day = pDay;
        updateDateDisplay();
    }
};

private TimePickerDialog.OnTimeSetListener timeSetListener =
new TimePickerDialog.OnTimeSetListener() {

    @Override
    public void onTimeSet(TimePicker arg0, int pHours, int pMins) {
        hours = pHours;
        mins = pMins;
        updateTimeDisplay();
    }
};

private void updateDateDisplay() {
    // Month is 0 based so add 1
    textStartDate.setText(String.format("%04d-%02d-%02d", year, month + 1, day));
}

private void updateTimeDisplay() {
    // Month is 0 based so add 1
    textStartTime.setText(String.format("%02d:%02d", hours, mins));
}

public Dialog getAlertDialog() {

    AlertDialog.Builder builder = new AlertDialog.Builder(this);
    builder.setMessage("Do you want to delete current batch?")
        .setCancelable(false)
        .setPositiveButton("Yes",
            new DialogInterface.OnClickListener() {
                public void onClick(DialogInterface dialog, int id) {

                    boolean done = Database.deleteBatch(UpdateBatchActivity.this,
editBatchcode.getText().toString());
                }
            }
        );
}
}

```

```

        if ( done ) {
            Toast.makeText(UpdateBatchActivity.this,"Deleted batch
successfully!", Toast.LENGTH_LONG).show();
            UpdateBatchActivity.this.finish();
        }
        else
            Toast.makeText(UpdateBatchActivity.this,"Sorry! Could not
delete batch!", Toast.LENGTH_LONG).show();
    }
}
.setNegativeButton("No", new DialogInterface.OnClickListener() {
    public void onClick(DialogInterface dialog, int id) {
        dialog.cancel();
    }
});
return builder.create();
}
}

```

### UpdateClassActivity

```

import android.app.Activity;
import android.app.AlertDialog;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.app.TimePickerDialog;
import android.content.DialogInterface;
import android.os.Bundle;
import android.view.View;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.TextView;
import android.widget.TimePicker;
import android.widget.Toast;

public class UpdateClassActivity extends Activity {
    private static final int TIME_DIALOG = 1;
    private static final int CANCEL_ALERT_DIALOG = 2;
    private static final int DELETE_ALERT_DIALOG = 3;

    private int day, month, year, hours, mins;
    private TextView textClassDate, textClassTime, textBatchCode;
    private EditText editPeriod,editRemarks, editTopics;

    private String classid;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.updateclass);

        textClassDate = (TextView) this.findViewById(R.id.textClassDate);
        textClassTime = (TextView) this.findViewById(R.id.textClassTime);

        textBatchCode = (TextView) this.findViewById(R.id.textBatchCode);
        editPeriod = (EditText) this.findViewById(R.id.editPeriod) ;
        editTopics = (EditText) this.findViewById(R.id.editTopics) ;
        editRemarks = (EditText) this.findViewById(R.id.editRemarks) ;

        // get details from database
        classid = getIntent().getStringExtra("classid");
    }
}

```

```

Class clas = Database.getClass(this, classid);
if ( clas == null)
{
    // error
}
else
{
    textBatchCode.setText( clas.getBatchCode());
    textClassDate.setText( clas.getClassDate());
    textClassTime.setText( clas.getClassTime());
    setTimeToStartTime(clas.getClassTime());
    editPeriod.setText( clas.getPeriod());
    editTopics.setText( clas.getTopics());
    editRemarks.setText( clas.getRemarks());
}

private void setTimeToStartTime(String starttime) {
    String [] parts = starttime.split(":");
    hours = Integer.parseInt( parts[0]);
    mins =Integer.parseInt( parts[1]);
}

public void updateClass(View v) {
    boolean done = Database.updateClass(this,
        classid,
        textClassTime.getText().toString(),
        editPeriod.getText().toString(),
        editTopics.getText().toString(),
        editRemarks.getText().toString());

    if ( done )
        Toast.makeText(this,"Updated class successfully!", Toast.LENGTH_LONG).show();
    else
        Toast.makeText(this,"Sorry! Could not update class!", Toast.LENGTH_LONG).show();
}

public void deleteClass(View v) {
    this.showDialog(DELETE_ALERT_DIALOG);
}

public void cancelClass(View v) {
    this.showDialog(CANCEL_ALERT_DIALOG);
}

public void showTimePicker(View v) {
    showDialog(TIME_DIALOG);
}

@Override
protected Dialog onCreateDialog(int id) {
    super.onCreateDialog(id);

    switch (id) {
        case TIME_DIALOG:
            return new TimePickerDialog(this, timeSetListener, hours,mins, false);
        case CANCEL_ALERT_DIALOG:
            return getCancelAlertDialog();
        case DELETE_ALERT_DIALOG:
            return getDeleteAlertDialog();
    }
    return null;
}

```

```

private TimePickerDialog.OnTimeSetListener timeSetListener =
    new TimePickerDialog.OnTimeSetListener() {

        @Override
        public void onTimeSet(TimePicker arg0, int pHours, int pMins) {
            hours = pHours;
            mins = pMins;
            updateTimeDisplay();
        }
    };

private void updateTimeDisplay() {
    // Month is 0 based so add 1
    textClassTime.setText(String.format("%02d:%02d", hours,mins));
}

public Dialog getDeleteAlertDialog() {
    AlertDialog.Builder builder = new AlertDialog.Builder(this);
    builder.setMessage("Do you want to delete current class?")
        .setCancelable(false)
        .setPositiveButton("Yes",
            new DialogInterface.OnClickListener() {
                public void onClick(DialogInterface dialog, int id) {

                    boolean done = Database.deleteClass(UpdateClassActivity.this,
classid);

                    if ( done ) {
                        Toast.makeText(UpdateClassActivity.this,"Deleted Class
Successfully!", Toast.LENGTH_LONG).show();
                        UpdateClassActivity.this.finish();
                    }
                    else
                        Toast.makeText(UpdateClassActivity.this,"Sorry! Could not
delete class!", Toast.LENGTH_LONG).show();
                }
            })
        .setNegativeButton("No", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int id) {
                dialog.cancel();
            }
        });
    return builder.create();
}

public Dialog getCancelAlertDialog() {
    AlertDialog.Builder builder = new AlertDialog.Builder(this);
    builder.setMessage("Do you want to delete current class and add another class?")
        .setCancelable(false)
        .setPositiveButton("Yes",
            new DialogInterface.OnClickListener() {
                public void onClick(DialogInterface dialog, int id) {
                    boolean done = Database.cancelClass(UpdateClassActivity.this,
textBatchCode.getText().toString(), classid);
                    if ( done ) {
                        Toast.makeText(UpdateClassActivity.this,"Cancelled current
class and added new class successfully!", Toast.LENGTH_LONG).show();
                        UpdateClassActivity.this.finish();
                    }
                    else
                        Toast.makeText(UpdateClassActivity.this,"Sorry! Could not

```

```

cancel class!" , Toast.LENGTH_LONG).show();
        }
    })
.setNegativeButton("No", new DialogInterface.OnClickListener() {
    public void onClick(DialogInterface dialog, int id) {
        dialog.cancel();
    }
});
return builder.create();
}
}

```

## Layout Files

### activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.manju.myapplication">

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Button1"
        android:id="@+id/Bdisplay"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="177dp"
        android:onClick="onButtonClick" />

</RelativeLayout>

```

### Addbatch.xml

```

<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <TableLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:orientation="vertical"
        android:stretchColumns="1" >

        <TableRow >
            <TextView
                android:id="@+id/textView1"
                android:layout_width="100dp"
                android:layout_height="wrap_content"
                android:text="Code" />
            <EditText
                android:id="@+id/editBatchCode"

```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >

        <requestFocus />
    </EditText>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Course" />

    <EditText
        android:id="@+id/editCourse"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >
    </EditText>
</TableRow>

<TableRow >

    <TextView
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Start Date" />

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >

        <ImageButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="showDatePicker"
            android:src="@mipmap/ic_launcher" >
    </ImageButton>

        <TextView
            android:id="@+id/textStartDate"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:paddingRight="10dp"
            android:text="2012-04-24" >
    </TextView>
    </LinearLayout>
</TableRow>

<TableRow >

    <TextView
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Start Time" />

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >

        <ImageButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="showTimePicker"
            android:src="@mipmap/ic_launcher" >

```

```

        </ImageButton>

        <TextView
            android:id="@+id/textStartTime"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:paddingRight="10dp"
            android:text="19:00" >
        </TextView>
    </LinearLayout>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="No. Classes" />

    <EditText
        android:id="@+id/editClasses"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:inputType="number" >
    </EditText>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="120dp"
        android:layout_height="wrap_content"
        android:text="Classes Per Week" />

    <EditText
        android:id="@+id/editClassesPerWeek"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:inputType="number" >
    </EditText>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Period (Min)" />

    <EditText
        android:id="@+id/editPeriod"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:inputType="number" >
    </EditText>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"

```

```

        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Remarks" />

    <EditText
        android:id="@+id/editRemarks"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >
    </EditText>
</TableRow>

<TableRow >

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="addBatch"
        android:text="Add Batch" >
    </Button>
</TableRow>
</TableLayout>

</ScrollView>

```

### Addclass.xml

```

<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TableRow>
        <TextView
            android:layout_width="100dp"
            android:layout_height="wrap_content"
            android:text="Batch Code " />

        <TextView
            android:id="@+id/textBatchCode"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:textSize="20sp"
            android:text="Hib2404" >
        </TextView>
    </TableRow>
    <TableRow >
        <TextView
            android:layout_width="100dp"
            android:layout_height="wrap_content"
            android:text="Class Date" />

        <LinearLayout
            android:layout_width="wrap_content"
            android:layout_height="wrap_content" >
            <ImageButton
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:onClick="showDatePicker"
                android:src="@mipmap/ic_launcher" >
            </ImageButton>
            <TextView
                android:id="@+id/textClassDate"

```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:paddingRight="10dp"
        android:text="2012-04-24" >
    </TextView>
</LinearLayout>
</TableRow>

<TableRow >

    <TextView
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Class Time" />

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >

        <ImageButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="showTimePicker"
            android:src="@mipmap/ic_launcher" >
        </ImageButton>

        <TextView
            android:id="@+id/textClassTime"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:paddingRight="10dp"
            android:text="19:00" >
        </TextView>
    </LinearLayout>
</TableRow>

<TableRow >
    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Period (Min)" />

    <EditText
        android:id="@+id/editPeriod"
        android:layout_width="50dp"
        android:layout_height="wrap_content"
        android:inputType="number" >
    </EditText>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Topics" />

    <EditText
        android:id="@+id/editTopics"

```

```

        android:layout_width="match_parent"
        android:layout_height="wrap_content" >

    </EditText>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Remarks" />

    <EditText
        android:id="@+id/editRemarks"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >
    </EditText>
</TableRow>

<TableRow android:layout_span="2">
    <CheckBox
        android:id="@+id/chkAdjust"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Adjust Last Class?" >
    </CheckBox>
</TableRow>

<TableRow android:layout_span="2" android:gravity="center">
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="addClass"
        android:text="Add Class" >
    </Button>
</TableRow>

</TableLayout>

```

### Batch.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >
    <LinearLayout android:layout_width="match_parent"
        android:layout_height="wrap_content">

        <TextView
            android:id="@+id/textCode"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="code"
            android:textSize="16sp" />

        <TextView
            android:id="@+id/textCourse"
            android:gravity="right"
            android:layout_weight="1"
            android:layout_width="wrap_content" >
    
```

```
        android:layout_height="wrap_content"
        android:textSize="16sp"
        android:text="Course"/>
    </LinearLayout>

<LinearLayout android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <TextView
        android:id="@+id/textStartDate"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="16sp"
        android:text="stdate" />

    <TextView
        android:id="@+id/textEndDate"
        android:gravity="right"
        android:layout_weight="1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="16sp"
        android:text="EndDate"/>

    </LinearLayout>

<LinearLayout android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center">

    <Button
        android:id="@+id	btnClasses"
        android:layout_width="wrap_content"
        android:layout_height="40dp"
        android:text="List Classes" />

    <Button
        android:id="@+id	btnAddClass"
        android:layout_width="wrap_content"
        android:layout_height="40dp"
        android:text="Add Class" />

    <Button
        android:id="@+id	btnUpdate"
        android:layout_width="wrap_content"
        android:layout_height="40dp"
        android:text="Update" />

    </LinearLayout>

<LinearLayout android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <TextView
        android:layout_width="match_parent"
        android:layout_height="3dp"
        android:background="#ff0000"
        android:text="" />

```

```
</LinearLayout>
```

### Classrow.xml

```
<?xml version="1.0" encoding="utf-8"?>
<TableRow xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">

    <TextView
        android:id="@+id/textNo"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="no" />

    <TextView
        android:id="@+id/textDate"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="Date" />

    <TextView
        android:id="@+id/textTime"
        android:layout_width="80dp"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:text="Time" />

    <ImageButton
        android:id="@+id	btnUpdate"
        android:layout_width="wrap_content"
        android:layout_height="30dp"
        android:layout_gravity="center"
        android:adjustViewBounds="true"
        android:src="@mipmap/ic_launcher"
        android:textSize="12sp" />

</TableRow>
```

### Listbatches.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >

    <ListView
        android:id="@+id/listBatches"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >
    </ListView>

    <Button
        android:id="@+id/butAddBatch"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="addBatch"
        android:layout_gravity="center_horizontal"
        android:text="Add New Batch" />
```

```
</LinearLayout>
```

### Listclasses.xml

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent">

    <TableLayout
        android:id="@+id/tableClasses"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:stretchColumns="*">

        <TableRow android:layout_width="match_parent"
            android:layout_height="wrap_content">
            <TextView
                android:layout_width="80dp"
                android:gravity="center"
                android:layout_height="wrap_content"
                android:text="Class No." />

            <TextView
                android:layout_width="80dp"
                android:layout_height="wrap_content"
                android:gravity="center"
                android:text="Class Date" />

            <TextView
                android:layout_width="80dp"
                android:layout_height="wrap_content"
                android:gravity="center"
                android:text="Class Time" />

            <TextView
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center"
                android:text="" />
        </TableRow>

        <TableRow android:layout_width="match_parent"
            android:layout_height="wrap_content">
            <TextView
                android:layout_width="match_parent"
                android:layout_span="4"
                android:layout_height="3dp"
                android:background="#ff0000"
                android:text="" />
        </TableRow>
    </TableLayout>
</ScrollView>
```

### Main.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="fill_parent"
```

```
    android:text="@string/hello" />  
  </LinearLayout>
```

### Updatebatch.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent" >  
  
    <TableLayout  
        android:layout_width="match_parent"  
        android:layout_height="match_parent"  
        android:orientation="vertical"  
        android:stretchColumns="1" >  
  
        <TableRow >  
  
            <TextView  
                android:id="@+id/textView1"  
                android:layout_width="100dp"  
                android:layout_height="wrap_content"  
                android:text="Code" />  
  
            <EditText  
                android:id="@+id/editBatchCode"  
                android:layout_width="wrap_content"  
                android:layout_height="wrap_content" >  
  
                <requestFocus />  
            </EditText>  
        </TableRow>  
  
        <TableRow >  
  
            <TextView  
                android:id="@+id/textView1"  
                android:layout_width="100dp"  
                android:layout_height="wrap_content"  
                android:text="Course" />  
  
            <EditText  
                android:id="@+id/editCourse"  
                android:layout_width="wrap_content"  
                android:layout_height="wrap_content" >  
        </EditText>  
    </TableRow>  
  
    <TableRow >  
  
        <TextView  
            android:layout_width="100dp"  
            android:layout_height="wrap_content"  
            android:text="Start Date" />  
  
        <LinearLayout  
            android:layout_width="wrap_content"  
            android:layout_height="wrap_content" >  
  
            <TextView  
                android:id="@+id/textStartDate"  
                android:layout_width="wrap_content"
```

```

        android:layout_height="wrap_content"
        android:paddingRight="10dp"
        android:text="2012-04-24"
        android:textSize="20sp" >

    </TextView>
</LinearLayout>
</TableRow>

<TableRow >

    <TextView
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Start Time" />

    <LinearLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >

        <ImageButton
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="showTimepicker"
            android:src="@mipmap/ic_launcher" >

        </ImageButton>

        <TextView
            android:id="@+id/textStartTime"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:paddingRight="10dp"
            android:text="19:00"
            android:textSize="20sp" >

        </TextView>
    </LinearLayout>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="No. Classes" />

    <TextView
        android:id="@+id/textClasses"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="20sp" />

</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"

```

```

        android:layout_width="120dp"
        android:layout_height="wrap_content"
        android:text="Classes Per Week" />


    <TextView
        android:id="@+id/textClassesPerWeek"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="20sp" />

    </TableRow>
<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Period (Min)" />

    <EditText
        android:id="@+id/editPeriod"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:inputType="number" >
    </EditText>
</TableRow>

<TableRow >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Remarks" />

    <EditText
        android:id="@+id/editRemarks"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >
    </EditText>
</TableRow>

<TableRow>
    <LinearLayout
        android:layout_span="2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" >
        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="updateBatch"
            android:text="Update" >
        </Button>

        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="deleteBatch"
            android:text="Delete" >
        </Button>
    </LinearLayout>
</TableRow>
</TableLayout>

```

```
</ScrollView>
```

### Updateclass.xml

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="wrap_content">
    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical" >

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content" >

                <TextView
                    android:layout_width="100dp"
                    android:layout_height="wrap_content"
                    android:text="Batch Code " />

                <TextView
                    android:id="@+id/textBatchCode"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:text="Hib2404"
                    android:textSize="20sp" >
                </TextView>
            </LinearLayout>

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content" >

                <TextView
                    android:layout_width="100dp"
                    android:layout_height="wrap_content"
                    android:text="Class Date" />

                <TextView
                    android:id="@+id/textClassDate"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:text="2012-04-24"
                    android:textSize="20sp" >
                </TextView>
            </LinearLayout>

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content" >

                <TextView
                    android:layout_width="100dp"
                    android:layout_height="wrap_content"
                    android:text="Class Time" />

                <ImageButton
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:onClick="showTimePicker"
                    android:src="@mipmap/ic_launcher" >
                </ImageButton>
            </LinearLayout>
    </LinearLayout>
</ScrollView>
```

```
<TextView
    android:id="@+id/textClassTime"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:paddingRight="10dp"
    android:text="00:00"
    android:textSize="20sp" >
</TextView>
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Period (Min)" />

    <EditText
        android:id="@+id/editPeriod"
        android:layout_width="50dp"
        android:layout_height="wrap_content"
        android:inputType="number" >
    </EditText>
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Topics" />

    <EditText
        android:id="@+id/editTopics"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >
    </EditText>
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="100dp"
        android:layout_height="wrap_content"
        android:text="Remarks" />

    <EditText
        android:id="@+id/editRemarks"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" >
    </EditText>
</LinearLayout>

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center" >
```

```

        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:onClick="updateClass"
            android:text="Update" >
    </Button>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="cancelClass"
        android:text="Cancel Class" >
    </Button>

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:onClick="deleteClass"
        android:text="Delete" >
    </Button>
</LinearLayout>
</LinearLayout>
</ScrollView>

```

## String.xml

```

<resources>
    <string name="app_name">My Application</string>
    <string name="action_settings">Settings</string>
    <string name="hello">Hello World, ClassSchedulerActivity!</string>
</resources>

```

## Manifest.xml file

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.manju.myapplication">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity
            android:name=".MainActivity"
            android:label="@string/app_name"
            android:theme="@style/AppTheme.NoActionBar">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:label="List Of Batches" android:name=".ListBatchesActivity"/>

        <activity android:label="Add Batch" android:name=".AddBatchActivity"/>
    </application>
</manifest>

```

```

<activity android:label="List Classes" android:name=".ListClassesActivity"/>
<activity android:label="Add Class" android:name=".AddClassActivity"/>
<activity android:label="Update Batch" android:name=".UpdateBatchActivity"/>
<activity android:label="Update Class" android:name=".UpdateClassActivity"/>

</application>
</manifest>
*****

```

## Bank details app

### JAVA FILES:

#### ListAccounts.java

```

import android.os.Bundle;

import android.support.v7.app.AppCompatActivity;
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.util.Log;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ListView;
import android.widget.SimpleCursorAdapter;
import android.widget.TextView;
import android.widget.Toast;

public class ListAccounts extends AppCompatActivity {

    ListView listAccounts;
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.listaccounts);
        listAccounts = (ListView) this.findViewById(R.id.listAccounts);
        listAccounts.setOnItemClickListener( new OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View selectedView, int arg2,long arg3)
            {
                TextView textAccountId = (TextView)
                selectedView.findViewById(R.id.textAccountId);
                Log.d("Accounts", "Selected Account Id : " + textAccountId.getText().toString());
                Intent intent = new Intent(ListAccounts.this, UpdateAccount.class);
                intent.putExtra("accountid", textAccountId.getText().toString());
                startActivity(intent);
            }
        });
    }

    @Override

```

```

public boolean onCreateOptionsMenu(Menu menu) {
    return Utils.inflateMenu(this,menu);
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    return Utils.handleMenuOption(this,item);
}

@Override
public void onStart() {
    super.onStart();
    try {
        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getReadableDatabase();
        Cursor accounts = db.query(
Database.ACCOUNTS_TABLE_NAME,null,null,null,null,null,null);
        String from [] = { Database.ACCOUNTS_ID, Database.ACCOUNTS_BANK,
Database.ACCOUNTS HOLDERS, Database.ACCOUNTS_BALANCE };
        int to [] = { R.id.textAccountId,R.id.textBank, R.id.textHolder, R.id.textBalance};

        SimpleCursorAdapter ca = new SimpleCursorAdapter(this,R.layout.account,
accounts,from,to);

        ListView listAccounts = (ListView) this.findViewById( R.id.listAccounts);
        listAccounts.setAdapter(ca);
        dbhelper.close();
    } catch (Exception ex) {
        Toast.makeText(this, ex.getMessage(), Toast.LENGTH_LONG).show();
    }
}

public void addAccount(View v)
{
    Intent intent = new Intent(this,AddAccount.class);
    startActivity(intent);
}

public void addTransaction(View v)
{
    Intent intent = new Intent(this,AddTransaction.class);
    startActivity(intent);
}

public void recentTransactions(View v)
{
    Intent intent = new Intent(this,ListRecentTransactions.class);
    startActivity(intent);
}
}

```

### Account.java

```

public class Account {
    private String id,acno,bank,branch,holder;

    public String getId() {
        return id;
    }
}

```

```
public void setId(String id) {
    this.id = id;
}

public String getAcno() {
    return acno;
}

public void setAcno(String acno) {
    this.acno = acno;
}

public String getBank() {
    return bank;
}

public void setBank(String bank) {
    this.bank = bank;
}

public String getBranch() {
    return branch;
}

public void setBranch(String branch) {
    this.branch = branch;
}

public String getHolder() {
    return holder;
}

public void setHolder(String holder) {
    this.holder = holder;
}

@Override
public String toString() {
    return holder + " - " + bank;
}

}
```

### AddAccount.java

```
import android.app.Activity;
import android.content.ContentValues;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.util.Log;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

public class AddAccount extends Activity {

    @Override
```

```

public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.addaccount);
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    return Utils.inflateMenu(this,menu);
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    return Utils.handleMenuOption(this,item);
}

public void addAccount(View v) {
    // get access to views
    EditText editAcno = (EditText) this.findViewById(R.id.editAcno);
    EditText editCno = (EditText) this.findViewById(R.id.editCno);
    EditText editHolders = (EditText) this.findViewById(R.id.editHolders);
    EditText editBankName = (EditText) this.findViewById(R.id.editBankName);
    EditText editBranchName = (EditText) this.findViewById(R.id.editBranchName);
    EditText editAddress = (EditText) this.findViewById(R.id.editAddress);
    EditText editIFSC = (EditText) this.findViewById(R.id.editIFSC);
    EditText editMICR = (EditText) this.findViewById(R.id.editMICR);
    EditText editBalance = (EditText) this.findViewById(R.id.editBalance);
    EditText editRemarks = (EditText) this.findViewById(R.id.editRemarks);

    try {
        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getWritableDatabase();
        Log.d("Account","Got Writable database");
        // execute insert command

        ContentValues values = new ContentValues();
        values.put( Database.ACCOUNTS_ACNO, editAcno.getText().toString());
        values.put( Database.ACCOUNTS_CNO, editCno.getText().toString());
        values.put( Database.ACCOUNTS HOLDERS, editHolders.getText().toString());
        values.put( Database.ACCOUNTS_BANK, editBankName.getText().toString());
        values.put( Database.ACCOUNTS_BRANCH, editBranchName.getText().toString());
        values.put( Database.ACCOUNTS_ADDRESS, editAddress.getText().toString());
        values.put( Database.ACCOUNTS_IFSC, editIFSC.getText().toString());
        values.put( Database.ACCOUNTS_MICR, editMICR.getText().toString());
        values.put( Database.ACCOUNTS_BALANCE, editBalance.getText().toString());
        values.put( Database.ACCOUNTS_REMARKS, editRemarks.getText().toString());

        long rows = db.insert(Database.ACCOUNTS_TABLE_NAME, null, values);
        db.close();
        if ( rows > 0 ) {
            Toast.makeText(this, "Added Account Successfully!", Toast.LENGTH_LONG).show();
            this.finish();
        }
        else
            Toast.makeText(this, "Sorry! Could not add account!", Toast.LENGTH_LONG).show();
    } catch (Exception ex) {
}
}

```

```

        Toast.makeText(this, ex.getMessage(), Toast.LENGTH_LONG).show();
    }

}

```

## AddTransaction

```

import java.util.Calendar;

import android.app.Activity;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.Toast;

public class AddTransaction extends Activity {
    private Spinner spinnerAccounts;
    private TextView textTransDate;
    private int day, month, year;
    private final int DATE_DIALOG = 1;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.add_transaction);
        spinnerAccounts = (Spinner) this.findViewById(R.id.spinnerAccounts);
        Database.populateAccounts(spinnerAccounts);
        textTransDate = (TextView) this.findViewById(R.id.textTransDate);
        // get the current date
        final Calendar c = Calendar.getInstance();
        year = c.get(Calendar.YEAR);
        month = c.get(Calendar.MONTH);
        day = c.get(Calendar.DAY_OF_MONTH);
        updateDateDisplay();
    }

    private DatePickerDialog.OnDateSetListener dateSetListener =
        new DatePickerDialog.OnDateSetListener() {

            public void onDateSet(DatePicker view, int pYear, int pMonth, int pDay) {
                year = pYear;
                month = pMonth;
                day = pDay;
                updateDateDisplay();
            }
        };

    @Override
    public void onStart() {
        super.onStart();

```

```

}

public void showDateDialog(View v) {
    showDialog(DATE_DIALOG);
}

@Override
protected Dialog onCreateDialog(int id) {
    super.onCreateDialog(id);

    switch (id) {
        case DATE_DIALOG:
            return new DatePickerDialog(this,
                dateSetListener, year, month, day);
    }
    return null;
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    return Utils.inflateMenu(this,menu);
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    return Utils.handleMenuOption(this,item);
}

private void updateDateDisplay() {
    // Month is 0 based so add 1
    textTransDate.setText( String.format("%d-%d-%d",year,month + 1,day));
}

public void addTransaction(View v) {
    // get access to views
    String accountId = Database.getAccountId(spinnerAccounts);
    RadioButton radioDeposit = (RadioButton) this.findViewById(R.id.radioDeposit);

    EditText editTransAmount = (EditText) this.findViewById(R.id.editTransAmount);
    EditText editChequeNo = (EditText) this.findViewById(R.id.editChequeNo);
    EditText editChequeParty = (EditText) this.findViewById(R.id.editChequeParty);
    EditText editChequeDetails = (EditText) this.findViewById(R.id.editChequeDetails);
    EditText editRemarks = (EditText) this.findViewById(R.id.editRemarks);

    boolean done = Database.addTransaction(this,
        accountId,
        radioDeposit.isChecked() ? "d" : "w",    // trans type
        textTransDate.getText().toString(),
        editTransAmount.getText().toString(),
        editChequeNo.getText().toString(),
        editChequeParty.getText().toString(),
        editChequeDetails.getText().toString(),
        editRemarks.getText().toString());

    if ( done )
        Toast.makeText(this,"Added Transaction Successfully!", Toast.LENGTH_LONG).show();
    else
        Toast.makeText(this, "Sorry Could Not Add Transaction!", Toast.LENGTH_LONG).show();
} // addDeposit
}

```

## Database

```
import java.util.ArrayList;

import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.util.Log;
import android.widget.ArrayAdapter;
import android.widget.DatePicker;
import android.widget.Spinner;

public class Database {
    public static final String ACCOUNTS_TABLE_NAME = "accounts";
    public static final String ACCOUNTS_ID = "_id";
    public static final String ACCOUNTS_ACNO = "acno";
    public static final String ACCOUNTS_HOLDERS = "holders";
    public static final String ACCOUNTS_CNO = "customerno";
    public static final String ACCOUNTS_BANK = "bank";
    public static final String ACCOUNTS_BRANCH = "branch";
    public static final String ACCOUNTS_ADDRESS = "address";
    public static final String ACCOUNTS_IFSC = "ifsc";
    public static final String ACCOUNTS_MICR = "micr";
    public static final String ACCOUNTS_BALANCE = "balance";
    public static final String ACCOUNTS_LASTTRANS = "last_tran_date";
    public static final String ACCOUNTS_REMARKS = "remarks";

    public static final String TRANSACTIONS_TABLE_NAME = "transactions";
    public static final String TRANSACTIONS_ID = "_id";
    public static final String TRANSACTIONS_ACCOUNT_ID = "account_id";
    public static final String TRANSACTIONS_TRANSDATE = "transdate";
    public static final String TRANSACTIONS_TRANSTYPE = "transtype";
    public static final String TRANSACTIONS_TRANSAMOUNT = "transamount";
    public static final String TRANSACTIONS_CHEQUE_NO = "cheque_no";
    public static final String TRANSACTIONS_CHEQUE_PARTY = "cheque_party";
    public static final String TRANSACTIONS_CHEQUE_DETAILS = "cheque_details";
    public static final String TRANSACTIONS_REMARKS = "remarks";

    public static Account cursorToAccount(Cursor accounts) {
        Account account = new Account();
        account.setId( accounts.getString(accounts.getColumnIndex(Database.ACCOUNTS_ID)) );

        account.setHolder(accounts.getString(accounts.getColumnIndex(Database.ACCOUNTS_HOLDERS)));
        account.setBank( accounts.getString(accounts.getColumnIndex(Database.ACCOUNTS_BANK)) );
        return account;
    }

    public static void populateAccounts(Spinner spinnerAccounts) {
        Context context = spinnerAccounts.getContext();
        DBHelper dbhelper = new DBHelper(context);
        SQLiteDatabase db = dbhelper.getReadableDatabase();
        Cursor accounts = db.query(Database.ACCOUNTS_TABLE_NAME, null, null,null, null, null,
null);
        ArrayList<Account> list = new ArrayList<Account>();

        // adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
        while (accounts.moveToNext()) {
            Account account = Database.cursorToAccount(accounts);
            list.add(account);
        }
        accounts.close();
        db.close();
        dbhelper.close();
    }
}
```

```

        ArrayAdapter<Account> adapter = new ArrayAdapter<Account>(context,
        android.R.layout.simple_spinner_item, list);
        spinnerAccounts.setAdapter(adapter);
    }

    public static boolean updateAccountBalance(SQLiteDatabase db, String accountId, String
transType, double amount, String transDate) {
        try {
            if ( transType.equals("d"))
                db.execSQL( " update " + Database.ACCOUNTS_TABLE_NAME + " set balance = balance +
" + amount + " where " + Database.ACCOUNTS_ID + " = " + accountId);
            else
                db.execSQL( " update " + Database.ACCOUNTS_TABLE_NAME + " set balance = balance -
" + amount + " where " + Database.ACCOUNTS_ID + " = " + accountId);
            return true;
        }
        catch(Exception ex) {
            Log.d("Accounts", "Error in UpdateBalance : " + ex.getMessage());
            return false;
        }
    }

    public static String getAccountId(Spinner spinnerAccounts) {
        Account account = (Account) spinnerAccounts.getSelectedItem();
        return account.getId();
    }

    public static String getDateFromDatePicker(DatePicker dp) {
        return dp.getYear() + "-" + dp.getMonth() + 1 + "-" + dp.getDayOfMonth();
    }

    public static boolean addTransaction(Context context, String accountId, String transType,
String transDate, String transAmount, String chequeNo, String chequeParty,
String chequeDetails, String remarks) {

        DBHelper dbhelper = null;
        SQLiteDatabase db = null;
        try {
            dbhelper = new DBHelper(context);
            db = dbhelper.getWritableDatabase();
            db.beginTransaction();

            // execute insert command
            ContentValues values = new ContentValues();
            values.put(Database.TRANSACTIONS_ACCOUNT_ID, accountId);
            values.put(Database.TRANSACTIONS_TRANSDATE, transDate);
            values.put(Database.TRANSACTIONS_TRANSAMOUNT, transAmount);
            values.put(Database.TRANSACTIONS_CHEQUE_NO, chequeNo);
            values.put(Database.TRANSACTIONS_CHEQUE_PARTY, chequeParty);
            values.put(Database.TRANSACTIONS_CHEQUE_DETAILS, chequeDetails);
            values.put(Database.TRANSACTIONS_REMARKS, remarks);
            values.put(Database.TRANSACTIONS_TRANSTYPE, transType);

            long rowid = db.insert(Database.TRANSACTIONS_TABLE_NAME, null, values);
            Log.d("Accounts", "Inserted into TRANSACTIONS " + rowid);
            if ( rowid != -1) {
                // update Accounts Table
                boolean done = Database.updateAccountBalance(db,accountId,transType,
Double.parseDouble(transAmount),transDate);
                Log.d("Accounts", "Updated Account Balance");
                if ( done ) {
                    db.setTransactionSuccessful();
                    db.endTransaction();
                    return true;
                }
            } else {
        }
    }
}

```

```

        db.endTransaction();
        return false;
    }
}
else
    return false;
}
catch(Exception ex) {
    Log.d("Account", "Error in addTransaction -->" + ex.getMessage());
    return false;
}
finally {
    if (db != null && db.isOpen()) {
        db.close();
    }
}
} // addTransaction
}

```

### DBHelper.java

```

import android.content.Context;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import android.util.Log;

public class DBHelper extends SQLiteOpenHelper {
    public static final int DB_VERSION = 1;
    public static final String DB_NAME = "accounts.db";

    public DBHelper(Context ctx) {
        super(ctx, DB_NAME, null, DB_VERSION);
    }

    @Override
    public void onCreate(SQLiteDatabase db) {
        createTables(db);
    }

    @Override
    public void onUpgrade(SQLiteDatabase arg0, int arg1, int arg2) {
    }

    public void createTables(SQLiteDatabase database) {
        String account_table_sql = "create table " + Database.ACCOUNTS_TABLE_NAME + " ( " +
            Database.ACCOUNTS_ID + " integer primary key autoincrement," +
            Database.ACCOUNTS_ACNO + " TEXT," +
            Database.ACCOUNTS HOLDERS + " TEXT," +
            Database.ACCOUNTS_CNO + " TEXT," +
            Database.ACCOUNTS_BANK + " TEXT," +
            Database.ACCOUNTS_BRANCH + " TEXT," +
            Database.ACCOUNTS_ADDRESS + " TEXT," +
            Database.ACCOUNTS_IFSC + " TEXT," +
            Database.ACCOUNTS_MICR + " TEXT," +
            Database.ACCOUNTS_BALANCE + " FLOAT," +
            Database.ACCOUNTS_LASTTRANS + " TEXT," +
            Database.ACCOUNTS_REMARKS + " TEXT)";

        String transactions_table_sql = "create table " + Database.TRANSACTIONS_TABLE_NAME + " (

```

```
" +
        Database.TRANSACTIONS_ID + " integer primary key autoincrement," +
        Database.TRANSACTIONS_ACCOUNT_ID + " TEXT," +
        Database.TRANSACTIONS_TRANSDATE + " TEXT," +
        Database.TRANSACTIONS_TRANSAMOUNT + " FLOAT," +
        Database.TRANSACTIONS_TRANSTYPE + " TEXT," +
        Database.TRANSACTIONS_CHEQUE_NO + " TEXT," +
        Database.TRANSACTIONS_CHEQUE_PARTY + " TEXT," +
        Database.TRANSACTIONS_CHEQUE_DETAILS + " TEXT," +
        Database.TRANSACTIONS_REMARKS + " TEXT)";

try {
    database.execSQL(account_table_sql);
    database.execSQL(transactions_table_sql);
    Log.d("Accounts", "Tables created!");
}

catch(Exception ex) {
    Log.d("Accounts", "Error in DBHelper.onCreate() : " + ex.getMessage());
}
}
```

## ListAccountTransactions.java

```
import java.util.ArrayList;
import java.util.LinkedHashMap;
import java.util.Map;

import android.app.Activity;
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.opengl.Visibility;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ListView;
import android.widget.SimpleAdapter;
import android.widget.TextView;
import android.widget.Toast;

public class ListAccountTransactions extends Activity {
    ListView listTransactions;
    String accountId;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.list_account_transactions);
        accountId = this.getIntent().getStringExtra("accountid");
        listTransactions = (ListView) this.findViewById(R.id.listTransactions);

        listTransactions.setOnItemClickListener(new OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View selectedView,
                    int arg2, long arg3) {
                TextView textTransId = (TextView) selectedView
                        .findViewById(R.id.textTransId);
            }
        });
    }
}
```

```

        Intent intent = new Intent(ListAccountTransactions.this,
            TransactionDetails.class);
        intent.putExtra("transid", textTransId.getText().toString());
        startActivity(intent);
    }
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    return Utils.inflateMenu(this, menu);
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    return Utils.handleMenuOption(this, item);
}

@Override
public void onStart() {
    super.onStart();
    try {
        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getReadableDatabase();
        Cursor trans = db.query(Database.TRANSACTIONS_TABLE_NAME, null,
            Database.TRANSACTIONS_ACCOUNT_ID + " = ?",
            new String[] { accountId }, null, null,
            Database.TRANSACTIONS_TRANSDATE + " desc");

        if (trans.getCount() == 0) // no trans found
        {
            // turn off tablelayout and turnon textview for no transactions
            // display
            this.findViewById(R.id.heading).setVisibility(View.INVISIBLE);
            this.findViewById(R.id.textError).setVisibility(View.VISIBLE);
        } else {
            this.findViewById(R.id.heading).setVisibility(View.VISIBLE);
            this.findViewById(R.id.textError).setVisibility(View.INVISIBLE);
        }
    }

    ArrayList<Map<String, String>> listTrans = new ArrayList<Map<String, String>>();
    while (trans.moveToNext()) {

        // get trans details for display
        LinkedHashMap<String, String> tran = new LinkedHashMap<String, String>();
        tran.put("transid", trans.getString(trans
            .getColumnIndex(Database.TRANSACTIONS_ID)));
        tran.put("transdate", trans.getString(trans
            .getColumnIndex(Database.TRANSACTIONS_TRANSDATE)));
        String transType = trans.getString(trans
            .getColumnIndex(Database.TRANSACTIONS_TRANSTYPE));
        String transAmount = trans.getString(trans
            .getColumnIndex(Database.TRANSACTIONS_TRANSAMOUNT));
        String chequeno = trans.getString(trans
            .getColumnIndex(Database.TRANSACTIONS_CHEQUE_NO));
        String transDetails = "Cash";
        if (!chequeno.trim().equals(""))
            transDetails = "Cheque No: " + chequeno;
        tran.put("transdetails", transDetails);
        tran.put("transtype", transType);
        tran.put("transamount", transAmount);
        listTrans.add(tran);
    }
    trans.close();
    db.close();
    dbhelper.close();
}

```

```

        SimpleAdapter adapter = new SimpleAdapter(this, listTrans,
            R.layout.account_transaction, new String[] { "transid",
            "transdate", "transdetails", "transtype",
            "transamount" }, new int[] { R.id.textTransId,
            R.id.textTransDate, R.id.textTransDetails,
            R.id.textTransType, R.id.textAmount });

        listTransactions.setAdapter(adapter);
    } catch (Exception ex) {
        Toast.makeText(this, ex.getMessage(), Toast.LENGTH_LONG).show();
    }
}
}

```

### ListRecentTransactions.java

```

import java.util.ArrayList;
import java.util.LinkedHashMap;
import java.util.Map;

import android.app.Activity;
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ListView;
import android.widget.SimpleAdapter;
import android.widget.TextView;
import android.widget.Toast;

public class ListRecentTransactions extends Activity {
    ListView listTransactions;
    String fromDate,toDate,fromAmount,toAmount;
    String condition = " 1 = 1 ";
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.list_transactions);
        listTransactions = (ListView) this.findViewById(R.id.listTransactions);

        listTransactions.setOnItemClickListener( new OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> parent, View selectedView, int arg2, long arg3)
            {
                TextView textTransId = (TextView) selectedView.findViewById(R.id.textTransId);
                Intent intent = new Intent(ListRecentTransactions.this,
                TransactionDetails.class);
                intent.putExtra("transid", textTransId.getText().toString());
                startActivity(intent);
            }
        });
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        return Utils.inflateMenu(this,menu);
    }
}

```

```

}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    return Utils.handleMenuOption(this, item);
}

@Override
public void onStart() {
    super.onStart();
    try {
        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getReadableDatabase();
        Cursor trans = db.rawQuery("select t._id, acno,bank,
transdate,transamount,transtype,cheque_no,cheque_party,cheque_details, t.remarks from
transactions t inner join accounts a on ( a._id = t.account_id) order by transdate desc   LIMIT
10",null);
        if ( trans.getCount() == 0 )
            this.findViewById(R.id.textError).setVisibility(View.VISIBLE);
        else
            this.findViewById(R.id.textError).setVisibility(View.INVISIBLE);

        ArrayList<Map<String, String>> listTrans = new ArrayList<Map<String, String>>();
        while ( trans.moveToFirst() ) {
            // get trans details for display
            LinkedHashMap<String, String> tran = new LinkedHashMap<String, String>();
            tran.put("transid",
trans.getString(trans.getColumnIndex(Database.TRANSACTIONS_ID)));
            tran.put("acno", trans.getString(trans.getColumnIndex(Database.ACCOUNTS_ACNO)) +
" - " + trans.getString(trans.getColumnIndex(Database.ACCOUNTS_BANK)));
            tran.put("transdate",trans.getString(trans.getColumnIndex(Database.TRANSACTIONS_TRANSDATE)));
            tran.put("transtype",trans.getString(trans.getColumnIndex(Database.TRANSACTIONS_TRANSTYPE)));
            tran.put("transamount",trans.getString(trans.getColumnIndex(Database.TRANSACTIONS_TRANSAMOUNT)));
            tran.put("transremarks",trans.getString(trans.getColumnIndex(Database.TRANSACTIONS_REMARKS)));

            String chequeno =
trans.getString(trans.getColumnIndex(Database.TRANSACTIONS_CHEQUE_NO));
            String transDetails = "Cash";
            if ( ! chequeno.trim().equals("") )
                transDetails = "Cheque No: " + chequeno;

            tran.put("transdetails",transDetails);
            listTrans.add(tran);
        }
        trans.close();
        db.close();
        dbhelper.close();

        SimpleAdapter adapter = new SimpleAdapter(this,
listTrans,
R.layout.transaction,
new String [] {"transid", "acno", "transdate", "transdetails", "transtype",
"transamount" , "transremarks"},

new int [] { R.id.textTransId, R.id.textAcno, R.id.textTransDate,
R.id.textTransDetails, R.id.textTransType, R.id.textTransAmount, R.id.textTransRemarks});

        listTransactions.setAdapter(adapter);
    } catch (Exception ex) {
        Toast.makeText(this, ex.getMessage(), Toast.LENGTH_LONG).show();
    }
}

```

```
}
```

## SearchTransactions.java

```
import java.util.Calendar;

import android.app.Activity;
import android.app.DatePickerDialog;
import android.app.Dialog;
import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.Toast;

public class SearchTransactions extends Activity {
    private EditText editFromDate,editToDate,editFromAmount,editToAmount;
    private int fromDay, fromMonth, fromYear;
    private int toDay, toMonth, toYear;
    private final int FROM_DATE_DIALOG = 1;
    private final int TO_DATE_DIALOG = 2;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.search_transactions);
        editFromDate = (EditText) this.findViewById(R.id.editFromDate);
        editToDate = (EditText) this.findViewById(R.id.editToDate);

        editFromAmount = (EditText) this.findViewById(R.id.editFromAmount);
        editToAmount = (EditText) this.findViewById(R.id.editToAmount);

        // get the current date
        final Calendar c = Calendar.getInstance();
        fromYear = toYear = c.get(Calendar.YEAR);
        fromMonth = toMonth = c.get(Calendar.MONTH);
        toDay = c.get(Calendar.DAY_OF_MONTH);

        fromDay = 1; // from is set to 1st of the current month

        updateToDateDisplay();
        updateFromDateDisplay();
    }
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        return Utils.inflateMenu(this,menu);
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        return Utils.handleMenuItem(this,item);
    }

    private DatePickerDialog.OnDateSetListener fromDateSetListener =
```

```

        new DatePickerDialog.OnDateSetListener() {
            public void onDateSet(DatePicker view, int pYear, int pMonth, int pDay) {
                fromYear = pYear;
                fromMonth = pMonth;
                fromDay = pDay;
                updateFromDateDisplay();
            }
        };
    }

    private DatePickerDialog.OnDateSetListener toDateSetListener =
        new DatePickerDialog.OnDateSetListener() {
            public void onDateSet(DatePicker view, int pYear, int pMonth, int pDay) {
                toYear = pYear;
                toMonth = pMonth;
                toDay = pDay;
                updateToDateDisplay();
            }
        };
}

public void showFromDateDialog(View v) {
    showDialog(FROM_DATE_DIALOG);
}

public void showToDateDialog(View v) {
    showDialog(TO_DATE_DIALOG);
}

@Override
protected Dialog onCreateDialog(int id) {
    switch (id) {
        case FROM_DATE_DIALOG:
            return new DatePickerDialog(this,
                fromDateSetListener, fromYear, fromMonth, fromDay);
        case TO_DATE_DIALOG:
            return new DatePickerDialog(this,
                toDateSetListener, toYear, toMonth, toDay);
    }
    return null;
}

private void updateToDateDisplay() {
    // Month is 0 based so add 1
    editToDate.setText( String.format("%d-%d-%d", toYear, toMonth + 1, toDay));
}
private void updateFromDateDisplay() {
    // Month is 0 based so add 1
    editFromDate.setText( String.format("%d-%d-%d", fromYear, fromMonth + 1, fromDay));
}

public void searchTransactions(View v) {
    Intent intent = new Intent(this, ListTransactions.class);
    intent.putExtra("fromdate", editFromDate.getText().toString());
    intent.putExtra("todate", editToDate.getText().toString());
    intent.putExtra("fromamount", editFromAmount.getText().toString());
    intent.putExtra("toamount", editToAmount.getText().toString());
    startActivity(intent);
}

public void clearFields(View v) {

    editFromDate.setText("");
    editToDate.setText("");
    editFromAmount.setText("");
    editToAmount.setText("");
}

```

```
}
```

### TransactionDetails.java

```
import android.app.Activity;
import android.app.AlertDialog;
import android.content.DialogInterface;
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.util.Log;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;

public class TransactionDetails extends Activity {
    private String transId;
    private String accountId;
    private TextView textAcno;
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.transaction_details);

        transId = getIntent().getStringExtra("transid");
        Log.d("Account", "Trans id : " + transId);

        textAcno = (TextView) this.findViewById(R.id.textAcno);
        TextView textTransDate = (TextView) this.findViewById(R.id.textTransDate);
        TextView textTransType = (TextView) this.findViewById(R.id.textTransType);
        TextView textTransAmount = (TextView) this.findViewById(R.id.textTransAmount);
        TextView textChequeNo = (TextView) this.findViewById(R.id.textChequeNo);
        TextView textChequeParty = (TextView) this.findViewById(R.id.textChequeParty);
        TextView textChequeDetails = (TextView) this.findViewById(R.id.textChequeDetails);
        TextView textRemarks = (TextView) this.findViewById(R.id.textTransRemarks);

        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getReadableDatabase();
        Cursor tran = db.rawQuery("select
acno,account_id,transdate,transamount,transtype,cheque_no,cheque_party,cheque_details, t.remarks
from transactions t inner join accounts a on ( a._id = t.account_id) where t._id = ?",
                new String[] {transId});

        if (tran.moveToFirst()) {
            accountId = tran.getString(tran.getColumnIndex(Database.TRANSACTIONS_ACCOUNT_ID));
            textAcno.setText( tran.getString(tran.getColumnIndex(Database.ACCOUNTS_ACNO)));
            textTransDate.setText(
            tran.getString(tran.getColumnIndex(Database.TRANSACTIONS_TRANSDATE)));
            textTransType.setText(
            tran.getString(tran.getColumnIndex(Database.TRANSACTIONS_TRANSTYPE))));
```

```

        textTransAmount.setText(
tran.getString(tran.getColumnIndex(Database.TRANSACCTIONS_TRANSAMOUNT)));
        textChequeNo.setText(
tran.getString(tran.getColumnIndex(Database.TRANSACCTIONS_CHEQUE_NO)));
        textChequeParty.setText(
tran.getString(tran.getColumnIndex(Database.TRANSACCTIONS_CHEQUE_PARTY)));
        textChequeDetails.setText(
tran.getString(tran.getColumnIndex(Database.TRANSACCTIONS_CHEQUE_DETAILS)));

textRemarks.setText(tran.getString(tran.getColumnIndex(Database.TRANSACCTIONS_REMARKS)));
    }
    else
        Log.d("Accounts","No transaction found!");

        db.close();
        dbhelper.close();
    }

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    return Utils.inflateMenu(this,menu);
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    return Utils.handleMenuOption(this,item);
}

public void deleteTransaction(View v) {
    AlertDialog.Builder builder = new AlertDialog.Builder(this);
    builder.setMessage("Are you sure you want to delete this transaction?")
        .setCancelable(false)
        .setPositiveButton("Yes", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int id) {
                deleteCurrentTransaction();
            }
        })
        .setNegativeButton("No", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int id) {
                dialog.cancel();
            }
        });
    AlertDialog alert = builder.create();
    alert.show();
}

public void deleteCurrentTransaction() {
    try {
        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getWritableDatabase();
        int rows = db.delete(Database.TRANSACCTIONS_TABLE_NAME, "_id=?",
transId);
        dbhelper.close();
        if (rows == 1) {
            Toast.makeText(this, "Transaction Deleted Successfully!",
Toast.LENGTH_LONG).show();
            this.finish();
        }
    }
}

```

```

        }
    else
        Toast.makeText(this, "Could not delete transaction!", Toast.LENGTH_LONG).show();
    }
    catch (Exception ex) {
        Toast.makeText(this, ex.getMessage(), Toast.LENGTH_LONG).show();
    }
}

public void showAccountDetails(View v) {
    Intent intent = new Intent(this,UpdateAccount.class);
    intent.putExtra("accountid", accountId);
    startActivity(intent);
}
}

```

### UpdateAccount.java

```

import android.app.Activity;
import android.app.AlertDialog;
import android.content.ContentValues;
import android.content.DialogInterface;
import android.content.Intent;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.os.Bundle;
import android.util.Log;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.widget.EditText;
import android.widget.Toast;

public class UpdateAccount extends Activity {
    private String accountId;
    private EditText editAcno, editCno, editHolders, editBankName,
    editBranchName, editAddress, editIFSC, editMICR, editBalance,
    editRemarks;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.update_account);
        editAcno = (EditText) this.findViewById(R.id.editAcno);
        editCno = (EditText) this.findViewById(R.id.editCno);
        editHolders = (EditText) this.findViewById(R.id.editHolders);
        editBankName = (EditText) this.findViewById(R.id.editBankName);
        editBranchName = (EditText) this.findViewById(R.id.editBranchName);
        editAddress = (EditText) this.findViewById(R.id.editAddress);
        editIFSC = (EditText) this.findViewById(R.id.editIFSC);
        editMICR = (EditText) this.findViewById(R.id.editMICR);
        editBalance = (EditText) this.findViewById(R.id.editBalance);
        editRemarks = (EditText) this.findViewById(R.id.editRemarks);
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        return Utils.inflateMenu(this,menu);
    }
}

```

```

}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    return Utils.handleMenuOption(this, item);
}

@Override
public void onStart() {
    super.onStart();
    accountId = this.getIntent().getStringExtra("accountid");
    Log.d("Accounts", "Account Id : " + accountId);
    DBHelper dbhelper = new DBHelper(this);
    SQLiteDatabase db = dbhelper.getReadableDatabase();
    Cursor account = db.query(Database.ACCOUNTS_TABLE_NAME, null,
        "_id = ?", new String[] { accountId }, null, null, null);
    //startManagingCursor(accounts);
    if (account.moveToFirst()) {
        // update view
        editAcno.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_ACNO)));
        editCno.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_CNO)));
        editHolders.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS HOLDERS)));
        editBankName.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_BANK)));
        editBranchName.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_BRANCH)));
        editAddress.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_ADDRESS)));
        editIFSC.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_IFSC)));
        editMICR.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_MICR)));
        editBalance.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_BALANCE)));
        editRemarks.setText(account.getString(account
            .getColumnIndex(Database.ACCOUNTS_REMARKS)));
    }
    account.close();
    db.close();
    dbhelper.close();
}

public void updateAccount(View v) {
    try {
        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getWritableDatabase();
        // execute insert command
        ContentValues values = new ContentValues();
        values.put(Database.ACCOUNTS_ACNO, editAcno.getText().toString());
        values.put(Database.ACCOUNTS_CNO, editCno.getText().toString());
        values.put(Database.ACCOUNTS_HOLDERS, editHolders.getText()
            .toString());
        values.put(Database.ACCOUNTS_BANK, editBankName.getText()
            .toString());
        values.put(Database.ACCOUNTS_BRANCH, editBranchName.getText()
            .toString());
        values.put(Database.ACCOUNTS_ADDRESS, editAddress.getText()
            .toString());
        values.put(Database.ACCOUNTS_IFSC, editIFSC.getText().toString());
        values.put(Database.ACCOUNTS_MICR, editMICR.getText().toString());
    }
}

```

```

values.put(Database.ACCTS_BALANCE, editBalance.getText()
           .toString());
values.put(Database.ACCTS_REMARKS, editRemarks.getText()
           .toString());

long rows = db.update(Database.ACCTS_TABLE_NAME, values,
                      "_id = ?", new String[] { accountId });

db.close();
if (rows > 0)
    Toast.makeText(this, "Updated Account Successfully!",
                  Toast.LENGTH_LONG).show();
else
    Toast.makeText(this, "Sorry! Could not update account!",
                  Toast.LENGTH_LONG).show();
} catch (Exception ex) {
    Toast.makeText(this, ex.getMessage(), Toast.LENGTH_LONG).show();
}
}

public void deleteAccount(View v) {
    AlertDialog.Builder builder = new AlertDialog.Builder(this);
    builder.setMessage("Are you sure you want to delete this account?")
        .setCancelable(false)
        .setPositiveButton("Yes", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int id) {
                deleteCurrentAccount();
            }
        })
        .setNegativeButton("No", new DialogInterface.OnClickListener() {
            public void onClick(DialogInterface dialog, int id) {
                dialog.cancel();
            }
        });
    AlertDialog alert = builder.create();
    alert.show();
}

public void deleteCurrentAccount() {
    try {
        DBHelper dbhelper = new DBHelper(this);
        SQLiteDatabase db = dbhelper.getWritableDatabase();
        int rows = db.delete(Database.ACCTS_TABLE_NAME, "_id=?",
                           new String[] { accountId });
        dbhelper.close();
        if (rows == 1) {
            Toast.makeText(this, "Account Deleted Successfully!", Toast.LENGTH_LONG).show();
            this.finish();
        }
        else
            Toast.makeText(this, "Could not delete account!", Toast.LENGTH_LONG).show();
    } catch (Exception ex) {
        Toast.makeText(this, ex.getMessage(), Toast.LENGTH_LONG).show();
    }
}

public void listAccountTransactions(View v) {
    Intent intent = new Intent(this, ListAccountTransactions.class);
    intent.putExtra("accountid", accountId);
    startActivity(intent);
}
}

```

## Utils.java

```
import android.app.Activity;
import android.content.Intent;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;

public class Utils {

    public static boolean inflateMenu(Activity activity, Menu menu) {
        MenuInflater inflater = activity.getMenuInflater();
        inflater.inflate( R.menu.common_menu, menu);
        return true;
    }

    public static boolean handleMenuItemOption(Activity activity, MenuItem item) {
        Intent intent;
        switch(item.getItemId()) {
            case R.id.optAddAccount :
                intent = new Intent(activity,AddAccount.class);
                activity.startActivity(intent);
                break;
            case R.id.optAddTransaction :
                intent = new Intent(activity,AddTransaction.class);
                activity.startActivity(intent);
                break;

            case R.id.optSearchTransactions :
                intent = new Intent(activity,SearchTransactions.class);
                activity.startActivity(intent);
                break;
            case R.id.optListAccounts :
                intent = new Intent(activity,ListAccounts.class);
                activity.startActivity(intent);
                break;

            case R.id.optRecentTransactions :
                intent = new Intent(activity,ListRecentTransactions.class);
                activity.startActivity(intent);
                break;
        }
        return true;
    }
}
```

## Layout files:

### listaccounts.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <ListView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/listAccounts"> </ListView>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
```

```

        android:text="Tap on the account to get details!" android:gravity="center"
        android:textStyle="bold" android:textColor="#0000ff"/>

        <LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
        android:layout_width="match_parent" android:gravity="center">

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:id="@+id/btnAddAccount" android:text="Add Account" android:onClick="addAccount"/>

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:id="@+id/btnAddTransaction" android:text="Add Trans" android:onClick="addTransaction"/>

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:id="@+id/btnRecentTransactions" android:text="Recent Trans"
        android:onClick="recentTransactions"/>

        </LinearLayout>

    </LinearLayout>

```

### account.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
        android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    -<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
        android:layout_width="match_parent">

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="" android:visibility="invisible" android:id="@+id/textAccountId"/>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="" android:id="@+id/textBank"/>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="-"/>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="" android:id="@+id/textHolder"/>

    -<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
        android:layout_width="match_parent" android:gravity="right" android:layout_weight="1">

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="balance" android:id="@+id/textBalance"/>

    </LinearLayout>

    </LinearLayout>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:text="" android:height="2dp" android:background="#ffffffff"/>

</LinearLayout>

```

### account\_transaction.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    -<TableLayout android:layout_height="wrap_content" android:layout_width="match_parent"
        android:stretchColumns="2">

        -<TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="" android:visibility="invisible" android:id="@+id/textTransId"/>

            <TextView android:layout_height="wrap_content" android:layout_width="70dp"
                android:text="transdate" android:id="@+id/textTransDate"/>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Detaifdsfsdf dsafdsfsdf sdf fdsaf safdsafdsls" android:id="@+id/textTransDetails"
                android:singleLine="false" android:scrollHorizontally="false"/>

            <TextView android:layout_height="wrap_content" android:layout_width="50dp"
                android:text="Type" android:id="@+id/textTransType" android:gravity="center"/>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="" android:id="@+id/textAmount" android:gravity="right" android:minWidth="70dp"/>

        </TableRow>

    </TableLayout>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:text="" android:height="2dip" android:background="#ffffff"/>

</LinearLayout>

```

### **add\_transaction.xml**

```

<?xml version="1.0" encoding="UTF-8"?>

<ScrollView android:layout_height="match_parent" android:layout_width="match_parent"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TableLayout android:layout_height="match_parent" android:layout_width="match_parent">

        <TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Account :"/>

            <Spinner android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:prompt="@string/accountsPrompt" android:id="@+id/spinnerAccounts" />

        </TableRow>

        <TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
                android:text="Type"/>

        </TableRow>
    
```

```

<RadioGroup android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:orientation="horizontal">

    <RadioButton android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Deposit" android:id="@+id/radioDeposit" android:checked="true"/>

    <RadioButton android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Withdraw" android:id="@+id/radioWithdraw"/>

</RadioGroup>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Date :"/>

    <LinearLayout android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:layout_marginBottom="5dp" android:padding="5dp">

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:text="sysdate" android:id="@+id/textTransDate"/>

        <ImageButton android:layout_height="20dp" android:layout_width="20dp"
            android:id="@+id/buttonDateDialog" android:onClick="showDateDialog"
            android:src="@mipmap/ic_launcher" android:layout_marginLeft="10dp"> </ImageButton>

    </LinearLayout>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Amount :"/>

    <EditText android:layout_height="wrap_content" android:layout_width="120dp"
        android:id="@+id/editTransAmount" android:inputType="numberDecimal"> </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Cheque No."/>

    <EditText android:layout_height="wrap_content" android:layout_width="120dp"
        android:id="@+id/editChequeNo" android:inputType="number"> </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Cheque Party :"/>

    <EditText android:layout_height="wrap_content" android:layout_width="120dp"
        android:id="@+id/editChequeParty" android:inputType="text"> </EditText>

```

```

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Cheque Details :"/>

    <EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editChequeDetails" android:inputType="text"> </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Remarks "/>

    <EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editRemarks" android:inputType="text" android:layout_weight="1"> </EditText>

</TableRow>

<TableRow>

    <Button android:layout_height="40dp" android:layout_width="wrap_content" android:text="Add
    Transaction" android:id="@+id/buttonAdd" android:onClick="addTransaction"> </Button>

</TableRow>

</TableLayout>

</ScrollView>

```

### **addaccount.xml**

```

<?xml version="1.0" encoding="UTF-8"?>

<ScrollView android:layout_height="match_parent" android:layout_width="match_parent"
xmlns:android="http://schemas.android.com/apk/res/android">

    <TableLayout android:layout_height="match_parent" android:layout_width="match_parent">

        <TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:text="Account Number"/>

            <EditText android:layout_height="wrap_content" android:layout_width="150dp"
            android:inputType="number" android:id="@+id/editAcno">

                <requestFocus/>

            </EditText>

        </TableRow>
    
```

```

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Customer Number" />

    <EditText android:layout_height="wrap_content" android:layout_width="150dp"
    android:inputType="number" android:id="@+id/editCno" > </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Account Holder(s)" />

    <EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:inputType="textPersonName" android:id="@+id/editHolders" android:layout_weight="1">
    </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Bank Name " />

    <EditText android:layout_height="wrap_content" android:layout_width="150dp"
    android:inputType="textPersonName" android:id="@+id/editBankName" > </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Branch Name " />

    <EditText android:layout_height="wrap_content" android:layout_width="150dp"
    android:inputType="textPersonName" android:id="@+id/editBranchName" > </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Branch Address " />

    <EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:inputType="textPostalAddress" android:id="@+id/editAddress" android:layout_weight="1"/>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="IFSC" />

    <EditText android:layout_height="wrap_content" android:layout_width="150dp"
    android:inputType="number" android:id="@+id/editIFSC" > </EditText>

</TableRow>

```

```

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="MICR" />

    <EditText android:layout_height="wrap_content" android:layout_width="150dp"
    android:inputType="number" android:id="@+id/editMICR"> </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Current Balance" />

    <EditText android:layout_height="wrap_content" android:layout_width="150dp"
    android:inputType="numberDecimal" android:id="@+id/editBalance"> </EditText>

</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Remarks" />

    <EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editRemarks" android:layout_weight="1"> </EditText>

</TableRow>

<TableRow>

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Add Account" android:id="@+id/buttonAdd" android:onClick="addAccount"> </Button>

</TableRow>

</TableLayout>

</ScrollView>

```

### list\_account\_transactions.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
    android:text="Recent Transactions" android:id="@+id/textTitle"/>

    -<TableLayout android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/heading" android:stretchColumns="1">

        -<TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="60dp"

```

```

        android:text="Date" android:gravity="center" android:textStyle="bold"
        android:textColor="#ff0000"/>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Details" android:gravity="center" android:textStyle="bold"
        android:textColor="#ff0000"/>

        <TextView android:layout_height="wrap_content" android:layout_width="50dp"
        android:text="Type" android:gravity="center" android:textStyle="bold"
        android:textColor="#ff0000"/>

        <TextView android:layout_height="wrap_content" android:layout_width="70dp"
        android:text="Amount" android:gravity="center" android:textStyle="bold"
        android:textColor="#ff0000"/>

    </TableRow>

</TableLayout>

<ListView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/listTransactions"/>

        <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:text="Sorry! No Transaction Found!" android:id="@+id/textError"
        android:visibility="invisible"/>

</LinearLayout>

```

### **list\_transactions.xml**

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
        android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

        <ListView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/listTransactions"/>

        <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/textError" android:text="Sorry! No Transactions Found!"
        android:visibility="invisible"/>

</LinearLayout>

```

### **Search\_transactions.xml**

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
        android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

        <TableLayout android:layout_height="wrap_content" android:layout_width="match_parent"
        xmlns:android="http://schemas.android.com/apk/res/android">

            <TableRow>

                <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="From Date :"/>

```

```

<EditText android:layout_height="wrap_content" android:layout_width="120dip"
    android:inputType="date" android:id="@+id/editFromDate">
    <requestFocus/>
</EditText>

<ImageButton android:id="@+id/buttonFromDateDialog" android:src="@mipmap/ic_launcher"
    android:onClick="showFromDateDialog" android:layout_marginLeft="5dp"/>
</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="To Date :"/>
    <EditText android:layout_height="wrap_content" android:layout_width="120dip"
        android:inputType="date" android:id="@+id/editToDate"/>
    <ImageButton android:id="@+id/buttonToDateDialog" android:src="@mipmap/ic_launcher"
        android:onClick="showToDateDialog" android:layout_marginLeft="5dp"/>
</TableRow>

<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="From Amount :"/>
    <EditText android:layout_height="wrap_content" android:layout_width="120dip"
        android:inputType="numberDecimal" android:id="@+id/editFromAmount"/>
</TableRow>

<TableRow>
    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="To Amount :"/>
    <EditText android:layout_height="wrap_content" android:layout_width="120dip"
        android:inputType="numberDecimal" android:id="@+id/editToAmount"/>
</TableRow>
</TableLayout>

<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="match_parent">
    <Button android:layout_height="wrap_content" android:layout_width="80dip"
        android:text="Search" android:id="@+id/btnSearch" android:onClick="searchTransactions"/>
    <Button android:layout_height="wrap_content" android:layout_width="80dip"
        android:text="Clear" android:id="@+id/btnClear" android:onClick="clearFields"/>
</LinearLayout>
</LinearLayout>

```

## Transaction.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="" android:visibility="invisible" android:id="@+id/textTransId"/>

    -<TableLayout android:layout_height="wrap_content" android:layout_width="match_parent"
        android:stretchColumns="1">

        -<TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Account No." />

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="acno" android:id="@+id/textAcno" android:layout_marginLeft="5dp"/>

        </TableRow>

        -<TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Trans Date" />

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="transdate" android:id="@+id/textTransDate" android:layout_marginLeft="5dp"/>

        </TableRow>

        -<TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Trans Details" />

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Details" android:id="@+id/textTransDetails" android:layout_marginLeft="5dp"
                android:singleLine="false" android:scrollHorizontally="false"/>

        </TableRow>

        -<TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Trans Type" />

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Type" android:id="@+id/textTransType" android:layout_marginLeft="5dp"/>

        </TableRow>

        -<TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Trans Amount" />

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Trans Amount" />
```

```

    android:text="amount" android:id="@+id/textTransAmount" android:layout_marginLeft="5dp"/>
</TableRow>

-<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Remarks " />

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="remarks" android:id="@+id/textTransRemarks" android:layout_marginLeft="5dp"/>
</TableRow>
</TableLayout>
</LinearLayout>

```

### Transaction\_details.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    -<TableLayout android:layout_height="wrap_content" android:layout_width="match_parent"
        xmlns:android="http://schemas.android.com/apk/res/android" android:stretchColumns="">

        -<TableRow>

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Delete" android:onClick="deleteTransaction" android:id="@+id/buttonDelete">
            </Button>

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Account Details" android:onClick="showAccountDetails"
                android:id="@+id/buttonAccountDetails"> </Button>
        </TableRow>
    </TableLayout>
</LinearLayout>

    -<TableLayout android:layout_height="wrap_content" android:layout_width="match_parent"
        android:stretchColumns="1">

        -<TableRow>

            <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
                android:text="Account Number :" android:gravity="right"/>

            <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
                android:id="@+id/textAcno" android:layout_marginLeft="5dp"> </TextView>
        </TableRow>
    -<TableRow>
        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"

```

```

    android:text="Trans Date :" android:gravity="right"/>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/textTransDate" android:layout_marginLeft="5dp"> </TextView>

</TableRow>

-<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Trans Type :" android:gravity="right"/>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/textTransType" android:layout_marginLeft="5dp"> </TextView>

</TableRow>

-<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Amount :" android:gravity="right"/>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/textTransAmount" android:layout_marginLeft="5dp"> </TextView>

</TableRow>

-<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Cheque No :" android:gravity="right"/>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/textChequeNo" android:layout_marginLeft="5dp"> </TextView>

</TableRow>

-<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Cheque Party:" android:gravity="right"/>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/textChequeParty" android:layout_marginLeft="5dp"> </TextView>

</TableRow>

-<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Cheque Details :" android:gravity="right"/>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/textChequeDetails" android:layout_marginLeft="5dp"> </TextView>

</TableRow>

-<TableRow>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"

```

```

        android:text="Remarks :" android:gravity="right"/>

        <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/textTransRemarks" android:layout_marginLeft="5dp"> </TextView>
    </TableRow>
</TableLayout>
</LinearLayout>

```

### **Update\_account.xml**

```

<?xml version="1.0" encoding="UTF-8"?>

<ScrollView android:layout_height="match_parent" android:layout_width="match_parent"
xmlns:android="http://schemas.android.com/apk/res/android">

    <LinearLayout android:layout_height="match_parent" android:layout_width="match_parent"
    android:orientation="vertical">

        -<LinearLayout android:layout_height="wrap_content" android:layout_width="match_parent"
        android:orientation="horizontal" android:gravity="center">

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:onClick="updateAccount" android:text="Update" android:id="@+id/buttonUpdate"> </Button>

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:onClick="deleteAccount" android:text="Delete" android:id="@+id/buttonDelete"> </Button>

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:onClick="listAccountTransactions" android:text="Transactions"
            android:id="@+id/buttonListTrans"> </Button>

        </LinearLayout>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Account Number"/>

        -<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/editAcno">

            <requestFocus/>

        </EditText>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Customer Number"/>

        <EditText android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/editCno"> </EditText>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Account Holder(s)"/>

        <EditText android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/editHolders"> </EditText>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Bank Name "/>
    
```

```

<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editBankName" />
```

```

<TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Branch Name "/>
```

```

<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editBranchName" />
```

```

<TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Branch Address "/>
```

```

<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editAddress" android:inputType="textPostalAddress"/>
```

```

<TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="IFSC"/>
```

```

<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editIFSC" />
```

```

<TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="MICR"/>
```

```

<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editMICR" />
```

```

<TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Current Balance"/>
```

```

<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editBalance" />
```

```

<TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Remarks "/>
```

```

<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/editRemarks" />
```

```

</LinearLayout>
```

```

</ScrollView>
```

## Menu

### Common\_menu.xml

```

<?xml version="1.0" encoding="UTF-8"?>
```

```

<menu xmlns:android="http://schemas.android.com/apk/res/android">
```

```

    <item android:title="Add Transaction" android:icon="@mipmap/ic_launcher"
        android:id="@+id/optAddTransaction"/>
```

```

    <item android:title="Search Transactions" android:icon="@mipmap/ic_launcher"
        android:id="@+id/optSearchTransactions"/>
```

```

    <item android:title="Add Account" android:icon="@mipmap/ic_launcher"
        android:id="@+id/optAddAccount"/>
```

```

    <item android:title="List Accounts" android:icon="@mipmap/ic_launcher"
        android:id="@+id/optListAccounts"/>
```

```
<item android:title="Recent Transactions" android:icon="@mipmap/ic_launcher"
      android:id="@+id/optRecentTransactions"/>

</menu>
```

### String.xml

```
<resources>
    <string name="app_name">My Application</string>
    <string name="action_settings">Settings</string>
    <string name="accountsPrompt">Select Account</string>
</resources>
```

### Manifest.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<manifest package="com.example.manju.myapplication"
          xmlns:android="http://schemas.android.com/apk/res/android">

    <application android:theme="@style/AppTheme" android:supportsRtl="true"
                android:label="@string/app_name" android:icon="@mipmap/ic_launcher" android:allowBackup="true">

        <activity android:theme="@style/AppTheme.NoActionBar" android:label="@string/app_name"
                  android:name=".ListAccounts">

            <intent-filter>

                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>

        <activity android:label="Add New Account" android:name=".AddAccount" />

        <activity android:label="Add New Transaction" android:name=".AddTransaction" />

        <activity android:label="Account Details" android:name=".UpdateAccount" />

        <activity android:label="Account Transactions" android:name=".ListAccountTransactions" />

        <activity android:label="Transaction Details" android:name=".TransactionDetails" />

        <activity android:label="Search Transactions" android:name=".SearchTransactions" />

        <activity android:label="Recent Transactions" android:name=".ListRecentTransactions" />
    </application>
</manifest>
```

---

---

---

## Quiz app

### JAVA FILE:

#### SoccerQuizGame.java

```
import android.support.v7.app.AppCompatActivity;

import java.io.IOException;
import java.io.InputStream;
import java.util.*;

import android.os.Bundle;
import android.app.Activity;
import android.app.AlertDialog;
import android.app.AlertDialog.Builder;
import android.content.Context;
import android.content.DialogInterface;
import android.content.res.AssetManager;
import android.graphics.drawable.Drawable;
import android.os.Handler;
import android.util.Log;
import android.view.LayoutInflater;
import android.view.View;
import android.view.View.OnClickListener;
import android.view.Menu;
import android.view.MenuItem;
import android.view.ViewGroup;
import android.view.animation.Animation;
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.TableLayout;
import android.widget.TableRow;
import android.widget.TextView;

import java.io.IOException;
import java.io.InputStream;
import java.util.*;

import android.os.Bundle;
import android.app.Activity;
import android.app.AlertDialog;
import android.app.AlertDialog.Builder;
import android.content.Context;
import android.content.DialogInterface;
import android.content.res.AssetManager;
import android.graphics.drawable.Drawable;
import android.os.Handler;
import android.util.Log;
import android.view.LayoutInflater;
import android.view.View;
import android.view.View.OnClickListener;
import android.view.Menu;
import android.view.MenuItem;
import android.view.ViewGroup;
import android.view.animation.Animation;
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.TableLayout;
```

```

import android.widget.TableRow;
import android.widget.TextView;

public class SoccerQuizGame extends AppCompatActivity {

    //String used when logging error messages
    private static final String TAG = "SoccerQuizGame Activity";

    //Instance Variables
    private List<String> fileNameList; // player file names
    private List<String> quizPlayersList; // names of players in quiz
    private String correctAnswer; // current correct answer
    private int totalGuesses; // number of guesses
    private int correctAnswers; // number of correct guesses
    private int guessRows; // number of rows displaying choices
    private Random random; // random number generator
    private Handler handler; // used to delay loading of next player
    private Animation shakeAnimation; // animation for incorrect answers

    private TextView answerTextView;
    private TextView questionNumberTextView;
    private ImageView faceImageView;
    private TableLayout buttonTableLayout;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);

        fileNameList = new ArrayList<String>(); // list of image file names
        quizPlayersList = new ArrayList<String>(); // players in quiz
        guessRows = 3; // defaulted to one row of choices
        random = new Random(); // initialize the random number generator
        handler = new Handler(); // used to perform delayed operations

        // get references to the GUI components
        questionNumberTextView = (TextView) findViewById(R.id.questionNumberTextView);
        answerTextView = (TextView) findViewById(R.id.answerTextView);
        faceImageView = (ImageView) findViewById(R.id.faceImageView);
        buttonTableLayout = (TableLayout) findViewById(R.id.buttonTableLayout);

        // set questionNumbers Text
        questionNumberTextView.setText(
            getResources().getString(R.string.question) + " 1 " +
            getResources().getString(R.string.of) + " 10");

        // load the shake animations used to animate incorrect answers
        shakeAnimation = AnimationUtils.loadAnimation(this, R.anim.incorrect_shake);
        shakeAnimation.setRepeatCount(3); // animation repeats 3 times

        // start a new quiz
        resetQuiz();

    } //end onCreate method

    // set up and start the next quiz
    private void resetQuiz(){

        // use the AssetManager to get the player image
        // file names for the app
        AssetManager assets = getAssets();
        fileNameList.clear(); // clear the list

```

```

// get list of all player names in this region
String[] paths = null;
try {
    paths = assets.list("Players");
} catch (IOException e) {
    // TODO Auto-generated catch block
    Log.e(TAG, "Error loading ", e);
}

for(String path : paths)
    fileNameList.add(path.replace(".jpg", ""));

correctAnswers = 0; // reset number of correct answers
totalGuesses= 0; // reset number of guesses
quizPlayersList.clear(); // clear prior list of quiz countries

// add 10 random file names to the quiz list
int playerCounter = 1;
int numberOfPlayers = fileNameList.size();

while(playerCounter <= 10){

    int randomIndex = random.nextInt(numberOfPlayers);

    //get random file name
    String fileName = fileNameList.get(randomIndex);

    //if region is enabled and hasnt been chosen
    if(!quizPlayersList.contains(fileName)){
        quizPlayersList.add(fileName);
        ++playerCounter;
    }
}

loadNextPlayer(); //start quiz by loading next player

}

// after user guesses a correct player, load the next one
private void loadNextPlayer(){

    //get the filename of the next flag and remove it from the list
    String nextImageName = quizPlayersList.remove(0);
    correctAnswer = nextImageName; //update correct answer

    answerTextView.setText(""); //clear the answerTextView

    //display the number of the current question in the quiz
    questionNumberTextView.setText(
        getResources().getString(R.string.question) + " " +
        (correctAnswers + 1) + " " +
        getResources().getString(R.string.of) + " 10");

    //extract the region from the next images name
    String region = "Players";

    //use AssetManager to load next image from assets folder
    AssetManager assets = getAssets(); // get apps Asset Manager
    InputStream stream; // used to read in player names

    try{
        //get an InputStream to the asset representing the next flag

```

```

        stream = assets.open(region + "/" + nextImageName + ".jpg");

        //load the asset as Drawable and display on the flagImageView
        Drawable flag = Drawable.createFromStream(stream, nextImageName);
        faceImageView.setImageDrawable(flag);
    }
    catch (IOException e){
        Log.e(TAG, "Error loading " + nextImageName, e);
    }

    //clear prior answer buttons from tablerows
    for (int row = 0; row < buttonTableLayout.getChildCount(); row++)
        ((TableRow) buttonTableLayout.getChildAt(row)).removeAllViews();

    Collections.shuffle(fileNameList); //shuffle file names

    //put the correct answer at the end of the fileNameList
    int correct = fileNameList.indexOf(correctAnswer);
    fileNameList.add(fileNameList.remove(correct));

    //get a reference to the LayoutInflater Service
    LayoutInflater inflater = (LayoutInflater)
    getSystemService(Context.LAYOUT_INFLATER_SERVICE);

    // add 3, 6, or 9 answer Buttons based on the value of guessRows
    for (int row = 0; row < guessRows; row++){

        TableRow currentTableRow = getTableRow(row);

        //place Buttons in currentTableRow
        for (int column = 0; column < 3; column++){

            //inflate guess_button.xml to create new Button
            Button newGuessButton =
                (Button) inflater.inflate(R.layout.guess_button, null);

            //get player name and set it as newGuessButtons text
            String fileName = fileNameList.get((row * 3) + column);
            newGuessButton.setText(getPlayerName(fileName));

            //register answerButton listener to respond to clicks
            newGuessButton.setOnClickListener(guessButtonListener);
            currentTableRow.addView(newGuessButton);
        }
    }

    //randomly replace one Button with the correct answer
    int row = random.nextInt(guessRows);
    int column = random.nextInt(3);
    TableRow randomTableRow = getTableRow(row);
    String playerName = getPlayerName(correctAnswer);
    ((Button) randomTableRow.getChildAt(column)).setText(playerName);
}

// end loadNextPlayer method

// return the specified TableRow
private TableRow getTableRow(int row){

    return (TableRow) buttonTableLayout.getChildAt(row);
}

// parses the player file name and returns the player name
private String getPlayerName(String name){

```

```

        return name.substring(name.indexOf(' - ') + 1).replace(' - ', ' ');
    }

    // method submitGuess called when user selects an answer
    private void submitGuess (Button guessButton){

        String guess = guessButton.getText().toString();
        String answer = getPlayerName(correctAnswer);
        ++totalGuesses; //increment the number of guesses made

        if (guess.equals(answer)) {

            ++correctAnswers; // increment number of correct answers

            //display Correct answer in answerTextView
            answerTextView.setText(answer + "!");
            answerTextView.setTextColor(getResources().getColor(R.color.correct_answer));

            disableButtons(); //disable all answer Buttons

            // if user has guessed 10 correct players
            if (correctAnswers == 10){

                //create new AlertDialog Builder
                AlertDialog.Builder builder = new AlertDialog.Builder(this);
                builder.setTitle(R.string.reset_quiz);

                //set the AlertDialogs message to display the game results
                builder.setMessage(String.format("%d %s, %.02f%% %s", totalGuesses,
                    getResources().getString(R.string.guesses),
                    (1000 / (double) totalGuesses),
                    getResources().getString(R.string.correct)));

                builder.setCancelable(false);

                //add reset quiz button
                builder.setPositiveButton(R.string.reset_quiz,
                    new DialogInterface.OnClickListener() {

                        @Override
                        public void onClick(DialogInterface dialog, int which) {

                            resetQuiz();
                        } // end onClick
                    } // end anonymous inner class
                ); //end call to setPositiveButton

                // create AlertDialog from the Builder
                AlertDialog resetDialog = builder.create();
                resetDialog.show();

            } // end if

            else // answer is correct but game isnt over
            {
                //load the next flag after a one second delay
                handler.postDelayed(
                    new Runnable()
                    {
                        @Override
                        public void run(){
                            loadNextPlayer();
                        }
                    }, 1000); // 1000 milliseconds for 1 second delay
            }
        }
    }
}

```

```

        } // end else
    } // end if

    else // answer was incorrect
    {
        //play the animation
        faceImageView.startAnimation(shakeAnimation);

        //display "Incorrect" in red
        answerTextView.setText(R.string.incorrect_answer);
        answerTextView.setTextColor(getResources().getColor(R.color.incorrect_answer));

        guessButton.setEnabled(false); // disable the incorrect answer
    }

} // end submitGuess method

// method to disable all answer Buttons
private void disableButtons(){

    for (int row = 0; row < buttonTableLayout.getChildCount(); row++){
        TableRow tablerow = (TableRow) buttonTableLayout.getChildAt(row);

        for(int i = 0; i < tablerow.getChildCount(); i++){
            tablerow.getChildAt(i).setEnabled(false);
        }
    }
}

// create constants for each menu id
private final int CHOICES_MENU_ID = Menu.FIRST;

// called when the user accesses the options menu
@Override
public boolean onCreateOptionsMenu(Menu menu){

    super.onCreateOptionsMenu(menu);

    // add options to the menu
    menu.add(Menu.NONE, CHOICES_MENU_ID, Menu.NONE, R.string.choices);

    return true; // display the menu
}

// called when the user selects an option from the menu
@Override
public boolean onOptionsItemSelected(MenuItem item) {

    // switch the menu id of the user selected option
    switch (item.getItemId()){
        case CHOICES_MENU_ID:
            //create a list of the possible number of answer choices
            final String[] possibleChoices =
getResources().getStringArray(R.array.guessesList);

            //create an AlertDialog Builder and set its title
            AlertDialog.Builder choicesBuilder = new AlertDialog.Builder(this);
            choicesBuilder.setTitle(R.string.choices);
}

```

```

//add possibleChoices items to the Dialog and set the
// behavior when one of the items is clicked
choicesBuilder.setItems(R.array.guessesList,
    new DialogInterface.OnClickListener() {

        @Override
        public void onClick(DialogInterface dialog, int item) {

            // update guessRows to reflect user choice
            guessRows =
Integer.parseInt(possibleChoices[item].toString()) / 3;

            resetQuiz();
        }
    });

// create AlertDialog from the Builder
AlertDialog choicesDialog = choicesBuilder.create();
choicesDialog.show();

break;
} // end switch

return super.onOptionsItemSelected(item);

}// end method onOptionsItemSelected

// called when a guess Button is touched
private OnClickListener guessButtonListener = new OnClickListener(){

    @Override
    public void onClick(View v){
        submitGuess((Button) v); // pass selected Button to submitGuess method
    }
};

} // end SoccerQuizGame

```

## AYOUT FILE:

### main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:gravity="center_horizontal"
    android:background="@drawable/grass_background" android:layout_height="match_parent"
    android:layout_width="match_parent" android:id="@+id/linearLayout"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:gravity="center" android:layout_height="wrap_content"
        android:layout_width="match_parent" android:id="@+id/titleTextView"
        android:textSize="@dimen/title_size" android:textColor="@color/text_color"
        android:text="@string/quiz_title" android:layout_marginBottom="10dp"/>

    <TextView android:gravity="center" android:layout_height="wrap_content"
        android:layout_width="match_parent" android:id="@+id/questionNumberTextView"
        android:layout_gravity="center"/>

    <ImageView android:layout_height="@dimen/face_height"

```

```

    android:layout_width="@dimen/face_width" android:id="@+id/faceImageView"
    android:adjustViewBounds="false"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:id="@+id/guessPlayerTextView" android:textSize="@dimen/text_size"
    android:textColor="@color/text_color" android:text="@string/guess_player"
    android:layout_marginBottom="10dp"/>

    <TableLayout android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/buttonTableLayout" android:stretchColumns="0,1,2" android:layout_weight="1">

        <TableRow android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="match_parent" android:id="@+id/tableRow0"> </TableRow>

        <TableRow android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="match_parent" android:id="@+id/tableRow1"> </TableRow>

        <TableRow android:layout_height="wrap_content" android:layout_width="match_parent"
    android:id="@+id/tableRow2"> </TableRow>

    </TableLayout>

    <TextView android:gravity="center" android:layout_height="wrap_content"
    android:layout_width="match_parent" android:id="@+id/answerTextView"
    android:textSize="@dimen/answer_size" android:layout_gravity="center" android:textStyle="bold"/>

</LinearLayout>

```

### guess\_button.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<Button android:layout_weight="1" android:layout_height="wrap_content"
    android:layout_width="wrap_content" android:id="@+id/newGuessButton"
    xmlns:android="http://schemas.android.com/apk/res/android"> </Button>

```

### color.xml

```

<color name="background_color">#FFFFCC</color>
<color name="correct_answer">#FFFFFF</color>
<color name="incorrect_answer">#FF0000</color>
<color name="text_color">#FFFFFF</color>

```

### string.xml

```

<string name="hello_world">Hello world!</string>
<string name="menu_settings">Settings</string>
<string name="choices">Select Number of Choices</string>
<string name="correct">correct</string>
<string name="guess_player">Guess the Player</string>
<string name="guesses">guesses</string>
<string name="incorrect_answer">Wrong!</string>

```

```
<string name="of">of</string>
<string name="ok">OK</string>
<string name="question">Question</string>
<string name="quiz_title">Soccer Quiz</string>
<string name="reset_quiz">Reset Quiz</string>

<string-array name="guessesList">
<item>3</item>
<item>6</item>
<item>9</item>
</string-array>
```

### dimen.xml

```
<resources>
    <!-- Default screen margins, per the Android Design guidelines. -->
    <dimen name="activity_horizontal_margin">16dp</dimen>
    <dimen name="activity_vertical_margin">16dp</dimen>
    <dimen name="fab_margin">16dp</dimen>
    <dimen name="title_size">25sp</dimen>

    <dimen name="face_width">227dp</dimen>
    <dimen name="face_height">150dp</dimen>
    <dimen name="answer_size">40sp</dimen>
    <dimen name="text_size">20sp</dimen>
    <dimen name="padding_small">8dp</dimen>
    <dimen name="padding_medium">8dp</dimen>
    <dimen name="padding_large">16dp</dimen>

</resources>
```

### Drawable folder



---

### anim folder

#### incorrect\_shake.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<set android:interpolator="@android:anim/decelerate_interpolator" xmlns:android="http://schemas.android.com/apk/res/android"><translate
    android:duration="100" android:toXDelta="-5%p" android:fromXDelta="0"/><translate android:duration="100" android:toXDelta="5%p"
    android:fromXDelta="-5%p" android:startOffset="100"/><translate android:duration="100" android:toXDelta="-5%p"
    android:fromXDelta="5%p" android:startOffset="200"/></set>
```

### assets folder



PLAYERS PHOTO

---

## CHAT VIA BLUETOOTH

### JAVA FILES:

#### MainActivity.java

```
import android.os.Bundle;

import android.support.v7.app.AppCompatActivity;

import android.view.View;
import android.view.Menu;
import android.view.MenuItem;
import android.app.Activity;
import android.bluetooth.BluetoothAdapter;
import android.bluetooth.BluetoothDevice;
import android.content.Intent;
import android.os.Bundle;
import android.os.Handler;
import android.os.Handler.Callback;
import android.os.Message;
import android.support.v7.app.ActionBar;

import android.view.KeyEvent;
import android.view.Menu;
import android.view.MenuInflater;
import android.view.MenuItem;
import android.view.View;
import android.view.View.OnClickListener;
import android.view.inputmethod.EditorInfo;
import android.widget.ArrayAdapter;
import android.widget.Button;
```

```

import android.widget.EditText;
import android.widget.ListView;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    public static final int MESSAGE_STATE_CHANGE = 1;
    public static final int MESSAGE_READ = 2;
    public static final int MESSAGE_WRITE = 3;
    public static final int MESSAGE_DEVICE_NAME = 4;
    public static final int MESSAGE_TOAST = 5;

    public static final String DEVICE_NAME = "device_name";
    public static final String TOAST = "toast";

    private static final int REQUEST_CONNECT_DEVICE_SECURE = 1;
    private static final int REQUEST_CONNECT_DEVICE_INSECURE = 2;
    private static final int REQUEST_ENABLE_BT = 3;

    private ListView lvMainChat;
    private EditText etMain;
    private Button btnSend;

    private String connectedDeviceName = null;
    private ArrayAdapter<String> chatArrayAdapter;

    private StringBuffer outStringBuffer;
    private BluetoothAdapter bluetoothAdapter = null;
    private ChatService chatService = null;

    private Handler handler = new Handler(new Callback() {

        @Override
        public boolean handleMessage(Message msg) {
            switch (msg.what) {
                case MESSAGE_STATE_CHANGE:
                    switch (msg.arg1) {
                        case ChatService.STATE_CONNECTED:
                            setStatus(getString(R.string.title_connected_to,
                                connectedDeviceName));
                            chatArrayAdapter.clear();
                            break;
                        case ChatService.STATE_CONNECTING:
                            setStatus(R.string.title_connecting);
                            break;
                        case ChatService.STATE_LISTEN:
                        case ChatService.STATE_NONE:
                            setStatus(R.string.title_not_connected);
                            break;
                    }
                    break;
                case MESSAGE_WRITE:
                    byte[] writeBuf = (byte[]) msg.obj;

                    String writeMessage = new String(writeBuf);
                    chatArrayAdapter.add("Me: " + writeMessage);
                    break;
                case MESSAGE_READ:
                    byte[] readBuf = (byte[]) msg.obj;

                    String readMessage = new String(readBuf, 0, msg.arg1);
                    chatArrayAdapter.add(connectedDeviceName + ":" + readMessage);
                    break;
            }
        }
    });
}

```

```

        case MESSAGE_DEVICE_NAME:
            connectedDeviceName = msg.getData().getString(DEVICE_NAME);
            Toast.makeText(getApplicationContext(),
                "Connected to " + connectedDeviceName,
                Toast.LENGTH_SHORT).show();
            break;
        case MESSAGE_TOAST:
            Toast.makeText(getApplicationContext(),
                msg.getData().getString(TOAST), Toast.LENGTH_SHORT)
                .show();
            break;
    }
    return false;
});
}

@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    bluetoothAdapter = BluetoothAdapter.getDefaultAdapter();

    getWidgetReferences();
    bindEventHandler();

    if (bluetoothAdapter == null) {
        Toast.makeText(this, "Bluetooth is not available",
            Toast.LENGTH_LONG).show();
        finish();
        return;
    }
}

private void getWidgetReferences() {
    lvMainChat = (ListView) findViewById(R.id.lvMainChat);
    etMain = (EditText) findViewById(R.id.etMain);
    btnSend = (Button) findViewById(R.id.btnSend);
}

private void bindEventHandler() {
    etMain.setOnEditorActionListener(mWriteListener);

    btnSend.setOnClickListener(new OnClickListener() {
        public void onClick(View v) {
            String message = etMain.getText().toString();
            sendMessage(message);
        }
    });
}

public void onActivityResult(int requestCode, int resultCode, Intent data) {
    switch (requestCode) {
        case REQUEST_CONNECT_DEVICE_SECURE:
            if (resultCode == Activity.RESULT_OK) {
                connectDevice(data, true);
            }
            break;
        case REQUEST_CONNECT_DEVICE_INSECURE:
            if (resultCode == Activity.RESULT_OK) {
                connectDevice(data, false);
            }
            break;
        case REQUEST_ENABLE_BT:
            if (resultCode == Activity.RESULT_OK) {

```

```

        setupChat();
    } else {
        Toast.makeText(this, R.string.bt_not_enabled_leaving,
                      Toast.LENGTH_SHORT).show();
        finish();
    }
}

private void connectDevice(Intent data, boolean secure) {
    String address = data.getExtras().getString(
        DeviceListActivity.DEVICE_ADDRESS);
    BluetoothDevice device = bluetoothAdapter.getRemoteDevice(address);
    chatService.connect(device, secure);
}

@Override
public boolean onCreateOptionsMenu(Menu menu) {
    MenuInflater inflater = getMenuInflater();
    inflater.inflate(R.menu.option_menu, menu);
    return true;
}

@Override
public boolean onOptionsItemSelected(MenuItem item) {
    Intent serverIntent = null;
    switch (item.getItemId()) {
        case R.id.secure_connect_scan:
            serverIntent = new Intent(this, DeviceListActivity.class);
            startActivityForResult(serverIntent, REQUEST_CONNECT_DEVICE_SECURE);
            return true;
        case R.id.insecure_connect_scan:
            serverIntent = new Intent(this, DeviceListActivity.class);
            startActivityForResult(serverIntent,
                REQUEST_CONNECT_DEVICE_INSECURE);
            return true;
        case R.id.discoverable:
            ensureDiscoverable();
            return true;
    }
    return false;
}

private void ensureDiscoverable() {
    if (bluetoothAdapter.getScanMode() !=
BluetoothAdapter.SCAN_MODE_CONNECTABLE_DISCOVERABLE) {
        Intent discoverableIntent = new Intent(
            BluetoothAdapter.ACTION_REQUEST_DISCOVERABLE);
        discoverableIntent.putExtra(
            BluetoothAdapter.EXTRA_DISCOVERABLE_DURATION, 300);
        startActivityForResult(discoverableIntent);
    }
}

private void sendMessage(String message) {
    if (chatService.getState() != ChatService.STATE_CONNECTED) {
        Toast.makeText(this, R.string.not_connected, Toast.LENGTH_SHORT)
            .show();
        return;
    }

    if (message.length() > 0) {
        byte[] send = message.getBytes();
        chatService.write(send);

        outStringBuffer.setLength(0);
    }
}

```

```

        etMain.setText(outStringBuffer);
    }
}

private TextView.OnEditorActionListener mWriteListener = new
TextView.OnEditorActionListener() {
    public boolean onEditorAction(TextView view, int actionId,
                                  KeyEvent event) {
        if (actionId == EditorInfo.IME_NULL
            && event.getAction() == KeyEvent.ACTION_UP) {
            String message = view.getText().toString();
            sendMessage(message);
        }
        return true;
    }
};

private final void setStatus(int resId) {
    final ActionBar actionBar = getSupportActionBar();
    actionBar.setSubtitle(resId);
}

private final void setStatus(CharSequence subTitle) {
    final ActionBar actionBar = getSupportActionBar();
    actionBar.setSubtitle(subTitle);
}

private void setupChat() {
    chatArrayAdapter = new ArrayAdapter<String>(this, R.layout.message);
    lvMainChat.setAdapter(chatArrayAdapter);

    chatService = new ChatService(this, handler);

    outStringBuffer = new StringBuffer("");
}
}

@Override
public void onStart() {
    super.onStart();

    if (!bluetoothAdapter.isEnabled()) {
        Intent enableIntent = new Intent(
            BluetoothAdapter.ACTION_REQUEST_ENABLE);
        startActivityForResult(enableIntent, REQUEST_ENABLE_BT);
    } else {
        if (chatService == null)
            setupChat();
    }
}

@Override
public synchronized void onResume() {
    super.onResume();

    if (chatService != null) {
        if (chatService.getState() == ChatService.STATE_NONE) {
            chatService.start();
        }
    }
}

@Override
public synchronized void onPause() {
    super.onPause();
}

```

```

@Override
public void onStop() {
    super.onStop();
}

@Override
public void onDestroy() {
    super.onDestroy();
    if (chatService != null)
        chatService.stop();
}
}

```

### DeviceListActivity

```

import java.util.Set;

import android.app.Activity;
import android.bluetooth.BluetoothAdapter;
import android.bluetooth.BluetoothDevice;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.view.Window;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.ListView;
import android.widget.TextView;

public class DeviceListActivity extends Activity {

    private TextView tvDeviceListPairedDeviceTitle, tvDeviceListNewDeviceTitle;
    private ListView lvDeviceListPairedDevice, lvDeviceListNewDevice;
    private Button btnDeviceListScan;

    private BluetoothAdapter bluetoothAdapter;
    private ArrayAdapter<String> pairedDevicesArrayAdapter;
    private ArrayAdapter<String> newDevicesArrayAdapter;

    public static String DEVICE_ADDRESS = "deviceAddress";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        requestWindowFeature(Window.FEATURE_INDETERMINATE_PROGRESS);
        setContentView(R.layout.device_list);

        setResult(Activity.RESULT_CANCELED);

        getWidgetReferences();
        bindEventHandler();
        initializeValues();
    }

    private void getWidgetReferences() {
        tvDeviceListPairedDeviceTitle = (TextView)

```

```

findViewById(R.id.tvDeviceListPairedDeviceTitle);
    tvDeviceListNewDeviceTitle = (TextView) findViewById(R.id.tvDeviceListNewDeviceTitle);

    lvDeviceListPairedDevice = (ListView) findViewById(R.id.lvDeviceListPairedDevice);
    lvDeviceListNewDevice = (ListView) findViewById(R.id.lvDeviceListNewDevice);

    btnDeviceListScan = (Button) findViewById(R.id.btnDeviceListScan);

}

private void bindEventHandler() {
    lvDeviceListPairedDevice.setOnItemClickListener(mDeviceClickListener);
    lvDeviceListNewDevice.setOnItemClickListener(mDeviceClickListener);

    btnDeviceListScan.setOnClickListener(new OnClickListener() {
        public void onClick(View v) {
            startDiscovery();
            btnDeviceListScan.setVisibility(View.GONE);
        }
    });
}

private void initializeValues() {
    pairedDevicesArrayAdapter = new ArrayAdapter<String>(this,
        R.layout.device_name);
    newDevicesArrayAdapter = new ArrayAdapter<String>(this,
        R.layout.device_name);

    lvDeviceListPairedDevice.setAdapter(pairedDevicesArrayAdapter);
    lvDeviceListNewDevice.setAdapter(newDevicesArrayAdapter);

    // Register for broadcasts when a device is discovered
    IntentFilter filter = new IntentFilter(BluetoothDevice.ACTION_FOUND);
    registerReceiver(discoveryFinishReceiver, filter);

    // Register for broadcasts when discovery has finished
    filter = new IntentFilter(BluetoothAdapter.ACTION_DISCOVERY_FINISHED);
    registerReceiver(discoveryFinishReceiver, filter);

    bluetoothAdapter = BluetoothAdapter.getDefaultAdapter();
    Set<BluetoothDevice> pairedDevices = bluetoothAdapter
        .getBondedDevices();

    // If there are paired devices, add each one to the ArrayAdapter
    if (pairedDevices.size() > 0) {
        tvDeviceListPairedDeviceTitle.setVisibility(View.VISIBLE);
        for (BluetoothDevice device : pairedDevices) {
            pairedDevicesArrayAdapter.add(device.getName() + "\n"
                + device.getAddress());
        }
    } else {
        String noDevices = getResources().getText(R.string.none_paired)
            .toString();
        pairedDevicesArrayAdapter.add(noDevices);
    }
}

private void startDiscovery() {
    setProgressBarIndeterminateVisibility(true);
    setTitle(R.string.scanning);

    tvDeviceListNewDeviceTitle.setVisibility(View.VISIBLE);

    if (bluetoothAdapter.isDiscovering()) {
        bluetoothAdapter.cancelDiscovery();
    }
}

```

```

        bluetoothAdapter.startDiscovery();
    }

private OnItemClickListener mDeviceClickListener = new OnItemClickListener() {
    public void onItemClick(AdapterView<?> av, View v, int arg2, long arg3) {
        bluetoothAdapter.cancelDiscovery();

        String info = ((TextView) v).getText().toString();
        String address = info.substring(info.length() - 17);

        Intent intent = new Intent();
        intent.putExtra(DEVICE_ADDRESS, address);

        setResult(Activity.RESULT_OK, intent);
        finish();
    }
};

private final BroadcastReceiver discoveryFinishReceiver = new BroadcastReceiver() {
    @Override
    public void onReceive(Context context, Intent intent) {
        String action = intent.getAction();

        if (BluetoothDevice.ACTION_FOUND.equals(action)) {
            BluetoothDevice device = intent
                .getParcelableExtra(BluetoothDevice.EXTRA_DEVICE);
            if (device.getBondState() != BluetoothDevice.BOND_BONDED) {
                newDevicesArrayAdapter.add(device.getName() + "\n"
                    + device.getAddress());
            }
        } else if (BluetoothAdapter.ACTION_DISCOVERY_FINISHED
            .equals(action)) {
            setProgressBarIndeterminateVisibility(false);
            setTitle(R.string.select_device);
            if (newDevicesArrayAdapter.getCount() == 0) {
                String noDevices = getResources().getText(
                    R.string.none_found).toString();
                newDevicesArrayAdapter.add(noDevices);
            }
        }
    }
};

@Override
protected void onDestroy() {
    super.onDestroy();

    if (bluetoothAdapter != null) {
        bluetoothAdapter.cancelDiscovery();
    }
    this.unregisterReceiver(discoveryFinishReceiver);
}
}

```

## ChatService

```

import java.io.IOException;
import java.io.InputStream;
import java.io.OutputStream;
import java.util.UUID;

import android.bluetooth.BluetoothAdapter;

```

```

import android.bluetooth.BluetoothDevice;
import android.bluetooth.BluetoothServerSocket;
import android.bluetooth.BluetoothSocket;
import android.content.Context;
import android.os.Bundle;
import android.os.Handler;
import android.os.Message;

public class ChatService {
    private static final String NAME_SECURE = "BluetoothChatSecure";
    private static final String NAME_INSECURE = "BluetoothChatInsecure";

    // Unique UUID for this application
    private static final UUID MY_UUID_SECURE = UUID
        .fromString("fa87c0d0-afac-11de-8a39-0800200c9a66");
    private static final UUID MY_UUID_INSECURE = UUID
        .fromString("8ce255c0-200a-11e0-ac64-0800200c9a66");

    // Member fields
    private final BluetoothAdapter bluetoothAdapter;
    private final Handler handler;
    private AcceptThread secureAcceptThread;
    private AcceptThread insecureAcceptThread;
    private ConnectThread connectThread;
    private ConnectedThread connectedThread;
    private int state;

    // Constants that indicate the current connection state
    public static final int STATE_NONE = 0;
    public static final int STATE_LISTEN = 1; // listening connection
    public static final int STATE_CONNECTING = 2; // initiate outgoing
    // connection
    public static final int STATE_CONNECTED = 3; // connected to remote device

    public ChatService(Context context, Handler handler) {
        bluetoothAdapter = BluetoothAdapter.getDefaultAdapter();
        state = STATE_NONE;

        this.handler = handler;
    }

    // Set the current state of the chat connection
    private synchronized void setState(int state) {
        this.state = state;

        handler.obtainMessage(MainActivity.MESSAGE_STATE_CHANGE, state, -1)
            .sendToTarget();
    }

    // get current connection state
    public synchronized int getState() {
        return state;
    }

    // start service
    public synchronized void start() {
        // Cancel any thread
        if (connectThread != null) {
            connectThread.cancel();
            connectThread = null;
        }

        // Cancel any running thresd
        if (connectedThread != null) {
            connectedThread.cancel();
            connectedThread = null;
        }
    }
}

```

```

}

setState(STATE_LISTEN);

// Start the thread to listen on a BluetoothServerSocket
if (secureAcceptThread == null) {
    secureAcceptThread = new AcceptThread(true);
    secureAcceptThread.start();
}
if (insecureAcceptThread == null) {
    insecureAcceptThread = new AcceptThread(false);
    insecureAcceptThread.start();
}
}

// initiate connection to remote device
public synchronized void connect(BluetoothDevice device, boolean secure) {
    // Cancel any thread
    if (state == STATE_CONNECTING) {
        if (connectThread != null) {
            connectThread.cancel();
            connectThread = null;
        }
    }

    // Cancel running thread
    if (connectedThread != null) {
        connectedThread.cancel();
        connectedThread = null;
    }

    // Start the thread to connect with the given device
    connectThread = new ConnectThread(device, secure);
    connectThread.start();
    setState(STATE_CONNECTING);
}

// manage Bluetooth connection
public synchronized void connected(BluetoothSocket socket,
    BluetoothDevice device, final String socketType) {
    // Cancel the thread
    if (connectThread != null) {
        connectThread.cancel();
        connectThread = null;
    }

    // Cancel running thread
    if (connectedThread != null) {
        connectedThread.cancel();
        connectedThread = null;
    }

    if (secureAcceptThread != null) {
        secureAcceptThread.cancel();
        secureAcceptThread = null;
    }
    if (insecureAcceptThread != null) {
        insecureAcceptThread.cancel();
        insecureAcceptThread = null;
    }

    // Start the thread to manage the connection and perform transmissions
    connectedThread = new ConnectedThread(socket, socketType);
    connectedThread.start();

    // Send the name of the connected device back to the UI Activity

```

```

Message msg = handler.obtainMessage(MainActivity.MESSAGE_DEVICE_NAME);
Bundle bundle = new Bundle();
bundle.putString(MainActivity.DEVICE_NAME, device.getName());
msg.setData(bundle);
handler.sendMessage(msg);

setState(STATE_CONNECTED);
}

// stop all threads
public synchronized void stop() {
    if (connectThread != null) {
        connectThread.cancel();
        connectThread = null;
    }

    if (connectedThread != null) {
        connectedThread.cancel();
        connectedThread = null;
    }

    if (secureAcceptThread != null) {
        secureAcceptThread.cancel();
        secureAcceptThread = null;
    }

    if (insecureAcceptThread != null) {
        insecureAcceptThread.cancel();
        insecureAcceptThread = null;
    }
    setState(STATE_NONE);
}

public void write(byte[] out) {
    ConnectedThread r;
    synchronized (this) {
        if (state != STATE_CONNECTED)
            return;
        r = connectedThread;
    }
    r.write(out);
}

private void connectionFailed() {
    Message msg = handler.obtainMessage(MainActivity.MESSAGE_TOAST);
    Bundle bundle = new Bundle();
    bundle.putString(MainActivity.TOAST, "Unable to connect device");
    msg.setData(bundle);
    handler.sendMessage(msg);

    // Start the service over to restart listening mode
    ChatService.this.start();
}

private void connectionLost() {
    Message msg = handler.obtainMessage(MainActivity.MESSAGE_TOAST);
    Bundle bundle = new Bundle();
    bundle.putString(MainActivity.TOAST, "Device connection was lost");
    msg.setData(bundle);
    handler.sendMessage(msg);

    // Start the service over to restart listening mode
    ChatService.this.start();
}

// runs while listening for incoming connections

```

```

private class AcceptThread extends Thread {
    private final BluetoothServerSocket serverSocket;
    private String socketType;

    public AcceptThread(boolean secure) {
        BluetoothServerSocket tmp = null;
        socketType = secure ? "Secure" : "Insecure";

        try {
            if (secure) {
                tmp = bluetoothAdapter.listenUsingRfcommWithServiceRecord(
                    NAME_SECURE, MY_UUID_SECURE);
            } else {
                tmp = bluetoothAdapter
                    .listenUsingInsecureRfcommWithServiceRecord(
                        NAME_INSECURE, MY_UUID_INSECURE);
            }
        } catch (IOException e) {
        }
        serverSocket = tmp;
    }

    public void run() {
        setName("AcceptThread" + socketType);

        BluetoothSocket socket = null;

        while (state != STATE_CONNECTED) {
            try {
                socket = serverSocket.accept();
            } catch (IOException e) {
                break;
            }

            // If a connection was accepted
            if (socket != null) {
                synchronized (ChatService.this) {
                    switch (state) {
                        case STATE_LISTEN:
                        case STATE_CONNECTING:
                            // start the connected thread.
                            connected(socket, socket.getRemoteDevice(),
                                socketType);
                            break;
                        case STATE_NONE:
                        case STATE_CONNECTED:
                            // Either not ready or already connected. Terminate
                            // new socket.
                            try {
                                socket.close();
                            } catch (IOException e) {
                            }
                            break;
                    }
                }
            }
        }
    }

    public void cancel() {
        try {
            serverSocket.close();
        } catch (IOException e) {
        }
    }
}

```

```

// runs while attempting to make an outgoing connection
private class ConnectThread extends Thread {
    private final BluetoothSocket socket;
    private final BluetoothDevice device;
    private String socketType;

    public ConnectThread(BluetoothDevice device, boolean secure) {
        this.device = device;
        BluetoothSocket tmp = null;
        socketType = secure ? "Secure" : "Insecure";

        try {
            if (secure) {
                tmp = device
                    .createRfcommSocketToServiceRecord(MY_UUID_SECURE);
            } else {
                tmp = device
                    .createInsecureRfcommSocketToServiceRecord(MY_UUID_INSECURE);
            }
        } catch (IOException e) {
        }
        socket = tmp;
    }

    public void run() {
        setName("ConnectThread" + socketType);

        // Always cancel discovery because it will slow down a connection
        bluetoothAdapter.cancelDiscovery();

        // Make a connection to the BluetoothSocket
        try {
            socket.connect();
        } catch (IOException e) {
            try {
                socket.close();
            } catch (IOException e2) {
            }
            connectionFailed();
            return;
        }

        // Reset the ConnectThread because we're done
        synchronized (ChatService.this) {
            connectThread = null;
        }

        // Start the connected thread
        connected(socket, device, socketType);
    }

    public void cancel() {
        try {
            socket.close();
        } catch (IOException e) {
        }
    }
}

// runs during a connection with a remote device
private class ConnectedThread extends Thread {
    private final BluetoothSocket bluetoothSocket;
    private final InputStream inputStream;
    private final OutputStream outputStream;

```

```

public ConnectedThread(BluetoothSocket socket, String socketType) {
    this.bluetoothSocket = socket;
    InputStream tmpIn = null;
    OutputStream tmpOut = null;

    try {
        tmpIn = socket.getInputStream();
        tmpOut = socket.getOutputStream();
    } catch (IOException e) {
    }

    inputStream = tmpIn;
    outputStream = tmpOut;
}

public void run() {
    byte[] buffer = new byte[1024];
    int bytes;

    // Keep listening to the InputStream
    while (true) {
        try {
            // Read from the InputStream
            bytes = inputStream.read(buffer);

            // Send the obtained bytes to the UI Activity
            handler.obtainMessage(MainActivity.MESSAGE_READ, bytes, -1,
                    buffer).sendToTarget();
        } catch (IOException e) {
            connectionLost();
            // Start the service over to restart listening mode
            ChatService.this.start();
            break;
        }
    }
}

// write to OutputStream
public void write(byte[] buffer) {
    try {
        outputStream.write(buffer);
        handler.obtainMessage(MainActivity.MESSAGE_WRITE, -1, -1,
                buffer).sendToTarget();
    } catch (IOException e) {
    }
}

public void cancel() {
    try {
        bluetoothSocket.close();
    } catch (IOException e) {
    }
}
}

```

## AYOUT FILES:

### activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<LinearLayout android:orientation="vertical" android:layout_height="match_parent"

```

```

    android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

        <ListView android:layout_height="0dp" android:layout_width="match_parent"
        android:transcriptMode="alwaysScroll" android:stackFromBottom="true" android:divider="@null"
        android:layout_weight="1" android:id="@+id/lvMainChat"/>

        -<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
        android:layout_width="match_parent">

            <EditText android:layout_height="wrap_content" android:layout_width="0dp"
            android:layout_weight="1" android:id="@+id/etMain" android:inputType="none"
            android:layout_gravity="bottom"/>

            <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:id="@+id/btnSend" android:text="@string/send"/>

        </LinearLayout>
    </LinearLayout>

```

### device\_list.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:visibility="gone" android:textColor="#fff" android:text="@string/title_paired_devices"
        android:paddingLeft="5dp" android:background="#666"
        android:id="@+id/tvDeviceListPairedDeviceTitle"/>

    <ListView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/lvDeviceListPairedDevice" android:stackFromBottom="true"
        android:layout_weight="1"/>

    <TextView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:visibility="gone" android:textColor="#fff" android:text="@string/title_other_devices"
        android:paddingLeft="5dp" android:background="#666"
        android:id="@+id/tvDeviceListNewDeviceTitle"/>

    <ListView android:layout_height="wrap_content" android:layout_width="match_parent"
        android:id="@+id/lvDeviceListNewDevice" android:stackFromBottom="true"
        android:layout_weight="2"/>

    <Button android:layout_height="wrap_content" android:layout_width="match_parent"
        android:text="@string/button_scan" android:id="@+id/btnDeviceListScan"/>

</LinearLayout>

```

### device\_name.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<TextView android:textSize="18sp" android:padding="5dp" android:layout_height="wrap_content"
    android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android"/>

```

### message.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<TextView android:textSize="18sp" android:padding="5dp" android:layout_height="wrap_content"
android:layout_width="match_parent" xmlns:android="http://schemas.android.com/apk/res/android"/>
```

## MENU

### option\_menu.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<menu xmlns:tools="http://schemas.android.com/tools"
      xmlns:android="http://schemas.android.com/apk/res/android">

    <item android:title="@string/secure_connect" android:showAsAction="ifRoom|withText"
          android:icon="@android:drawable/ic_menu_search" android:id="@+id/secure_connect_scan"
          tools:ignore="AppCompatResource" />

    <item android:title="@string/insecure_connect" android:showAsAction="ifRoom|withText"
          android:icon="@android:drawable/ic_menu_search" android:id="@+id/insecure_connect_scan"
          tools:ignore="AppCompatResource" />

    <item android:title="@string/discoverable" android:showAsAction="ifRoom|withText"
          android:icon="@android:drawable/ic_menu_mylocation" android:id="@+id/discoverable"
          tools:ignore="AppCompatResource" />

</menu>
```

### string.xml

```
<resources xmlns:xliff="http://schemas.android.com/tools">
    <string name="app_name">My Application</string>
    <string name="action_settings">Settings</string>

    <string name="send">Send</string>

    <string name="not_connected">You are not connected to a device</string>

    <string name="bt_not_enabled_leaving">Bluetooth was not enabled. Leaving Bluetooth
    Chat.</string>

    <string name="title_connecting">Connecting...</string>

    -<string name="title_connected_to">
Connected to
<xliff:g id="device_name">%1$s</xliff:g>
</string>

    <string name="title_not_connected">Not connected</string>

    <string name="scanning">Scanning for devices...</string>

    <string name="select_device">select a device to connect</string>

    <string name="none_paired">No devices have been paired</string>

    <string name="none_found">No devices found</string>

    <string name="title_paired_devices">Paired Devices</string>
```

---



---

```

<string name="title_other_devices">Other Available Devices</string>
<string name="button_scan">Scan for devices</string>
<string name="secure_connect">Connect a device - Secure</string>
<string name="insecure_connect">Connect a device - Insecure</string>
<string name="discoverable">Make discoverable</string>
</resources>

```

## Manifest.xml

```

<?xml version="1.0"?>

<manifest android:versionName="1.0" android:versionCode="1"
package="com.example.manju.myapplication"
xmlns:android="http://schemas.android.com/apk/res/android">

<uses-sdk android:targetSdkVersion="21" android:minSdkVersion="10"/>
<uses-permission android:name="android.permission.BLUETOOTH"/>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/>

<application android:theme="@style/AppTheme" android:label="@string/app_name"
android:icon="@mipmap/ic_launcher" android:allowBackup="true">

    <activity android:name=".MainActivity" android:label="@string/app_name"
    android:screenOrientation="portrait">

        <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>

    <activity android:name=".DeviceListActivity" android:theme="@android:style/Theme.Dialog"
    android:label="@string/select_device" android:screenOrientation="portrait"/>
</application>
</manifest>

```

---

## Contacts View

JAVA FILE:

### ContactsView.java

```

import android.app.Activity;
import android.database.Cursor;

```

```

import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.widget.TextView;

public class ContactsView extends Activity {
    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
        TextView contactView = (TextView) findViewById(R.id.contactview);

        Cursor cursor = getContacts();

        while (cursor.moveToNext()) {

            String displayName = cursor.getString(cursor
                    .getColumnIndex(ContactsContract.Data.DISPLAY_NAME));
            contactView.append("Name: ");
            contactView.append(displayName);
            contactView.append("\n");
        }
        // Closing the cursor
        cursor.close();
    }

    private Cursor getContacts() {
        // Run query
        Uri uri = ContactsContract.Contacts.CONTENT_URI;
        String[] projection = new String[] { ContactsContract.Contacts._ID,
                ContactsContract.Contacts.DISPLAY_NAME };
        String selection = ContactsContract.Contacts.IN_VISIBLE_GROUP + " = '"
                + ("1") + "'";
        String[] selectionArgs = null;
        String sortOrder = ContactsContract.Contacts.DISPLAY_NAME
                + " COLLATE LOCALIZED ASC";
        return getContentResolver().query(uri, projection, selection,
                selectionArgs, sortOrder);
    }
}

```

## LAYOUT FILE:

### main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    >
<TextView
    android:layout_width="fill_parent"
    android:layout_height="fill_parent" android:id="@+id/contactview"/>
</LinearLayout>

```

### Android manifest.xml

```

<uses-permission android:name="android.permission.READ_CONTACTS" />

```

## WEB PAGE Download and save in SD CARD

Java files:

### MainActivity.java:

```
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;

import android.app.Activity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.os.Handler;
import android.os.Message;
import android.os.Messenger;
import android.view.View;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    private Handler handler = new Handler() {
        public void handleMessage(Message message) {
            Bundle data = message.getData();
            if (message.arg1 == RESULT_OK && data != null) {

                String path = data.getString("absolutePath");
                Toast.makeText(MainActivity.this, "Downloaded" + path,
                        Toast.LENGTH_LONG).show();
            } else {
                Toast.makeText(MainActivity.this, "Download failed.",
                        Toast.LENGTH_LONG).show();
            }
        }
    };

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void onClick(View view) {
        Intent intent = new Intent(this, DownloadService.class);
        // Create a new Messenger for the communication back
        Messenger messenger = new Messenger(handler);
        intent.putExtra("MESSENGER", messenger);
        intent.setData(Uri.parse("http://www.vogella.de/index.html"));
        intent.putExtra("urlpath", "http://www.vogella.de/index.html");
        startService(intent);
    }

    public void showToast(View view) {
        Toast.makeText(this, "Still interactive", Toast.LENGTH_SHORT).show();
    }
}
```

```
    }
}
```

### DownloadService.java

```
import java.io.File;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import java.net.URL;

import android.app.Activity;
import android.app.IntentService;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.os.Environment;
import android.os.Message;
import android.os.Messenger;
import android.util.Log;

public class DownloadService extends IntentService {

    private int result = Activity.RESULT_CANCELED;

    public DownloadService() {
        super("DownloadService");
    }

    // Will be called asynchronously by Android
    @Override
    protected void onHandleIntent(Intent intent) {

        try {
            Thread.sleep(4000);
        } catch (InterruptedException e2) {
            e2.printStackTrace();
        }
        Uri data = intent.getData();
        String urlPath = intent.getStringExtra("urlpath");
        String fileName = data.getLastPathSegment();
        File output = new File(Environment.getExternalStorageDirectory(),
                fileName);
        if (output.exists()) {
            output.delete();
        }

        InputStream stream = null;
        FileOutputStream fos = null;
        try {

            URL url = new URL(urlPath);
            stream = url.openConnection().getInputStream();
            InputStreamReader reader = new InputStreamReader(stream);
            fos = new FileOutputStream(output.getPath());
            int next = -1;
            while ((next = reader.read()) != -1) {
                fos.write(next);
            }
            // Successful finished
            result = Activity.RESULT_OK;
        } catch (Exception e) {
            e.printStackTrace();
        }
    }
}
```

```

        } finally {
            if (stream != null) {
                try {
                    stream.close();
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
            if (fos != null) {
                try {
                    fos.close();
                } catch (IOException e) {
                    e.printStackTrace();
                }
            }
        }

        Bundle extras = intent.getExtras();
        if (extras != null) {
            Messenger messenger = (Messenger) extras.get("MESSENGER");
            Message msg = Message.obtain();
            msg.arg1 = result;
            Bundle bundle = new Bundle();
            bundle.putString("absolutePath", output.getAbsolutePath());
            msg.setData(bundle);
            try {
                messenger.send(msg);
            } catch (android.os.RemoteException e1) {
                Log.w(getClass().getName(), "Exception sending message", e1);
            }
        }
    }
}

```

### WrongDownloadService.java

```

import java.io.File;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.InputStream;
import java.io.InputStreamReader;
import java.net.URL;

import android.app.Activity;
import android.app.Service;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.os.Environment;
import android.os.IBinder;
import android.os.Message;
import android.os.Messenger;
import android.os.StrictMode;
import android.util.Log;

public class WrongDownloadService extends Service {

    private int result = Activity.RESULT_CANCELED;

    public WrongDownloadService() {
        super();
    }

    // Runs in the main user interface thread

```

```

@Override
public int onStartCommand(Intent intent, int flags, int startId) {
    // Don't do this
    // This will run in the main thread
    StrictMode.ThreadPolicy policy = new StrictMode.ThreadPolicy.Builder()
        .permitAll().build();
    StrictMode.setThreadPolicy(policy);
    try {
        Thread.sleep(4000);
    } catch (InterruptedException e2) {
        e2.printStackTrace();
    }
    Uri data = intent.getData();
    String urlPath = intent.getStringExtra("urlpath");
    String fileName = data.getLastPathSegment();
    File output = new File(Environment.getExternalStorageDirectory(),
        fileName);
    if (output.exists()) {
        output.delete();
    }

    InputStream stream = null;
    FileOutputStream fos = null;
    try {

        URL url = new URL(urlPath);
        stream = url.openConnection().getInputStream();
        InputStreamReader reader = new InputStreamReader(stream);
        fos = new FileOutputStream(output.getPath());
        int next = -1;
        while ((next = reader.read()) != -1) {
            fos.write(next);
        }
        // Sucessful finished
        result = Activity.RESULT_OK;

    } catch (Exception e) {
        e.printStackTrace();
    } finally {
        if (stream != null) {
            try {
                stream.close();
            } catch (IOException e) {
                e.printStackTrace();
            }
        }
        if (fos != null) {
            try {
                fos.close();
            } catch (IOException e) {
                e.printStackTrace();
            }
        }
    }
}

Bundle extras = intent.getExtras();
if (extras != null) {
    Messenger messenger = (Messenger) extras.get("MESSENGER");

    Message msg = Message.obtain();
    msg.arg1 = result;
    Bundle bundle = new Bundle();
    bundle.putString("absolutePath", output.getAbsolutePath());
    msg.setData(bundle);
    try {
        messenger.send(msg);
    }
}

```

```

        } catch (android.os.RemoteException e1) {
            Log.w(getClass().getName(), "Exception sending message", e1);
        }
    }
    return Service.START_NOT_STICKY;
}

@Override
public IBinder onBind(Intent intent) {
    return null;
}
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Start Service" android:onClick="onClick" android:id="@+id/startService"/>

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Start IntentService" android:onClick="onClick"
        android:id="@+id/startIntentService"/>

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Show Toast" android:onClick="showToast" android:id="@+id/button2"/>

</LinearLayout>

```

##### Android manifest.xml

```

<uses-permission android:name="android.permission.INTERNET" />

<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />

<service android:name="DownloadService" > </service>

<service android:name="WrongDownloadService" android:process=":download" > </service>

```

\*\*\*\*\*

## SHARE WORDS

#### JAVA FILES:

##### MainActivity.java

```
import android.os.Bundle;
```

```

import android.support.v7.app.AppCompatActivity;

import android.content.Intent;
import android.view.View;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void onClick(View view) {
        EditText editView = (EditText) findViewById(R.id.input);
        String string = editView.getText().toString();

        Intent intent = new Intent(Intent.ACTION_SEND);
        intent.setType("text/plain");
        intent.putExtra(Intent.EXTRA_TEXT, string);

        startActivity(Intent.createChooser(intent, "Share with:"));
    }
}

```

### ShareReceiver.java

```

import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.widget.Toast;

public class ShareReceiver extends Activity {

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.receiver);
        Intent intent = getIntent();
        Bundle extras = intent.getExtras();
        String string = extras.getString(Intent.EXTRA_TEXT);
        Toast.makeText(this, string, Toast.LENGTH_LONG).show();
    }
}

```

### LAYOUT FILES:

#### activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

```

```

<EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:text="Practice, practice, practice, dear Developers!" android:id="@+id/input">
    <requestFocus/>
</EditText>

<Button android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Share" android:onClick="onClick"/>

</LinearLayout>

```

### receiver.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Large Text"
        android:textAppearance="?android:attr/textAppearanceLarge" />

</LinearLayout>

```

\*\*\*\*\*

## Battery charge information

### JAVA FILES:

#### MainActivity.java

```

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.os.BatteryManager;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.util.Log;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    TextView textBatteryLevel = null;
    String batteryLevelInfo = "Battery Level";

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

```

```

        setContentView(R.layout.activity_main);

        textBatteryLevel = (TextView) findViewById(R.id.txtBatteryInfo);

        registerBatteryLevelReceiver();
    }

    @Override
    protected void onDestroy() {
        unregisterReceiver(battery_receiver);

        super.onDestroy();
    }

    private BroadcastReceiver battery_receiver = new BroadcastReceiver() {
        @Override
        public void onReceive(Context context, Intent intent) {
            boolean isPresent = intent.getBooleanExtra("present", false);
            String technology = intent.getStringExtra("technology");
            int plugged = intent.getIntExtra("plugged", -1);
            int scale = intent.getIntExtra("scale", -1);
            int health = intent.getIntExtra("health", 0);
            int status = intent.getIntExtra("status", 0);
            int rawlevel = intent.getIntExtra("level", -1);
            int voltage = intent.getIntExtra("voltage", 0);
            int temperature = intent.getIntExtra("temperature", 0);
            int level = 0;

            Bundle bundle = intent.getExtras();

            Log.i("BatteryLevel", bundle.toString());

            if (isPresent) {
                if (rawlevel >= 0 && scale > 0) {
                    level = (rawlevel * 100) / scale;
                }

                String info = "Battery Level: " + level + "%\n";
                info += ("Technology: " + technology + "\n");
                info += ("Plugged: " + getPlugTypeString(plugged) + "\n");
                info += ("Health: " + getHealthString(health) + "\n");
                info += ("Status: " + getStatusString(status) + "\n");
                info += ("Voltage: " + voltage + "\n");
                info += ("Temperature: " + temperature + "\n");

                setBatteryLevelText(info + "\n\n" + bundle.toString());
            } else {
                setBatteryLevelText("Battery not present!!!");
            }
        }
    };

    private String getPlugTypeString(int plugged) {
        String plugType = "Unknown";

        switch (plugged) {
            case BatteryManager.BATTERY_PLUGGED_AC:
                plugType = "AC";

```

```

        break;
    case BatteryManager.BATTERY_PLUGGED_USB:
        plugType = "USB";
        break;
    }

    return plugType;
}

private String getHealthString(int health) {
    String healthString = "Unknown";

    switch (health) {
        case BatteryManager.BATTERY_HEALTH_DEAD:
            healthString = "Dead";
            break;
        case BatteryManager.BATTERY_HEALTH_GOOD:
            healthString = "Good";
            break;
        case BatteryManager.BATTERY_HEALTH_OVER_VOLTAGE:
            healthString = "Over Voltage";
            break;
        case BatteryManager.BATTERY_HEALTH_OVERHEAT:
            healthString = "Over Heat";
            break;
        case BatteryManager.BATTERY_HEALTH_UNSPECIFIED_FAILURE:
            healthString = "Failure";
            break;
    }

    return healthString;
}

private String getStatusString(int status) {
    String statusString = "Unknown";

    switch (status) {
        case BatteryManager.BATTERY_STATUS_CHARGING:
            statusString = "Charging";
            break;
        case BatteryManager.BATTERY_STATUS_DISCHARGING:
            statusString = "Discharging";
            break;
        case BatteryManager.BATTERY_STATUS_FULL:
            statusString = "Full";
            break;
        case BatteryManager.BATTERY_STATUS_NOT_CHARGING:
            statusString = "Not Charging";
            break;
    }

    return statusString;
}

private void setBatteryLevelText(String text) {
    textBatteryLevel.setText(text);
}

```

```

    private void registerBatteryLevelReceiver() {
        IntentFilter filter = new IntentFilter(Intent.ACTION_BATTERY_CHANGED);
        registerReceiver(battery_receiver, filter);
    }
}

```

**LAYOUT FILE:**

**activity\_main.xml:**

```

<?xml version="1.0"?>

<LinearLayout android:padding="10dp" android:orientation="vertical"
    android:layout_height="match_parent" android:layout_width="match_parent"
    android:id="@+id/LinearLayout1" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:id="@+id/txtBatteryInfo" android:text="TextView"/>

</LinearLayout>

```

\*\*\*\*\*

## SMS (Display of inbox, sent & draft)

**JAVA FILE:**

**MainActivity.java**

```

import android.app.Activity;
import android.content.ContentResolver;
import android.database.Cursor;
import android.net.Uri;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.ListView;
import android.widget.SimpleCursorAdapter;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity implements OnClickListener {

    // GUI Widget
    Button btnSent, btnInbox, btnDraft;
    TextView lblMsg, lblNo;
    ListView lvMsg;

    // Cursor Adapter
    SimpleCursorAdapter adapter;

    /** Called when the activity is first created. */
    @Override

```

```

public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.messagebox);

    // Init GUI Widget
    btnInbox = (Button) findViewById(R.id.btnInbox);
    btnInbox.setOnClickListener(this);

    btnSent = (Button) findViewById(R.id.btnSentBox);
    btnSent.setOnClickListener(this);

    btnDraft = (Button) findViewById(R.id.btnDraft);
    btnDraft.setOnClickListener(this);

    lvMsg = (ListView) findViewById(R.id.lvMsg);
}

@Override
public void onClick(View v) {

    if (v == btnInbox) {

        // Create Inbox box URI
        Uri inboxURI = Uri.parse("content://sms/inbox");

        // List required columns
        String[] reqCols = new String[] { "_id", "address", "body" };

        // Get Content Resolver object, which will deal with Content
        // Provider
        ContentResolver cr = getContentResolver();

        // Fetch Inbox SMS Message from Built-in Content Provider
        Cursor c = cr.query(inboxURI, reqCols, null, null, null);

        // Attached Cursor with adapter and display in listview
        adapter = new SimpleCursorAdapter(this, R.layout.row, c,
            new String[] { "body", "address" }, new int[] {
                R.id.lblMsg, R.id.lblNumber });
        lvMsg.setAdapter(adapter);
    }

    if (v == btnSent) {

        // Create Sent box URI
        Uri sentURI = Uri.parse("content://sms/sent");

        // List required columns
        String[] reqCols = new String[] { "_id", "address", "body" };

        // Get Content Resolver object, which will deal with Content
        // Provider
        ContentResolver cr = getContentResolver();

        // Fetch Sent SMS Message from Built-in Content Provider
        Cursor c = cr.query(sentURI, reqCols, null, null, null);

        // Attached Cursor with adapter and display in listview
        adapter = new SimpleCursorAdapter(this, R.layout.row, c,
            new String[] { "body", "address" }, new int[] {
                R.id.lblMsg, R.id.lblNumber });
        lvMsg.setAdapter(adapter);
    }
}

```

```

        if (v == btnDraft) {
            // Create Draft box URI
            Uri draftURI = Uri.parse("content://sms/draft");

            // List required columns
            String[] reqCols = new String[] { "_id", "address", "body" };

            // Get Content Resolver object, which will deal with Content
            // Provider
            ContentResolver cr = getContentResolver();

            // Fetch Sent SMS Message from Built-in Content Provider
            Cursor c = cr.query(draftURI, reqCols, null, null, null);

            // Attached Cursor with adapter and display in listview
            adapter = new SimpleCursorAdapter(this, R.layout.row, c,
                new String[] { "body", "address" }, new int[] {
                    R.id.lblMsg, R.id.lblNumber });
            lvMsg.setAdapter(adapter);
        }
    }
}

```

## LAYOUT FILES:

### messagebox.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent" android:layout_height="match_parent"
    android:orientation="vertical">
    <LinearLayout android:id="@+id/linearLayout1"
        android:layout_width="match_parent" android:layout_weight="0"
        android:layout_height="wrap_content">
        <Button android:text="Inbox" android:id="@+id/btnInbox"
            android:layout_height="wrap_content" android:layout_weight="0.5"
            android:layout_width="match_parent"></Button>
        <Button android:text="Sent Box" android:id="@+id/btnSentBox"
            android:layout_height="wrap_content" android:layout_weight="0.5"
            android:layout_width="match_parent"></Button>
        <Button android:layout_weight="0.5" android:layout_height="wrap_content"
            android:id="@+id/btnDraft" android:text="Draft"
            android:layout_width="match_parent"></Button>
    </LinearLayout>
    <ListView android:layout_width="match_parent"
        android:layout_weight="1" android:layout_height="match_parent"
        android:id="@+id/lvMsg"></ListView>
</LinearLayout>

```

### row.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent">

```

```

<TextView android:textAppearance="?android:attr/textAppearanceLarge"
    android:text="TextView" android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:id="@+id/lblMsg"></TextView>
<TextView android:textAppearance="?android:attr/textAppearanceMedium"
    android:text="TextView" android:layout_width="wrap_content"
    android:layout_height="wrap_content" android:textColor="#00f"
    android:id="@+id/lblNumber"></TextView>

</LinearLayout>

```

### **Android manifest.xml**

```

<uses-permission android:name="android.permission.SEND_SMS" />
<uses-permission android:name="android.permission.READ_SMS" />

```

\*\*\*\*\*

## Date Picker

JAVA FILE:

### **MainActivity.java**

```

import android.os.Bundle;

import android.widget.TextView;
import android.support.v7.app.AppCompatActivity;

import java.util.Calendar;

import android.app.DatePickerDialog;
import android.app.Dialog;

import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.DatePicker;

public class MainActivity extends AppCompatActivity {

    private TextView Output;
    private Button changeDate;

    private int year;
    private int month;
    private int day;

    static final int DATE_PICKER_ID = 1111;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Output = (TextView) findViewById(R.id.Output);
        changeDate = (Button) findViewById(R.id.changeDate);
    }
}

```

```

// Get current date by calender

final Calendar c = Calendar.getInstance();
year = c.get(Calendar.YEAR);
month = c.get(Calendar.MONTH);
day = c.get(Calendar.DAY_OF_MONTH);

// Show current date

Output.setText(new StringBuilder()
    // Month is 0 based, just add 1
    .append(month + 1).append("-").append(day).append("-")
    .append(year).append(" "));

// Button listener to show date picker dialog

changeDate.setOnClickListener(new OnClickListener() {

    @Override
    public void onClick(View v) {

        // On button click show datepicker dialog
        showDialog(DATE_PICKER_ID);

    }
});

@Override
protected Dialog onCreateDialog(int id) {
    switch (id) {
        case DATE_PICKER_ID:

            // open datepicker dialog.
            // set date picker for current date
            // add pickerListener listner to date picker
            return new DatePickerDialog(this, pickerListener, year, month, day);
    }
    return null;
}

private DatePickerDialog.OnDateSetListener pickerListener = new
DatePickerDialog.OnDateSetListener() {

    // when dialog box is closed, below method will be called.
    @Override
    public void onDateSet(DatePicker view, int selectedYear,
                          int selectedMonth, int selectedDay) {

        year = selectedYear;
        month = selectedMonth;
        day = selectedDay;

        // Show selected date
        Output.setText(new StringBuilder().append(month + 1)
            .append("-").append(day).append("-").append(year)
            .append(" "));

    }
};

}

```

---

#### LAYOUT FILE

##### activity\_main.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Click To Change Date" android:id="@+id/changeDate"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Current/Selected Date (M-D-YYYY) : "
        android:textAppearance="?android:attr/textAppearanceLarge"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="" android:id="@+id/output"
        android:textAppearance="?android:attr/textAppearanceLarge"/>

</LinearLayout>
```

\*\*\*\*\*

## Time Picker

#### JAVA FILE:

##### MainActivity.java

```
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import java.util.Calendar;

import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.TextView;
import android.widget.TimePicker;
import android.app.Dialog;
import android.app.TimePickerDialog;

public class MainActivity extends AppCompatActivity {

    static final int TIME_DIALOG_ID = 1111;
    private TextView output;
    public Button btnClick;

    private int hour;
    private int minute;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        output = (TextView) findViewById(R.id.output);
```

```

***** display current time on screen Start *****

final Calendar c = Calendar.getInstance();
// Current Hour
hour = c.get(Calendar.HOUR_OF_DAY);
// Current Minute
minute = c.get(Calendar.MINUTE);

// set current time into output textView
updateTime(hour, minute);

***** display current time on screen End *****

// Add Button Click Listener
addButtonClickListener();

}

public void addButtonClickListener() {

    btnClick = (Button) findViewById(R.id.btnClick);

    btnClick.setOnClickListener(new OnClickListener() {

        @Override
        public void onClick(View v) {
            showDialog(TIME_DIALOG_ID);
        }
    });
}

@Override
protected Dialog onCreateDialog(int id) {
    switch (id) {
        case TIME_DIALOG_ID:

            // set time picker as current time
            return new TimePickerDialog(this, timePickerListener, hour, minute,
                    false);

        }
        return null;
}

private TimePickerDialog.OnTimeSetListener timePickerListener = new
TimePickerDialog.OnTimeSetListener() {

    @Override
    public void onTimeSet(TimePicker view, int hourOfDay, int minutes) {
        // TODO Auto-generated method stub
        hour = hourOfDay;
        minute = minutes;

        updateTime(hour, minute);
    }
};

private static String utilTime(int value) {

```

```

        if (value < 10)
            return "0" + String.valueOf(value);
        else
            return String.valueOf(value);
    }

private void updateTime(int hours, int mins) {

    String timeSet = "";
    if (hours > 12) {
        hours -= 12;
        timeSet = "PM";
    } else if (hours == 0) {
        hours += 12;
        timeSet = "AM";
    } else if (hours == 12)
        timeSet = "PM";
    else
        timeSet = "AM";

    String minutes = "";
    if (mins < 10)
        minutes = "0" + mins;
    else
        minutes = String.valueOf(mins);

    // Append in a StringBuilder
    String aTime = new StringBuilder().append(hours).append(":")
        .append(minutes).append(" ").append(timeSet).toString();

    output.setText(aTime);
}
}

```

#### LAYOUT FILE

##### activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Click To Change Time" android:id="@+id/btnClick"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Current Time (H:M): " android:id="@+id/lblTime"
        android:textAppearance="?android:attr/textAppearanceLarge"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="" android:id="@+id/output"
        android:textAppearance="?android:attr/textAppearanceLarge"/>

</LinearLayout>

```

---

---

```
*****
```

## Check Internet Connectivity

### JAVA FILE:

#### MainActivity.java

```
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.view.View;
import android.net.ConnectivityManager;

import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        final Button Save = (Button) findViewById(R.id.save);

        Save.setOnClickListener(new OnClickListener() {
            public void onClick(View v) {
                isInternetOn();
            }
        });
    }

    public final boolean isInternetOn() {

        // get Connectivity Manager object to check connection
        ConnectivityManager connec =
        (ConnectivityManager)getSystemService(getApplicationContext()).CONNECTIVITY_SERVICE);

        // Check for network connections
        if ( connec.getNetworkInfo(0).getState() == android.net.NetworkInfo.State.CONNECTED ||
        || connec.getNetworkInfo(0).getState() ==
        android.net.NetworkInfo.State.CONNECTING ||
        connec.getNetworkInfo(1).getState() ==
        android.net.NetworkInfo.State.CONNECTING ||
        connec.getNetworkInfo(1).getState() ==
        android.net.NetworkInfo.State.CONNECTED ) {

            // if connected with internet

            Toast.makeText(this, " Connected ", Toast.LENGTH_LONG).show();
            return true;
        } else if ( connec.getNetworkInfo(0).getState() ==
        android.net.NetworkInfo.State.DISCONNECTED || connec.getNetworkInfo(1).getState() ==
        android.net.NetworkInfo.State.DISCONNECTED ) {
    
```

```

        Toast.makeText(this, " Not Connected ", Toast.LENGTH_LONG).show();
        return false;
    }
    return false;
}
}

```

## LAYOUT FILE

### activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

    <LinearLayout android:layout_height="fill_parent" android:layout_width="fill_parent"
    android:orientation="vertical" xmlns:android="http://schemas.android.com/apk/res/android">

        <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:text="Click to check internet connectivity" android:id="@+id/save"> </Button>

        <TextView android:layout_height="wrap_content" android:layout_width="fill_parent"
    android:text="@string/hello"/>

    </LinearLayout>

```

### Android manifest.xml

```

<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE"/>

```

---

## Camera

### JAVA FILE:

#### MainActivity.java

```

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;

import java.io.File;
import java.util.List;

import android.net.Uri;
import android.os.Bundle;
import android.os.Environment;
import android.provider.MediaStore;
import android.app.Activity;
import android.content.Intent;
import android.content.pm.PackageManager;
import android.content.pm.ResolveInfo;
import android.graphics.Bitmap;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.ImageView;
import android.widget.TextView;
public class MainActivity extends AppCompatActivity implements OnClickListener {

```

```

Button btnTackPic;
TextView tvHasCamera, tvHasCameraApp;
ImageView ivThumbnailPhoto;
Bitmap bitMap;
static int TAKE_PICTURE = 1;

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    // Get reference to views
    tvHasCamera = (TextView) findViewById(R.id.tvHasCamera);
    tvHasCameraApp = (TextView) findViewById(R.id.tvHasCameraApp);
    btnTackPic = (Button) findViewById(R.id.btnTakePic);
    ivThumbnailPhoto = (ImageView) findViewById(R.id.ivThumbnailPhoto);

    // Does your device have a camera?
    if(hasCamera()){
        tvHasCamera.setBackgroundColor(0xFF00CC00);
        tvHasCamera.setText("You have Camera");
    }

    // Do you have Camera Apps?
    if(hasDefultCameraApp(MediaStore.ACTION_IMAGE_CAPTURE)){
        tvHasCameraApp.setBackgroundColor(0xFF00CC00);
        tvHasCameraApp.setText("You have Camera Apps");
    }

    // add onclick listener to the button
    btnTackPic.setOnClickListener(this);
}

// on button "btnTackPic" is clicked
@Override
public void onClick(View view) {

    // create intent with ACTION_IMAGE_CAPTURE action
    Intent intent = new Intent(MediaStore.ACTION_IMAGE_CAPTURE);

    // to save picture remove comment
    /*File file = new File(Environment.getExternalStorageDirectory(),
    "my-photo.jpg");
    Uri photoPath = Uri.fromFile(file);
    intent.putExtra(MediaStore.EXTRA_OUTPUT, photoPath); */

    // start camera activity
    startActivityForResult(intent, TAKE_PICTURE);
}

// The Android Camera application encodes the photo in the return Intent delivered to
onActivityResult()
// as a small Bitmap in the extras, under the key "data"
@Override
protected void onActivityResult(int requestCode, int resultCode, Intent intent) {

    if (requestCode == TAKE_PICTURE && resultCode== RESULT_OK && intent != null){
        // get bundle
        Bundle extras = intent.getExtras();

        // get
        bitMap = (Bitmap) extras.get("data");
        ivThumbnailPhoto.setImageBitmap(bitMap);
    }
}

```

```

        }

    // method to check you have a Camera
    private boolean hasCamera(){
        return getPackageManager().hasSystemFeature(PackageManager.FEATURE_CAMERA);
    }

    // method to check you have Camera Apps
    private boolean hasDefaultCameraApp(String action){
        final PackageManager packageManager = getPackageManager();
        final Intent intent = new Intent(action);
        List<ResolveInfo> list = packageManager.queryIntentActivities(intent,
PackageManager.MATCH_DEFAULT_ONLY);

        return list.size() > 0;
    }
}

```

## LAYOUT FILE

### activity\_main.xml

```

<?xml version="1.0"?>

    <LinearLayout android:orientation="vertical" tools:context=".MainActivity"
    android:layout_margin="10dp" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Has Camera? " android:layout_marginBottom="5dp" android:textSize="18dp"
        android:textColor="#FFF" android:background="#FF0000" android:layout_gravity="center_horizontal"
        android:id="@+id/tvHasCamera"/>

        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Has Camera App?" android:textSize="18dp" android:textColor="#FFF"
        android:background="#FF0000" android:layout_gravity="center_horizontal"
        android:id="@+id/tvHasCameraApp"/>

        <ImageView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:layout_gravity="center_horizontal" android:id="@+id/ivThumbnailPhoto"
        android:src="@mipmap/ic_launcher"/>

        <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Take a Picture" android:layout_gravity="center_horizontal"
        android:id="@+id/btnTakePic"/>

    </LinearLayout>

```

### Android manifest.xml

```

<uses-feature android:name="android.hardware.camera"/>

<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>

```

## List view (Search engine)

## **JAVA FILE:**

## MainActivity.java

```
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import java.util.ArrayList;
import java.util.HashMap;
import android.app.Activity;
import android.os.Bundle;
import android.text.Editable;
import android.text.TextWatcher;
import android.widget.ArrayAdapter;
import android.widget.EditText;
import android.widget.ListView;

public class MainActivity extends AppCompatActivity {

    // List view
    private ListView lv;

    // Listview Adapter
    ArrayAdapter<String> adapter;

    // Search EditText
    EditText inputSearch;

    // ArrayList for Listview
    ArrayList<HashMap<String, String>> productList;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Listview Data
        String products[] = {"Afghanistan",
            "Albania",
            "Algeria",
            "Andorra",
            "Angola",
            "Antigua and Barbuda",
            "Argentina",
            "Armenia",
            "Australia",
            "Austria",
            "Azerbaijan",
            "Bahamas",
            "Bahrain",
            "Bangladesh",
            "Barbados",
            "Belarus",
            "Bhutan",
            "Bolivia",
            "Bosnia and Herzegovina",
            "Bulgaria",
            "Cabo Verde",
            "Cambodia",
            "Cameroun",
            "Croatia",
            "Congo",
            "Congo, Dem. Rep."}
```

---

"Belgium",  
"Belize",  
"Benin",  
"Bhutan",  
"Bolivia",  
"Bosnia and Herzegovina",  
"Botswana",  
"Brazil",  
"Brunei",  
"Bulgaria",  
"Burkina Faso",  
"Burundi",  
"Cambodia",  
"Cameroon",  
"Canada",  
"Cape Verde",  
"Central African Republic",  
"Chad",  
"Chile",  
"China",  
"Colombia",  
"Comoros",  
"Congo (Brazzaville)",  
"Congo",  
"Costa Rica",  
"Cote d'Ivoire",  
"Croatia",  
"Cuba",  
"Cyprus",  
"Czech Republic",  
"Denmark",  
"Djibouti",  
"Dominica",  
"Dominican Republic",  
"East Timor (Timor Timur)",  
"Ecuador",  
"Egypt",  
"El Salvador",  
"Equatorial Guinea",  
"Eritrea",  
"Estonia",  
"Ethiopia",  
"Fiji",  
"Finland",  
"France",  
"Gabon",  
"Gambia, The",  
"Georgia",  
"Germany",  
"Ghana",  
"Greece",  
"Grenada",  
"Guatemala",  
"Guinea",  
"Guinea-Bissau",  
"Guyana",  
"Haiti",  
"Honduras",  
"Hungary",  
"Iceland",  
"India",  
"Indonesia",  
"Iran",  
"Iraq",  
"Ireland",  
"Israel",

---

"Italy",  
"Jamaica",  
"Japan",  
"Jordan",  
"Kazakhstan",  
"Kenya",  
"Kiribati",  
"Korea, North",  
"Korea, South",  
"Kuwait",  
"Kyrgyzstan",  
"Laos",  
"Latvia",  
"Lebanon",  
"Lesotho",  
"Liberia",  
"Libya",  
"Liechtenstein",  
"Lithuania",  
"Luxembourg",  
"Macedonia",  
"Madagascar",  
"Malawi",  
"Malaysia",  
"Maldives",  
"Mali",  
"Malta",  
"Marshall Islands",  
"Mauritania",  
"Mauritius",  
"Mexico",  
"Micronesia",  
"Moldova",  
"Monaco",  
"Mongolia",  
"Morocco",  
"Mozambique",  
"Myanmar",  
"Namibia",  
"Nauru",  
"Nepal",  
"Netherlands",  
"New Zealand",  
"Nicaragua",  
"Niger",  
"Nigeria",  
"Norway",  
"Oman",  
"Pakistan",  
"Palau",  
"Panama",  
"Papua New Guinea",  
"Paraguay",  
"Peru",  
"Philippines",  
"Poland",  
"Portugal",  
"Qatar",  
"Romania",  
"Russia",  
"Rwanda",  
"Saint Kitts and Nevis",  
"Saint Lucia",  
"Saint Vincent",  
"Samoa",  
"San Marino",

```

    "Sao Tome and Principe",
    "Saudi Arabia",
    "Senegal",
    "Serbia and Montenegro",
    "Seychelles",
    "Sierra Leone",
    "Singapore",
    "Slovakia",
    "Slovenia",
    "Solomon Islands",
    "Somalia",
    "South Africa",
    "Spain",
    "Sri Lanka",
    "Sudan",
    "Suriname",
    "Swaziland",
    "Sweden",
    "Switzerland",
    "Syria",
    "Taiwan",
    "Tajikistan",
    "Tanzania",
    "Thailand",
    "Togo",
    "Tonga",
    "Trinidad and Tobago",
    "Tunisia",
    "Turkey",
    "Turkmenistan",
    "Tuvalu",
    "Uganda",
    "Ukraine",
    "United Arab Emirates",
    "United Kingdom",
    "United States",
    "Uruguay",
    "Uzbekistan",
    "Vanuatu",
    "Vatican City",
    "Venezuela",
    "Vietnam",
    "Yemen",
    "Zambia",
    "Zimbabwe"}};

lv = (ListView) findViewById(R.id.list_view);
inputSearch = (EditText) findViewById(R.id.inputSearch);

// Adding items to listview
adapter = new ArrayAdapter<String>(this, R.layout.list_item, R.id.product_name,
products);
lv.setAdapter(adapter);

/**
 * Enabling Search Filter
 */
inputSearch.addTextChangedListener(new TextWatcher() {

    @Override
    public void onTextChanged(CharSequence cs, int arg1, int arg2, int arg3) {
        // When user changed the Text
        MainActivity.this.adapter.getFilter().filter(cs);
    }

    @Override

```

```

        public void beforeTextChanged(CharSequence arg0, int arg1, int arg2,
                                      int arg3) {
            // TODO Auto-generated method stub
        }

        @Override
        public void afterTextChanged(Editable arg0) {
            // TODO Auto-generated method stub
        }
    });
}

```

## LAYOUT FILE

### activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical" >

    <!-- Edittext for Search -->
    <EditText android:id="@+id/inputSearch"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:hint="Search products.."
        android:inputType="textVisiblePassword"/>

    <!-- List View -->
    <ListView
        android:id="@+id/list_view"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content" />

</LinearLayout>

```

### list\_item.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >

    <!-- Single ListItem -->
    <!-- Product Name -->
    <TextView android:id="@+id/product_name"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:padding="10dip"
        android:textSize="16dip"
        android:textStyle="bold" />

</LinearLayout>

```

---

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---

# Android Unique ID

JAVA FILE:

## MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import java.lang.reflect.Method;
import android.content.Context;
import android.os.Bundle;
import android.provider.Settings;
import android.telephony.TelephonyManager;
import android.util.Log;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    private static final String TAG = "UniqueId";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.main);
    }

    @Override
    protected void onResume() {
        super.onResume();

        // Get "Device Serial Number". The Android SystemProperties is apparently not for public
use,
        // as it exists on-device but is NOT exposed in the SDK, so treat with a grain of salt!
        String serialNumber = "unknown";
        try {
            Class<?> c = Class.forName("android.os.SystemProperties");
            Method get = c.getMethod("get", String.class, String.class);
            serialNumber = (String) get.invoke(c, "ro.serialno", serialNumber);
        } catch (Exception e) {
            Log.e(TAG, "Failed to get serial number", e);
        }
        ((TextView) findViewById(R.id.serial_number)).setText(serialNumber);

        // Get "Android ID". According to the JavaDoc:
        // "A 64-bit number (as a hex string) that is
        // randomly generated on the device's first boot
        // and should remain constant for the lifetime
        // of the device. (The value may change if a
        // factory reset is performed on the device.)"
        String androidId = Settings.Secure.getString(getContentResolver(),
Settings.Secure.ANDROID_ID);
        ((TextView) findViewById(R.id.android_id)).setText(androidId);

        // Get the mobile device id (IMEI or similar) if any
        String imei = ((TelephonyManager)
getSystemService(Context.TELEPHONY_SERVICE)).getDeviceId();
        ((TextView) findViewById(R.id.imei)).setText(imei);
    }
}
```

---

## LAYOUT FILE:

### main.xml

```
<?xml version="1.0"?>

<TableLayout tools:context=".MainActivity" android:padding="5sp"
    android:layout_height="match_parent" android:layout_width="match_parent"
    xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TableRow>
        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:text="@string/serial_number"/>
        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:id="@+id/serial_number"/>
    </TableRow>

    <TableRow>
        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:text="@string/imei"/>
        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:id="@+id/imei"/>
    </TableRow>

    <TableRow>
        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:text="@string/android_id"/>
        <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
            android:id="@+id/android_id"/>
    </TableRow>
</TableLayout>
```

### string.xml

```
<string name="imei">IMEI (Mobile ID)</string>
<string name="android_id">Android ID</string>
<string name="serial_number">Dev Serial Num</string>
```

### Android manifest.xml

```
<uses-permission android:name="android.permission.READ_PHONE_STATE"/>
```

---

## Telephony Manager

JAVA FILE:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;

import java.util.List;

import android.os.Bundle;
import android.telephony.CellLocation;
import android.telephony.NeighboringCellInfo;
import android.telephony.PhoneStateListener;
import android.telephony.ServiceState;
import android.telephony.TelephonyManager;
import android.telephony.gsm.GsmCellLocation;
import android.util.Log;
import android.widget.ImageView;
import android.widget.ProgressBar;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    private static final String APP_NAME = "SignalLevelSample";
    private static final int EXCELLENT_LEVEL = 75;
    private static final int GOOD_LEVEL = 50;
    private static final int MODERATE_LEVEL = 25;
    private static final int WEAK_LEVEL = 0;

    private static final int INFO_SERVICE_STATE_INDEX = 0;
    private static final int INFO_CELL_LOCATION_INDEX = 1;
    private static final int INFO_CALL_STATE_INDEX = 2;
    private static final int INFO_CONNECTION_STATE_INDEX = 3;
    private static final int INFO_SIGNAL_LEVEL_INDEX = 4;
    private static final int INFO_SIGNAL_LEVEL_INFO_INDEX = 5;
    private static final int INFO_DATA_DIRECTION_INDEX = 6;
    private static final int INFO_DEVICE_INFO_INDEX = 7;

    private static final int[] info_ids = { R.id.serviceState_info,
        R.id.cellLocation_info, R.id.callState_info,
        R.id.connectionState_info, R.id.signalLevel, R.id.signalLevelInfo,
        R.id.dataDirection, R.id.device_info };

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        startSignalLevelListener();
        displayTelephonyInfo();
    }

    @Override
    protected void onPause() {
        super.onPause();
        stopListening();
    }

    @Override
    protected void onResume() {
        super.onResume();
    }
}
```

```

        startSignalLevelListener();
    }

@Override
protected void onDestroy() {
    stopListening();
    super.onDestroy();
}

private void setTextViewText(int id, String text) {
    ((TextView) findViewById(id)).setText(text);
}

private void setSignalLevel(int id, int infoid, int level) {
    int progress = (int) (((float) level) / 31.0) * 100;
    String signalLevelString = getSignalLevelString(progress);
    ((ProgressBar) findViewById(id)).setProgress(progress);
    ((TextView) findViewById(infoid)).setText(signalLevelString);
    Log.i("signalLevel ", "" + progress);
}

private String getSignalLevelString(int level) {
    String signalLevelString = "Weak";
    if (level > EXCELLENT_LEVEL)
        signalLevelString = "Excellent";
    else if (level > GOOD_LEVEL)
        signalLevelString = "Good";
    else if (level > MODERATE_LEVEL)
        signalLevelString = "Moderate";
    else if (level > WEAK_LEVEL)
        signalLevelString = "Weak";
    return signalLevelString;
}

private void stopListening() {
    TelephonyManager tm = (TelephonyManager) getSystemService(TELEPHONY_SERVICE);
    tm.listen(phoneStateListener, PhoneStateListener.LISTEN_NONE);
}

private void setDataDirection(int id, int direction) {
    int resid = getDataDirectionRes(direction);
    ((ImageView) findViewById(id)).setImageResource(resid);
}

private int getDataDirectionRes(int direction) {
    int resid = R.drawable.data_none;

    switch (direction) {
        case TelephonyManager.DATA_ACTIVITY_IN:
            resid = R.drawable.data_in;
            break;
        case TelephonyManager.DATA_ACTIVITY_OUT:
            resid = R.drawable.data_out;
            break;
        case TelephonyManager.DATA_ACTIVITY_INOUT:
            resid = R.drawable.data_both;
            break;
        case TelephonyManager.DATA_ACTIVITY_NONE:
            resid = R.drawable.data_none;
            break;
        default:
            resid = R.drawable.data_none;
            break;
    }
    return resid;
}

```

```

private void startSignalLevelListener() {
    TelephonyManager tm = (TelephonyManager) getSystemService(TELEPHONY_SERVICE);
    int events = PhoneStateListener.LISTEN_SIGNAL_STRENGTH
        | PhoneStateListener.LISTEN_DATA_ACTIVITY
        | PhoneStateListener.LISTEN_CELL_LOCATION
        | PhoneStateListener.LISTEN_CALL_STATE
        | PhoneStateListener.LISTEN_CALL_FORWARDING_INDICATOR
        | PhoneStateListener.LISTEN_DATA_CONNECTION_STATE
        | PhoneStateListener.LISTEN_MESSAGE_WAITING_INDICATOR
        | PhoneStateListener.LISTEN_SERVICE_STATE;
    tm.listen(phoneStateListener, events);
}

private void displayTelephonyInfo() {
    TelephonyManager tm = (TelephonyManager) getSystemService(TELEPHONY_SERVICE);
    GsmCellLocation loc = (GsmCellLocation) tm.getCellLocation();
    // Reorganize it to do one getSomeData, logString it in pairs, with code guards
    if (loc == null) {
        return;
    }
    int cellid = loc.getCid();
    int lac = loc.getLac();
    String deviceid = tm.getDeviceId();
    String phonenumber = tm.getLine1Number();
    String softwareversion = tm.getDeviceSoftwareVersion();
    String operatorname = tm.getNetworkOperatorName();
    String simcountrycode = tm.getSimCountryIso();
    String simoperator = tm.getSimOperatorName();
    String simserialno = tm.getSimSerialNumber();
    String subscriberid = tm.getSubscriberId();
    String networktype = getNetworkTypeString(tm.getNetworkType());
    String phonetype = getPhoneTypeString(tm.getPhoneType());
    logString("CellID: " + cellid);
    logString("LAC: " + lac);
    logString("Device ID: " + deviceid);
    logString("Phone Number: " + phonenumber);
    logString("Software Version: " + softwareversion);
    logString("Operator Name: " + operatorname);
    logString("SIM Country Code: " + simcountrycode);
    logString("SIM Operator: " + simoperator);
    logString("SIM Serial No.: " + simserialno);
    logString("Subscriber ID: " + subscriberid);
    String deviceinfo = "";
    deviceinfo += ("CellID: " + cellid + "\n");
    deviceinfo += ("LAC: " + lac + "\n");
    deviceinfo += ("Device ID: " + deviceid + "\n");
    deviceinfo += ("Phone Number: " + phonenumber + "\n");
    deviceinfo += ("Software Version: " + softwareversion + "\n");
    deviceinfo += ("Operator Name: " + operatorname + "\n");
    deviceinfo += ("SIM Country Code: " + simcountrycode + "\n");
    deviceinfo += ("SIM Operator: " + simoperator + "\n");
    deviceinfo += ("SIM Serial No.: " + simserialno + "\n");
    deviceinfo += ("Subscriber ID: " + subscriberid + "\n");
    deviceinfo += ("Network Type: " + networktype + "\n");
    deviceinfo += ("Phone Type: " + phonetype + "\n");
    List<NeighboringCellInfo> cellinfo = tm.getNeighboringCellInfo();
    if (null != cellinfo) {
        for (NeighboringCellInfo info : cellinfo) {
            deviceinfo += ("\tCellID: " + info.getCid() + ", RSSI: "
                + info.getRssi() + "\n");
        }
    }
    setTextViewText(info_ids[INFO_DEVICE_INFO_INDEX], deviceinfo);
}

```

```

private String getNetworkTypeString(int type) {
    String typeString = "Unknown";
    switch (type) {
        case TelephonyManager.NETWORK_TYPE_EDGE:
            typeString = "EDGE";
            break;
        case TelephonyManager.NETWORK_TYPE_GPRS:
            typeString = "GPRS";
            break;
        case TelephonyManager.NETWORK_TYPE_UMTS:
            typeString = "UMTS";
            break;
        default:
            typeString = "UNKNOWN";
            break;
    }
    return typeString;
}

private String getPhoneTypeString(int type) {
    String typeString = "Unknown";
    switch (type) {
        case TelephonyManager.PHONE_TYPE_GSM:
            typeString = "GSM";
            break;
        case TelephonyManager.PHONE_TYPE_NONE:
            typeString = "UNKNOWN";
            break;
        default:
            typeString = "UNKNOWN";
            break;
    }
    return typeString;
}

private int logString(String message) {
    return Log.i(APP_NAME, message);
}

private final PhoneStateListener phoneStateListener = new PhoneStateListener() {

    @Override
    public void onCallForwardingIndicatorChanged(boolean cfi) {
        Log.i(APP_NAME, "onCallForwardingIndicatorChanged " + cfi);
        super.onCallForwardingIndicatorChanged(cfi);
    }

    @Override
    public void onCallStateChanged(int state, String incomingNumber) {
        String callState = "UNKNOWN";
        switch (state) {
            case TelephonyManager.CALL_STATE_IDLE:
                callState = "IDLE";
                break;
            case TelephonyManager.CALL_STATE_RINGING:
                callState = "Ringing (" + incomingNumber + ")";
                break;
            case TelephonyManager.CALL_STATE_OFFHOOK:
                callState = "Offhook";
                break;
        }
        setTextViewText(info_ids[INFO_CALL_STATE_INDEX], callState);
        Log.i(APP_NAME, "onCallStateChanged " + callState);
        super.onCallStateChanged(state, incomingNumber);
    }
}

```

```

@Override
public void onCellLocationChanged(CellLocation location) {
    String locationString = location.toString();
    setTextViewText(info_ids[INFO_CELL_LOCATION_INDEX], locationString);

    Log.i(APP_NAME, "onCellLocationChanged " + locationString);
    super.onCellLocationChanged(location);
}

@Override
public void onDataActivity(int direction) {
    String directionString = "none";
    switch (direction) {
        case TelephonyManager.DATA_ACTIVITY_IN:
            directionString = "IN";
            break;
        case TelephonyManager.DATA_ACTIVITY_OUT:
            directionString = "OUT";
            break;
        case TelephonyManager.DATA_ACTIVITY_INOUT:
            directionString = "INOUT";
            break;
        case TelephonyManager.DATA_ACTIVITY_NONE:
            directionString = "NONE";
            break;
        default:
            directionString = "UNKNOWN: " + direction;
            break;
    }

    setDataDirection(info_ids[INFO_DATA_DIRECTION_INDEX], direction);
    Log.i(APP_NAME, "onDataActivity " + directionString);
    super.onDataActivity(direction);
}

@Override
public void onDataConnectionStateChanged(int state) {
    String connectionState = "Unknown";
    switch (state) {
        case TelephonyManager.DATA_CONNECTED:
            connectionState = "Connected";
            break;
        case TelephonyManager.DATA_CONNECTING:
            connectionState = "Connecting";
            break;
        case TelephonyManager.DATA_DISCONNECTED:
            connectionState = "Disconnected";
            break;
        case TelephonyManager.DATA_SUSPENDED:
            connectionState = "Suspended";
            break;
        default:

            connectionState = "Unknown: " + state;
            break;
    }

    setTextViewText(info_ids[INFO_CONNECTION_STATE_INDEX],
        connectionState);

    Log.i(APP_NAME, "onDataConnectionStateChanged " + connectionState);
    super.onDataConnectionStateChanged(state);
}

@Override

```

```

public void onMessageWaitingIndicatorChanged(boolean mwi) {
    Log.i(APP_NAME, "onMessageWaitingIndicatorChanged " + mwi);
    super.onMessageWaitingIndicatorChanged(mwi);
}

@Override
public void onServiceStateChanged(ServiceState serviceState) {
    String serviceStateString = "UNKNOWN";
    switch (serviceState.getState()) {
        case ServiceState.STATE_IN_SERVICE:
            serviceStateString = "IN SERVICE";
            break;
        case ServiceState.STATE_EMERGENCY_ONLY:
            serviceStateString = "EMERGENCY ONLY";
            break;
        case ServiceState.STATE_OUT_OF_SERVICE:
            serviceStateString = "OUT OF SERVICE";
            break;
        case ServiceState.STATE_POWER_OFF:
            serviceStateString = "POWER OFF";
            break;
        default:
            serviceStateString = "UNKNOWN";
            break;
    }
    setTextViewText(info_ids[INFO_SERVICE_STATE_INDEX],
                   serviceStateString);
    Log.i(APP_NAME, "onServiceStateChanged " + serviceStateString);
    super.onServiceStateChanged(serviceState);
}

@Override
public void onSignalStrengthChanged(int asu) {
    Log.i(APP_NAME, "onSignalStrengthChanged " + asu);
    setSignalLevel(info_ids[INFO_SIGNAL_LEVEL_INDEX],
                  info_ids[INFO_SIGNAL_LEVEL_INFO_INDEX], asu);
    super.onSignalStrengthChanged(asu);
}
};

}

```

## LAYOUT FILE:

activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<ScrollView android:scrollbarAlwaysDrawVerticalTrack="false"
            android:scrollbarStyle="insideOverlay" android:orientation="vertical"
            android:layout_height="wrap_content" android:layout_width="fill_parent"
            xmlns:android="http://schemas.android.com/apk/res/android">

    -<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
                  android:layout_width="fill_parent">

        -<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
                      android:layout_width="fill_parent">

```

```
<TextView style="@style/labelStyleRight" android:text="Service State"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" />

<TextView style="@style/textStyle" android:id="@+id/serviceState_info"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content" />

</LinearLayout>

-<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="fill_parent">

    <TextView style="@style/labelStyleRight" android:text="Cell Location"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

    <TextView style="@style/textStyle" android:id="@+id/cellLocation_info"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</LinearLayout>

-<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="fill_parent">

    <TextView style="@style/labelStyleRight" android:text="Call State"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

    <TextView style="@style/textStyle" android:id="@+id/callState_info"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</LinearLayout>

-<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="fill_parent">

    <TextView style="@style/labelStyleRight" android:text="Connection State"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

    <TextView style="@style/textStyle" android:id="@+id/connectionState_info"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</LinearLayout>

-<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
    android:layout_width="fill_parent">

    <TextView style="@style/labelStyleRight" android:text="Signal Level"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

    <LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
        android:layout_width="fill_parent" android:layout_weight="0.5">

        <ProgressBar style="@style/progressStyle" android:id="@+id/signalLevel"
            android:layout_height="wrap_content"
```

```

        android:layout_width="wrap_content" />

<TextView style="@style/textSmallStyle" android:id="@+id/signalLevelInfo"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</LinearLayout>
</LinearLayout>

-<LinearLayout android:orientation="horizontal" android:layout_height="wrap_content"
android:layout_width="fill_parent">

<TextView style="@style/labelStyleRight" android:text="Data"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

<ImageView style="@style/imageStyle" android:id="@+id/dataDirection"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</LinearLayout>
<TextView style="@style/labelStyleLeft" android:id="@+id/device_info"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

</LinearLayout>
</ScrollView>

```

### Android manifest.xml

```

<uses-permission android:name="android.permission.READ_PHONE_STATE" />

<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION" />

```

---

## Video Capture

JAVA FILE:

### MainActivity.java

```

import android.support.v7.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.VideoView;

public class MainActivity extends AppCompatActivity implements OnClickListener {
    public static int VIDEO_CAPTURED = 1;

```

```

Button captureVideoButton;
Button playVideoButton;

VideoView videoView;
Uri videoFileUri;

@Override
public void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    captureVideoButton = (Button) this.findViewById(R.id.CaptureVideoButton);
    playVideoButton = (Button) this.findViewById(R.id.PlayVideoButton);
    captureVideoButton.setOnClickListener(this);
    playVideoButton.setOnClickListener(this);
    playVideoButton.setEnabled(false);
    videoView = (VideoView) this.findViewById(R.id.VideoView);
}

public void onClick(View v) {
    if (v == captureVideoButton) {
        Intent captureVideoIntent = new
Intent(android.provider.MediaStore.ACTION_VIDEO_CAPTURE);
        startActivityForResult(captureVideoIntent, VIDEO_CAPTURED);
    } else if (v == playVideoButton) {
        videoView.setVideoURI(videoFileUri);
        videoView.start();
    }
}

protected void onActivityResult(int requestCode, int resultCode, Intent data) {
    if (resultCode == RESULT_OK && requestCode == VIDEO_CAPTURED) {
        videoFileUri = data.getData();
        playVideoButton.setEnabled(true);
    }
}
}

```

#### LAYOUT FILE:

activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    >
    <Button android:text="Capture Video" android:id="@+id/CaptureVideoButton"
    android:layout_width="wrap_content" android:layout_height="wrap_content"></Button>
    <Button android:text="Play Video" android:id="@+id/PlayVideoButton"
    android:layout_width="wrap_content" android:layout_height="wrap_content"></Button>
    <VideoView android:id="@+id/VideoView" android:layout_width="wrap_content"
    android:layout_height="wrap_content"></VideoView>
</LinearLayout>

```

Android manifest.xml

```

<uses-permission android:name="android.permission.RECORD_AUDIO"></uses-permission>
<uses-permission android:name="android.permission.CAMERA"></uses-permission>
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"></uses-permission>

```

---

## Image, Video & Audio

JAVA FILE:

### MainActivity.java

```
import android.app.Activity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.support.v7.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    private static final int REQUEST_AUDIO = 1;
    private static final int REQUEST_VIDEO = 2;
    private static final int REQUEST_IMAGE = 3;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button images = (Button) findViewById(R.id.imageButton);
        images.setOnClickListener(this);
        Button videos = (Button) findViewById(R.id.videoButton);
        videos.setOnClickListener(this);
        Button audio = (Button) findViewById(R.id.audioButton);
        audio.setOnClickListener(this);
    }

    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent data) {

        if(resultCode == Activity.RESULT_OK) {
            Uri selectedContent = data.getData();
            if(requestCode == REQUEST_IMAGE) {
                //Display the image
            }
            if(requestCode == REQUEST_VIDEO) {
                //Play the video clip
            }
            if(requestCode == REQUEST_AUDIO) {
                //Play the audio clip
            }
        }
    }

    @Override
    public void onClick(View v) {
        Intent intent = new Intent();
        intent.setAction(Intent.ACTION_GET_CONTENT);
        switch(v.getId()) {
            case R.id.imageButton:
                intent.setType("image/*");
                startActivityForResult(intent, REQUEST_IMAGE);
                return;
            case R.id.videoButton:
```

```
        intent.setType("video/*");
        startActivityForResult(intent, REQUEST_VIDEO);
        return;
    case R.id.audioButton:
        intent.setType("audio/*");
        startActivityForResult(intent, REQUEST_AUDIO);
        return;
    default:
        return;
    }
}
```

## LAYOUT FILE:

## activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">
    <Button
        android:id="@+id/imageButton"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Images"
        />
    <Button
        android:id="@+id/videoButton"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Video"
        />
    <Button
        android:id="@+id/audioButton"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Audio"
        />
</LinearLayout>
```

\*\*\*\*\*

## Screen Resolution information

#### JAVA FILE:

## MainActivity.java

```
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.util.DisplayMetrics;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
```

```

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        /** An object to get Screen display metrics */
        DisplayMetrics metrics = new DisplayMetrics();

        /** Getting the screen display metrics */
        getWindowManager().getDefaultDisplay().getMetrics(metrics);

        /** Getting reference to TextView object of the main.xml file */
        TextView tvMetrics = (TextView) findViewById(R.id.tv_metrics);

        /** Getting the screen density in dpi */
        String density = Integer.toString(metrics.densityDpi);

        /** Getting the screen width and height in pixels */
        String resolution = Integer.toString(metrics.widthPixels) + "x" +
        Integer.toString(metrics.heightPixels);

        /** Converting Screen resolution in pixels into dp */
        float dp_w = ( metrics.widthPixels * 160 ) / metrics.xdpi;

        /** Converting Screen resolution in pixels into dp */
        float dp_h = ( metrics.heightPixels * 160 ) / metrics.ydpi;

        /** Getting the screen width and height in dp */
        String resolution_dp = Float.toString((int)dp_w) + "x" + Float.toString((int)dp_h);

        /** Setting the density, width and height of the screen to the TextView object */
        tvMetrics.setText("Density : " + density + "\n" + "Resolution in pixels : " +
        resolution + "\nResolution in dp : " + resolution_dp);

    }
}

```

## LAYOUT FILE:

### activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="fill_parent"
        android:id="@+id/tv_metrics"/>

</LinearLayout>

```

\*\*\*\*\*

## Open Dial Pad

---

## JAVA FILE:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        /** Referring to the button object of the main.xml layout */
        Button btn = (Button) findViewById(R.id.btn);

        /** Defining a click event listener */
        OnClickListener listener = new OnClickListener() {
            @Override
            public void onClick(View v) {
                /** Creating an intent with the dialer's action name */
                /** Since the intent is created with activity's action name, the intent is an
                implicit intent */
                Intent intent = new Intent("android.intent.action.DIAL");

                /** Starting the Dialer activity */
                startActivity(intent);
            }
        };

        /** Setting click event listener for the buttonS */
        btn.setOnClickListener(listener);
    }
}
```

## LAYOUT FILE:

### activity\_main.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="fill_parent"
        android:text="@string/dialer" android:id="@+id	btn"/>

</LinearLayout>
```

### string.xml

```
<string name="dialer">Open Dialer</string>
```

---

---

```
*****
```

## URL browser search engine

### JAVA FILE:

#### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;

import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        /** Getting a reference to the button object of the main.xml */
        Button btn = (Button) findViewById(R.id.btn_browse);

        OnClickListener listener = new OnClickListener() {

            @Override
            public void onClick(View v) {
                /** Getting a reference to the textedit object of the main.xml */
                EditText txt = (EditText) findViewById(R.id.te_url);

                /** Creating a view action to display the website */
                Intent intent = new Intent("android.intent.action.VIEW");

                /** Setting up a uri object with a web address */
                Uri data = Uri.parse("http://" + txt.getText().toString());

                /** Setting web address to the intent object as data */
                intent.setData(data);

                /** Start an activity that matches intent action and intent data */
                startActivity(intent);

            }
        };

        btn.setOnClickListener(listener);
    }
}
```

### LAYOUT FILE:

### activity\_main.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <EditText android:layout_height="wrap_content" android:layout_width="fill_parent"
        android:inputType="text" android:hint="@string/hnt_te_url" android:id="@+id/te_url"/>

    <Button android:layout_height="wrap_content" android:layout_width="fill_parent"
        android:id="@+id/btn_browse" android:text="@string/lbl_btn_browse"/>

</LinearLayout>
```

### string.xml

```
<string name="hnt_te_url">Enter a website here ...</string>
<string name="lbl_btn_browse">Browse</string>
```

### Android manifest.xml

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## Calculator

### JAVA FILE:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    Button button0 , button1 , button2 , button3 , button4 , button5 , button6 ,
        button7 , button8 , button9 , buttonAdd , buttonSub , buttonDivision ,
        buttonMul , button10 , buttonC , buttonEqual ;

    EditText edt1 ;
    float mValueOne , mValueTwo ;
    boolean mAddition , mSubtract ,mMultiplication ,mDivision ;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```

super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);

button0 = (Button) findViewById(R.id.button0);
button1 = (Button) findViewById(R.id.button1);
button2 = (Button) findViewById(R.id.button2);
button3 = (Button) findViewById(R.id.button3);
button4 = (Button) findViewById(R.id.button4);
button5 = (Button) findViewById(R.id.button5);
button6 = (Button) findViewById(R.id.button6);
button7 = (Button) findViewById(R.id.button7);
button8 = (Button) findViewById(R.id.button8);
button9 = (Button) findViewById(R.id.button9);
button10 = (Button) findViewById(R.id.button10);
buttonAdd = (Button) findViewById(R.id.buttonadd);
buttonSub = (Button) findViewById(R.id.buttonsub);
buttonMul = (Button) findViewById(R.id.buttonmul);
buttonDivision = (Button) findViewById(R.id.butondiv);
buttonC = (Button) findViewById(R.id.buttonC);
buttonEqual = (Button) findViewById(R.id.buttoneq1);
edt1 = (EditText) findViewById(R.id.edt1);

button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"1");
    }
});

button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"2");
    }
});

button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"3");
    }
});

button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"4");
    }
});

button5.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"5");
    }
});

button6.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"6");
    }
});

button7.setOnClickListener(new View.OnClickListener() {

```

```

    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"7");
    }
});

button8.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"8");
    }
});

button9.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"9");
    }
});

button0.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+"0");
    }
});

buttonAdd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {

        if (edt1 == null){
            edt1.setText("");
        }else {
            mValueOne = Float.parseFloat(edt1.getText() + "");
            mAddition = true;
            edt1.setText(null);
        }
    }
});

buttonSub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne = Float.parseFloat(edt1.getText() + "");
        mSubtract = true ;
        edt1.setText(null);
    }
});

buttonMul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne = Float.parseFloat(edt1.getText() + "");
        mMultiplication = true ;
        edt1.setText(null);
    }
});

buttonDivision.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne = Float.parseFloat(edt1.getText()+"");
        mDivision = true ;
        edt1.setText(null);
    }
});

```

```

    });

buttonEqual.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueTwo = Float.parseFloat(edt1.getText() + "");

        if (mAddition == true){
            edt1.setText(mValueOne + mValueTwo + "");
            mAddition=false;
        }

        if (mSubtract == true){
            edt1.setText(mValueOne - mValueTwo+"");
            mSubtract=false;
        }

        if (mMultiplication == true){
            edt1.setText(mValueOne * mValueTwo+"");
            mMultiplication=false;
        }

        if (mDivision == true){
            edt1.setText(mValueOne / mValueTwo+"");
            mDivision=false;
        }
    }
});

buttonC.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText("");
    }
});

button10.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        edt1.setText(edt1.getText()+".");
    }
});
}
}

```

## LAYOUT FILE:

### activity\_main.xml

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools" android:layout_width="match_parent"
    android:layout_height="match_parent" android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" tools:context=".MainActivity"
    android:id="@+id/relative1">

    <EditText
        android:layout_width="match_parent"

```

```
    android:layout_height="wrap_content"
    android:id="@+id/edt1" />

    <Button
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="1"
        android:id="@+id/button1"
        android:layout_marginTop="94dp"
        android:layout_below="@+id/edt1"
        android:layout_toStartOf="@+id/button4"
        android:layout_alignRight="@+id/button4"
        android:layout_alignEnd="@+id/button4" />

    <Button
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="2"
        android:id="@+id/button2"
        android:layout_alignTop="@+id/button1"
        android:layout_toLeftOf="@+id/button3"
        android:layout_toStartOf="@+id/button3" />

    <Button
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="3"
        android:id="@+id/button3"
        android:layout_alignTop="@+id/button2"
        android:layout_centerHorizontal="true" />

    <Button
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="4"
        android:id="@+id/button4"
        android:layout_below="@+id/button1"
        android:layout_toLeftOf="@+id/button2" />

    <Button
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="5"
        android:id="@+id/button5"
        android:layout_alignBottom="@+id/button4"
        android:layout_alignLeft="@+id/button2"
        android:layout_alignStart="@+id/button2" />

    <Button
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="6"
        android:id="@+id/button6"
        android:layout_below="@+id/button3"
        android:layout_alignLeft="@+id/button3"
        android:layout_alignStart="@+id/button3" />

    <Button
        style="?android:attr/buttonStyleSmall"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="7"
    android:id="@+id/button7"
    android:layout_below="@+id/button4"
    android:layout_toLeftOf="@+id/button2" />

<Button
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="8"
    android:id="@+id/button8"
    android:layout_below="@+id/button5"
    android:layout_alignLeft="@+id/button5"
    android:layout_alignStart="@+id/button5" />

<Button
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="9"
    android:id="@+id/button9"
    android:layout_below="@+id/button6"
    android:layout_alignLeft="@+id/button6"
    android:layout_alignStart="@+id/button6" />

<Button
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="+"
    android:id="@+id/buttonadd"
    android:layout_alignTop="@+id/button3"
    android:layout_toRightOf="@+id/button3"
    android:layout_marginLeft="46dp"
    android:layout_marginStart="46dp"
    android:layout_alignRight="@+id/edt1"
    android:layout_alignEnd="@+id/edt1" />

<Button
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="-"
    android:id="@+id/buttonsub"
    android:layout_below="@+id/buttonadd"
    android:layout_alignLeft="@+id/buttonadd"
    android:layout_alignStart="@+id/buttonadd"
    android:layout_alignRight="@+id/buttonadd"
    android:layout_alignEnd="@+id/buttonadd" />

<Button
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text "*"
    android:id="@+id/buttonmul"
    android:layout_below="@+id/buttonsub"
    android:layout_alignLeft="@+id/buttonsub"
    android:layout_alignStart="@+id/buttonsub"
    android:layout_alignParentRight="true"
    android:layout_alignParentEnd="true" />

<Button
    style="?android:attr/buttonStyleSmall"
```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text=". "
        android:id="@+id/button10"
        android:layout_below="@+id/button7"
        android:layout_toLeftOf="@+id/button2" />

<Button
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="0"
    android:id="@+id/button0"
    android:layout_below="@+id/button8"
    android:layout_alignLeft="@+id/button8"
    android:layout_alignStart="@+id/button8" />

<Button
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="C"
    android:id="@+id/buttonC"
    android:layout_below="@+id/button9"
    android:layout_alignLeft="@+id/button9"
    android:layout_alignStart="@+id/button9" />

<Button
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="/"
    android:id="@+id/buttondiv"
    android:layout_below="@+id/buttonmul"
    android:layout_alignLeft="@+id/buttonmul"
    android:layout_alignStart="@+id/buttonmul"
    android:layout_alignRight="@+id/buttonmul"
    android:layout_alignEnd="@+id/buttonmul" />

<Button
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text ="="
    android:id="@+id/buttononeql"
    android:layout_below="@+id/button0"
    android:layout_marginTop="37dp"
    android:layout_alignRight="@+id/buttondiv"
    android:layout_alignEnd="@+id/buttondiv"
    android:layout_alignLeft="@+id/button10"
    android:layout_alignStart="@+id/button10" />

</RelativeLayout>

*****

```

## Battery level

JAVA FILE:

## MainActivity.java

```
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.os.BatteryManager;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.view.Menu;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    private TextView batteryPercent;
    private void getBatteryPercentage() {
        BroadcastReceiver batteryLevelReceiver = new BroadcastReceiver() {
            public void onReceive(Context context, Intent intent) {
                context.unregisterReceiver(this);
                int currentLevel = intent.getIntExtra(BatteryManager.EXTRA_LEVEL, -1);
                int scale = intent.getIntExtra(BatteryManager.EXTRA_SCALE, -1);
                int level = -1;
                if (currentLevel >= 0 && scale > 0) {
                    level = (currentLevel * 100) / scale;
                }
                batteryPercent.setText("Battery Level Remaining: " + level + "%");
            }
        };
        IntentFilter batteryLevelFilter = new IntentFilter(Intent.ACTION_BATTERY_CHANGED);
        registerReceiver(batteryLevelReceiver, batteryLevelFilter);
    }

    /* @Override */
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        batteryPercent = (TextView) this.findViewById(R.id.batteryLevel);
        getBatteryPercentage();
    }

    //    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }
}
```

## LAYOUT FILE:

### activity\_main.xml

```
<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="fill_parent" android:layout_width="fill_parent"
        android:textSize="20dip" android:gravity="center_vertical|center_horizontal"
        android:id="@+id/batteryLevel"> </TextView>

</RelativeLayout>
```

---

```
*****
```

## Airplane mode

JAVA FILE:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.provider.Settings;
import android.view.View;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    @SuppressLint("Deprecation")
    public void airPlanemodeON(View v) {
        boolean isEnabled = Settings.System.getInt(this.getContentResolver(),
            Settings.System.AIRPLANE_MODE_ON, 0) == 1;
        if (isEnabled == false) {
            modifyAirplanemode(true);
            Toast.makeText(getApplicationContext(), "Airplane Mode ON",
                Toast.LENGTH_LONG).show();
        }
    }

    public void airPlanemodeOFF(View v) {
        boolean isEnabled = Settings.System.getInt(this.getContentResolver(),
            Settings.System.AIRPLANE_MODE_ON, 0) == 1;
        if (isEnabled == true)// means this is the request to turn ON AIRPLANE mode
        {
            modifyAirplanemode(false);
            Toast.makeText(getApplicationContext(), "Airplane Mode OFF",
                Toast.LENGTH_LONG).show();
        }
    }

    public void modifyAirplanemode(boolean mode) {
        Settings.System.putInt(getContentResolver(),
            Settings.System.AIRPLANE_MODE_ON, mode ? 1 : 0);// Turning ON/OFF Airplane mode.

        Intent intent = new Intent(Intent.ACTION_AIRPLANE_MODE_CHANGED); // creating intent and
        // Specifying action for AIRPLANE mode.
        intent.putExtra("state", !mode); // indicate the "state" of airplane mode is changed to
        // ON/OFF
        sendBroadcast(intent); // Broadcasting and Intent
    }
}
```

---

## LAYOUT FILE:

### activity\_main.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<RelativeLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Airplane Mode ON" android:onClick="airPlanemodeON" android:layout_marginTop="34dp"
        android:layout_centerHorizontal="true" android:layout_alignParentTop="true"
        android:id="@+id/ModeON"/>

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Airplane Mode OFF" android:onClick="airPlanemodeOFF"
        android:layout_marginTop="116dp" android:layout_centerHorizontal="true" android:id="@+id/ModeOFF"
        android:layout_below="@+id/buttonStop"/>

</RelativeLayout>
```

### Android manifest.xml

```
<uses-permission android:name="android.permission.WRITE_SETTINGS" />
```

```
*****
```

## Android Features Check

## JAVA FILE:

### MainActivity.java

```
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.content.Context;
import android.content.pm.PackageManager;
import android.view.Menu;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        TextView value = (TextView) findViewById(R.id.res);
        String result = "";
        Context context = this;
        PackageManager packageManager = context.getPackageManager();
        if (packageManager.hasSystemFeature(PackageManager.FEATURE_CAMERA)) {
            result += "Camera: YES";
        } else{
            result += "Camera: NO";
        }
        if (packageManager
```

```

        .hasSystemFeature(PackageManager.FEATURE_CAMERA_FRONT)) {
    result += "\nFront facing camera: YES";
} else{
    result += "\nFront facing camera: NO";
}
if (packageManager
        .hasSystemFeature(PackageManager.FEATURE_CAMERA_FLASH)) {
    result += "\nCamera support flash: YES";
} else{
    result += "\nCamera support flash: NO";
}
if (packageManager.hasSystemFeature(PackageManager.FEATURE_BLUETOOTH)) {
    result += "\nBluetooth: YES";
} else{
    result += "\nBluetooth: NO";
}
if (packageManager.hasSystemFeature(PackageManager.FEATURE_NFC)) {
    result += "\nNFC: YES";
} else{
    result += "\nNFC: NO";
}
if (packageManager.hasSystemFeature(PackageManager.FEATURE_MICROPHONE)) {
    result += "\nMicrophone: YES";
} else{
    result += "\nMicrophone: NO";
}
if (packageManager
        .hasSystemFeature(PackageManager.FEATURE_SENSOR_ACCELEROMETER)) {
    result += "\nAccelerometer sensor: YES";
} else{
    result += "\nAccelerometer sensor: NO";
}
if (packageManager
        .hasSystemFeature(PackageManager.FEATURE_SENSOR_BAROMETER)) {
    result += "Barometer (air pressure sensor) :YES";
} else{
    result += "Barometer (air pressure sensor) :NO";
}
if (packageManager
        .hasSystemFeature(PackageManager.FEATURE_SENSOR_COMPASS)) {
    result += "\nMagnetometer (compass): YES";
} else{
    result += "\nMagnetometer (compass): NO";
}
if (packageManager
        .hasSystemFeature(PackageManager.FEATURE_SENSOR_GYROSCOPE)) {
    result += "\nGyroscope: YES";
} else{
    result += "\nGyroscope: NO";
}
if (packageManager
        .hasSystemFeature(PackageManager.FEATURE_SENSOR_LIGHT)) {
    result += "\nLight sensor: YES";
} else{
    result += "\nLight sensor: YES";
}
if (packageManager
        .hasSystemFeature(PackageManager.FEATURE_SENSOR_PROXIMITY)) {
    result += "\nProximity sensor: YES";
} else {
    result += "\nProximity sensor: NO";
}
value.setText(result);
}

@Override

```

---

```

    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:id="@+id/res" android:layout_marginLeft="50dip" android:layout_marginTop="20dip"/>

</RelativeLayout>

```

\*\*\*\*\*

## Web View from You tube

#### JAVA FILE:

##### MainActivity.java

```

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.webkit.WebSettings;
import android.webkit.WebView;
import android.webkit.WebViewClient;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        String frameVideo = "<html><body>Video From YouTube<br><iframe width=\"420\" height=\"315\" src=\"https://www.youtube.com/embed/47yJ2XCRLzs\" frameborder=\"0\" allowfullscreen></iframe></body></html>";

        WebView displayYoutubeVideo = (WebView) findViewById(R.id.mWebView);
        displayYoutubeVideo.setWebViewClient(new WebViewClient() {
            @Override
            public boolean shouldOverrideUrlLoading(WebView view, String url) {
                return false;
            }
        });
    }
}

```

```

        WebSettings webSettings = displayYoutubeVideo.getSettings();
        webSettings.setJavaScriptEnabled(true);
        displayYoutubeVideo.loadData(frameVideo, "text/html", "utf-8");
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();

        //noinspection SimplifiableIfStatement
        if (id == R.id.action_settings) {
            return true;
        }

        return super.onOptionsItemSelected(item);
    }
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Embed and Play YouTube Video in Android WebView Tutorial and Example"/>

    <WebView android:layout_height="match_parent" android:layout_width="match_parent"
        android:id="@+id/mWebView" /> </WebView>

</RelativeLayout>

```

##### Android manifest.xml

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## How to launch alarm application using intent

#### JAVA FILE:

##### MainActivity.java

---



---

```

import android.content.Intent;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.provider.AlarmClock;
import android.support.v7.app.AppCompatActivity;
import android.view.View;

public class MainActivity extends AppCompatActivity {

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    public void browser1(View view) {
        Intent i = new Intent(AlarmClock.ACTION_SET_ALARM);
        startActivity(i);
    }
}

```

#### LAYOUT FILE:

##### **activity\_main.xml**

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:orientation="vertical" >

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="alarm"
        android:layout_alignParentBottom="true"
        android:layout_centerHorizontal="true"
        android:layout_marginBottom="177dp"
        android:onClick="browser1" />
</LinearLayout>

```

##### **Android manifest.xml**

```
<uses-permission android:name="com.android.alarm.permission.SET_ALARM"/>
```

```
*****
```

## Battery Information

#### JAVA FILE:

##### **MainActivity.java**

```

import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;

```

```

import android.content.IntentFilter;
import android.os.BatteryManager;
import android.os.Bundle;
import android.widget.TextView;
import android.support.v7.app.AppCompatActivity;

public class MainActivity extends AppCompatActivity {

    private TextView batteryLevel, batteryVoltage, batteryTemperature,
        batteryTechnology, batteryStatus, batteryHealth;

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        batteryLevel = (TextView)findViewById(R.id.batterylevel);
        batteryVoltage = (TextView)findViewById(R.id.batteryvoltage);
        batteryTemperature = (TextView)findViewById(R.id.batterytemperature);
        batteryTechnology = (TextView)findViewById(R.id.batterytechnology);
        batteryStatus = (TextView)findViewById(R.id.batterystatus);
        batteryHealth = (TextView)findViewById(R.id.batteryhealth);

        this.registerReceiver(this.myBatteryReceiver,
            new IntentFilter(Intent.ACTION_BATTERY_CHANGED));
    }

    private BroadcastReceiver myBatteryReceiver
        = new BroadcastReceiver(){

    @Override
    public void onReceive(Context arg0, Intent arg1) {
        // TODO Auto-generated method stub

        if (arg1.getAction().equals(Intent.ACTION_BATTERY_CHANGED)){
            batteryLevel.setText("Level: "
                + String.valueOf(arg1.getIntExtra("level", 0)) + "%");
            batteryVoltage.setText("Voltage: "
                + String.valueOf((float)arg1.getIntExtra("voltage", 0)/1000) + "V");
            batteryTemperature.setText("Temperature: "
                + String.valueOf((float)arg1.getIntExtra("temperature", 0)/10) + "c");
            batteryTechnology.setText("Technology: " + arg1.getStringExtra("technology"));

            int status = arg1.getIntExtra("status", BatteryManager.BATTERY_STATUS_UNKNOWN);
            String strStatus;
            if (status == BatteryManager.BATTERY_STATUS_CHARGING){
                strStatus = "Charging";
            } else if (status == BatteryManager.BATTERY_STATUS_DISCHARGING){
                strStatus = "Dis-charging";
            } else if (status == BatteryManager.BATTERY_STATUS_NOT_CHARGING){
                strStatus = "Not charging";
            } else if (status == BatteryManager.BATTERY_STATUS_FULL){
                strStatus = "Full";
            } else {
                strStatus = "Unknown";
            }
            batteryStatus.setText("Status: " + strStatus);

            int health = arg1.getIntExtra("health", BatteryManager.BATTERY_HEALTH_UNKNOWN);
            String strHealth;
            if (health == BatteryManager.BATTERY_HEALTH_GOOD){
                strHealth = "Good";
            } else if (health == BatteryManager.BATTERY_HEALTH_OVERHEAT){

```

```

        strHealth = "Over Heat";
    } else if (health == BatteryManager.BATTERY_HEALTH_DEAD){
        strHealth = "Dead";
    } else if (health == BatteryManager.BATTERY_HEALTH_OVER_VOLTAGE){
        strHealth = "Over Voltage";
    } else if (health == BatteryManager.BATTERY_HEALTH_UNSPECIFIED_FAILURE){
        strHealth = "Unspecified Failure";
    } else{
        strHealth = "Unknown";
    }
    batteryHealth.setText("Health: " + strHealth);

}
}

};

}
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    >
    <TextView
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="@string/hello"
        />
    <TextView
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Battery Info."
        />
    <TextView
        android:id="@+id/batterylevel"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Battery Level:"
        />
    <TextView
        android:id="@+id/batteryvoltage"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Battery Voltage:"
        />
    <TextView
        android:id="@+id/batterytemperature"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Battery Temperature:"
        />
    <TextView
        android:id="@+id/batterytechnology"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Technology:"
        />
    <TextView
        android:id="@+id/batterystatus"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Status:"
        />

```

```

        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Status:"
        />
<TextView
        android:id="@+id/batteryhealth"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="Health:"
        />
</LinearLayout>

```

\*\*\*\*\*

**Note:** If you want to change the application name (from MyApplication to MyApplication5496), you have to replace the statement

```
<string name="app_name">My Application</string>
```

in string.xml by the statement

```
<string name="app_name">My Application5496</string>
```

\*\*\*\*\*

## Brightness Control

**JAVA FILE:**

### MainActivity.java

```

import android.support.v7.app.AppCompatActivity;
import android.content.ContentResolver;
import android.os.Bundle;
import android.provider.Settings.SettingNotFoundException;
import android.provider.Settings.System;
import android.util.Log;
import android.view.Window;
import android.view.WindowManager.LayoutParams;
import android.widget.SeekBar;
import android.widget.SeekBar.OnSeekBarChangeListener;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    private SeekBar brightbar;

    // Variable to store brightness value
    private int brightness;
    // Content resolver used as a handle to the system's settings
    private ContentResolver cResolver;
    // Window object, that will store a reference to the current window
    private Window window;

    TextView txtPerc;

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Instantiate seekbar object

```

```
brightbar = (SeekBar) findViewById(R.id.brightbar);

txtPerc = (TextView) findViewById(R.id.txtPercentage);

// Get the content resolver
cResolver = getContentResolver();

// Get the current window
window = getWindow();

// Set the seekbar range between 0 and 255
brightbar.setMax(255);
// Set the seek bar progress to 1
brightbar.setKeyProgressIncrement(1);

try {
    // Get the current system brightness
    brightness = System.getInt(cResolver, System.SCREEN_BRIGHTNESS);
} catch (SettingNotFoundException e) {
    // Throw an error case it couldn't be retrieved
    Log.e("Error", "Cannot access system brightness");
    e.printStackTrace();
}

// Set the progress of the seek bar based on the system's brightness
brightbar.setProgress(brightness);

// Register OnSeekBarChangeListener, so it can actually change values
brightbar.setOnSeekBarChangeListener(new OnSeekBarChangeListener() {
    public void onStopTrackingTouch(SeekBar seekBar) {
        // Set the system brightness using the brightness variable value
        System.putInt(cResolver, System.SCREEN_BRIGHTNESS, brightness);
        // Get the current window attributes
        LayoutParams layoutpars = window.getAttributes();
        // Set the brightness of this window
        layoutpars.screenBrightness = brightness / (float) 255;
        // Apply attribute changes to this window
        window.setAttributes(layoutpars);
    }

    public void onStartTrackingTouch(SeekBar seekBar) {
        // Nothing handled here
    }

    public void onProgressChanged(SeekBar seekBar, int progress,
                                boolean fromUser) {
        // Set the minimal brightness level
        // if seek bar is 20 or any value below
        if (progress <= 20) {
            // Set the brightness to 20
            brightness = 20;
        } else // brightness is greater than 20
        {
            // Set brightness variable based on the progress bar
            brightness = progress;
        }
        // Calculate the brightness percentage
        float perc = (brightness / (float) 255) * 100;
        // Set the brightness percentage
        txtPerc.setText((int) perc + "%");
    }
});
```

---

## LAYOUT FILE:

### activity\_main.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="fill_parent"
        android:text="Slide the bar to change the brightness:"/>

    <SeekBar android:layout_height="wrap_content" android:layout_width="fill_parent"
        android:layout_marginRight="30dip" android:layout_marginLeft="30dip" android:id="@+id/brightbar">
    </SeekBar>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="0%" android:id="@+id/txtPercentage"
        android:textAppearance="?android:attr/textAppearanceLarge" android:layout_gravity="center"/>

</LinearLayout>
```

### Android manifest.xml

```
<uses-permission android:name="android.permission.WRITE_SETTINGS"> </uses-permission>
*****
*****
```

## Wifi State Acess information

## JAVA FILE:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import java.util.List;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.net.wifi.ScanResult;
import android.net.wifi.WifiManager;
import android.os.Bundle;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;
import android.widget.ListView;

public class MainActivity extends AppCompatActivity {
    private WifiManager mainWifi;
    private WifiReceiver receiverWifi;
    private Button btnRefresh;
    ListAdapter adapter;
    ListView lvWifiDetails;
    List<ScanResult> wifiList;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
```

```

super.onCreate(savedInstanceState);
setContentView(R.layout.activity_main);

lvWifiDetails = (ListView) findViewById(R.id.lvWifiDetails);
btnRefresh = (Button) findViewById(R.id.btnRefresh);
mainWifi = (WifiManager) getSystemService(Context.WIFI_SERVICE);
receiverWifi = new WifiReceiver();
registerReceiver(receiverWifi, new IntentFilter(
    WifiManager.SCAN_RESULTS_AVAILABLE_ACTION));
scanWifiList();

btnRefresh.setOnClickListener(new OnClickListener() {

    @Override
    public void onClick(View v) {
        scanWifiList();
    }
});

private void setAdapter() {
    adapter = new ListAdapter(getApplicationContext(), wifiList);
    lvWifiDetails.setAdapter(adapter);
}

private void scanWifiList() {
    mainWifi.startScan();
    wifiList = mainWifi.getScanResults();

    setAdapter();
}

class WifiReceiver extends BroadcastReceiver {
    public void onReceive(Context c, Intent intent) {
    }
}
}

```

## ListAdapter.java

```

import java.util.List;

import android.content.Context;
import android.net.wifi.ScanResult;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.TextView;

public class ListAdapter extends BaseAdapter {

    Context context;
    LayoutInflater inflater;
    List<ScanResult> wifiList;

    public ListAdapter(Context context, List<ScanResult> wifiList) {
        this.context = context;
        this.wifiList = wifiList;
        inflater = (LayoutInflater) context
            .getSystemService(Context.LAYOUT_INFLATER_SERVICE);
    }
}

```

```

@Override
public int getCount() {
    return wifiList.size();
}

@Override
public Object getItem(int position) {
    return null;
}

@Override
public long getItemId(int position) {
    return 0;
}

@Override
public View getView(int position, View convertView, ViewGroup parent) {
    Holder holder;
    View view = convertView;
    if (view == null) {
        view = inflater.inflate(R.layout.dataset, null);
        holder = new Holder();
        holder.tvDetails = (TextView) view.findViewById(R.id.tvDetails);

        view.setTag(holder);
    } else {
        holder = (Holder) view.getTag();
    }
    holder.tvDetails.setText("SSID :: " + wifiList.get(position).SSID
            + "\nStrength :: " + wifiList.get(position).level
            + "\nBSSID :: " + wifiList.get(position).BSSID
            + "\nChannel :: "
            + convertFrequencyToChannel(wifiList.get(position).frequency)
            + "\nFrequency :: " + wifiList.get(position).frequency
            + "\nCapability :: " + wifiList.get(position).capabilities);

    return view;
}

public static int convertFrequencyToChannel(int freq) {
    if (freq >= 2412 && freq <= 2484) {
        return (freq - 2412) / 5 + 1;
    } else if (freq >= 5170 && freq <= 5825) {
        return (freq - 5170) / 5 + 34;
    } else {
        return -1;
    }
}

class Holder {
    TextView tvDetails;
}
}

```

## LAYOUT FILES:

### activity\_main.xml

```

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/LinearLayout1"
    android:layout_width="match_parent"

```

```

        android:layout_height="match_parent"
        android:orientation="vertical"
        tools:context="${relativePackage}.${activityClass}" >

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="0.9"
        android:orientation="vertical" >

        <ListView
            android:id="@+id/lvWifiDetails"
            android:layout_width="match_parent"
            android:layout_height="wrap_content" >
        </ListView>
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="0dp"
        android:layout_weight="0.1"
        android:orientation="vertical" >

        <Button
            android:id="@+id/btnRefresh"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_gravity="center"
            android:layout_margin="5dp"
            android:text="Refresh" />
    </LinearLayout>

</LinearLayout>

```

### dataset.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >

    <TextView
        android:id="@+id/tvDetails"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="5dp"
        android:text="Medium Text"
        android:textAppearance="?android:attr/textAppearanceMedium"
        android:textColor="#000000" />

</LinearLayout>

```

### Android manifest.xml

```

<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE"/>

<uses-permission android:name="android.permission.ACCESS_WIFI_STATE"/>

<uses-permission android:name="android.permission.CHANGE_WIFI_STATE"/>
<uses-permission android:name="android.permission.CHANGE_WIFI_STATE" />

```

```
*****
```

## Battery level in percentage (picture)

JAVA FILE:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.content.BroadcastReceiver;
import android.content.Context;
import android.content.Intent;
import android.content.IntentFilter;
import android.widget.ProgressBar;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    private BroadcastReceiver mBatInfoReceiver = new BroadcastReceiver() {
        @Override
        public void onReceive(Context c, Intent i) {
            int level = i.getIntExtra("level", 0);
            ProgressBar pb = (ProgressBar) findViewById(R.id.progressbar);
            pb.setProgress(level);
            TextView tv = (TextView) findViewById(R.id.textfield);
            tv.setText("Battery Level: " + Integer.toString(level) + "%");
        }
    };

    /** Called when the activity is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        registerReceiver(mBatInfoReceiver, new IntentFilter(
            Intent.ACTION_BATTERY_CHANGED));
    }
}
```

LAYOUT FILE:

### activity\_main.xml

```
<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:orientation="vertical" android:layout_height="fill_parent"
    android:layout_width="fill_parent" xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:layout_marginTop="40dip" android:layout_gravity="center" android:id="@+id/textfield"/>

    <ProgressBar android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:layout_marginTop="20dip" android:layout_gravity="center" android:id="@+id/progressbar"
        android:minWidth="200dip" android:minHeight="100dip" android:maxWidth="300dip"
        android:maxHeight="500dip" android:max="100" style="?android:attr/progressBarStyleHorizontal"/>

</LinearLayout>
```

---

```
*****
```

## Insert and GET CONTACT

**JAVA FILE:**

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.app.Activity;
import android.content.Intent;
import android.database.Cursor;
import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.provider.ContactsContract.Contacts;
import android.provider.ContactsContract.Insert;
import android.util.Log;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.EditText;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements OnClickListener {
    private EditText edtName, edtNumber;
    private static final int CALL_CONTACT_PICKER = 200;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        edtName = (EditText) findViewById(R.id.edtName);
        edtNumber = (EditText) findViewById(R.id.edtPhone);
        findViewById(R.id.btnInsert).setOnClickListener(this);
        findViewById(R.id.btnGetContact).setOnClickListener(this);
    }

    @Override
    public void onClick(View v) {
        switch (v.getId()) {
            case R.id.btnInsert:
                Intent i = new Intent(Intent.ACTION_INSERT_OR_EDIT);
                i.setType(Contacts.CONTENT_ITEM_TYPE);
                i.putExtra(Insert.NAME, edtName.getText().toString());
                i.putExtra(Insert.PHONE, edtNumber.getText().toString());
                startActivity(i);
                break;
            case R.id.btnGetContact:
                Intent callContactPickerIntent = new Intent(Intent.ACTION_PICK,
                    ContactsContract.Contacts.CONTENT_URI);
                // filters contact with phone numbers
                callContactPickerIntent
                    .setType(ContactsContract.CommonDataKinds.Phone.CONTENT_TYPE);
                startActivityForResult(callContactPickerIntent, CALL_CONTACT_PICKER);
                break;
            default:
                break;
        }
    }

    @Override
    protected void onActivityResult(int requestCode, int resultCode, Intent data) {
```

```

if (resultCode == RESULT_OK) {
    Cursor cursor = null;

    Uri result = data.getData();
    // String id = result.getLastPathSegment();

    cursor = getContentResolver().query(result, null, null, null, null);
    // String contactId=cursor.get;
    if (cursor == null) {

        Toast.makeText(this, "Selection Fail", Toast.LENGTH_LONG)
            .show();
        return;
    }
    if (!cursor.moveToFirst()) {

        cursor.close();
        Toast.makeText(this, "Selection Fail", Toast.LENGTH_LONG)
            .show();
        return;
    }
    String contactName = cursor
        .getString(cursor

.getColumnIndex((ContactsContract.CommonDataKinds.Phone.DISPLAY_NAME)
            .toString().trim()));

    String contactNumber = cursor
        .getString(cursor

.getColumnIndex((ContactsContract.CommonDataKinds.Phone.NUMBER)));
    switch (requestCode) {

        case CALL_CONTACT_PICKER:
            Toast.makeText(this,
                "Name :" + contactName + "Number :" + contactNumber,
                Toast.LENGTH_LONG).show();
            break;

        default:
            break;
    }
    cursor.close();
} else {
    // gracefully handle failure
    Log.w("Auto Respond", "Warning: activity result not ok");
}
}
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0" encoding="UTF-8"?>

<LinearLayout android:stretchColumns="1" android:orientation="vertical"
    android:gravity="center" android:layout_height="match_parent" android:layout_width="match_parent"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <EditText android:layout_height="wrap_content" android:layout_width="match_parent"

```

---



---

```

    android:hint="Name" android:id="@+id/edtName" />

    <EditText android:layout_height="wrap_content" android:layout_width="match_parent"
    android:hint="Number" android:id="@+id/edtPhone" android:inputType="phone" />

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:id="@+id	btnInsert" android:text="Insert Contact" />

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
    android:id="@+id	btnGetContact" android:text="Get Contact" />

</LinearLayout>

```

\*\*\*\*\*

## IP Address

### JAVA FILE:

#### MainActivity.java

```

import android.support.v7.app.AppCompatActivity;
import java.net.InetAddress;
import java.net.NetworkInterface;
import java.util.Enumeration;
import android.content.Context;
import android.net.ConnectivityManager;
import android.net.NetworkInfo;
import android.net.wifi.WifiManager;
import android.os.Bundle;
import android.text.format.Formatter;
import android.util.Log;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    Button button;
    TextView textview;
    String IPaddress;
    Boolean IPValue;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        button = (Button) findViewById(R.id.button1);
        textview = (TextView) findViewById(R.id.textView1);

        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub
                NetwordDetect();
            }
        });
    }
}

```

```

    } );

}

//Check if Internet Network is active
private void NetworkDetect() {

    boolean WIFI = false;

    boolean MOBILE = false;

    ConnectivityManager CM = (ConnectivityManager)
getSystemService(Context.CONNECTIVITY_SERVICE);

    NetworkInfo[] networkInfo = CM.getAllNetworkInfo();

    for (NetworkInfo netInfo : networkInfo) {

        if (netInfo.getTypeName().equalsIgnoreCase("WIFI"))

            if (netInfo.isConnected())

                WIFI = true;

        if (netInfo.getTypeName().equalsIgnoreCase("MOBILE"))

            if (netInfo.isConnected())

                MOBILE = true;
    }

    if(WIFI == true)

    {

        IPaddress = GetDeviceipWiFiData();
        textView.setText(IPaddress);

    }

    if(MOBILE == true)

    {

        IPaddress = GetDeviceipMobileData();
        textView.setText(IPaddress);

    }
}

public String GetDeviceipMobileData(){

    try {
        for (Enumeration<NetworkInterface> en = NetworkInterface.getNetworkInterfaces();
            en.hasMoreElements();)
        {
            NetworkInterface networkinterface = en.nextElement();
            for (Enumeration<InetAddress> enumIpAddr =
networkinterface.getInetAddresses(); enumIpAddr.hasMoreElements();)
            {
                InetAddress inetAddress = enumIpAddr.nextElement();
                if (!inetAddress.isLoopbackAddress())
                    return inetAddress.getHostAddress().toString();
            }
        }
    }
} catch (Exception ex) {
}

```

```

        Log.e("Current IP", ex.toString()));
    }
    return null;
}

public String GetDeviceipWiFiData()
{
    WifiManager wm = (WifiManager) getSystemService(WIFI_SERVICE);

    @SuppressWarnings("deprecation")

    String ip = Formatter.formatIpAddress(wm.getConnectionInfo().getIpAddress());

    return ip;
}
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0"?>

<RelativeLayout tools:context="com.displayipaddress_android_examples.com.MainActivity"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge" android:text="IP Address display Here"
        android:layout_marginTop="188dp" android:layout_centerHorizontal="true"
        android:layout_alignParentTop="true" android:id="@+id/textView1"/>

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Click here to get current device " android:layout_marginTop="22dp"
        android:layout_centerHorizontal="true" android:id="@+id/button1"
        android:layout_below="@+id/textView1"/>

</RelativeLayout>

```

##### Android manifest.xml

```

<uses-permission android:name="android.permission.INTERNET"/>

<uses-permission android:name="android.permission.ACCESS_NETWORK_STATE"/>

<uses-permission android:name="android.permission.ACCESS_WIFI_STATE"/>

```

\*\*\*\*\*

---

## ZoomInOut WebView

### JAVA FILE:

#### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.app.Activity;
import android.os.Bundle;
import android.webkit.WebSettings;
import android.webkit.WebView;

public class MainActivity extends AppCompatActivity {

    WebView Webview;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Webview = (WebView)findViewById(R.id.webView1);
        WebSettings webSetting = Webview.getSettings();

        //This function enable Zoom in Zoom out Feature on WebView
        webSetting.setBuiltInZoomControls(true);

        Webview.setWebViewClient(new WebViewClient());
        Webview.loadUrl("http://google.com");
    }

    private class WebViewClient extends android.webkit.WebViewClient {
        @Override
        public boolean shouldOverrideUrlLoading(WebView view, String url)
        {
            return super.shouldOverrideUrlLoading(view, url);
        }
    }
}
```

### LAYOUT FILE:

#### activity\_main.xml

```
<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <WebView android:layout_height="match_parent" android:layout_width="match_parent"
        android:layout_centerHorizontal="true" android:layout_alignParentTop="true"
```

```
    android:id="@+id/webView1" />  
  </RelativeLayout>
```

### Android manifest.xml

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## Enable GPS Location Service

### JAVA FILE:

#### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;  
import android.content.Context;  
import android.content.Intent;  
import android.location.LocationManager;  
import android.os.Bundle;  
import android.provider.Settings;  
import android.view.View;  
import android.widget.Button;  
import android.widget.TextView;  
  
public class MainActivity extends AppCompatActivity {  
  
    Button button;  
    Context context;  
    Intent intent1, intent2;  
    TextView textView;  
    LocationManager locationManager ;  
    boolean GpsStatus ;  
    @Override  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
  
        button = (Button)findViewById(R.id.button1);  
  
        textView = (TextView)findViewById(R.id.textView1);  
  
        context = getApplicationContext();  
  
        CheckGpsStatus();  
  
        button.setOnClickListener(new View.OnClickListener() {  
  
            @Override  
            public void onClick(View v) {  
                // TODO Auto-generated method stub  
  
                intent1 = new Intent(Settings.ACTION_LOCATION_SOURCE_SETTINGS);  
                startActivity(intent1);  
            }  
        });  
    }  
}
```

```

        }

    public void CheckGpsStatus(){

        locationManager =
        (LocationManager)context.getSystemService(Context.LOCATION_SERVICE);

        GpsStatus = locationManager.isProviderEnabled(LocationManager.GPS_PROVIDER);

        if(GpsStatus == true)
        {
            textView.setText("Location Services Is Enabled");
        }else {
            textView.setText("Location Services Is Disabled");
        }
    }
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Click Here to Enable Disable GPS location service programmatically in android"
        android:layout_marginTop="70dp" android:layout_centerHorizontal="true"
        android:layout_alignTop="@+id/textView1" android:id="@+id/button1"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="location service Stauts Shows Here" android:layout_marginTop="132dp"
        android:layout_centerHorizontal="true" android:id="@+id/textView1"
        android:textAppearance="?android:attr/textAppearanceLarge" android:gravity="center"
        android:layout_alignParentTop="true"/>

</RelativeLayout>

```

##### Android manifest.xml

```

<uses-permission android:name="android.permission.READ_PHONE_STATE"/>

<uses-permission android:name="android.permission.INTERNET"/>

<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>

<uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>

```

---

---

## BLUETOOTH

### JAVA FILE:

#### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.bluetooth.BluetoothAdapter;
import android.bluetooth.BluetoothDevice;
import android.content.BroadcastReceiver;
import android.content.Context;
import java.util.Set;
import android.content.Intent;
import android.content.IntentFilter;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.ListView;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity {

    private static final int REQUEST_ENABLE_BT = 1;
    private Button onBtn;
    private Button offBtn;
    private Button listBtn;
    private Button findBtn;
    private TextView text;
    private BluetoothAdapter myBluetoothAdapter;
    private Set<BluetoothDevice> pairedDevices;
    private ListView myListview;
    private ArrayAdapter<String> BTArrayAdapter;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // take an instance of BluetoothAdapter - Bluetooth radio
        myBluetoothAdapter = BluetoothAdapter.getDefaultAdapter();
        if(myBluetoothAdapter == null) {
            onBtn.setEnabled(false);
            offBtn.setEnabled(false);
            listBtn.setEnabled(false);
            findBtn.setEnabled(false);
            text.setText("Status: not supported");

            Toast.makeText(getApplicationContext(),"Your device does not support Bluetooth",
                    Toast.LENGTH_LONG).show();
        } else {
            text = (TextView) findViewById(R.id.text);
            onBtn = (Button)findViewById(R.id.turnOn);
            onBtn.setOnClickListener(new OnClickListener() {

                @Override
                public void onClick(View v) {
                    // TODO Auto-generated method stub
                    on(v);
                }
            });
        }
    }
}
```

```

        });

        offBtn = (Button)findViewById(R.id.turnOff);
        offBtn.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub
                off(v);
            }
        });

        listBtn = (Button)findViewById(R.id.paired);
        listBtn.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub
                list(v);
            }
        });

        findBtn = (Button)findViewById(R.id.search);
        findBtn.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub
                find(v);
            }
        });

        myListview = (ListView)findViewById(R.id.listView1);

        // create the arrayAdapter that contains the BTDevices, and set it to the ListView
        BTArrayAdapter = new ArrayAdapter<String>(this, android.R.layout.simple_list_item_1);
        myListview.setAdapter(BTArrayAdapter);
    }
}

public void on(View view){
    if (!myBluetoothAdapter.isEnabled()) {
        Intent turnOnIntent = new Intent(BluetoothAdapter.ACTION_REQUEST_ENABLE);
        startActivityForResult(turnOnIntent, REQUEST_ENABLE_BT);

        Toast.makeText(getApplicationContext(),"Bluetooth turned on" ,
                    Toast.LENGTH_LONG).show();
    }
    else{
        Toast.makeText(getApplicationContext(),"Bluetooth is already on" ,
                    Toast.LENGTH_LONG).show();
    }
}

@Override
protected void onActivityResult(int requestCode, int resultCode, Intent data) {
    // TODO Auto-generated method stub
    if(requestCode == REQUEST_ENABLE_BT){
        if(myBluetoothAdapter.isEnabled()) {
            text.setText("Status: Enabled");
        } else {
            text.setText("Status: Disabled");
        }
    }
}

```

```

public void list(View view){
    // get paired devices
    pairedDevices = myBluetoothAdapter.getBondedDevices();

    // put it's one to the adapter
    for(BluetoothDevice device : pairedDevices)
        BTArrayAdapter.add(device.getName()+"\n" + device.getAddress());

    Toast.makeText(getApplicationContext(),"Show Paired Devices",
        Toast.LENGTH_SHORT).show();
}

final BroadcastReceiver bReceiver = new BroadcastReceiver() {
    public void onReceive(Context context, Intent intent) {
        String action = intent.getAction();
        // When discovery finds a device
        if (BluetoothDevice.ACTION_FOUND.equals(action)) {
            // Get the BluetoothDevice object from the Intent
            BluetoothDevice device = intent.getParcelableExtra(BluetoothDevice.EXTRA_DEVICE);
            // add the name and the MAC address of the object to the arrayAdapter
            BTArrayAdapter.add(device.getName() + "\n" + device.getAddress());
            BTArrayAdapter.notifyDataSetChanged();
        }
    }
};

public void find(View view) {
    if (myBluetoothAdapter.isDiscovering()) {
        // the button is pressed when it discovers, so cancel the discovery
        myBluetoothAdapter.cancelDiscovery();
    } else {
        BTArrayAdapter.clear();
        myBluetoothAdapter.startDiscovery();

        registerReceiver(bReceiver, new IntentFilter(BluetoothDevice.ACTION_FOUND));
    }
}

public void off(View view){
    myBluetoothAdapter.disable();
    text.setText("Status: Disconnected");

    Toast.makeText(getApplicationContext(),"Bluetooth turned off",
        Toast.LENGTH_LONG).show();
}

@Override
protected void onDestroy() {
    // TODO Auto-generated method stub
    super.onDestroy();
    unregisterReceiver(bReceiver);
}
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
```

```
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity" >

    <TextView
        android:id="@+id/text"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="@string/Text" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal"
        android:layout_marginTop="30dp" >

        <Button
            android:id="@+id/turnOn"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/on" />

        <Button
            android:id="@+id/turnOff"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/off" />

    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="vertical"
        android:layout_marginTop="80dp" >

        <Button
            android:id="@+id/paired"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/List" />

        <Button
            android:id="@+id/search"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/Find" />

        <ListView
            android:id="@+id/listView1"
            android:layout_width="fill_parent"
            android:layout_height="200dp" >

    </ListView>

</LinearLayout>

</RelativeLayout>
```

## String.xml

---



---

```

<string name="Text">Status: -</string>
<string name="on">Turn On</string>
<string name="off">Turn Off</string>
<string name="List">List paired Devices</string>
<string name="Find">Search new Devices / Cancel</string>

```

#### **Android manifest.xml**

```

<uses-permission android:name="android.permission.BLUETOOTH"/>
<uses-permission android:name="android.permission.BLUETOOTH_ADMIN"/>

```

\*\*\*\*\*

## CHECK GPS LOCATION SERVICE

#### **JAVA FILE:**

#### **MainActivity.java**

```

import android.support.v7.app.AppCompatActivity;
import android.app.Activity;
import android.content.Context;
import android.location.LocationManager;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    Button button;
    TextView textView;
    Context context;
    LocationManager locationManager ;
    boolean GpsStatus ;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        button = (Button)findViewById(R.id.button1);
        textView = (TextView)findViewById(R.id.textView1);

        context = getApplicationContext();
        button.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub

                CheckGpsStatus() ;

                if(GpsStatus == true)

```

```

        {
            textView.setText("Location Services Is Enabled");
        }else {
            textView.setText("Location Services Is Disabled");
        }
    });
}

public void CheckGpsStatus(){
    locationManager =
(LocationManager)context.getSystemService(Context.LOCATION_SERVICE);

    GpsStatus = locationManager.isProviderEnabled(LocationManager.GPS_PROVIDER);
}
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity"
android:paddingTop="@dimen/activity_vertical_margin"
android:paddingRight="@dimen/activity_horizontal_margin"
android:paddingLeft="@dimen/activity_horizontal_margin"
android:paddingBottom="@dimen/activity_vertical_margin" android:layout_height="match_parent"
android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
android:text="Click Here to Check GPS location services is enabled or not in Android"
android:layout_centerVertical="true" android:layout_centerHorizontal="true"
android:id="@+id/button1"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
android:text="GPS Status" android:layout_centerHorizontal="true" android:id="@+id/textView1"
android:gravity="center" android:textAppearance="?android:attr/textAppearanceLarge"
android:layout_marginBottom="48dp" android:layout_above="@+id/button1"/>
</RelativeLayout>

```

##### Android manifest.xml

```
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
```

```
*****
```

View video from internet

#### JAVA FILE:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.widget.MediaController;
import android.widget.VideoView;

public class MainActivity extends AppCompatActivity {

    VideoView videoview ;
    MediaController mediacontroller;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        videoview = (VideoView)findViewById(R.id.videoView1);
        mediacontroller = new MediaController(MainActivity.this);

        videoview.setVideoPath(
                "http://www.android-examples.com/wp-
content/uploads/2016/01/sample_video.3gp");

        mediacontroller.setAnchorView(videoview);

        videoview.setMediaController(mediacontroller);

        videoview.start();
    }
}
```

### LAYOUT FILE:

#### activity\_main.xml

```
<?xml version="1.0"?>

<RelativeLayout android:background="#02bf95" tools:context=".MainActivity"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <VideoView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:layout_centerVertical="true" android:layout_centerHorizontal="true"
        android:id="@+id/videoView1" />

</RelativeLayout>
```

#### Android manifest.xml

```
<uses-permission android:name="android.permission.INTERNET" />
```

---

```
*****
```

## Play music from internet

JAVA FILE:

### MainActivity.java

```
import android.support.v7.app.AppCompatActivity;
import java.io.IOException;
import android.media.AudioManager;
import android.media.MediaPlayer;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {

    Button buttonStop,buttonStart ;

    String AudioURL = "http://www.android-examples.com/wp-content/uploads/2016/04/Thunder-
rumble.mp3";

    MediaPlayer mediaplayer;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        buttonStart = (Button)findViewById(R.id.button1);
        buttonStop = (Button)findViewById(R.id.button2);

        mediaplayer = new MediaPlayer();
        mediaplayer.setAudioStreamType(AudioManager.STREAM_MUSIC);

        buttonStart.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {
                // TODO Auto-generated method stub

                try {

                    mediaplayer.setDataSource(AudioURL);
                    mediaplayer.prepare();

                } catch (IllegalArgumentException e) {
                    // TODO Auto-generated catch block
                    e.printStackTrace();
                } catch (SecurityException e) {
                    // TODO Auto-generated catch block
                    e.printStackTrace();
                } catch (IllegalStateException e) {
                    // TODO Auto-generated catch block
                    e.printStackTrace();
                } catch (IOException e) {
                    // TODO Auto-generated catch block
                    e.printStackTrace();
                }
            }

            mediaplayer.start();
        });
    }
}
```

```

        }
    });

buttonStop.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        // TODO Auto-generated method stub

        mediaplayer.stop();

    }
});
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Stop Music From URL" android:layout_centerHorizontal="true"
        android:layout_below="@+id/button1" android:id="@+id/button2"/>

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:text="Start Music From URL" android:layout_centerHorizontal="true"
        android:id="@+id/button1" android:layout_marginTop="157dp" android:layout_alignParentTop="true"/>
</RelativeLayout>

```

##### Android manifest.xml

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## Phone MODEL and Name

#### JAVA FILE:

##### MainActivity.java

```

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    String DeviceModel, DeviceName;
    TextView model, device;
    Button getboth;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        model = (TextView) findViewById(R.id.textView1);
        device = (TextView) findViewById(R.id.textView2);
        getboth = (Button) findViewById(R.id.button1);
        getboth.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {

                DeviceModel= android.os.Build.MODEL;
                DeviceName= android.os.Build.MANUFACTURER;

                model.setText(DeviceModel);
                device.setText(DeviceName);

            }
        });
    }
}

```

## AYOUT FILE:

### activity\_main.xml

```

<?xml version="1.0"?>

<RelativeLayout tools:context=".MainActivity"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingBottom="@dimen/activity_vertical_margin" android:layout_height="match_parent"
    android:layout_width="match_parent" xmlns:tools="http://schemas.android.com/tools"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge" android:text="Device Model"
        android:layout_marginTop="165dp" android:layout_centerHorizontal="true"
        android:layout_alignParentTop="true" android:id="@+id/textView1"/>

    <TextView android:layout_height="wrap_content" android:layout_width="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge" android:text="Device Name"
        android:layout_centerHorizontal="true" android:id="@+id/textView2"
        android:layout_centerVertical="true"/>

    <Button android:layout_height="wrap_content" android:layout_width="wrap_content"

```

---

```

        android:text="Click here to get android mobile phone model programmatically"
        android:layout_marginTop="38dp" android:layout_centerHorizontal="true" android:id="@+id/button1"
        android:layout_below="@+id/textView2"/>
    
```

\*\*\*\*\*

## Set Volume (alarm, ringtone, notification)

**JAVA FILE:**

### MainActivity.java

```

import android.support.v7.app.AppCompatActivity;
import android.content.Context;
import android.media.AudioManager;
import android.os.Bundle;
import android.widget.SeekBar;

public class MainActivity extends AppCompatActivity {

    SeekBar alarm, mediaPlayer, ringer, notification ;
    AudioManager audioManager;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        alarm = (SeekBar)findViewById(R.id.seekBar1);
        mediaPlayer = (SeekBar)findViewById(R.id.seekBar2);
        ringer = (SeekBar)findViewById(R.id.seekBar3);
        notification = (SeekBar)findViewById(R.id.seekBar4);

        audioManager = (AudioManager) getSystemService(Context.AUDIO_SERVICE);

        alarm.setMax(audioManager.getStreamMaxVolume(AudioManager.STREAM_ALARM));
        mediaPlayer.setMax(audioManager.getStreamMaxVolume(AudioManager.STREAM_MUSIC));
        ringer.setMax(audioManager.getStreamMaxVolume(AudioManager.STREAM_RING));

        notification.setMax(audioManager.getStreamMaxVolume(AudioManager.STREAM_NOTIFICATION));

        alarm.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
            @Override
            public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
                audioManager.setStreamVolume(AudioManager.STREAM_ALARM, i, 0);
            }

            @Override
            public void onStartTrackingTouch(SeekBar seekBar) {
            }

            @Override
        });
    }
}

```

```

        public void onStopTrackingTouch(SeekBar seekBar) {
    }

});;

mediaPlayer.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
        audioManager.setStreamVolume(AudioManager.STREAM_MUSIC, i, 0);
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {
    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {
    }
});;

ringer.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
        audioManager.setStreamVolume(AudioManager.STREAM_RING, i, 0);
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {
    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {
    }
});;

notification.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {
    @Override
    public void onProgressChanged(SeekBar seekBar, int i, boolean b) {
        audioManager.setStreamVolume(AudioManager.STREAM_NOTIFICATION, i, 0);
    }

    @Override
    public void onStartTrackingTouch(SeekBar seekBar) {
    }

    @Override
    public void onStopTrackingTouch(SeekBar seekBar) {
    }
});;
}
}

```

## LAYOUT FILE:

## activity\_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".MainActivity" >

    <TextView
        android:id="@+id/textView1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:text="Set Alarm Volume"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:layout_marginTop="10dp" />

    <SeekBar
        android:id="@+id/seekBar1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textView1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="10dp" />

    <TextView
        android:id="@+id/textView2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/seekBar1"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="10dp"
        android:text="Set Media Player Volume"
        android:textAppearance="?android:attr/textAppearanceLarge" />

    <SeekBar
        android:id="@+id/seekBar2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_below="@+id/textView2"
        android:layout_marginTop="10dp" />

    <TextView
        android:id="@+id/textView3"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/seekBar2"
        android:layout_centerHorizontal="true"
        android:text="Set Ringer Volume"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:layout_marginTop="10dp" />

    <SeekBar
        android:id="@+id/seekBar3"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentLeft="true"
        android:layout_centerVertical="true"
        android:layout_marginTop="10dp" />
```

```

<TextView
    android:id="@+id/textView4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/seekBar3"
    android:layout_centerHorizontal="true"
    android:text="Set Notification Volume"
    android:textAppearance="?android:attr/textAppearanceLarge"
    android:layout_marginTop="10dp" />

<SeekBar
    android:id="@+id/seekBar4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_alignParentLeft="true"
    android:layout_below="@+id/textView4"
    android:layout_marginTop="10dp" />

</RelativeLayout>

```

\*\*\*\*\*



#### JAVA FILE:

MainActivity.java

```

import android.content.Intent;
import android.net.Uri;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.app.Activity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.provider.MediaStore;
import android.view.View;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        //set click listener to camera button
        findViewById(R.id.btnCamera).setOnClickListener(new View.OnClickListener() {

            //perform camera open action
            @Override
            public void onClick(View v) {

                Intent i = new Intent();
                i.setAction(MediaStore.ACTION_VIDEO_CAPTURE);
                startActivityForResult(i);
            }
        });
        final EditText et = (EditText) findViewById(R.id.etNo);
        //set click listener to Gallery button
        findViewById(R.id.btnGallery).setOnClickListener(new View.OnClickListener() {

            //perform Gallery open action
            @Override
            public void onClick(View v) {

                Intent i = new Intent();
                i.setAction(Intent.ACTION_VIEW);
                i.setData(Uri.parse("content://media/external/images/media/"));
                startActivityForResult(i);
            }
        });

        //set click listener to CallLog button
        findViewById(R.id.btnCallLog).setOnClickListener(new View.OnClickListener() {

            //perform CallLog open action
            @Override
            public void onClick(View v) {

                Intent i = new Intent();
                i.setAction(Intent.ACTION_VIEW);
                i.setData(Uri.parse("content://call_log/calls/"));
                startActivityForResult(i);
            }
        });

        //set click listener to Browser button
        findViewById(R.id.btnBrowser).setOnClickListener(new View.OnClickListener() {

```

```

//perform Browser open action
@Override
public void onClick(View v) {

    Intent i = new Intent();
    i.setAction(Intent.ACTION_VIEW);
    i.setData(Uri.parse("http://www.google.com/"));
    startActivityForResult(Intent.createChooser(i, "Title"));
}

//set click listener to Contact button
findViewById(R.id.btnContact).setOnClickListener(new View.OnClickListener() {

    //perform Contact open action
    @Override
    public void onClick(View v) {

        Intent i = new Intent();
        i.setAction(Intent.ACTION_VIEW);
        i.setData(Uri.parse("content://contacts/people/"));
        startActivity(i);
    }
});

//set click listener to Call button
findViewById(R.id.btnCall).setOnClickListener(new View.OnClickListener() {

    //perform Call open action
    @Override
    public void onClick(View v) {

        // AndroidManifest.xml -> Permissions -> Add ->
        // Uses Permission -> android.permission.CALL_PHONE -> Save
        Intent i = new Intent();
        i.setAction(Intent.ACTION_CALL);
        i.setData(Uri.parse("tel:" + et.getText()));
        startActivity(i);
    }
});

//set click listener to Dial button
findViewById(R.id.btnDial).setOnClickListener(new View.OnClickListener() {

    //perform Dial open action
    @Override
    public void onClick(View v) {

        Intent i = new Intent();
        i.setAction(Intent.ACTION_DIAL);
        i.setData(Uri.parse("tel:" + et.getText()));
        startActivity(i);

        Intent I = new Intent(Intent.ACTION_DIAL, Uri
            .parse("tel:" + et.getText()));
        startActivity(I);

        startActivityForResult(new Intent(Intent.ACTION_DIAL, Uri
            .parse("tel:" + et.getText())));
    }
});
}

```

---

## LAYOUT FILE:

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:background="@android:color/black"
    android:orientation="vertical" >

    <!-- EDIT TEXT with the hint of "Enter Phone No." -->
    <EditText
        android:id="@+id/etNo"
        android:layout_width="match_parent"
        android:layout_height="60dp"
        android:hint="Enter phone no."
        android:inputType="phone" />

    <!-- BUTTON for the option Call -->
    <Button
        android:id="@+id	btnCall"
        android:layout_width="match_parent"
        android:layout_height="55dp"
        android:text="Call" />

    <!-- BUTTON for the option Camera -->
    <Button
        android:id="@+id	btnCamera"
        android:layout_width="match_parent"
        android:layout_height="55dp"
        android:text="Camera" />

    <!-- BUTTON for the option Contacts -->
    <Button
        android:id="@+id	btnContact"
        android:layout_width="match_parent"
        android:layout_height="55dp"
        android:text="Contact" />

    <!-- BUTTON for the option Browser -->
    <Button
        android:id="@+id	btnBrowser"
        android:layout_width="match_parent"
        android:layout_height="55dp"
        android:text="Browser" />

    <!-- BUTTON for the option Call log -->
    <Button
        android:id="@+id	btnCallLog"
        android:layout_width="match_parent"
        android:layout_height="55dp"
        android:text="Call Log" />

    <!-- BUTTON for the option Gallery -->
    <Button
        android:id="@+id	btnGallery"
        android:layout_width="match_parent"
        android:layout_height="55dp"
        android:text="Gallery" />

    <!-- BUTTON for the option Dialpad -->
    <Button
        android:id="@+id	btnDial"
        android:layout_width="match_parent"
```

```
    android:layout_height="55dp"
    android:text="Dialpad" />

</LinearLayout>
```

### Android manifest.xml

```
<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.INTERNET" />
<uses-permission android:name="android.permission.CALL_PHONE" />
<uses-permission android:name="android.permission.READ_CALL_LOG" />
```

\*\*\*\*\*

“Learning to write programs stretches your mind, and helps you think better, creates a way of thinking about things that I think is helpful in all domains.”

Bill Gates

*Co-Founder & Technology Advisor, Microsoft Corporation*

“In fifteen years, we'll be teaching programming just like reading and writing ... and wondering why we didn't do it sooner.”

Mark Zuckerberg

*Chairman and CEO, Facebook, Inc.*

\*\*\*\*\*

## How to open pdf file from assets

JAVA FILE:

### MainActivity.java

```
import android.content.Intent;
import android.content.res.AssetManager;
import android.net.Uri;
import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import android.content.Context;
import android.util.Log;
```

```

;import java.io.File;
import java.io.IOException;
import java.io.InputStream;
import java.io.OutputStream;

public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        CopyReadPDFFromAssets();
    }

    private void CopyReadPDFFromAssets() {
        AssetManager assetManager = getAssets();

        InputStream in = null;
        OutputStream out = null;
        File file = new File(getFilesDir(), "006JavaScript.pdf");
        try {
            in = assetManager.open("006JavaScript.pdf");
            out = openFileOutput(file.getName(), Context.MODE_WORLD_READABLE);

            copyPdfFile(in, out);
            in.close();
            in = null;
            out.flush();
            out.close();
            out = null;
        } catch (Exception e) {
            Log.e("exception", e.getMessage());
        }
    }

    Intent intent = new Intent(Intent.ACTION_VIEW);
    intent.setDataAndType(
        Uri.parse("file://" + getFilesDir() + "/006JavaScript.pdf"),
        "application/pdf");

    startActivity(intent);
}

private void copyPdfFile(InputStream in, OutputStream out) throws IOException {
    byte[] buffer = new byte[1024];
    int read;
    while ((read = in.read(buffer)) != -1) {
        out.write(buffer, 0, read);
    }
}
}

```

### Android manifest.xml

```

<uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE" />
<uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE" />

```

You have to create assets folder and place **006JavaScript.pdf** in it

---

```
*****
```

## Expandable list view

JAVA FILE:

### MainActivity.java

```
import java.util.ArrayList;
import java.util.HashMap;
import java.util.List;
import java.util.Map;
import android.app.ExpandableListActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.ExpandableListAdapter;
import android.widget.ExpandableListView;
import android.widget.ExpandableListView.OnChildClickListener;
import android.widget.SimpleExpandableListAdapter;
import android.widget.Toast;

public class MainActivity extends ExpandableListActivity {

    private ExpandableListAdapter mAdapter;
    ExpandableListView expand;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        List<Map<String, String>> groupData = new ArrayList<Map<String, String>>();
        List<List<Map<String, String>>> childData = new ArrayList<List<Map<String, String>>>();

        /* ***** Start Group *****/
        Map<String, String> curgroupMap1 = new HashMap<String, String>();
        groupData.add(curgroupMap1);
        curgroupMap1.put("parent", "Master 1");

        List<Map<String, String>> children1 =new ArrayList<Map<String, String>>();
        /* *** ChildData ***/
        Map<String, String> curChildMap1 = new HashMap<String, String>();
        children1.add(curChildMap1);
        curChildMap1.put("child", "Bank");

        /* *** ChildData ***/
        Map<String, String> curChildMap2 = new HashMap<String, String>();
        children1.add(curChildMap2);
        curChildMap2.put("child", "Executive");

        /* *** ChildData ***/
        Map<String, String> curChildMap3 = new HashMap<String, String>();
        children1.add(curChildMap3);
        curChildMap3.put("child", "Customer");

        /* *** ChildData ***/
        Map<String, String> curChildMap4 = new HashMap<String, String>();
        children1.add(curChildMap4);
        curChildMap4.put("child", "State");

        /* *** ChildData ***/
        Map<String, String> curChildMap5 = new HashMap<String, String>();
        children1.add(curChildMap5);
        curChildMap5.put("child", "City");
```

```

childData.add(children1);

/* *****End Group *****/

/* ***** Start Group *****/
Map<String, String> curgroupMap2 = new HashMap<String, String>();
groupData.add(curgroupMap2);
curgroupMap2.put("parent", "Master 2");
List<Map<String, String>> children2 =new ArrayList<Map<String, String>>();

/* *** ChildData ***
Map<String, String> curChildMap6 = new HashMap<String, String>();
children2.add(curChildMap6);
curChildMap6.put("child", "Android");

/* *** ChildData ***
Map<String, String> curChildMap7 = new HashMap<String, String>();
children2.add(curChildMap7);
curChildMap7.put("child", "iPhone");

/* *** ChildData ***
Map<String, String> curChildMap8 = new HashMap<String, String>();
children2.add(curChildMap8);
curChildMap8.put("child", "Windows");

childData.add(children2);

/* *****End Group *****/


mAdapter = new SimpleExpandableListAdapter(
    this,
    groupData,
    android.R.layout.simple_expandable_list_item_1,
    new String[] { "parent" },
    new int[] { android.R.id.text1, android.R.id.text2 },
    childData,
    android.R.layout.simple_expandable_list_item_2,
    new String[] {"child"},
    new int[] { android.R.id.text1 }
);
setListAdapter(mAdapter);

expand = getExpandableListView();

expand.setOnChildClickListener(new OnChildClickListener() {

    @Override
    public boolean onChildClick(ExpandableListView parent, View v,
                               int groupPosition, int childPosition, long id) {
        // TODO Auto-generated method stub

        switch (groupPosition)
        {
            case 0 :
                switch(childPosition)
                {
                    case 0 :
                        Toast.makeText(getApplicationContext(), "Bank",
                           Toast.LENGTH_SHORT).show();
                        break;
                    case 1:
                        Toast.makeText(getApplicationContext(), "Executive",
                           Toast.LENGTH_SHORT).show();
                        break;
                }
        }
    }
});

```

```
        case 2:
            Toast.makeText(getApplicationContext(), "Customer",
                    Toast.LENGTH_SHORT).show();
            break;
        case 3 :
            Toast.makeText(getApplicationContext(), "State",
                    Toast.LENGTH_SHORT).show();
            break;
        case 4 :
            Toast.makeText(getApplicationContext(), "City",
                    Toast.LENGTH_SHORT).show();
            break;
    }
    break;
case 1:
    switch(childPosition)
    {
        case 0 :
            Toast.makeText(getApplicationContext(), "Android",
                    Toast.LENGTH_SHORT).show();
            break;
        case 1:
            Toast.makeText(getApplicationContext(), "iPhone",
                    Toast.LENGTH_SHORT).show();
            break;
        case 2:
            Toast.makeText(getApplicationContext(), "Windows",
                    Toast.LENGTH_SHORT).show();
            break;
    }
    break;
}
return false;
});
```

## LAYOUT FILE:

## activity\_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
    xmlns:tools="http://schemas.android.com/tools"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent" >  
  
</RelativeLayout>
```

\*\*\*\*\*

### Note:

1. Java language is needed to create a dynamic and interactive user interface.
  2. XML language is needed to design the user interface.

- 
- 
3. AndroidManifest.xml file stores essential information about the android application and provides essential information about your app to the Android system, information the system must have before it can run any of the app's code.
- \*\*\*\*\*

## SQL

**Sql:** Structured query language – a computer language developed by American computer scientists Donald D. Chamberlin and Raymond F. Boyce at IBM in 1974 to create database, store, manipulate, delete and retrieve data stored in database.

### How to create database in MYSQL

First you have to open MYSQL terminal and then you have to enter the command:

**create database data;**

**or**

**CREATE DATABASE data;**

And press enter. Then

```
Query OK, 1 row affected (0.01 sec)
```

will be displayed on the console screen indicating that database named data is created. And if you enter the command:

**show databases;**

And press enter. Then

+-----
+
Database
+-----
+
CODINGGROUND
data
information_schema
mysql
performance_schema
test

---

---

will be displayed on the console screen. And if you want to create a table in the database “data”, then you have to enter the command:

**use data;**

And press enter. Then

**Database changed**

will be displayed on the console screen stating that your active database is now “data”. And if you want to create a table named "states" with three fields: id, state, and population:

<b>id</b>	<b>state</b>	<b>population</b>

in your active database named “data”, then you have to enter the command:

**CREATE TABLE states (id INT NOT NULL PRIMARY KEY AUTO\_INCREMENT, state CHAR(25), population INT(9));**

And press enter. Then

**Query OK, 0 rows affected (0.07 sec)**

will be displayed on the console screen stating that the above table is created.

**Note:**

- The INT command will make the id field contain only numbers (i.e., integers).
- The NOT NULL command makes sure that the id field cannot be left blank / empty.
- The PRIMARY KEY designates the id field as the key field in the table.
- The AUTO\_INCREMENT command will automatically assign increasing values into the id field, essentially automatically numbering each entry.
- The CHAR(characters) and INT(integers) commands designate the types of data allowed in those fields. The number next to the commands CHAR and INT indicate how many characters or integers can fit in the field.

Now it's time to start entering your information. Use the following command:

**INSERT INTO states (id, state, population) VALUES (NULL, 'Karnataka', 256666); INSERT INTO states (id, state, population) VALUES (NULL, 'Assam', 2568585); INSERT INTO states (id, state, population) VALUES (NULL, 'Kashmir', 2569);**

to input your entry. Then

```
Query OK, 1 row affected (0.03 sec)
```

```
Query OK, 1 row affected (0.01 sec)
```

```
Query OK, 1 row affected (0.00 sec)
```

will be displayed on the console screen stating that you have inputted your entry. And if you enter the following command:

```
select*from states;
```

Then, your created table named “states” will be displayed on the screen as follows:

id	state	population
1	Karnataka	256666
2	Assam	2568585
3	Kashmir	2569

And if you wish to create the following table

id	state	population	language
1	Karnataka	256666	Kannada
2	Assam	2569	Assami

You have to use the following command:

```
CREATE TABLE states (id INT NOT NULL PRIMARY KEY AUTO_INCREMENT, state CHAR (25), population INT (9), language CHAR (25));
```

And press enter and

```
Query OK, 0 rows affected (0.03 sec)
```

---

---

will be displayed on the console screen and then you should enter the following command:

```
INSERT INTO states (id, state, population, language) VALUES (NULL, 'Karnataka', 256666, 'Kannada');
INSERT INTO states (id, state, population, language) VALUES (NULL,'Assam',2569,'Assami');
```

And press enter and

```
Query OK, 1 row affected (0.01 sec)
Query OK, 1 row affected (0.00 sec)
```

will be displayed on the console screen and if you enter the command:

```
select*from states;
```

Then the above table will be displayed on the screen.

```
*****
```

If you enter the command:

```
select state, population from states;
```

Then

```
state      | population |
+-----+-----+
+
| Karnataka |      2562 |
| assam     |      25695 |
```

will be displayed on the console screen. And if you enter the command:

```
select state from states;
```

Then

```
| state      |
+-----+
+
| Karnataka |
| assam     |
```

will be displayed on the console screen.

```
*****
```

---

---

If you enter the command:

```
select*from states where language ='kannada';
```

Then

```
+---+-----+-----+-----+
+
| id | state      | population | language |
+---+-----+-----+-----+
+
| 1 | Karnataka |      2562 | kannada
```

will be displayed on the console screen. Similarly, if you enter the command:

```
select*from states where id =2;
```

Then

```
+---+-----+-----+-----+
+
| id | state | population | language |
+---+-----+-----+-----+
+
| 2 | assam |      25695 | assami
```

will be displayed on the console screen.

## Sql and & or command

If you enter the command:

```
select*from states where population =2566 and language ='kannada';
```

or

```
select*from states where population = 22666 or language = 'kannada';
```

Then

```
+---+-----+-----+-----+
+
| id | state      | population | language |
+---+-----+-----+-----+
+
|
```

```
+-----+-----+-----+
| 1 | Karnataka |      2566 | Kannada |
+-----+-----+-----+
```

will be displayed on the console screen.

If you enter the command:

```
select *from states where population = 2566 or language ='assami';
```

```
+-----+-----+-----+
+
| id | state      | population | language |
+-----+-----+-----+
+
| 1  | Karnataka |      2566 | Kannada |
| 2  | assam      | 22666   | assami  |

*****
```

## HOW to insert information into the table

If you enter the command:

```
INSERT INTO states (id, state, population, language) VALUES (NULL, 'tamil nadu', 288,'tamil');
```

Then

```
+-----+-----+-----+
+
| id | state      | population | language |
+-----+-----+-----+
+
| 1  | Karnataka |      2566 | Kannada |
| 2  | assam      | 22666   | assami  |
| 3  | tamil nadu |      288  | tamil   |

*****
```

will be displayed on the console screen.

---

## UPDATE INFORMATION

If you enter the command:

```
update states set language ='telugu', population = 1 where state ='Karnataka';
```

Then

```
Query OK, 1 row affected (0.01 sec)

Rows matched: 1  Changed: 1  Warnings: 0
```

will be displayed on the console screen. And if you enter the command:

```
select*from states;
```

Then

```
+----+-----+-----+-----+
+
| id | state      | population | language |
+----+-----+-----+-----+
+
| 1  | Karnataka |         1 | telugu   |
| 2  | assam     | 22666    | assami   |
| 3  | tamil nadu |       288 | tamil    |
+----+-----+-----+-----+
+
3 rows in set (0.00 sec)
```

will be displayed on the console screen.

```
*****
```

## DELETE information

If you enter the command:

```
delete from states where language ='assami' and state ='assam';
```

Then

```
Query OK, 1 row affected (0.00 sec)
```

---

---

will be displayed on the console screen. And if you enter the command:

```
select*from states;
```

Then

```
+-----+-----+-----+
+
| id | state      | population | language |
+-----+-----+-----+
+
| 1 | Karnataka |           1 | telagu   |
| 3 | tamil nadu |        288 | tamil    |
+-----+-----+-----+
+
2 rows in set (0.00 sec)
```

will be displayed on the console screen.

```
*****
```

## How to delete database in MYSQL

**Note:** If want to delete database “dbtest” from MYSQL.Then you have to enter the command:

```
drop database dbtest;
```

Then

```
Query OK, 1 row affected (0.00 sec)
```

will be displayed on the console screen stating that database “dbtest” is deleted from MYSQL.

If want to delete table “states” from database “dbtest”.Then you have to enter the command:

```
drop table states;
```

Then

```
Query OK, 1 row affected (0.00 sec)
```

will be displayed on the console screen stating that table “states” is deleted from database “dbtest”.

```
*****
```

## Limit Data Selection From MySQL Database

If enter the command:

```
select*from states limit 1;
```

Then

```
id | state      | population | language |
+---+-----+-----+-----+
+
| 1 | Karnataka | 2566 | Kannada |
```

will be displayed on the console screen.

If enter the command:

```
select*from states limit 2;
```

Then

```
id | state      | population | language |
+---+-----+-----+-----+
+
| 1 | Karnataka | 2566 | Kannada |
| 2 | assam     | 22666 | assami |
```

will be displayed on the console screen.

\*\*\*\*\*

“Controlling complexity is the essence of computer programming.”

(Brian Kernigan)

“Don’t worry if it doesn’t work right. If everything did, you’d be out of a job.”

(Mosher’s Law of Software Engineering)

\*\*\*\*\*

## Send EMAIL

**JAVA FILE:**

**MainActivity.java**

```

import android.support.v7.app.AppCompatActivity;
import android.net.Uri;
import android.os.Bundle;
import android.app.Activity;
import android.content.Intent;
import android.view.Menu;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {

    Button Send;
    EditText TO, CC, SUBJECT, MSG;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Send = (Button) findViewById(R.id.button1);
        TO = (EditText) findViewById(R.id.editText1);
        CC = (EditText) findViewById(R.id.editText2);
        SUBJECT = (EditText) findViewById(R.id.editText3);
        MSG = (EditText) findViewById(R.id.editText4);

        Send.setOnClickListener(new View.OnClickListener() {

            public void onClick(View v) {
                // TODO Auto-generated method stub

                String to = TO.getText().toString();
                String cc = CC.getText().toString();
                String subject = SUBJECT.getText().toString();
                String msg = MSG.getText().toString();

                sendEmail(to, cc, subject, msg);

                TO.setText(null);
                CC.setText(null);
                SUBJECT.setText(null);
                MSG.setText(null);
            }
        });
    }

    private void sendEmail(String emailAddresses, String carbonCopies,
                          String subject, String message)
    {
        Intent emailIntent = new Intent(Intent.ACTION_SEND);

        emailIntent.setData(Uri.parse("mailto:"));
        String to = emailAddresses;
        String cc = carbonCopies;

        emailIntent.putExtra(Intent.EXTRA_EMAIL, to);
        emailIntent.putExtra(Intent.EXTRA_CC, cc);
        emailIntent.putExtra(Intent.EXTRA_SUBJECT, subject);
        emailIntent.putExtra(Intent.EXTRA_TEXT, message);
        emailIntent.setType("message/rfc822");

        startActivity(Intent.createChooser(emailIntent, "Email"));
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {

```

```
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }
}
```

## LAYOUT FILE:

### activity\_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <EditText
        android:id="@+id/editText1"
        android:hint="To"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="50dp"
        android:ems="13"
        android:inputType="textEmailAddress" >

        <requestFocus />
    </EditText>

    <EditText
        android:id="@+id/editText2"
        android:hint="cc"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="100dp"
        android:ems="13"
        android:inputType="textEmailAddress" />

    <EditText
        android:id="@+id/editText3"
        android:hint="Subject"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="150dp"
        android:ems="13" />

    <EditText
        android:id="@+id/editText4"
        android:hint="Message"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="200dp"
        android:ems="13"
        android:inputType="textMultiLine" />

    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
    android:layout_alignParentTop="true"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="280dp"
    android:text="Send E-Mail" />

</RelativeLayout>
```

### Android manifest.xml

```
<uses-permission android:name="android.permission.INTERNET" />
```

```
*****
```

## Add Calender Event

### JAVA FILE:

#### MainActivity.java

```
import android.annotation.TargetApi;
import android.os.Build;
import android.support.v7.app.AppCompatActivity;
import java.util.Calendar;
import android.os.Bundle;
import android.app.Activity;
import android.content.Intent;
import android.view.View;
import android.view.View.OnClickListener;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button button = (Button) findViewById(R.id.btn1);
        button.setOnClickListener(new OnClickListener() {

            @Override
            public void onClick(View arg0) {

                //add event to calendar
                addCalendarEvent();
            }
        });
    }

    public void addCalendarEvent(){

        Calendar cal = Calendar.getInstance();
        Intent intent = new Intent(Intent.ACTION_EDIT);
        intent.setType("vnd.android.cursor.item/event");
```

```

        intent.putExtra("beginTime", cal.getTimeInMillis());
        intent.putExtra("allDay", true);
        intent.putExtra("rrule", "FREQ=YEARLY");
        intent.putExtra("endTime", cal.getTimeInMillis() + 60 * 60 * 1000);
        intent.putExtra("title", "Test Event");
        intent.putExtra("description", "This is a sample description");
        startActivity(intent);
    }
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".MainActivity" >

    <TextView
        android:id="@+id/txt1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Android Calender" />

    <Button
        android:id="@+id/btn1"
        android:layout_below="@+id/txt1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/event" />

</RelativeLayout>

```

##### Android manifest.xml

```

<uses-permission android:name="android.permission.WRITE_CALENDAR" />
<uses-permission android:name="android.permission.READ_CALENDAR" />

```

##### String.xml

```

<string name="event">Add Calender Event</string>

```

\*\*\*\*\*

## Automatic image slider

#### JAVA FILE:

##### MainActivity.java

---



---

```

import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}

```

#### LAYOUT FILE:

##### activity\_main.xml

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent" >

    <ViewFlipper
        android:id="@+id/viewflipper"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:autoStart="true"
        android:flipInterval="2000" >

        <ImageView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:src="@drawable/picture1" />

        <ImageView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:src="@drawable/picture2" />

        <ImageView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:src="@drawable/picture3" />

        <ImageView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:src="@drawable/picture4" />

        <ImageView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:src="@drawable/picture4" />

    </ViewFlipper>

</RelativeLayout>
*****
```

## AutoRunning of text view (Android)

```

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:orientation="vertical"
    tools:context=".MainActivity" >

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello"
        android:textStyle="bold|italic"
        android:layout_gravity="center_horizontal" />

    <TextView
        android:id="@+id/shadowtext"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="http://android-er.blogspot.com/"
        android:textStyle="bold"
        android:textSize="50sp"
        android:textColor="#0000ff"

        android:focusable="true"
        android:focusableInTouchMode="true"
        android:singleLine="true"
        android:scrollHorizontally="true"
        android:ellipsize="marquee"
        android:marqueeRepeatLimit ="marquee_forever" />

</LinearLayout>
*****

```

## JAVASCRIPT

JavaScript / Jscript (designed by an American technologist and co-founder of the Mozilla project, the Mozilla Foundation, and the Mozilla Corporation “Brendan Eich”) is an relatively popular object-oriented scripting interpreted programming language imbedded in high level programming language of HyperText Markup Language (the language that websites are rendered in and basically, everything you and your readers see on the "front-end" is HTML), commonly abbreviated as HTML pages – primarily used to design interactive websites with dynamic content and perform functions that the HTML cannot do, because of its reliability, simplicity and easy to understand, easy to use, write, modify and debug and quick to learn.

**A simple javascript program to print the word “Hello World!” on screen:**

```

<!DOCTYPE html>
<html>
<body>
<script>
document.write("Hello World!");
</script>
</body>
</html>
```

In the above example,

```
<!DOCTYPE html><html><body>
```

```
</body>
```

```
</html> denote HTML document and
```

```

<script>
document.write("Hello World!");
</script>

```

denote Javascript code to print out the string “Hello World!” on screen. In the above example, document.write → denote function or method which print out the string “Hello World!” on the console screen.

If you fail to include the tag

```

<script>
</script> in the above example i.e.,
<!DOCTYPE html>
<html>
<body>
document.write("Hello World!");
</body>
</html>

```

Then

```

document.write("Hello World!");

```

will be outputted on the screen instead of **Hello World!**.

If you replace the text within the double quotation marks by the word “hello”

i.e.,

```

<!DOCTYPE html>
<html>
<body>
document.write("hello");
</body>
</html>

```

Then the output on the screen is:

hello

#### Note:

Even if you write <SCRIPT> </SCRIPT> instead of <script> </script>. There will be no change in the output on the screen. But if you write

```

Document.write("hello"); instead of
document.write("hello");

```

There will be no display of the output on the screen.

#### Program 1.1

(a)

```

<!DOCTYPE html>
<html>
<body>
<script>

```

```

document.write("Hello World!");
document.write("Hello World!");
</script>
</body>
</html>

```

#### Output on the screen:

Hello World!Hello World!

(b)

```

<!DOCTYPE html>
<html>
<body>
<script>
document.write("\nHello World!");
document.write("\nHello World!");
</script>
</body>
</html>

```

#### Output on the screen:

Hello World! Hello World!

(c)

```

<!DOCTYPE html>
<html>
<body>
<script>
document.write("<br>Hello World!");
document.write("Hello World!");
</script>
</body>
</html>

```

#### Output on the screen:

Hello World!
Hello World!

(d)

```

<!DOCTYPE html>
<html>
<body>
<script>
document.write("<br>Hello World!");
document.write("<br>Hello World!");
</script>
</body>
</html>

```

#### Output on the screen:

Hello World!

---

---

Hello World!

(e)

```
<!DOCTYPE html>
<html>
<body>
<script>
document.write("<b><br>Hello World!</br></b>");
document.write("<br>Hello World!<br>");
</script>
</body>
</html>
```

**Output on the screen:**

**Hello World!**

Hello World!

(f)

```
<!DOCTYPE html>
<html>
<body>
<script>
document.write("<i><b><br>Hello
World!</br></b></i>");
document.write("<br>Hello World!<br>");
</script>
</body>
</html>
```

**Output on the screen:**

**Hello World!**

Hello World!

Program 1.2

Javascript program to add two numbers:

```
<!DOCTYPE html>
<html>
<body>
<p>A typical addition operation adds two numbers and
produces a new number.</p>
<script>
var x ;
var y;
var z;
x=100;
```

```
y = 200;
z = x+ y;
document.write(" The sum of two numbers is: " + z);
</script>
</body>
</html>
```

**Output on the screen:**

A typical arithmetic operation takes two numbers and produces a new number.

The sum of two numbers is: 200

The statements

```
var x ;
var y ;
var z ;
```

imply: that we are creating the variables x, y & z.

The statements

```
x=100;
y = 200;
z = x+ y;
```

imply that we are assigning the values to the created variables (i.e., we are assigning the value 100 for x and 100 for y and x + y for z).

The statement

```
document.write(" The sum of two numbers is: " + z);
```

make provision to print the output:

The sum of two numbers is: 200

on the screen.

In the statement

```
document.write(" The sum of two numbers is: " + z);
```

There are two strings:

1. The sum of two numbers is:

2. z

plus operator (+) functions as the concatenation operator (concatenation means connecting two statements to produce a single statement) – which (here) concatenates the string “The sum of two numbers is: ” and the string “z (which is 100+ 100 =200)” -- producing a String statement

The sum of two numbers is: 200, which is displayed on the screen as the result.

The statement

```
<p>A typical addition operation adds two numbers and
produces a new number.</p>
```

make provision to print the output:

A typical arithmetic operation takes two numbers and produces a new number.

on the screen.

---

**Note:**

If the statement

```
<p>A typical addition operation adds two numbers and  
produces a new number.</p>
```

is replaced by the statement

```
<h>A typical addition operation adds two numbers and  
produces a new number.</h>
```

Then the output on the screen is:

A typical arithmetic operation takes two numbers and produces a new number. The sum of two numbers is: 200

If the statement

```
<p>A typical addition operation adds two numbers and  
produces a new number.</p>
```

is replaced by the statement

```
<h1>A typical addition operation adds two numbers and  
produces a new number.</h1>
```

Then the output on the screen is:

**A typical arithmetic operation takes two numbers and produces a new number.**

The sum of two numbers is: 200

**Program 1.3**

Javascript program to subtract two numbers:

```
<!DOCTYPE html>  
<html>  
<body>  
<h1>A typical subtraction operation subtracts two numbers  
and produces a new number.</h1>  
<script>  
var x ;  
var y;  
var z;  
x=300;  
y = 200;  
z = x- y;  
document.write(" The difference of two numbers is: " +  
z);  
</script>  
</body>  
</html>
```

**Output on the screen:**

**A typical subtraction operation subtracts  
two numbers and produces a new  
number.**

The difference of two numbers is: 100

**Program 1.4**

Javascript program to divide two numbers:

```
<!DOCTYPE html>  
<html>  
<body>  
<p>A typical division operation divides two numbers and  
produces a new number.</p>  
<script>  
var x ;  
var y;  
var z;  
x=300;  
y = 200;  
z = x/ y;  
document.write(" The division of two numbers is: " + z);  
</script>  
</body>  
</html>
```

**Output on the screen:**

A typical division operation divides two numbers and produces a new number.

The division of two numbers is: 1.5

**Program 1.5**

Javascript program to multiply two numbers:

```
<!DOCTYPE html>  
<html>  
<body>  
<p>A typical multiplication operation multiplies two  
numbers and produces a new number.</p>  
<script>  
var x ;  
var y;  
var z;  
x=300;  
y = 200;  
z = x* y;  
document.write(" The multiplication of two numbers is:  
" + z);  
</script>  
</body>  
</html>
```

**Output on the screen:**

A typical multiplication operation multiplies two numbers and produces a new number.

The multiplication of two numbers is: 60000

---

**Program 1.5**  
Javascript program to find the area of a circle

```
<!DOCTYPE html>
<html>
<body>
<script>
var r ;
var area;
r=3;
area = 4*3.14* r* r;
document.write(" The area of the circle is: " + area
+"\\ncentimeter square");
</script>
</body>
</html>
```

**Output on the screen:**

The area of the circle is: 113.03999999999999  
centimeter square

**Program 1.6**  
Javascript program to find the square root of a number

```
<!DOCTYPE html>
<html>
<body>
<script>
var x ;
var z;
x=4;
z = Math.sqrt(x);
document.write(" The square root of a number z is: "
+ z);
</script>
</body>
</html>
```

**Output on the screen:**  
The square root of a number z is: 2

**Program 1.7**  
Javascript program to find the square of a number

```
<!DOCTYPE html>
```

```
<html>
<body>
<script>
var x ;
var z;
x=4;
z = x*x;
document.write(" The square of a number z is: " + z);
</script>
</body>
</html>
```

**Output on the screen:**

The square of a number z is: 16

If the statement  $z = x*x;$  is replaced by  $z = Math.pow((x), 2);$   
i.e., if the above program is rewritten as:

```
<!DOCTYPE html>
<html>
<body>
<script>
var x ;
var z;
x=4;
z = Math.pow((x), 2);
document.write(" The square of a number z is: " + z);
</script>
</body>
</html>
```

Then there will be no change in the output on the screen i.e.,

The square of a number z is: 16 will be outputted on the screen.

Which means:

$z = pow((x), 2);$  is the same as  $z = x*x;$

**Program 1.8**  
Javascript program to find the cube root of a number

```
<!DOCTYPE html>
<html>
<body>
<script>
var x ;
var z;
```

```

x=4;
z = Math.cbrt(x);
document.write(" The cube root of a number z is: " +
z);
</script>
</body>
</html>

```

**Output on the screen:**

The cube root of a number z is: 1.5874010519681996

**Program 1.9**

Javascript program to round off a number

```

<!DOCTYPE html>
<html>
<body>
<script>
var x ;
var z;
x=4.5;
z = Math.round(x);
document.write(" The round off a number z is: " + z);
</script>
</body>
</html>

```

**Output on the screen:**

The round off a number z is: 5

**Program 2.0**

Javascript program to find the incremented and decremented values of two numbers.

```

<!DOCTYPE html>
<html>
<body>
<script>
var x ;
var y;
var z;
var p;
var a;
var b;
x=4;

```

```

y=6;
z=x+1;
p=x-1;
a = y+1;
b= y-1;
document.write(" The incremented value of x is: " +
z);
document.write(" The decremented value of x is: " +
p);
document.write(" The incremented value of y is: " +
a);
document.write(" The decremented value of y is: " +
b);
</script>
</body>
</html>

```

**Output on the screen:**

The incremented value of x is: 5 The decremented value of x is: 3 The incremented value of y is: 7 The decremented value of y is: 5

**Program 2.0**

Javascript program to find the greatest of two numbers using if – else statement

The syntax of if – else statement is:

```

if (this condition is true)
{
print this statement using document.write function;
}
else
{
print this statement using document.write function;
}

```

```

<!DOCTYPE html>
<html>
<body>
<script>
var x ;
var y;
x=4;
y=6;
if(x>y){

```

```

document.write(" x is greater than y");
} else {
document.write(" y is greater than x");
}
</script>
</body>
</html>

```

**Output on the screen:**

y is greater than x

**Program 2.1**

Javascript program to find the greatest of three numbers using if –else if – else statement

The syntax of if –else if – else statement is:

```

if (this condition is true)
{
print this statement using document.write function;
}
else if(this condition is true)
{
print this statement using document.write function;
}
else
{
print this statement using document.write function;
}

```

<!DOCTYPE html>

<html>

<body>

<script>

var x ;

var y;

var z;

x=4;

y=6;

```

z=12;

if(x>y&&x>z){

document.write(" x is greater than y and z");

} else if (y>x&&y>z)

{

document.write(" y is greater than x and z");

} else {

document.write(" z is greater than x and y");

}

</script>

</body>

</html>

```

**Output on the screen:**

z is greater than x and y

**Program 2.2**

Javascript program to print the first ten natural numbers using for loop statement

```

<!DOCTYPE html>
<html>
<body>
<script>
var i ;
for (i=1; i<=10; i++)
document.write(" " + i);
</script>
</body>
</html>

```

**Output on the screen:**

1 2 3 4 5 6 7 8 9 10

for (i=1; i<=10; i++) denote the for loop statement and the syntax of the for loop statement is:

for (initialization; condition; increment)

Here:

i=1 denote initialization (i.e., from where to start)  
i<=10 denote the condition (i.e., stop when 10 is reached)  
i++ imply increment (which tells the value of i to increase by 1 each time the loop is executed) and i++ is the same as i+1.  
Since the initialization i.e., i=1  
The statement document.write(" " + i); make provision to print the output:  
1  
on the screen.  
After this, the following execution takes place:  
value of i  
i= 1  
Is the condition (i<=10) is true?  
Yes because i=1  
Do this  
i= 1+1 = 2  
The statement  
document.write(" " + i); make provision to print the output:  
2  
Now, the value of i is:  
i= 2  
Is the condition (i<=10) is true?  
Yes because i=2  
Do this  
i= 2+1 = 3  
The statement document.write(" " + i); make provision to print the output:  
3  
Now, the value of i is:  
i= 3  
Is the condition (i<=10) is true?  
Yes because i=3  
Do this  
i= 3+1 = 4  
The statement document.write(" " + i); make provision to print the output:  
4  
Now, the value of i is:  
i= 4  
Is the condition (i<=10) is true?  
Yes because i=4  
Do this

i= 4+1 = 5  
The statement document.write(" " + i); make provision to print the output:  
5  
Now, the value of i is:  
i= 5  
Is the condition (i<=10) is true?  
Yes because i=5  
Do this  
i= 5+1 = 6  
The statement document.write(" " + i); make provision to print the output:  
6  
Now, the value of i is:  
i= 6  
Is the condition (i<=10) is true?  
Yes because i=6  
Do this  
i= 6+1 = 7  
The statement document.write(" " + i); make provision to print the output:  
7  
Now, the value of i is:  
i= 7  
Is the condition (i<=10) is true?  
Yes because i=7  
Do this  
i= 7+1 = 8  
The statement document.write(" " + i); make provision to print the output:  
8  
Now, the value of i is:  
i= 8  
Is the condition (i<=10) is true?  
Yes because i=8  
Do this  
i= 8+1 = 9  
The statement document.write(" " + i); make provision to print the output:  
9  
Now, the value of i is:  
i= 9  
Is the condition (i<=10) is true?  
Yes because i=9  
Do this

i= 9+1 = 10  
The statement document.write(" " + i); make provision to print the output:  
10  
stop because the condition i<=10 is achieved.

If you replace the statement  
for (i=1; i<=10; i++)  
by the statement  
for (i=1; i==10; i++)

Then there will be no display of output on the screen.

If the statement  
document.write(" " + i);  
is replaced by the statement  
document.write("<br> </br>" + i);

Then the output on the screen is:

1  
2  
3  
4  
5  
6  
7  
8  
9  
10

What will be the output of the following program:

```
<!DOCTYPE html>
<html>
<body>
<script>
```

```
var i ;
for (i=1; i<=10; i++)
document.write("<br>javascript </br>");
</script>
</body>
</html>
```

**Program 2.3**  
Javascript program to print the first ten natural numbers using while loop statement

The syntax of while loop statement is:

```
while (this is the condition)
{
execute this statement;
}
```

```
<!DOCTYPE html>
<html>
<body>
<script>
var i=1 ;
while (i<=10)
document.write(" " + i++);
</script>
</body>
</html>
```

**Output on the screen:**  
1 2 3 4 5 6 7 8 9 10

**Program 2.4**  
Javascript program to print the first nine natural numbers using do while loop statement

The syntax of do while loop statement is:

```
do
{
execute this statement;
}
while(this is the condition);

<!DOCTYPE html>
```

```

<html>
<body>
<script>
var i=1 ;
do{
document.write(" " + i++);} while (i<10)
</script>
</body>
</html>

```

**Output on the screen:**

1 2 3 4 5 6 7 8 9

Program 2.6

Javascript program to print the average of the first10 numbers using for loop statement

```

<!DOCTYPE html>
<html>
<body>
<script>
var i, avg, sum = 0;
for( i=1; i<=10; i++)
sum = sum + i;
avg = sum/10;
document.write("<br> sum of the first 10 numbers =
<br>" + sum);
document.write("<br> average of the first10 numbers
= <br>" + avg);
</script>
</body>
</html>

```

**Output on the screen:**

sum of the first 10 numbers =  
55  
average of the first10 numbers =  
5.5

Program 2.7

Switch case method

(a)

```

<!DOCTYPE html>
<html>
<body>
<script>

var ch ='2';
switch(ch)
{
case '1':
document.write("Red");
break;
case '2':
document.write("White");
break;
case '3':
document.write("Yellow");
break;
case '4':
document.write("Green");
break;
default:
document.write("Error");
break;
}

</script>
</body>
</html>

```

**Output on the screen:**

White

(b)

```

<!DOCTYPE html>
<html>
<body>
<script>

var ch ='animal';
switch(ch)
{
case 'animal':

```

```

document.write("elephant");
break;
case 'reptiles':
document.write("crocodile");
break;
case 'birds':
document.write("parrot");
break;
case 'mammals':
document.write("cow");
break;
default:
document.write("Error");
break;
}

</script>
</body>
</html>

```

**Output on the screen:**

elephant

**Program 2.8**

Addition of two numbers using javascript function

```

<!DOCTYPE html>
<html>
<body>
<script>
function addition(a, b) {
    return a + b;
}
document.write(" " + addition(4, 3));

```

**Output on the screen:**

7

“ It's hard enough to find an error in your code when you're looking for it; it's even harder when you've assumed your code is error-free. ” - Steve McConnell.

What is the mistake in the following program:

```

<!DOCTYPE html>
<html>
<body>
<script>
function addition(a, b) {
    return a % b;
}
document.write(" " + function(4, 3));
</script>
</body>
</html>

```

\*\*\*\*\*

## Text view

**(a) Javascript program to print the output:**

---

---

$$Mc^2 = m_0c^2 + KE$$

Where  $Mc^2$  = total energy

$m_0c^2$  = rest energy

KE = kinetic energy

Enter  $E=mc^2$ . This seemingly simple algebraic formula represents the correlation of energy to matter (energy equivalence of any given amount of mass). Many have heard of it, but not very many understand what it implies. Many people are unaware of just how much energy is contained within matter. So, for the next few minutes, I will attempt to convey to you the magnitude of your own personal potential energy equivalence.

First, we must break down this equation. What do each of the letters mean? What are their values? Let's break it down from left to right:

```
<!DOCTYPE html>

<html>
  <body>
    <center>
      <h1> <b> <i> <font size="56" face="times" color="green"> Mc <sup> 2 </sup> = m <sub> 0 </sub> c <sup> 2 </sup> + KE </font> </i> </b> </h1>
    </center>
    <p><font size="5" face="calibri" color="black" > <div style="margin-top: 19px"> Where  $Mc^2$  <sup> 2 </sup> = total energy </div> </font> </p>
    <p><font size="5" face="calibri" color="black">Where  $m_0$  <sub> 0 </sub> c <sup> 2 </sup> = rest energy</font> </p>
    <p><font size="5" face="calibri" color="black">Where KE = kinetic energy </p>
    <p> <font size="5" face="times" color="black">Enter  $E=mc^2$ 
      <sup> 2 </sup>. This seemingly simple algebraic formula represents the correlation of energy to matter (energy equivalence of any given amount of mass). Many have heard of it, but not very many understand what it implies. Many people are unaware of just how much energy is contained within matter. So, for the next few minutes, I will attempt to convey to you the magnitude of your own personal potential energy equivalence.
    </p>
  </body>
</html>
```

```
</font> </p>
```

```
<p><font size="5" face="calibri" color="black">First, we must break down this equation. What do each of the letters mean? What are their values? Let's break it down from left to right: </p>
</body>
</html>
```

## Image view

```
<!DOCTYPE html>
<html>
<body>
<left> </left>
</body>
</html>
```

```
*****
```

### Note:

**How to find the url address of the image?**

GO to GOOGLE images → select an image → view image → right click on it → select Inspect → you will find the url address of the image.

```
*****
```

## Video display

```
<!DOCTYPE html>
<html>
<body>
<center>
<iframe width="500" height="500"
src="img/Fashion History (1700-1900).mp4"
```

```

style="margin-top: 100px;" >

</iframe>
</center>
</body>
</html>
*****
*****  


## CALCULATOR


<!DOCTYPE html>
<html>
<body>
<FORM NAME="Calc">
<center>
<TABLE BORDER=4>
<TR>
<TD>
<INPUT TYPE="text" NAME="Input" Size="16">
<br>
</TD>
</TR>
<TR>
<TD>
<INPUT TYPE="button" NAME="one" VALUE=" 1 " OnClick="Calc.Input.value += '1'">
<INPUT TYPE="button" NAME="two" VALUE=" 2 " OnClick="Calc.Input.value += '2'">
<INPUT TYPE="button" NAME="three" VALUE=" 3 " OnClick="Calc.Input.value += '3'">
<INPUT TYPE="button" NAME="plus" VALUE=" + " OnClick="Calc.Input.value += ' + '">
<br>
<INPUT TYPE="button" NAME="four" VALUE=" 4 " OnClick="Calc.Input.value += '4'">
<INPUT TYPE="button" NAME="five" VALUE=" 5 " OnClick="Calc.Input.value += '5'">

```

```

<INPUT TYPE="button" NAME="six"     VALUE="   6   " OnClick="Calc.Input.value += '6'">
<INPUT TYPE="button" NAME="minus"   VALUE="   -   " OnClick="Calc.Input.value += ' - '">
<br>
<INPUT TYPE="button" NAME="seven"   VALUE="   7   " OnClick="Calc.Input.value += '7'">
<INPUT TYPE="button" NAME="eight"    VALUE="   8   " OnClick="Calc.Input.value += '8'">
<INPUT TYPE="button" NAME="nine"     VALUE="   9   " OnClick="Calc.Input.value += '9'">
<INPUT TYPE="button" NAME="times"   VALUE="   x   " OnClick="Calc.Input.value += ' * '">
<br>
<INPUT TYPE="button" NAME="clear"   VALUE="   c   " OnClick="Calc.Input.value = ''">
<INPUT TYPE="button" NAME="zero"    VALUE="   0   " OnClick="Calc.Input.value += '0'">
<INPUT TYPE="button" NAME="DoIt"    VALUE="      =      " OnClick="Calc.Input.value = eval(Calc.Input.value)">
<INPUT TYPE="button" NAME="div"     VALUE="   /   " OnClick="Calc.Input.value += ' / '">
<br>
</TD>
</TR>
</TABLE>
</center>
</FORM>
<p align="center"><font face="arial" size="-2">This free script provided by</font><br>
<font face="arial, helvetica" size="-2"><a href="http://www.google.com">Google</a></font></p>
</body>
</html>
*****

```

## Drop down menu

```

<!DOCTYPE html>
<html>
<body>
<form>
<select name="menu">

```

---



---

```

<option value="http://www.msn.com/">MSN</option>

<option value="http://www.google.com/">Google</option>

</select>

<input type="button" style="background-
color:lightgreen"onClick="location=this.form.menu.options[this.form.menu.selectedIndex].value;" value="Save our planet! GO">

</form>

</body>

</html>

*****
```

## Automatic image slider

```

<!DOCTYPE html>

<html>

<title>W3.CSS</title>

<meta name="viewport" content="width=device-width, initial-scale=1">

<link rel="stylesheet" href="http://www.w3schools.com/lib/w3.css">

<style>

.mySlides {display:none;}
```

</style>

```

<body>

<h2 class="w3-center">Automatic Slideshow</h2>

<div class="w3-content w3-section" style="max-width:500px">






```

---

```

</div>

<script>

var myIndex = 0;

carousel();


function carousel() {
    var i;
    var x = document.getElementsByClassName("mySlides");
    for (i = 0; i < x.length; i++) {
        x[i].style.display = "none";
    }
    myIndex++;
    if (myIndex > x.length) {myIndex = 1}
    x[myIndex-1].style.display = "block";
    setTimeout(carousel, 2000); // Change image every 2 seconds
}

</script>

</body>
</html>
*****
```

## Automatic text slider

```

<!DOCTYPE html>

<html>
<head>

<!-- Styles -->
<style style="text/css">
```

```
.example1 {  
height: 50px;  
overflow: hidden;  
position: relative;  
}  
  
.example1 p3 {  
position: absolute;  
width: 100%;  
height: 100%;  
margin: 0;  
line-height: 50px;  
text-align: center;  
  
/* Starting position */  
  
-moz-transform:translateX(100%);  
  
-webkit-transform:translateX(100%);  
  
transform:translateX(100%);  
  
/* Apply animation to this element */  
  
-moz-animation: example1 15s linear infinite;  
  
-webkit-animation: example1 15s linear infinite;  
  
animation: example1 15s linear infinite;  
}  
  
/* Move it (define the animation) */  
  
@-moz-keyframes example1 {  
0%   { -moz-transform: translateX(100%); }  
100% { -moz-transform: translateX(-100%); }  
}  
  
@-webkit-keyframes example1 {  
0%   { -webkit-transform: translateX(100%); }  
100% { -webkit-transform: translateX(-100%); }  
}
```

---

```

@keyframes example1 {
    0%   {
        -moz-transform: translateX(100%); /* Firefox bug fix */
        -webkit-transform: translateX(100%); /* Firefox bug fix */
        transform: translateX(100%);
    }
    100% {
        -moz-transform: translateX(-100%); /* Firefox bug fix */
        -webkit-transform: translateX(-100%); /* Firefox bug fix */
        transform: translateX(-100%);
    }
}

</style>
</head>
<body>
<!-- HTML -->
<div class="example1">
<font size="6" face="calibri" color="red"> <p3>hi... </p3> </font>
</div>
</body>
</html>

```

**Note:**

What if h3 is replaced by p3

---

## Image button

```

<div style="position: absolute; center: 10px; top: 50px;">
    
</div>

```

```

<div style="position: absolute; left: 112px; top: 50px;">

    window.open('http://www.facebook.com','name','width=200,height=200')" />

</div>

<div style="position: absolute; left: 230px; top: 50px;">

    window.open('http://www.twitter.com','name','width=200,height=200')" />

</div>

*****

```

#### **How to test your JavaScript/ HTML code on your computer?**

**Copy your Html / JavaScript codes to notepad and save it as .html and open this .html file with Google chrome.**

## **LINUX**

Open source operating system (the most important technology advancement of the twenty-first century and Licensed under General Public License (GPL) that Linux uses ensures that the software will always be open to anyone) originally created as a labor of love by Linus Torvalds (computer science student at the University of Helsinki in Finland) in the early 1990s and later developed by more than a thousand people around the world – that runs your computer, handling all interactions between you and the hardware.

### **LINUX COMMANDS**

1. date → display date and time
2. cal → display calendar
3. shutdown → shutdown the operating system
4. clear → clear / empty the screen
5. exit → exit and get to login page
6. passwd → change user password
7. free → free memory information

## **Information bar**

```
<!DOCTYPE html>
```

```

<html>

<head>

<title>Animated Information Bar</title>

<style type="text/css">

#information_bar{

position: fixed;
left: 0;
width: 100%;
text-indent: 5px;
padding: 10px 0;

background-color: antiquewhite;
border-bottom: 1px solid black;
font: bold 15px Helvetica;
color:#000000;

}

</style>

<script type="text/javascript">

//for information_bar

function information_bar(){

this.displayfreq="always"

this.content='<a href="javascript:information_bar.close()"></a>'

}

//set content

information_bar.prototype.setContent=function(data){

this.content=this.content+data

```

```

document.write('<div id="information_bar" style="top: -500px">' +this.content+'</div>')

}

//animation to view

information_bar.prototype.animatetoview=function(){

var barinstance=this

if (parseInt(this.barref.style.top)<0){

this.barref.style.top=parseInt(this.barref.style.top)+5+"px"

setTimeout(function(){barinstance.animatetoview()}, 50)

}

else{

if (document.all && !window.XMLHttpRequest)

this.barref.style.setExpression("top", 'document.compatMode=="CSS1Compat"?
document.documentElement.scrollTop+"px" : body.scrollTop+"px"')

else

this.barref.style.top=0

}

}

// for the close function

information_bar.close=function(){

document.getElementById("information_bar").style.display="none"

if (this.displayfreq=="session")

document.cookie="infobarshown=1;path=/"

}

//setting frequency

information_bar.prototype.setfrequency=function(type){

this.displayfreq=type

}

//for initializing

information_bar.prototype.initialize=function(){

if (this.displayfreq=="session" && document.cookie.indexOf("infobarshown")==-1 ||

this.displayfreq=="always"){

}

```

```

this.barref=document.getElementById("information_bar")

this.barheight=parseInt(this.barref.offsetHeight)

this.barref.style.top=this.barheight*(-1)+"px"

this.animatetoview()

}

}

window.onunload=function(){

this.barref=null

}

</script>

<!--Execute-->

<script type="text/javascript">

var infobar=new information_bar()

infobar.setContent('Welcome to <b style="color:blue;">Sourcecodester.com</b>! Do you have source
code, articles, tutorials, web links, and books to share? <a
href="http://www.sourcecodester.com/user?destination=submit-code" title="Submit now...">Submit
now...</a>')

//infobar.setfrequency('session') //Uncomment this line to set once the information bar per
browser session.

infobar.initialize()

</script>

<body>

</body>

</html>

*****

```

## Web Link

<p>Video courtesy of <a href="http://www.bigbuckbunny.org/" target="\_blank"> Buck Bunny</a>.</p>

\*\*\*\*\*

## Manual IMAGE SLIDE VIEW

<!DOCTYPE html>

```
<html>

<title>W3.CSS</title>

<meta name="viewport" content="width=device-width, initial-scale=1">

<link rel="stylesheet" href="http://www.w3schools.com/lib/w3.css">

<body>

<h2 class="w3-center">Manual Slideshow</h2>

<div class="w3-content" style="max-width:800px;position:relative">






<a class="w3-btn-floating" style="position: absolute; top: 45%; left: 0" onclick="plusDivs(-1)"></a>
<a class="w3-btn-floating" style="position: absolute; top: 45%; right: 0" onclick="plusDivs(1)"></a>
</div>

<script>

var slideIndex = 1;

showDivs(slideIndex);

function plusDivs(n) {
    showDivs(slideIndex += n);
}

function showDivs(n) {
    var i;
    var x = document.getElementsByClassName("mySlides");
    if (n > x.length) {slideIndex = 1}
    else if (slideIndex < 1) {slideIndex = x.length}
    for (i = 0; i < x.length; i++) {
        x[i].style.display = "none";
    }
    x[slideIndex-1].style.display = "block";
}

</script>
```

```
if (n < 1) {slideIndex = x.length}

for (i = 0; i < x.length; i++) {
    x[i].style.display = "none";
}

x[slideIndex-1].style.display = "block";

}
</script>

</body>

</html>
*****
```

## Set ALARM to open a WEBSITE

```
<!DOCTYPE html>

<html>
<head>
<title>JavaScript Alarm Clock</title>
```

```
<style type="text/css">
```

```
body {
color:blue;
}
```

```
#jsalarmclock{
font-family: Tahoma;
font-weight: bold;
font-size: 12px;
}
```

```
#jsalarmclock div{
```

---

```
margin-bottom: 0.8em;  
}  
  
#jsalarmclock div.leftcolumn{  
float: left;  
width: 150px;  
font-size: 13px;  
clear: left;  
}  
  
#jsalarmclock span{  
margin-right: 5px;  
}  
  
.button_menu {  
width: 100px;  
height: 28px;  
background-color: buttonface;  
border: 1px solid red;  
border-radius: 10px;  
color: blue;  
font-size:18px;  
}  
  
.select_menu {  
width: 100px;  
height: 28px;  
background-color: buttonface;  
border: 1px solid red;  
border-radius: 10px;
```

---

```

color: red;

}

.text_menu {
width: 400px;
height: 28px;
background-color: buttonface;
border: 1px solid red;
border-radius: 10px;
color: blue;
}

</style>
<script type="text/javascript">
var jsalarm={
padfield:function(f){
return (f<10)? "0"+f : f
},
showcurrenttime:function(){
var dateobj=new Date()
var
ct=this.padfield(dateobj.getHours())+":"+this.padfield(dateobj.getMinutes())+":"+this.padfield(da
teobj.getSeconds())
this.ctref.innerHTML=ct
this.ctref.setAttribute("title", ct)
if (typeof this.hourwake!="undefined"){ //if alarm is set
if (this.ctref.title==(this.hourwake+":"+this minutewake+":"+this.secondwake)){clearInterval(j
salarm.timer)
window.location=document.getElementById("musicloc").value
}
}
}

```

```
},  
  
init:function(){  
  
var dateobj=new Date()  
  
this.ctref=document.getElementById("alarm_alarm")  
  
this.submitref=document.getElementById("submit_submit")  
  
this.submitref.onclick=function(){  
  
jsalarm.setalarm()  
  
this.value="Alarm Set"  
  
this.disabled=true  
  
return false  
}  
  
this.resetref=document.getElementById("reset_reset")  
  
this.resetref.onclick=function(){  
  
jsalarm.submitref.disabled=false  
  
jsalarm.hourwake=undefined  
  
jsalarm.hourselect.disabled=false  
  
jsalarm.minuteselect.disabled=false  
  
jsalarm.secondselect.disabled=false  
  
return false  
}  
  
var selections=document.getElementsByTagName("select")  
  
this.hourselect=selections[0]  
  
this.minuteselect=selections[1]  
  
this.secondselect=selections[2]  
  
for (var i=0; i<60; i++){  
  
if (i<24) //If still within range of hours field: 0-23  
  
this.hourselect[i]=new Option(this.padfield(i), this.padfield(i), false,  
dateobj.getHours()==i)  
  
this.minuteselect[i]=new Option(this.padfield(i), this.padfield(i), false,  
dateobj.getMinutes()==i)
```

```

        this.secondselect[i]=new Option(this.padfield(i), this.padfield(i), false,
dateobj.getSeconds()==i)

    }

jsalarm.showcurrenttime()

jsalarm.timer=setInterval(function(){jsalarm.showcurrenttime()}, 1000)

} ,

setalarm:function(){

this.hourwake=this.hourselect.options[this.hourselect.selectedIndex].value

this.minutewake=this.minuteselect.options[this.minuteselect.selectedIndex].value

this.secondwake=this.secondselect.options[this.secondselect.selectedIndex].value

this.hourselect.disabled=true

this.minuteselect.disabled=true

this.secondselect.disabled=true

}

}

</script>

</style>

</head>

<body>

<form action="" method="">

<div id="jsalarmclock">

<div>

<div class="leftcolumn">Current Time:</div>

<span id="alarm_alarm" style="letter-spacing: 2px"></span>

</div>

```

```

<div>

<div class="leftcolumn">Set Alarm:</div>

<span><select class="select_menu"></select> Hour</span>

<span><select class="select_menu"></select> Minutes</span>

<span><select class="select_menu"></select> Seconds</span>

</div>

<div>

<div class="leftcolumn">Set Alarm Action:</div>

<input type="text" class="text_menu" id="musicloc" size="55"
value="https://www.youtube.com/watch?v=wU2BDZkv17k" />

<span style="font: normal 11px Tahoma">

<p style=" margin-left: 150px; color: blue; font-size: 15px; font-weight: bold;">Location of
page to launch</p>

</span>

</div>

<input type="submit" class="button_menu" value="Set Alarm!" id="submit_submit" />

<input type="reset" class="button_menu" value="reset" id="reset_reset" />

</div>

</form>

<script type="text/javascript">

jsalarm.init()

</script>

</body>

</html>
*****
```

---

## Date and time display in JavaScript

```
<!DOCTYPE html>

<html>
<head>
<script type="text/javascript">

tday=new Array("Sunday","Monday","Tuesday","Wednesday","Thursday","Friday","Saturday");
tmonth=new
Array("January","February","March","April","May","June","July","August","September","October","No
vember","December");

function GetClock(){

var d=new Date();

var nday=d.getDay(),nmonth=d.getMonth(),ndate=d.getDate(),nyear=d.getFullYear();
if(nyear<1000) nyear+=1900;

var nhour=d.getHours(),nmin=d.getMinutes(),nsec=d.getSeconds(),ap;
if(nhour==0){ap=" AM";nhour=12;}
else if(nhour<12){ap=" AM";}
else if(nhour==12){ap=" PM";}
else if(nhour>12){ap=" PM";nhour-=12;}

if(nmin<=9) nmin="0"+nmin;
if(nsec<=9) nsec="0"+nsec;

document.getElementById('clockbox').innerHTML="" +tday[nday]+", "+tmonth[nmonth]+" "+ndate+", "
+nyear+" "+nhour+":"+nmin+":"+nsec+ap+" ";

}

window.onload=function(){

GetClock();

setInterval(GetClock,1000);

}

</script>

<div id="clockbox" style="font:14pt Arial; color:#FF0000; margin-top: 40px; text-align:center"></div>

</body>
```

```
</html>  
*****
```

## Calender view

```
<HEAD>  
  
<SCRIPT LANGUAGE="JavaScript">  
  
var dDate = new Date();  
var dCurMonth = dDate.getMonth();  
var dCurDayOfMonth = dDate.getDate();  
var dCurYear = dDate.getFullYear();  
var objPrevElement = new Object();  
  
function fToggleColor(myElement) {  
var toggleColor = "#ff0000";  
if (myElement.id == "calDateText") {  
if (myElement.color == toggleColor) {  
myElement.color = "";  
} else {  
myElement.color = toggleColor;  
}  
} else if (myElement.id == "calCell") {  
for (var i in myElement.children) {  
if (myElement.children[i].id == "calDateText") {  
if (myElement.children[i].color == toggleColor) {  
myElement.children[i].color = "";  
} else {  
myElement.children[i].color = toggleColor;  
}  
}  
}  
}  
}  
}  
function fSetSelectedDay(myElement){  
if (myElement.id == "calCell") {  
if (!isNaN(parseInt(myElement.children["calDateText"].innerText))) {  
myElement.bgColor = "#c0c0c0";  
objPrevElement.bgColor = "";  
document.all.calSelectedDate.value = parseInt(myElement.children["calDateText"].innerText);  
objPrevElement = myElement;  
}  
}  
}  
}  
function fGetDaysInMonth(iMonth, iYear) {  
var dPrevDate = new Date(iYear, iMonth, 0);  
return dPrevDate.getDate();  
}  
function fBuildCal(iYear, iMonth, iDayStyle) {  
var aMonth = new Array();  
aMonth[0] = new Array(7);  
aMonth[1] = new Array(7);  
aMonth[2] = new Array(7);
```

```

aMonth[3] = new Array(7);
aMonth[4] = new Array(7);
aMonth[5] = new Array(7);
aMonth[6] = new Array(7);
var dCalDate = new Date(iYear, iMonth-1, 1);
var iDayOffFirst = dCalDate.getDay();
var iDaysInMonth = fGetDaysInMonth(iMonth, iYear);
var iVarDate = 1;
var i, d, w;
if (iDayStyle == 2) {
aMonth[0][0] = "Sunday";
aMonth[0][1] = "Monday";
aMonth[0][2] = "Tuesday";
aMonth[0][3] = "Wednesday";
aMonth[0][4] = "Thursday";
aMonth[0][5] = "Friday";
aMonth[0][6] = "Saturday";
} else if (iDayStyle == 1) {
aMonth[0][0] = "Sun";
aMonth[0][1] = "Mon";
aMonth[0][2] = "Tue";
aMonth[0][3] = "Wed";
aMonth[0][4] = "Thu";
aMonth[0][5] = "Fri";
aMonth[0][6] = "Sat";
} else {
aMonth[0][0] = "Su";
aMonth[0][1] = "Mo";
aMonth[0][2] = "Tu";
aMonth[0][3] = "We";
aMonth[0][4] = "Th";
aMonth[0][5] = "Fr";
aMonth[0][6] = "Sa";
}
for (d = iDayOffFirst; d < 7; d++) {
aMonth[1][d] = iVarDate;
iVarDate++;
}
for (w = 2; w < 7; w++) {
for (d = 0; d < 7; d++) {
if (iVarDate <= iDaysInMonth) {
aMonth[w][d] = iVarDate;
iVarDate++;
}
}
}
return aMonth;
}
function fDrawCal(iYear, iMonth, iCellWidth, iCellHeight, sDateTextSize, sDateTextWeight,
iDayStyle) {
var myMonth;
myMonth = fBuildCal(iYear, iMonth, iDayStyle);
document.write("<table border='1'>")
document.write("<tr>");
document.write("<td align='center' style='FONT-FAMILY:Arial;FONT-SIZE:12px;FONT-WEIGHT: bold'>" +
myMonth[0][0] + "</td>");
document.write("<td align='center' style='FONT-FAMILY:Arial;FONT-SIZE:12px;FONT-WEIGHT: bold'>" +
myMonth[0][1] + "</td>");
```

```

document.write("<td align='center' style='FONT-FAMILY:Arial;FONT-SIZE:12px;FONT-WEIGHT: bold'>" +
myMonth[0][2] + "</td>");
document.write("<td align='center' style='FONT-FAMILY:Arial;FONT-SIZE:12px;FONT-WEIGHT: bold'>" +
myMonth[0][3] + "</td>");
document.write("<td align='center' style='FONT-FAMILY:Arial;FONT-SIZE:12px;FONT-WEIGHT: bold'>" +
myMonth[0][4] + "</td>");
document.write("<td align='center' style='FONT-FAMILY:Arial;FONT-SIZE:12px;FONT-WEIGHT: bold'>" +
myMonth[0][5] + "</td>");
document.write("<td align='center' style='FONT-FAMILY:Arial;FONT-SIZE:12px;FONT-WEIGHT: bold'>" +
myMonth[0][6] + "</td>");
document.write("</tr>");
for (w = 1; w < 7; w++) {
document.write("<tr>")
for (d = 0; d < 7; d++) {
document.write("<td align='left' valign='top' width=''" + iCellWidth + "' height=''" + iCellHeight +
"'" id=calCell style='CURSOR:Hand' onMouseOver='fToggleColor(this)'"
onMouseOut='fToggleColor(this)' onclick=fSetSelectedDay(this)>");
if (!isNaN(myMonth[w][d])) {
document.write("<font id=calDateText onMouseOver='fToggleColor(this)' style='CURSOR:Hand;FONT-
FAMILY:Arial;FONT-SIZE:" + sDateTextSize + ";FONT-WEIGHT:" + sDateTextWeight + "'"
onMouseOut='fToggleColor(this)' onclick=fSetSelectedDay(this)>" + myMonth[w][d] + "</font>");
} else {
document.write("<font id=calDateText onMouseOver='fToggleColor(this)' style='CURSOR:Hand;FONT-
FAMILY:Arial;FONT-SIZE:" + sDateTextSize + ";FONT-WEIGHT:" + sDateTextWeight + "'"
onMouseOut='fToggleColor(this)' onclick=fSetSelectedDay(this)> </font>");
}
document.write("</td>")
}
document.write("</tr>");
}
document.write("</table>")
}
function fUpdateCal(iYear, iMonth) {
myMonth = fBuildCal(iYear, iMonth);
objPrevElement.bgColor = "";
document.all.calSelectedDate.value = "";
for (w = 1; w < 7; w++) {
for (d = 0; d < 7; d++) {
if (!isNaN(myMonth[w][d])) {
calDateText[((7*w)+d)-7].innerText = myMonth[w][d];
} else {
calDateText[((7*w)+d)-7].innerText = " ";
}
}
}
// End -->
</script>
</head>
</HEAD>

<BODY>

<script language="JavaScript" for=window event=onload>

var dCurDate = new Date();
frmCalendarSample.tbSelMonth.options[dCurDate.getMonth()].selected = true;

```

```

for (i = 0; i < frmCalendarSample.tbSelYear.length; i++)
if (frmCalendarSample.tbSelYear.options[i].value == dCurDate.getFullYear())
frmCalendarSample.tbSelYear.options[i].selected = true;

</script>

<form name="frmCalendarSample" method="post" action="">
<input type="hidden" name="calSelectedDate" value="">






```

---

```

fDrawCal(dCurDate.getFullYear(), dCurDate.getMonth()+1, 30, 30, "12px", "bold", 1);
</script>
</td>
</tr>
</table>
</form>

<p><center>
<font face="arial, helvetica" size="-2">search engine<br/>
by <a href="http://www.google.com">google</a></font>
</center><p>
```

\*\*\*\*\*

## Table

```

<!DOCTYPE html>
<html>
<head>
<style>

table {
    font-family: arial, sans-serif;
    border-collapse: collapse;
    width: 100%;
    margin-top:10px;
}

td, th {
    border: 1px solid #dddddd;
    text-align: left;
    padding: 8px;
}

tr:nth-child(even) {
    background-color: #dddddd;
}

</style>
</head>
<body>

<table align="center">
<tr>
    <th>Company</th><b></b>
    <th>Contact</th>
    <th>Country</th>
</tr>
<tr>
    <td>Alfreds Futterkiste</td>
    <td>Maria Anders</td>
    <td>Germany</td>
</tr>
<tr>
    <td>Centro comercial Moctezuma</td>
    <td>Francisco Chang</td>
```

---



---

```

        <td>Mexico</td>
    </tr>
    <tr>
        <td>Ernst Handel</td>
        <td>Roland Mendel</td>
        <td>Austria</td>
    </tr>
    <tr>
        <td>Island Trading</td>
        <td>Helen Bennett</td>
        <td>UK</td>
    </tr>
    <tr>
        <td>Laughing Bacchus Winecellars</td>
        <td>Yoshi Tannamuri</td>
        <td>Canada</td>
    </tr>
    <tr>
        <td>Magazzini Alimentari Riuniti</td>
        <td>Giovanni Rovelli</td>
        <td>Italy</td>
    </tr>
    <tr>
        <td>Magazzini Alimentari Riuniti</td>
        <td>Giovanni Rovelli</td>
        <td>Italy</td>
    </tr>
</table>

</body>
</html>
```

\*\*\*\*\*

## Drop Down Messages Javascript

```





```

```

</td>
    </tr>
  </table>
</form>
</td>
</tr>
</table>

<p>

<script language="JavaScript">

/*
Drop down messages script
By Website Abstraction (http://wsabstract.com)
Over 400+ free scripts here!
*/



//change contents of message box, where the first one corresponds with the first drop down box,
second with second box etc
var thecontents=new Array()

thecontents[0]='JavaScript is a scripting language developed by Netscape to add interactivity and
power to web documents. Examples of JavaScript include live clocks, rollover effects, scrollers,
form validations, and so on. JavaScript differs from most other programming languages in that it
is relatively easy to master, even for people who have absolutely no programming experiences
whatsoever.'

thecontents[1]='The first few words that come to mind are: "Freedom baby, freedom!" With html,
you are restricted to creating static, non interactive webpages. This, in today\'s internet
standards, is unacceptable. With JavaScript, you can change that. Imagine being able to break
free and allow your creativity to dictate what you put on your webpage, instead of the other way
round.'

thecontents[2]='Java is completely different from JavaScript-It\'s a lot more powerful, more
complex, and unfortunately, a lot harder to master. It belongs in the same league as C, C++, and
other more complex languages. Also, you need to compile a Java program before you can run it,
whereas with JavaScript, no compilation is needed-simply open up a text editor, type it, save it,
and your browser is ready to run it!'

thecontents[3]='DHTML, or Dynamic HTML, is a new web technology that enables elements inside your
web page to be, well, dynamic. Things once considered unchangeable once the page has loaded, such
as text, page styles (font color, size etc), element position, etc, can now all be changed
dynamically, thanks to DHTML. It brings your web pages one step closer to how things look inside
your television, where images appear and disappear, text flies in and out, and content move
around freely inside the screen.'


//don't edit pass this line

function changecontent(which){
document.ddmessage.contentbox.value=thecontents[which.selectedIndex]
}

document.ddmessage.contentbox.value=thecontents[document.ddmessage.selectbox.selectedIndex]
</script>

```

---

---

```
*****
```

## Code Box Editor for javascript, Css (Cascading Style Sheets— style sheet mark-up language (similar to HTML) used for decorating a website with different styles, layouts, fonts and colors, positioning elements within the layout, set background images, etc.) and Html

```
<table style="width:560px; border:solid 1px #959492; background:#ebebea">  
  
<tr><td valign=top>  
  
<form name="form1" method="post" action="">  
  
<textarea name="code" wrap="soft" onclick="focus(this.code)" style="border:solid 1px  
#b9b8b6; padding:5px; width:260px; height:300px; scroll:auto;">  
  
This is a great way to display code snippets to your visitors, allowing them to make changes and  
preview those changes all from the same page - keeping them on your site longer. Just replace  
this text within the script with whatever code you want to have displayed to your visitors. Click  
on the 'Generate Code' button to launch preview. More great scripts at <a href=http://www.java-  
scripts.net>Java-Scripts.net</a><br><br>  
  
</textarea>  
  
</form>  
  
</td><td valign=top>  
  
<iframe src="about:blank" name="preview" style="height:300px; width:260px; border:solid 1px  
#b9b8b6; background:#ffffff" frameborder=0>  
  
</iframe>  
  
</td>  
  
</tr>  
  
</table>  
  
<button onclick="preview.document.write (document.getElementsByTagName ('TEXTAREA')[0].value);  
preview.document.close(); preview.focus()">Generate Preview</button>  
  
<button onclick="window.document.form1.code.value='';preview.document.write  
(document.getElementsByTagName ('TEXTAREA')[0].value); preview.document.close();  
preview.focus()">Clear All</button>  
  
<button onClick="window.location.href=window.location.href">Reload</button>
```

```
*****
```

---

## Animated Side display of text

```
<script>

//set style for NS4 to ''

if (document.layers)

var ns4def=''

</script>

<h2 id="flyin" style="position:relative;left:-400;font-style:italic" style=&{ns4def};><font
size="56" face="times" color="green">Welcome to Java-Scripts.net!</font></h2>

<script language="JavaScript1.2">

if (document.getElementById|document.all)

var crossheader=document.getElementById? document.getElementById("flyin").style :
document.all.flyin.style

function animatein(){

if (parseInt(crossheader.left)<0)

crossheader.left=parseInt(crossheader.left)+20

else{

crossheader.left=0

crossheader.fontStyle="normal"

clearInterval(start)

}

}

if (document.getElementById|document.all)

start=setInterval("animatein()",50)

</script>
```

\*\*\*\*\*

## Scroll Up of text

```
<SCRIPT language=JavaScript1.2>
var marqueewidth="150"
var marqueeheight="150"
```

```

var marquespeed=3
var pauseit=1
var marqueecontent='<font face="Arial" color="lightgreen" size="2"><b>'

marqueecontent = marqueecontent +'Item 1 <br>'+<br>Item 2 <br>'+<br>Item 3<br>'+<br>Item
4<br>'
var copyspeed=marquespeed
var pausespeed=(pauseit==0)? copyspeed: 0
var iedom=document.all||document.getElementById
var actualheight=''
var cross_marquee, ns_marquee

function populate(){
if (iedom){
cross_marquee = document.getElementById? document.getElementById("iemarquee") :
document.all.iemarquee
cross_marquee.style.top=parseInt(marqueeheight)+8+"px"
cross_marquee.innerHTML=marqueecontent
actualheight=cross_marquee.offsetHeight
}
else if (document.layers){
ns_marquee=document.ns_marquee.document.ns_marquee2
ns_marquee.top=parseInt(marqueeheight)+8
ns_marquee.document.write(marqueecontent)
ns_marquee.document.close()
actualheight=ns_marquee.document.height
}
lefftime=setInterval("scrollmarquee()",20)
}
window.onload=populate

function scrollmarquee(){

if (iedom){
if (parseInt(cross_marquee.style.top)>(actualheight*(-1)+8))
cross_marquee.style.top=parseInt(cross_marquee.style.top)-copyspeed+"px"
else
cross_marquee.style.top=parseInt(markeeheight)+8+"px"
}
else if (document.layers){
if (ns_marquee.top>(actualheight*(-1)+18))
ns_marquee.top-=copyspeed
else
ns_marquee.top=parseInt(markeeheight)+8
}
}

if (iedom||document.layers){
with (document){
if (iedom){
write('<div style="position:relative; width:'+marqueewidth+'; height:'+markeeheight+';
overflow:hidden" onMouseover="copyspeed=pausespeed" onMouseout="copyspeed=marquespeed">')
write('<div id="iemarquee" style="position:absolute; left:0px; top:0px; width:100%;">')
write('</div></div>')
}
else if (document.layers){
write('<ilayer width='+marqueewidth+' height='+markeeheight+' name="ns_marquee">')
}
}
}

```

---



---

```

write('<layer name="ns_marquee2" width='+marqueewidth+' height='+marqueehight+' left=0 top=0
onMouseover="copyspeed=pausespeed" onMouseout="copyspeed=marqueespeed"></layer>')
write('</ilayer>')
}
}
}
</SCRIPT>
*****
```

## Change the background colour on button click

```

<form> <input type="button" Value="Click for Black" onClick="document.bgColor='Black'"> <input
type="button" Value="Click for White" onClick="document.bgColor='White'"> <input type="button"
Value="Click for Green" onClick="document.bgColor='lightgreen'"> </form>
*****
```

## URL Input Box Javascript

```

<form name="openlocation">
<input type="text" name="href" value="http://">
<input type="button" value="Go To" onClick="location.href=document.openlocation.href.value; ">
</form>
*****
```

## Print a Web Page

```

<SCRIPT LANGUAGE="JavaScript">
function myprint()
{
window.print();
}
</script>

<form>
<input type=button value="Print Page" onClick="myprint()">
</form>
*****
```

## Advanced Scientific calculator

```

<HEAD>

<SCRIPT LANGUAGE="JavaScript">

<!-- Begin
function addChar(input, character) {
```

```

if(input.value == null || input.value == "0")
input.value = character
else
input.value += character
}
function cos(form) {
form.display.value = Math.cos(form.display.value);}
function sin(form) {
form.display.value = Math.sin(form.display.value);}
function tan(form) {
form.display.value = Math.tan(form.display.value);}
function sqrt(form) {
form.display.value = Math.sqrt(form.display.value);}
function ln(form) {
form.display.value = Math.log(form.display.value);}
function exp(form) {
form.display.value = Math.exp(form.display.value);}

function cbrt(form) {
form.display.value = Math.cbrt(form.display.value);}

function sqrt(form) {
form.display.value = Math.sqrt(form.display.value);}
function deleteChar(input) {
input.value = input.value.substring(0, input.value.length - 1)
}
function changeSign(input) {
substring
if(input.value.substring(0, 1) == "-")
input.value = input.value.substring(1, input.value.length)
else
input.value = "-" + input.value
}
function compute(form) {
form.display.value = eval(form.display.value)}
function square(form) {
form.display.value = eval(form.display.value) *
eval(form.display.value)}
function checkNum(str) {
for (var i = 0; i < str.length; i++) {
var ch = str.substring(i, i+1)
if (ch < "0" || ch > "9") {
if (ch != "/" && ch != "*" && ch != "+" && ch !=
"-" && ch != "."
&& ch != "(" && ch!= ")") {
alert("invalid entry!")
return false
}
}
}
return true
}
// End -->
</SCRIPT>

```

<BODY>

```

<CENTER>
<FORM>
<input name="display" value="0" size="25"></td>
<br>
<input type="button" value="    exp    " onClick="if (checkNum(this.form.display.value)) {
exp(this.form) }">

<input type="button" value="    cbrt   " onClick="if (checkNum(this.form.display.value)) {
cbrt(this.form) }">

<input type="button" value="    7     " onClick="addChar(this.form.display, '7')">
<input type="button" value="    8     " onClick="addChar(this.form.display, '8')">
<input type="button" value="    9     " onClick="addChar(this.form.display, '9')">
<input type="button" value="/" onClick="addChar(this.form.display, '/')">
<br>
<input type="button" value="    ln    " onClick="if (checkNum(this.form.display.value)) {
ln(this.form) }">
<input type="button" value="    4     " onClick="addChar(this.form.display, '4')">
<input type="button" value="    5     " onClick="addChar(this.form.display, '5')">
<input type="button" value="    6     " onClick="addChar(this.form.display, '6')">
<input type="button" value="    *    " onClick="addChar(this.form.display, '*')">
<br>
<input type="button" value="    sqrt  " onClick="if (checkNum(this.form.display.value)) {
cos(this.form) }">
<input type="button" value="    1     " onClick="addChar(this.form.display, '1')">
<input type="button" value="    2     " onClick="addChar(this.form.display, '2')">
<input type="button" value="    3     " onClick="addChar(this.form.display, '3')">
<input type="button" value="    -    " onClick="addChar(this.form.display, '-')">
<br>
<input type="button" value="    sq    " onClick="if (checkNum(this.form.display.value)) {
square(this.form) }">
<input type="button" value="    0     " onClick="addChar(this.form.display, '0')">
<input type="button" value="    .    " onClick="addChar(this.form.display, '.')">
<input type="button" value="    +/-   " onClick="changeSign(this.form.display)">
<input type="button" value="    +    " onClick="addChar(this.form.display, '+')">
<br>
<input type="button" value="    (    " onClick="addChar(this.form.display, '(')">
<input type="button" value="    cos   " onClick="if (checkNum(this.form.display.value)) {
cos(this.form) }">
<input type="button" value="    sin   " onClick="if (checkNum(this.form.display.value)) {
sin(this.form) }">
<input type="button" value="    tan   " onClick="if (checkNum(this.form.display.value)) {
tan(this.form) }">
<input type="button" value="    )    " onClick="addChar(this.form.display, ')')">
<br>
<input type="button" value="    Clear  " onClick="this.form.display.value = 0 ">
<input type="button" value="    Back Space  " onClick="deleteChar(this.form.display)">
<input type="button" value="    Enter   " name="enter" onClick="if
(checkNum(this.form.display.value)) {
compute(this.form) }">
</FORM>
</CENTER>

```

\*\*\*\*\*

---

## Glowing bar Link to a website

```
<script>

//enter the message you wish to be shown, including html tags
var message='<b><font size=5 face="calibri" color = red>Help us spread the word. Please <a href="http://www.w3schools.com/html/tryit.asp?filename=tryhtml_default">link to us</a>!</font></b>'

//enter a color name or hex to be used as the background color of the message
var backgroundcolor="#FFFF8A"

//enter 1 for always display, 2 for ONCE per browser session
var displaymode=1

//Set duration message should appear on screen, in seconds (10000=10 sec, 0=perpetual)
var displayduration=0

//enter 0 for non-flashing message, 1 for flashing
var flashmode=1
//if above is set to flashing, enter the flash-to color below
var flashtocolor="lightyellow"

//////////////////do not edit below this line///////////////////////////////
var ie=document.all
var ieNOTopera=document.all&&navigator.userAgent.indexOf("Opera")==-1

function regenerate(){
window.location.reload()
}

function regenerate2(){
if (document.layers)
setTimeout("window.onresize=regenerate",400)
}

var which=0

function flash(){
if (which==0){
if (document.layers)
topmsg_obj.bgColor=flashtocolor
else
topmsg_obj.style.backgroundColor=flashtocolor
which=1
}
else{
if (document.layers)
topmsg_obj.bgColor=backgroundcolor
else
topmsg_obj.style.backgroundColor=backgroundcolor
which=0
}
}

if (ie||document.getElementById)
```

```

document.write('<div id="topmsg" style="position:absolute;visibility:hidden;z-index:1000">' + message + '</div>')

var topmsg_obj=ie? document.all.topmsg : document.getElementById?
document.getElementById("topmsg") : document.topmsg

function positionit(){
var dsocleft=ie? document.body.scrollLeft : pageXOffset
var dsoctop=ie? document.body.scrollTop : pageYOffset
var window_width=ieNOTopera? document.body.clientWidth : window.innerWidth-20
var window_height=ieNOTopera? document.body.clientHeight : window.innerHeight

if (ie||document.getElementById){
topmsg_obj.style.left=parseInt(dsocleft)+window_width/2-topmsg_obj.offsetWidth/2
topmsg_obj.style.top=parseInt(dsoctop)+parseInt(window_height)-topmsg_obj.offsetHeight-4
}
else if (document.layers){
topmsg_obj.left=dsocleft+window_width/2-topmsg_obj.document.width/2
topmsg_obj.top=dsoctop+window_height-topmsg_obj.document.height-5
}
}

function setmessage(){
if (displaymode==2&&(!display_msg_or_not()))
return
if (document.layers){
topmsg_obj=new Layer(window.innerWidth)
topmsg_obj.bgColor=backgroundcolor
regenerate2()
topmsg_obj.document.write(message)
topmsg_obj.document.close()
positionit()
topmsg_obj.visibility="show"
if (displayduration!=0)
setTimeout("topmsg_obj.visibility='hide'",displayduration)
}
else{
positionit()
topmsg_obj.style.backgroundColor=backgroundcolor
topmsg_obj.style.visibility="visible"
if (displayduration!=0)
setTimeout("topmsg_obj.style.visibility='hidden'",displayduration)
}
setInterval("positionit()",100)
if (flashmode==1)
setInterval("flash()",1000)
}

function get_cookie(Name) {
var search = Name + "="
var returnvalue = ""
if (document.cookie.length > 0) {
offset = document.cookie.indexOf(search)
if (offset != -1) {
offset += search.length
end = document.cookie.indexOf(";", offset)
if (end == -1)
end = document.cookie.length;
}
}
}

```

```

returnvalue=unescape(document.cookie.substring(offset, end))
}
}
return returnvalue;
}

function display_msg_or_not(){
if (get_cookie("displaymsg")==""){
document.cookie="displaymsg=yes"
return true
}
else
return false
}

if (document.layers||ie||document.getElementById)
window.onload=setmessage
</script>

```

\*\*\*\*\*

## Increase or decrease the font size of the text

```

<script type="text/javascript" src="textsizer.js">

</script>

<a href="javascript:ts('body',1)">+ Larger Font</a> | <a
href="javascript:ts('body',-1)">+ Smaller Font</a>

<script>
//Specify affected tags. Add or remove from list:
var tgs = new Array( 'div','td','tr');

//Specify spectrum of different font sizes:
var szs = new Array( 'xx-small','x-small','small','medium','large','x-large','xx-large' );
var startSz = 2;

function ts( trgt,inc ) {
    if (!document.getElementById) return
    var d = document,cEl = null,sz = startSz,i,j,cTags;

    sz += inc;
    if ( sz < 0 ) sz = 0;
    if ( sz > 6 ) sz = 6;
    startSz = sz;

    if ( !( cEl = d.getElementById( trgt ) ) ) cEl = d.getElementsByTagName( trgt )[ 0 ];

    cEl.style.fontSize = szs[ sz ];

    for ( i = 0 ; i < tgs.length ; i++ ) {
        cTags = cEl.getElementsByTagName( tgs[ i ] );

```

```

        for ( j = 0 ; j < cTags.length ; j++ ) cTags[ j ].style.fontSize = szs[ sz ];
    }
}

</script>

```

---

\*\*\*\*\*

## Flying Letters

```

<h2 id="fly">Thanks for visiting $ my website!</h2>

<script type="text/javascript">

message = document.getElementById("fly").innerHTML; // $ = taking a new line
distance = 50; // pixel(s)
speed = 200; // milliseconds

var txt="",
num=0,
num4=0,
flyofle="",
flyofwi="",
flyofto="",
fly=document.getElementById("fly");

function stfly() {
for(i=0;i != message.length;i++) {
if(message.charAt(i) != "$")
txt += "<span style='position:relative;visibility:hidden;'"
id='n"+i+"'>" + message.charAt(i) + "</span>";
else
txt += "<br>";
}
fly.innerHTML = txt;
txt = "";
flyofle = fly.offsetLeft;
flyofwi = fly.offsetWidth;
flyofto = fly.offsetTop;
fly2b();
}

function fly2b() {
if(num4 != message.length) {
if(message.charAt(num4) != "$") {
var then = document.getElementById("n" + num4);
then.style.left = flyofle - then.offsetLeft + flyofwi / 2 + 'px';
then.style.top = flyofto - then.offsetTop + distance + 'px';
fly3(then.id, parseInt(then.style.left), parseInt(then.style.left) / 5,
parseInt(then.style.top), parseInt(then.style.top) / 5);
}
num4++;
}
}

```

```

        setTimeout("fly2b()", speed);
    }
}

function fly3(target,lef2,num2,top2,num3) {
    if((Math.floor(top2) != 0 && Math.floor(top2) != -1) || (Math.floor(lef2) != 0 &&
Math.floor(lef2) != -1)) {
        if(lef2 >= 0)
            lef2 -= num2;
        else
            lef2 += num2 * -1;
        if(Math.floor(lef2) != -1) {
            document.getElementById(target).style.visibility = "visible";
            document.getElementById(target).style.left = Math.floor(lef2) + 'px';
        } else {
            document.getElementById(target).style.visibility = "visible";
            document.getElementById(target).style.left = Math.floor(lef2 + 1) + 'px';
        }
        if(lef2 >= 0)
            top2 -= num3
        else
            top2 += num3 * -1;
        if(Math.floor(top2) != -1)
            document.getElementById(target).style.top = Math.floor(top2) + 'px';
        else
            document.getElementById(target).style.top = Math.floor(top2 + 1) + 'px';
        setTimeout("fly3('"+target+"','"+lef2+","+num2+","+top2+","+num3+"')",50)
    }
}

stfly()

</script>
*****
```

## Mini Window Script

```

<center>

<iframe name="cwindow" style="width:323x;height:100px; border:16px double purple; margin-top:
5px; " src="doc.html" ></iframe> </center>

</center>
*****
```

## Background colour

```

<!DOCTYPE html>
<html>
<body style="background-color:lightgreen;" >

<h1>This is a heading</h1>
<p>This is a paragraph.</p>
```

```
</body>
</html>
*****
```

## Background repeated image

### HTML code:

```
<body background="http://www.parentirappresentanze.com/wp-content/uploads/2014/12/Fashion.jpg">
```

### Css code:

```
<style>
body { background-image: url("http://www.parentirappresentanze.com/wp-
content/uploads/2014/12/Fashion.jpg"); }
</style>
*****
```

## Background single image (no repeat)

```
<style type="text/css">

body {
background-image: url(http://www.parentirappresentanze.com/wp-
content/uploads/2014/12/Fashion.jpg);
background-position: 160px 160px;
background-size: 850px 650px;
background-repeat: no-repeat;
}

</style>
*****
```

## World clock

```
<html>
<head>
<title>World Clock javascript | World Clock html script </title>
<script type='text/javascript'>
var hr;
var mins;
var secs;
var nd;
var countryname='India';//Change the country name here
function addOption(selectbox,text,value){var optn = document.createElement("OPTION");
optn.text = text;optn.value = value;selectbox.options.add(optn);}

*****
```

```

function addOption_list(){var sds = document.getElementById("dum");if(sds == null){}var sdss =
document.getElementById("dumdiv");if(sdss == null){alert("welcome");document.getElementById("content").style.visibility="hidden";}

var countries = new
Array("India", "France", "Australia", "German", "USA", "Canada", "UK", "Afghanistan", "Albania", "Algeria"
,"Andorra", "Angola", "Antigua and
Barbuda", "Argentina", "Armenia", "Austria", "Azerbaijan", "Bahamas", "Bahrain", "Bangladesh", "Barbados"
,"Belarus", "Belgium", "Belize", "Benin", "Bhutan", "Bolivia", "Bosnia and
Herzegovina", "Botswana", "Brunei", "Bulgaria", "Burkina Faso", "Burundi", "Cambodia", "Cameroon", "Cape
Verde", "Central African Republic", "Chad", "China", "Colombia", "Comoros", "Republic of the
Congo", "Costa Rica", "Côte d'Ivoire", "Croatia", "Cuba", "Cyprus", "Czech
Republic", "Djibouti", "Dominica", "Dominican Republic", "East Timor", "Egypt", "El
Salvador", "Equatorial
Guinea", "Eritrea", "Estonia", "Ethiopia", "Fiji", "Finland", "Gabon", "Gambia", "Georgia", "Germany", "Gha
na", "Greece", "Grenada", "Guatemala", "Guinea", "Guinea-Bissau", "Guyana", "Haiti", "Honduras", "Hong
Kong", "Hungary", "Iceland", "India", "Iran", "Iraq", "Ireland", "Israel", "Italy", "Jamaica", "Japan", "Jor
dan", "Kenya", "Korea, North", "Korea,
South", "Kuwait", "Kyrgyzstan", "Laos", "Latvia", "Lebanon", "Lesotho", "Liberia", "Libya", "Liechtenstein
", "Lithuania", "Luxembourg", "Macau
(China)", "Macedonia", "Madagascar", "Malawi", "Malaysia", "Maldives", "Mali", "Malta", "Marshall
Islands", "Mauritania", "Mauritius", "Moldova", "Monaco", "Montenegro", "Morocco", "Mozambique", "Myanmar
", "Namibia", "Nauru", "Nepal", "Nicaragua", "Niger", "Nigeria", "Norway", "Oman", "Pakistan");
for (var i=0; i < countries.length; ++i){addOption(document.drop_list.Country_list, countries[i], countries[i]);}
var uct=new Array("+5:30", "- 12", "- 11", "- 11", "- 10", "- 10", "- 9:30", "- 9", "- 9", "- 8", "- 7", "-
6", "- 5", "- 4:30", "- 4", "- 3:30", "- 3", "- 3", "- 2", "- 2", "- 2", "- 1", "-1:00", "-1:00");
var e = document.getElementById("list");var strUser = e.options[e.selectedIndex].value;function
selecteval(country){
var countries = new
Array("India", "France", "Australia", "German", "USA", "Canada", "UK", "Afghanistan", "Albania", "Algeria"
,"Andorra", "Angola", "Antigua and
Barbuda", "Argentina", "Armenia", "Austria", "Azerbaijan", "Bahamas", "Bahrain", "Bangladesh", "Barbados"
,"Belarus", "Belgium", "Belize", "Benin", "Bhutan", "Bolivia", "Bosnia and
Herzegovina", "Botswana", "Brunei", "Bulgaria", "Burkina Faso", "Burundi", "Cambodia", "Cameroon", "Cape
Verde", "Central African Republic", "Chad", "China", "Colombia", "Comoros", "Republic of the
Congo", "Costa Rica", "Côte d'Ivoire", "Croatia", "Cuba", "Cyprus", "Czech
Republic", "Djibouti", "Dominica", "Dominican Republic", "East Timor", "Egypt", "El
Salvador", "Equatorial
Guinea", "Eritrea", "Estonia", "Ethiopia", "Fiji", "Finland", "Gabon", "Gambia", "Georgia", "Germany", "Gha
na", "Greece", "Grenada", "Guatemala", "Guinea", "Guinea-Bissau", "Guyana", "Haiti", "Honduras", "Hong
Kong", "Hungary", "Iceland", "India", "Iran", "Iraq", "Ireland", "Israel", "Italy", "Jamaica", "Japan", "Jor
dan", "Kenya", "Korea, North", "Korea,
South", "Kuwait", "Kyrgyzstan", "Laos", "Latvia", "Lebanon", "Lesotho", "Liberia", "Libya", "Liechtenstein
", "Lithuania", "Luxembourg", "Macau
(China)", "Macedonia", "Madagascar", "Malawi", "Malaysia", "Maldives", "Mali", "Malta", "Marshall
Islands", "Mauritania", "Mauritius", "Moldova", "Monaco", "Montenegro", "Morocco", "Mozambique", "Myanmar
", "Namibia", "Nauru", "Nepal", "Nicaragua", "Niger", "Nigeria", "Norway", "Oman", "Pakistan");
var uct=new Array("+5.5", "+1", "+10.9", "+1", "-5", "-5", "+0", "+4.5", "+1", "+1", "+1", "+1", "-4", "-
4", "+4", "+1", "+4", "-5", "+3", "+6", "-4", "+3", "+1", "-6", "+1", "+6", "-
4", "+1", "+2", "+8", "+2", "+0", "+2", "+7", "+1", "-1", "+1", "+1", "+8", "-5", "+3", "+1", "-6", "+0", "+1", "-
5", "+2", "+1", "+3", "-4", "+9", "+2", "-
6", "+1", "+3", "+2", "+3", "+12", "+2", "+1", "+0", "+4", "+1", "+0", "+2", "-4", "-6", "+0", "+0", "-4", "-5", "-
6", "+8", "+1", "+0", "+5.5", "+3.5", "+3", "+0", "+2", "+1", "-
5", "+9", "+3", "+3", "+9", "+3", "+6", "+7", "+2", "+2", "+0", "+1", "+1", "+1", "+1", "+8", "+1", "+3"
, "+2", "+8", "+5", "+0", "+1", "+12", "+0", "+4", "+2", "+1", "+1", "+0", "+2", "+6.5", "+1", "+12", "+5.65", "-
6", "+1", "+1", "+1", "+4", "+5");
var newtime="";

```

```

var out = "";for(i=0; i < countries.length;
i++){if(countries[i]==country){newtime=calcTime(countries[i],uct[i]);out=uct[i]+":00";
document.getElementById("coun_date").innerHTML=newtime;
document.getElementById("cntryname").innerHTML="Current Date and Time of "+country;}
}
var id=document.getElementById("list");
if (id == null) {}
else{
addOption_list();
document.getElementById('sel').style.display = "none";
}
function calcTime(city, offset){
var d = new Date();var utc = d.getTime() + (d.getTimezoneOffset() * 60000);var plus = utc +
(3600000*offset);nd = new Date(plus);hr = nd.getHours();mins = nd.getMinutes();secs =
nd.getSeconds();
return nd.toLocaleString();
}setInterval(function(){function re(el, deg){el.setAttribute('transform', 'rotate('+ deg +' 90
90)');}var hh =hr;var mm = mins;var ss = secs;if(hh==0 && mm==0 && ss==0) ss=0; else ss--;var d =
new Date();re(second, 6*d.getSeconds()); re(minute, 6*nd.getMinutes());re(hourr,
30*(nd.getHours()%12) + nd.getMinutes()/2);, 1000) ;
}</script>
<style>
.blue_bg {background: none repeat scroll 0 0 #3BBEC0;}
.date_time_top {height: 210px;padding: 10px;text-align: center;width:32%;}
.blue_bg2 {background: none repeat scroll 0 0 #298586;width:32%;padding:10px 10px 10px
10px;}h3{color:#fff !important;font-family: Tahoma, Geneva, sans-serif;font-size: 0.9em;margin:0;}
.frms
{border:none !important;
}@media screen and (max-width: 480px){.date_time_top{height: 210px;padding: 10px;text-align:
center;width:auto;}.blue_bg2 {background: none repeat scroll 0 0 #298586;width:auto;}}
}
-webkit-border-radius:.3em;
-o-border-radius:.3em;
font-family:Tahoma, Geneva, sans-serif;
color:#333;
font-size:.9em;
line-height:1.2em;
}
.frms
{
margin:0 auto;
padding:10px;
border:#ddd 1px solid;
border-radius:.3em;
-moz-border-radius:.3em;
-webkit-border-radius:.3em;
-o-border-radius:.3em;
font-family:Tahoma, Geneva, sans-serif;
color:#333;
font-size:.9em;
line-height:1.2em;
}
.frms input:hover,textarea:hover,select:hover
{
box-shadow:#dae1e5 0px 0px 5px;
-moz-box-shadow:#dae1e5 0px 0px 5px;
-webkit-box-shadow:#dae1e5 0px 0px 5px;
-o-box-shadow:#dae1e5 0px 0px 5px;

```

```

}

.frms input:focus, textarea:focus, select:focus
{
-webkit-box-shadow: inset 7px 4px 7px -7px rgba(0,0,0,0.42);
-moz-box-shadow: inset 7px 4px 7px -7px rgba(0,0,0,0.42);
box-shadow: inset 7px 4px 7px -7px rgba(0,0,0,0.42);
border:#9d9983 1px solid;
}
.frms select
{
width:99%;
background:#fff;
border:#ddd 1px solid;
border-radius:.35em;
-moz-border-radius:.35em;
-webkit-border-radius:.35em;
-o-border-radius:.35em;
padding:0 .5%;
margin-top:5px;
margin-bottom:15px;
height:35px;
}
.resp_code
{
margin:5px 10px 10px 300px;
padding:10px 20px 10px 20px;
color:#333;
background:#f8f8f8;
border:#ddd 1px solid;
border-radius:.25em;
overflow:auto; width:50%;
}
@media screen and (max-width: 480px)
{
.resp_code
{width:auto !important; margin:0px !important;
}
}
</style></head>
<body onload="selecteval(countryname)">
<div class='resp_code' align='center'>

<div align='center' style='font-weight:bold;font-family: Tahoma, Geneva, sans-serif;font-size: 1em;'>World Clock </div><form name="drop_list" action="" method="get" class='frms' id='content'>

<SELECT NAME="Country_list" id='list' onchange="selecteval(this.value)">
<Option value="" >Select Country</option><Option value="" selected id='sel'>India</option></SELECT>
<div id='cntryname' style='font-weight:bold;font-family: Tahoma, Geneva, sans-serif;font-size: 0.8em;'></div><div class="date_time_top blue_bg"><div id="clock_id1"><svg
xmlns="http://www.w3.org/2000/svg" version="1.1" width="180" height="180"><defs/><circle
cx="90.5" cy="90.5" r="85" fill="#FFFFFF" stroke="#000000" style="stroke-width: 5;" stroke-
width="5"/>
<path fill="none" stroke="#000000" d="M160,90L170,90" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M167,98L170,98" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M165,106L168,107" style="stroke-width: 3;" stroke-
width="3"/>

```

```

<path fill="none" stroke="#000000" d="M163,114L166,115" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M160,121L163,123" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M151,125L159,130" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M152,135L155,137" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M147,142L149,144" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M142,147L144,149" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M135,152L137,155" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M125,151L130,159" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M121,160L123,163" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M114,163L115,166" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M106,165L107,168" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M98,167L98,170" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M90,160L90,170" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M82,167L82,170" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M74,165L73,168" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M66,163L65,166" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M59,160L57,163" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M55,151L50,159" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M45,152L43,155" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M38,147L36,149" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M33,142L31,144" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M28,135L25,137" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M29,125L21,130" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M20,121L17,123" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M17,114L14,115" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M15,106L12,107" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M13,98L10,98" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M20,90L10,90" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M13,82L10,82" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M15,74L12,73" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M17,66L14,65" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M20,59L17,57" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M29,55L21,50" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M28,45L25,43" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M33,38L31,36" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M38,33L36,31" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M45,28L43,25" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M55,29L50,21" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M59,20L57,17" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M66,17L65,14" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M74,15L73,12" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M82,13L82,10" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M90,20L90,10" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M98,13L98,10" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M106,15L107,12" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M114,17L115,14" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M121,20L123,17" style="stroke-width: 3;" stroke-width="3"/>

```

---

```

<path fill="none" stroke="#000000" d="M125,29L130,21" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M135,28L137,25" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M142,33L144,31" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M147,38L149,36" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M152,45L155,43" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M151,55L159,50" style="stroke-width: 7;" stroke-width="7"/>
<path fill="none" stroke="#000000" d="M160,59L163,57" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M163,66L166,65" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M165,74L168,73" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M167,82L170,82" style="stroke-width: 3;" stroke-width="3"/>
<path fill="none" stroke="#000000" d="M90,90L90,30" style="stroke-width: 9;" stroke-width="9"
transform="rotate()" id='hourr' />
<path fill="none" stroke="#000000" d="M90,90L90,25" style="stroke-width: 6;" stroke-width="6"
transform="rotate()" id='minute' />
<path fill="none" stroke="#ff0000" d="M90,90L90,20" style="stroke-width: 4;" stroke-width="4"
transform="rotate()" id='second' />
<circle cx="90.5" cy="90.5" r="7" fill="#000000" stroke="#000" />
</svg>
</div>
</div>
<div class="date_time_bottom blue_bg2">
<h3 id="coun_date"></h3>
<h3 id="coun_clock"></h3>
</div>
</form>
<div id="dumdiv" align="center" style=" font-size: 10px;color: #dadada;">
</div>
</div>
</body>
</html>

*****

```

## Life Insurance Monthly/Yearly Premium Payment Calculation

```

<script type="text/javascript">
function checnum(as)
{
var a = as.value;
for(var x=0; x<a.length; x++)
{
var ff = a[x];
if(isNaN(a) || ff==" ")
{
a = a.substring(0,(a.length-1));
as.value = a;
}}}
function getCheckedValue( groupName ) {
var radios = document.getElementsByName( groupName );
for( i = 0; i < radios.length; i++ ) {
if( radios[i].checked ) {
return radios[i].value;
}
}
return null;
}

```

```

}

function tqe_perc()
{
var sds = document.getElementById("dum");
if(sds == null){

}

var sdss = document.getElementById("dumdiv");
if(sdss == null){

}
if(sdss != null)
{
var totamount=0;
var p1= document.getElementById("amount").value;
var age1=document.getElementById("age").value;
if(age1=="")
document.getElementById("err_msg").innerHTML=<font color='red'><b>Enter the current
age</b></font>";
else if(p1=="")
document.getElementById("err_msg").innerHTML=<font color='red'><b>Enter the premium
payable</b></font>"
else
{
document.getElementById("err_msg").innerHTML="";
var p= parseFloat(p1);
var age= parseFloat(age1);
var y= parseFloat(getCheckedValue("year"));
var t=getCheckedValue("t");
if(p=="" || age=="" || y=="")
{
alert("enter the amount,interstand year");
}
else
{
if(t=="Yearly")
{
totamount=(y*p)+(y*500*41);
document.getElementById("r1").value=totamount;
}
else
{
totamount=(p*12*y)+(y*500*41);
document.getElementById("r1").value=totamount;
}
}
}
//alert(totamount+(p*y*6/100));
}
</script>

<html>
<head>
<title>Life Insurance Calculator Script</title>
</head>
<div id="calculator" align=center>
```

```

<h2>Life Insurance Monthly/Yearly Premium Payment Calculation</h2>

<form name=first>
<table align=center border=0 cellpadding=1 cellspacing=1 id=tqe_calc>
<tr><td colspan=2 align='center'> <div id='err_msg'></div> </td></tr>
<tr><td align=left>Current Age:</td><td><input type=text id=age onkeyup=checnum(this)></td></tr>
<tr><td colspan=2>
</td></tr>
<tr><td align=left>Premium Payable:</td><td><input type=text id=amount
onkeyup=checnum(this)><input type=radio name=t value=Monthly>Monthly <input type=radio name=t
value=Yearly checked>Yearly</td></tr>
<tr><td colspan=2>
</td></tr>
<tr><td align=left>For policy term of</td><td><div id=y><input type=radio name=year value=15
checked>15-Year <input type=radio name=year value=20>20-Year <input type=radio name=year
value=25>25-year</div></td></tr>
<tr><td colspan=2>
</td></tr>
<tr><td align=center colspan=2> <input type=button value='Calculate' onclick=tqe_perc()><input
type=reset value='Reset'> </td></tr>
<tr><td colspan=2> <div align='center' style=" padding-left: 10px;font-size: 10px;color:
#dadada;" id="dumdiv">
</td></tr>
<tr><td align=left>Fund Amount:</td><td><input type=text id=r1></td></tr>
<tr><td colspan=2>
</td></tr>
</table></form></div>
</html>

```

\*\*\*\*\*

## Simple Mortgage Loan Calculator

```

<script type="text/javascript">
function checnum(as)
{
var dd = as.value;
if(isNaN(dd))
{
dd = dd.substring(0,(dd.length-1));
as.value = dd;
}
} function loan() {
var a = document.first.aa.value;
var b = document.first.bb.value;
var c = document.first.cc.value;
var n = c * 12;
var r = b/(12*100);
var p = (a * r *Math.pow((1+r),n))/(Math.pow((1+r),n)-1);
var prin = Math.round(p*100)/100;
document.first.r1.value = prin;
var mon = Math.round(((n * prin) - a)*100)/100;
document.first.r2.value = mon;

```

```

var tot = Math.round((mon/n)*100)/100;
document.first.r3.value = tot;
for(var i=0;i<n;i++)
{
var z = a * r * 1;
var q = Math.round(z*100)/100;
var t = p - z;
var w = Math.round(t*100)/100;
var e = a-t;
var l = Math.round(e*100)/100;
a=e;
} } </script>

<style type="text/css">
.subheading
{
font-size:13px;
font-family: arial, verdana, san-serif;
color: black;
}
</style>

<table width=90% border=0 cellpadding=0 cellspacing=0 >
<tr><td align=center >
<form name=first>
<table class=subheading cellspacing=0 cellpadding=3>
<tr><td>Loan Amount:</td><td><input name=aa type=text size=15 onkeyup=checnum(this) ></td></tr>
<tr><td>Interest Rates:</td><td><input name=bb type=text size=15 onkeyup=checnum(this) ></td></tr>
<tr><td>Term(Years):</td><td><input name=cc type=text size=15 onkeyup=checnum(this)></td></tr>
</table>
<br><input type=button name=ss value=calculate onclick=loan() class=calc>
<br>
<table class=subheading cellspacing=0 cellpadding=3>
<tr align=center><td class=inner colspan=2><b>Results:</b></td></tr>
<tr><td>Monthly Payment(EMI):</td><td> <input name=r1 type=text readonly > </td></tr>
<tr><td>Monthly Average Interest:</td><td> <input name=r2 type=text readonly ></td></tr>
<tr><td>Monthly Interest:</td><td> <input name=r3 type=text readonly > </td></tr>
</td></tr>
</table></form>
</td></tr> </table>

```

\*\*\*\*\*

## Calorie Calculator

```

<script type="text/javascript">
var cneed;
var fneed;
var crneed;
var pneed;
var aneed;

```

```

var fd;
function cc()
{
var age=parseInt(document.getElementById("age").value);
var wtype=document.getElementById("wtype").value;
var foot=parseInt(document.getElementById("foot").value);
var inch=parseInt(document.getElementById("inch").value);
var cm =document.getElementById("cen").value;
var weight=document.getElementById("weight").value;
if (age!=='' && cm!=='' && weight!=='') {
if (wtype=="pounds")
{weight=parseInt(weight);
weight=Math.round(weight/2.2046);
}
var loa=document.getElementById("loa").value;
if(document.getElementById("gen").checked)
{
fd=(10*weight)+(6.25*cm)-(5*age)+5;
}
else
{
fd=(10*weight)+(6.25*cm)-(5*age)-161;
}
switch(loa)
{
case "1":
cneed=fd*1.2;
break;
case "2":
cneed=fd*1.375;
break;
case "3":
cneed=fd*1.53;
break;
case "4":
cneed=fd*1.725;
break;
case "5":
cneed=fd*1.9;
break;
}
cneed=Math.floor(cneed);
//cneed1=Math.floor(cneed*0.0353);
fneed=Math.floor((cneed*0.25)/9);
if (wtype=="pounds")
{
fneed=Math.floor(fneed*0.0353);
//fneed=fneed*0.0022 ;
}
pneed=Math.floor((cneed*0.25)/4);
if (wtype=="pounds")
{
pneed=Math.floor(pneed*0.0353);
}
crneed=Math.floor((cneed*0.25)/4);
if (wtype=="pounds")
{
crneed=Math.floor(crneed*0.0353);
}
}

```

```

}

aneed=Math.floor((cneed*0.25)/7);
if (wtype=="pounds")
{
aneed=Math.floor(aneed*0.0353);
}
document.getElementById("rc").value=" "+cneed;
document.getElementById("rf").value=" "+fneed;
document.getElementById("rp").value=" "+pneed;
document.getElementById("rh").value=" "+crneed;
document.getElementById("ra").value=" "+aneed;
document.getElementById("l1").innerHTML="grams";
document.getElementById("l2").innerHTML="grams";
document.getElementById("l3").innerHTML="grams";
document.getElementById("l4").innerHTML="grams";
var caltype=document.getElementById("caltype").value;
if (caltype=='g') {
document.getElementById("l1").innerHTML="grams";
document.getElementById("l2").innerHTML="grams";
document.getElementById("l3").innerHTML="grams";
document.getElementById("l4").innerHTML="grams";
}
if (wtype=="pounds")
{
fat1 = fneed * 0.0022 ;
pro1 = pneed * 0.0022 ;
car1 = crneed * 0.0022 ;
alh1 = aneed * 0.0022 ;
fat1=fat1.toFixed(3);
pro1 = pro1.toFixed(3);
car1 = car1.toFixed(3);
alh1 = alh1.toFixed(3);
document.getElementById("rf").value=" "+fat1;
document.getElementById("rp").value=" "+pro1;
document.getElementById("rh").value=" "+car1;
document.getElementById("ra").value=" "+alh1;
document.getElementById("l1").innerHTML="lbs";
document.getElementById("l2").innerHTML="lbs";
document.getElementById("l3").innerHTML="lbs";
document.getElementById("l4").innerHTML="lbs";
}
if (caltype=='pounds') {
fat1 = fneed * 0.0022 ;
pro1 = pneed * 0.0022 ;
car1 = crneed * 0.0022 ;
alh1 = aneed * 0.0022 ;
fat1=fat1.toFixed(3);
pro1 = pro1.toFixed(3);
car1 = car1.toFixed(3);
alh1 = alh1.toFixed(3);
document.getElementById("rf").value=" "+fat1;
document.getElementById("rp").value=" "+pro1;
document.getElementById("rh").value=" "+car1;
document.getElementById("ra").value=" "+alh1;
document.getElementById("l1").innerHTML="lbs";
document.getElementById("l2").innerHTML="lbs";
document.getElementById("l3").innerHTML="lbs";
document.getElementById("l4").innerHTML="lbs";
}

```

```

}

if (caltypes=='kg') {
fat2 = fneed / 1000;
pro2 = pneed / 1000;
car2 = crneed / 1000;
alh2 = aneed / 1000;
fat2=fat2.toFixed(3);
pro2 = pro2.toFixed(3);
car2 = car2.toFixed(3);
alh2 = alh2.toFixed(3);
document.getElementById("rf").value=" "+fat2;
document.getElementById("rp").value=" "+pro2;
document.getElementById("rh").value=" "+car2;
document.getElementById("ra").value=" "+alh2;
document.getElementById("l1").innerHTML="kilogram";
document.getElementById("l2").innerHTML="kilogram";
document.getElementById("l3").innerHTML="kilogram";
document.getElementById("l4").innerHTML="kilogram";
}
}
else{
alert("Please fill your details properly!");
}
}

function con(num)
{
var hc=parseInt(num.value);
var hi=hc/2.54;
var hf=Math.floor(hi/12);
var ri=Math.round(hi%12);
if(hc>40 && hc<=210)
{
document.getElementById("foot").value=hf;
}
document.getElementById("inch").value=ri;
}

function hcon()
{
var hf=parseInt(document.getElementById("foot").value);
var hi=parseInt(document.getElementById("inch").value);
var hc;
hc=Math.round((hf*30.48)+(hi*2.54));
document.getElementById("cen").value=hc;
}

function cknum(event,num)
{var kc;
if(window.event)
{
kc=event.keyCode;
}
else
{
kc=event.which;
}
var a=num.value;
if(kc==48)
{
if(a==" ")

```

```

{
return false;
}
else
{
return true;
}
}if (kc!=8 && kc!=0)
{
if (kc<49||kc>57)
{
return false;
}
}
}

function isNumberKey(id)
{
var no=eval("'" + id + "'"); var number= document.getElementById(no).value; if(!number.match(/^[0-9\.]+$/)) && number != ""){number = number.substring(0,number.length-1);document.getElementById(id).value = number;}
}

function convert() {
var age=parseInt(document.getElementById("age").value);
var cm =document.getElementById("cen").value;
var weight=document.getElementById("weight").value;
if (age!=='' && cm!=='' && weight!=='') {
var calctype=document.getElementById("calctype").value;
var fat = document.getElementById("rf").value;
var pro = document.getElementById("rp").value;
var car = document.getElementById("rh").value;
var alh = document.getElementById("ra").value;
if (calctype=='g') {
document.getElementById("rc").value=" "+cneed;
document.getElementById("rf").value=" "+fneed;
document.getElementById("rp").value=" "+pneed;
document.getElementById("rh").value=" "+crneed;
document.getElementById("ra").value=" "+aneed;
document.getElementById("l1").innerHTML="grams";
document.getElementById("l2").innerHTML="grams";
document.getElementById("l3").innerHTML="grams";
document.getElementById("l4").innerHTML="grams";
}
if (calctype=='pounds') {
fat1 = fneed * 0.0022 ;
pro1 = pneed * 0.0022 ;
car1 = crneed * 0.0022 ;
alh1 = aneed * 0.0022 ;
fat1=fat1.toFixed(3);
pro1 = pro1.toFixed(3);
car1 = car1.toFixed(3);
alh1 = alh1.toFixed(3);
document.getElementById("rf").value=" "+fat1;
document.getElementById("rp").value=" "+pro1;
document.getElementById("rh").value=" "+car1;
document.getElementById("ra").value=" "+alh1;
document.getElementById("l1").innerHTML="lbs";
document.getElementById("l2").innerHTML="lbs";
document.getElementById("l3").innerHTML="lbs";
document.getElementById("l4").innerHTML="lbs";
}
}
}
}

```

```

}

if (caltypes=='kg') {
fat2 = fneed / 1000;
pro2 = pneed / 1000;
car2 = crneed / 1000;
alh2 = aneed / 1000;
fat2=fat2.toFixed(3);
pro2 = pro2.toFixed(3);
car2 = car2.toFixed(3);
alh2 = alh2.toFixed(3);
document.getElementById("rf").value=" "+fat2;
document.getElementById("rp").value=" "+pro2;
document.getElementById("rh").value=" "+car2;
document.getElementById("ra").value=" "+alh2;
document.getElementById("l1").innerHTML="kilogram";
document.getElementById("l2").innerHTML="kilogram";
document.getElementById("l3").innerHTML="kilogram";
document.getElementById("l4").innerHTML="kilogram";
}
}
else{
alert("Please fill your details properly!");
}
}

function chk(){
var sds = document.getElementById('dum');
if(sds == null){
document.getElementById("tab").style.visibility="hidden";
}
var sdss = document.getElementById("dumdiv");
if(sdss == null){}
}
window.onload=chk;
</script>

<style>
.blue_button{background: none repeat scroll 0 0 #468CD2; border-bottom: 3px solid #3277BC; text-shadow: 1px 1px 0 #214D73; border: medium none; border-radius: 0.3em; color: #FFFFFF; cursor: pointer; font-weight: bold; margin: 10px 0; padding: 7px 14px; }
.frms input[type="text"], [type="password"], [type="file"], textarea, select {background: none repeat scroll 0 0 #fff; border: 1px solid #ddd; border-radius: 0.35em; height: 35px; margin-bottom: 15px; margin-top: 5px; padding: 0 0.5%; width: 99%; }
.resp_code {background: none repeat scroll 0 0 #f8f8f8; border: 1px solid #ddd; border-radius: 0.25em; color: #333; font: 1em/1.3em Tahoma, Geneva, sans-serif; margin: 5px 10px 10px 20%; overflow: auto; padding: 10px 20px; width: 50%; }
@media only screen and (max-width:650px) { .resp_code {margin: 5px 1px 10px !important; width: auto !important; } }
</style>

<div class='resp_code align='center''>
<table id ='tab' align='center' cellspacing='0' cellpadding='0' style="width:100%;">
<tr><td align=center><br><b>Calorie Calculator</b><br><br><form name="frm" action="" class='frms' noborders'><table><tr><td style="color: #3D366F; font-size:13px;">Age:</td><td><input type="text"

```

```

name="age" id="age" align="left" size="3" maxlength="2" onkeypress="return
cknum(event,age)"></td><td><font color="#3D366F" size="2">years</font></td></tr><tr><td
style="color: #3D366F; font-size:13px;">Gender:</td><td><input type="radio" name="gen" id="gen"
checked><font color="#3D366F" size="0.7">Male</font><input type="radio" name="gen" id="gen"><font
color="#3D366F" size="0.7">Female</font></td></tr><tr><td style="color: #3D366F; font-
size:13px;">Height:</td><td><select style='width:50%;' name="foot" id="foot"
onchange="hcon()"><option value="1">1'</option><option value="2">2'</option><option
value="3">3'</option><option value="4">4'</option><option value="5">5'</option><option
value="6">6'</option><option value="7">7'</option></select><select style='width:40%;' name="inch"
id="inch" onchange="hcon()"><option value="1">1"</option><option value="2">2"</option><option
value="3">3"</option><option value="4">4"</option><option value="5">5"</option><option
value="6">6"</option><option value="7">7"</option><option value="8">8"</option><option
value="9">9"</option><option value="10">10"</option><option
value="11">11"</option></select></td></tr><tr><td style="color: #3D366F; font-size:13px;">Cms
:</td><td><input type="text" name="cen" id="cen" size="4" onkeyup="con(cen)"></td></tr><tr><td
style="color: #3D366F; font-size:13px;">Weight:</td><td><input type="text" name="weight"
id="weight" maxlength="3" size="3" onkeyup="isNumberKey(this.id)"></td><td><select name="wtype"
id="wtype"><option value="kg">Kg</option><option
value="pounds">Pounds</option></select></td></tr><tr><td style="color: #3D366F; font-
size:13px;">Activeness:</td><td><select style='width:100px;' name="loa" id="loa"><option
value="1">Sedentary</option><option value="2">Light Active</option><option value="3">Moderately
Active</option><option value="4">Very Active</option><option value="5">Extra
Active</option></select></td></tr><tr><td colspan='2' align="center"><input class='blue_button'
type="button" value="Calculate The Calorie" onclick="cc()"><span id="dumdiv" align="center"
style=" font-size: 10px;color: #dadada;"><a id="dum" style="padding-right:0px; text-
decoration:none;color: green;text-align:center;" href="#"> </a></span></td></tr></table></form>
<br><table align="center" border="0" class="frms noborders"><caption><b>Calorie
Result</b></caption><tr><td align="right" style="color: #3D366F; font-size:13px;">Calorie
Needed:</td><td><input type="text" id="rc" style="font-size:13px;" size="15"
readonly></td><td><select name="calctype" id="calctype" onChange="convert()"><option
value="g">Grams</option><option value="kg">Kilograms</option><option
value="pounds">Pounds</option></select></td></tr></table><div style="color: #3D366F; font-
size:13px;">You Must Intake The Following Daily:</div><table class="frms noborders"><tr><td
style="color: #3D366F; font-size:13px;">Fat:</td><td style="color: #3D366F; font-
size:13px;"><input type="text" id="rf" style="font-size:13px;" size="10" readonly></td><td><font
color="#3D366F" size="2" style='float:right'><label id="11"></label> per
day</font></td></tr><tr><td style="color: #3D366F; font-size:13px;">Protein:</td><td>
style="color: #3D366F; font-size:13px;"><input type="text" id="rp" style="font-size:13px;" size="10"
readonly></td><td><font color="#3D366F" size="2" style='float:right'><label
id="12"></label> per day</font></td></tr><tr><td style="color: #3D366F; font-
size:13px;">Carbohydrate:</td><td style="color: #3D366F; font-size:13px;"><input type="text"
id="rh" style="font-size:13px;" size="10" readonly></td><td><font color="#3D366F" size="2"
style='float:right'><label id="13"></label> per day</font></td></tr><tr><td style="color:
#3D366F; font-size:13px;">Alcohol:</td><td style="color: #3D366F; font-size:13px;"><input
type="text" id="ra" style="font-size:13px;" size="10" readonly></td><td><font color="#3D366F"
size="2" style='float:right'><label id="14"></label> per day</font></td></tr></table>
</td>
</table>
</div>

```

\*\*\*\*\*

## Age Calculator

```

<script type="text/javascript">
var startyear = "1910";
var endyear = "2010";
var dat = new Date();
var curday = dat.getDate();
var curmon = dat.getMonth()+1;
var curyear = dat.getFullYear();
function checkleapyear(datea)
{
if(datea.getYear()%4 == 0)
{
if(datea.getYear()% 10 != 0)
{
return true;
}
else
{
if(datea.getYear()% 400 == 0)
return true;
else
return false;
}
}
return false; } function DaysInMonth(Y, M) {
with (new Date(Y, M, 1, 12)) {
setDate(0);
return getDate(); } } function datediff(date1, date2) {
var y1 = date1.getFullYear(), m1 = date1.getMonth(), d1 = date1.getDate(),
y2 = date2.getFullYear(), m2 = date2.getMonth(), d2 = date2.getDate();
if (d1 < d2) {
m1--;
d1 += DaysInMonth(y2, m2);
}
if (m1 < m2) {
y1--;
m1 += 12;
}
return [y1 - y2, m1 - m2, d1 - d2]; } function calage() {
var calday = document.birthday.day.options[document.birthday.day.selectedIndex].value;
var calmon = document.birthday.month.options[document.birthday.month.selectedIndex].value;
var calyear = document.birthday.year.options[document.birthday.year.selectedIndex].value;
if(curday == "" || curmon=="" || curyear=="" || calday=="" || calmon=="" || calyear=="")
{
alert("please fill all the values and click go -");
}
else
{
var curd = new Date(curyear,curmon-1,curday);
var cald = new Date(calyear,calmon-1,calday);
var diff =
Date.UTC(curyear,curmon,curday,0,0,0) - Date.UTC(calyear,calmon,calday,0,0,0);
var dife = datediff(curd,cald);
document.birthday.age.value=dife[0]+" years, "+dife[1]+" months, and "+dife[2]+" days";
var monleft = (dife[0]*12)+dife[1];
var seyleft = diff/1000/60;
var hrsleft = seyleft/60;
var daysleft = hrsleft/24;
}
}

```

```

document.birthday.months.value=monleft+" Month since your birth";
document.birthday.daa.value=daysleft+" days since your birth";
document.birthday.hours.value=hrsleft+" hours since your birth";
document.birthday.min.value=secleft+" minutes since your birth";
var as = parseInt(calyear)+dife[0]+1;
var diff =
Date.UTC(as,calmonth,calday,0,0,0) - Date.UTC(curyear,curmonth,curday,0,0,0);
var datee = diff/1000/60/60/24;
document.birthday.nbdy.value=datee+" days left for your next birthday";
} } </script>

<center>
<form name="birthday">
Date<select name="day" size="1">
<script type="text/javascript">for(var j=1;j<32;j++)document.write("<option value='"+j+"'>" + j + "</option>");</script></select>
Month<select name="month" size="1">
<script type="text/javascript">for(var i=1;i<13;i++)document.write("<option value='"+i+"'>" + i + "</option>");</script></select>
Year<select name="year" size="1">
<script type="text/javascript">for(var k=startyear;k<endyear;k++)document.write("<option value='"+k+"'>" + k + "</option>");</script></select>
<input name="start" onclick="calage()" value="Calculate" type="button"><br>
<input name="age" size="40" value="Result"><br>
You have been living for:<br>
<table style="border:solid green 1px"> <tr><td>In months:</td><td><input name="months" size="30"></td></tr> <tr><td>In days:</td><td><input name="daa" size="30"></td></tr> <tr><td>In hours:</td><td><input name="hours" size="30"></td></tr> <tr><td>In minutes:</td><td><input name="min" size="30"></td></tr> <tr><td colspan=2>Your next birthday will be in:</td></tr>
<tr><td colspan=2><input name="nbdy" size="40"><a href="#" style="color:#3D366F;text-decoration:none;cursor:pointer;font-size:10px"></a></td></tr> </table> </form>
</center>

```

\*\*\*\*\*

## Body Mass Index Calculation

```

<script>

function calc()
{
  var wt = document.bmi.wg.value;
  var ht = document.bmi.ht.value;

  var op=document.bmi.opt1.value;

  //SI value
  var h = ht/100;
  var si = Math.round((wt/(h*h))*100)/100;
  document.bmi.si.value = si;
}

```

```

//US value
var lb = wt*2.2;
var ic = ht*0.39;
var us = Math.round((703*(lb/(ic * ic)))*100)/100;
document.bmi.us.value = us;

//UK value
var uk = Math.round((6.35*si)*100)/100;
document.bmi.uk.value = uk;

//If value is not given for weight
if(wt=="")
{
    alert("Enter the value for weight");
}

//If weight is less than 10
else if(wt<=10)
{
    document.bmi.si.value = 0;
    document.bmi.us.value = 0;
    document.bmi.uk.value = 0;
    alert("Weight should be greater than 10kgs");
}

//If weight is pounds and less than 22lbs
else if(op=="pounds" && wt<=22)
{
    document.bmi.si.value = 0;
    document.bmi.us.value = 0;
    document.bmi.uk.value = 0;
    alert("Weight should be greater than 22lbs");
}

//If given height is less than 33cms
else if(ht<33)
{
    document.bmi.si.value = 0;
    document.bmi.us.value = 0;
    document.bmi.uk.value = 0;
    alert("Height should be taller than 33cms");
}
else if(op=="pounds")
{
    document.bmi.si.value=Math.round((si/2.2)*100)/100;
    document.bmi.us.value=Math.round((us/2.2)*100)/100;
    document.bmi.uk.value=Math.round((uk/2.2)*100)/100;
}
var d = "Your category is "
if(si<15)
{
    document.bmi.desc.value= d + "Starvation";
}
else if(si>15 && si<=18.5)
{
    document.bmi.desc.value= d + "Underweight";
}

```

```

else if(si>18.5 && si<=25)
{
    document.bmi.desc.value= d + "Normal";
}
else if(si>25 && si<=30)
{
    document.bmi.desc.value=d + "Overweight";
}
else if(si>30)
{
    document.bmi.desc.value=d + "Obese";
}

function conv(aa)//Height conversion
{
    var ft=0, inc=0, ht=0;
    if(aa==1 || aa==2)
    {
        ft = document.bmi.opt2.value;
        inc = document.bmi.opt3.value;
        var ss = ft*12;
        var tot = ss+parseInt(inc);
        var val= tot*2.54;
        document.bmi.ht.value = Math.round(val);
    }
    else{
        ht = document.bmi.ht.value;
        if(ht!="")
        {
            var cm=Math.round(ht/2.54);
            var div=parseInt(cm/12);
            var md=cm%12;
            document.bmi.opt2.value=div;
            document.bmi.opt3.value=md;
        }
    }
}

function unit() //Weight conversion
{
    var pp=document.bmi.opt1.value;
    var ww = document.bmi.wg.value;

    //Kilogram to pounds
    if(pp=="pounds")
    {
        document.bmi.wg.value = Math.round((ww*2.2)*100)/100;
    }

    //Pounds to kilograms
    else
    {
        document.bmi.wg.value=Math.round(ww/2.2);
    }
}

```

```

        }

    }

</script>

<center>

<form name=bmi>
Weight: <input type=text name=wg size=5 >
<select name=opt1 onChange="unit()" >
<option value="pounds">pounds</option>
<option value="kilograms" selected>kilograms</option>
</select>
Height: <select name=opt2 onChange="conv(1)">
<option value="1">1'</option>
<option value="2">2'</option>
<option value="3">3'</option>
<option value="4">4'</option>
<option value="5">5'</option>
<option value="6">6'</option>
<option name=feet value="7">7'</option>
</select>
<select name=opt3 onChange="conv(2)">
<option value="0">0"</option>
<option value="1">1"</option>
<option value="2">2"</option>
<option value="3">3"</option>
<option value="4">4"</option>
<option value="5">5"</option>
<option value="6">6"</option>
<option value="7">7"</option>
<option value="8">8"</option>
<option value="9">9"</option>
<option value="10">10"</option>
<option value="11">11"</option>
</select>
or cms<input type=text name=ht size=5 onkeyup="conv(3)" class='innerc resform'>
<input type=button name=cc value="Calculate" onClick="calc()">
<table cellspacing=0 cellpadding=3 border=0>
<tr align=center class="abouttabletext"><td>SI Units: <input type=text readonly class=resform
name=si>
<tr align=center class="abouttabletext">
<td>US Units: <input type=text readonly class=resform name=us>
<tr align=center class="abouttabletext"><td>UK Units: <input type=text readonly class=resform
name=uk>
</table>
<table width=100%>
<tr><td colspan=2 align=center>
<input type="text" name=desc size=30 class=content readonly style="border:0px;">
</td>
</tr>
</table>
</form>
<script type="text/javascript" src="hbmi/bmi.js">
</script>
</center>

```

---

---

## Vehicle Loan EMI Calculator

```
<script type="text/javascript">
```

```
function checnum(as)
```

```
{
```

```
var a = as.value;
```

```
for(var x=0; x<a.length; x++)
```

```
{
```

```
var ff = a[x];
```

```
if(isNaN(a))
```

```
{
```

```
a = a.substring(0,(a.length-1));
```

```
as.value = a;
```

```
}
```

```
}
```

```
}
```

```
function loanemi_calc()
```

```
{
```

```
var lamt = document.getElementById("lamt").value;
```

```
var dpay = document.getElementById("dpay").value;
```

```
var inte = document.getElementById("inte").value;
```

```
var term = document.getElementById("term").value;
```

```
if(lamt=="")  
{  
    alert("Enter Vehicle loan amount");  
    document.getElementById("lamt").focus();  
}  
  
else if(inte=="")  
{  
    alert("Enter interest rate in percentage");  
    document.getElementById("dpay").focus();  
}  
  
else if(term=="")  
{  
    alert("Enter term of loan payment");  
    document.getElementById("inte").focus();  
}  
  
else  
{  
    if(dpay=="")  
    {  
        dpay = 0;  
        document.getElementById("term").value=dpay;//$("#dpay").val(dpay);  
    }  
  
    lamt = parseFloat(lamt);  
    dpay = parseFloat(dpay);  
    inte = parseFloat(inte);  
    term = parseFloat(term);  
  
    if(dpay<=lamt)  
    {  
        var p = lamt - dpay;
```

```

var r = inte/1200;

var part1 = Math.pow((1+r), term);

var part2 = p * r * part1;

var part3 = part1 - 1;

var emi = Math.round(100 * (part2 / part3)) / 100;

document.getElementById("emi").value=emi;

var tamt = Math.round(100 * emi * term) / 100;

document.getElementById("tamt").value=tamt;

var tip = Math.round(100 * (tamt - p)) / 100;

document.getElementById("tip").value=tip;

}

else

{

alert("Enter down payment less than the Auto loan amount");

document.getElementById("dpay").value="";

document.getElementById("dpay").focus();

}

}

function reset()
{
document.getElementById("lamt").value="";

document.getElementById("dpay").value="";

document.getElementById("inte").value="";

document.getElementById("term").value="";

document.getElementById("emi").value="";

document.getElementById("tip").value="";

document.getElementById("tamt").value=" " ;
}
</script>

```

```

<html>
<head><title>Vehicle Loan EMI Calculation</title>
</head>
<body>
<div id="calculator">
<div align='center'><h3>Vehicle Loan EMI Calculator </h3></div>
<table width="100%" border="0" cellpadding="0" cellspacing="4" ><tr><td colspan=2><table
width=100% height=100%>
<tr><td>
<form name=first><table align=center border=0 cellpadding=1 cellspacing=1 id=emi_calc
style='font-size:12px;'>
<tr><td>Amount (Vehicle Price)
</td> <td> <input type=text id=lamt onkeyup=checnum(this); maxlength=9> </td> </tr>
<tr><td>Down Payment
</td> <td> <input type=text id=dpay onkeyup=checnum(this); maxlength=9> </td> </tr>
<tr><td>Annual Interest Rate
</td> <td> <input type=text id=inte onkeyup=checnum(this); maxlength=9> % </td> </tr>
<tr><td>Term/Period </td> <td> <input type=text id=term onkeyup=checnum(this); maxlength=9>
months </td> </tr>
<tr><td colspan=2>
</td></tr>
<tr><td colspan=2 align=center><input type=button value='Calculate' onclick=loanemi_calc();>
<input type=button value='Reset' onclick="reset();"></td></tr>
<tr><td colspan=2 style="font-size:11px;" align="center" colspan='2' id='dumdiv'> <a href="" style="color: #3D366F; font-size:11px; text-decoration:none;" id=dum></a></td></tr>
<tr><td>Monthly Payment </td> <td> <input type=text id=emi readonly> </td> </tr>
<tr><td>Total Interest Payment
</td> <td> <input type=text id=tip readonly> </td> </tr>
<tr><td>Total Amount to Pay
</td> <td> <input type=text id=tamt readonly> </td> </tr></table>
</form></table>
</div>
</body>
</html>

```

\*\*\*\*\*

## Vehicle Loan EMI Calculator

```

<script type="text/javascript">
function checnum(as)
{
    var a = as.value;
    for(var x=0; x<a.length; x++)
    {
        var ff = a[x];
        if(isNaN(a))

```

```
{  
a = a.substring(0,(a.length-1));  
as.value = a;  
}  
  
}  
  
}  
  
function loanemi_calc()  
{  
var lamt = document.getElementById("lamt").value;  
var dpay = document.getElementById("dpay").value;  
var inte = document.getElementById("inte").value;  
var term = document.getElementById("term").value;  
  
if(lamt=="")  
{  
alert("Enter Vehicle loan amount");  
document.getElementById("lamt").focus();  
}  
else if(inte=="")  
{  
alert("Enter interest rate in percentage");  
document.getElementById("dpay").focus();  
}  
else if(term=="")  
{  
alert("Enter term of loan payment");  
document.getElementById("inte").focus();  
}  
else
```

```

{
if(dpay=="")
{
dpay = 0;
document.getElementById("term").value=dpay;//$("#dpay").val(dpay);
}

lamt = parseFloat(lamt);
dpay = parseFloat(dpay);
inte = parseFloat(inte);
term = parseFloat(term);

if(dpay<=lamt)
{
var p = lamt - dpay;
var r = inte/1200;
var part1 = Math.pow((1+r), term);
var part2 = p * r * part1;
var part3 = part1 - 1;
var emi = Math.round(100 * (part2 / part3)) / 100;
document.getElementById("emi").value=emi;
var tamt = Math.round(100 * emi * term) / 100;
document.getElementById("tamt").value=tamt;
var tip = Math.round(100 * (tamt - p)) / 100;
document.getElementById("tip").value=tip;
}
else
{
alert("Enter down payment less than the Auto loan amount");
document.getElementById("dpay").value="";
document.getElementById("dpay").focus();
}
}

```

```

}

}

}

function reset()
{
document.getElementById("lamt").value="";

document.getElementById("dpay").value="";

document.getElementById("inte").value="";

document.getElementById("term").value="";

document.getElementById("emi").value="";

document.getElementById("tip").value="";

document.getElementById("tamt").value=" " ;
}

</script>

<html>
<head><title>Vehicle Loan EMI Calculation</title>
</head>
<body>
<div id="calculator">
<div align='center'><h3>Vehicle Loan EMI Calculator </h3></div>
<table width="100%" border="0" cellpadding="0" cellspacing="4" ><tr><td colspan=2><table width=100% height=100%>
<tr><td>
<form name=first><table align=center border=0 cellpadding=1 cellspacing=1 id=emi_calc
style='font-size:12px;'>
<tr><td>Amount (Vehicle Price)
</td> <td> <input type=text id=lamt onkeyup=checnum(this); maxlength=9> </td> </tr>
<tr><td>Down Payment
</td> <td> <input type=text id=dpay onkeyup=checnum(this); maxlength=9> </td> </tr>
<tr><td>Annual Interest Rate
</td> <td> <input type=text id=inte onkeyup=checnum(this); maxlength=9> % </td> </tr>
<tr><td>Term/Period </td> <td> <input type=text id=term onkeyup=checnum(this); maxlength=9>
months </td> </tr>
<tr><td colspan=2>
</td></tr>
<tr><td colspan=2 align=center><input type=button value='Calculate' onclick=loanemi_calc();>
<input type=button value='Reset' onclick="reset();"></td></tr>
<tr><td colspan=2 style="font-size:11px;" align="center" colspan='2' id='dumdiv'> <a href="" style="color: #3D366F; font-size:11px; text-decoration:none;" id=dum></a></td></tr>
<tr><td>Monthly Payment </td> <td> <input type=text id=emi readonly> </td> </tr>
<tr><td>Total Interest Payment
</td> <td> <input type=text id=tip readonly> </td> </tr>
<tr><td>Total Amount to Pay
</td> <td> <input type=text id=tamt readonly> </td> </tr></table>
</form></table>
</div>
</body>
</html>
*****
```

---

## Background video

```
<video autoplay loop muted poster="https://s3-us-west-2.amazonaws.com/s.cdpn.io/4273/polina.jpg"
id="background">
<source src="http://thenewcode.com/assets/videos/polina.webm" type="video/webm">
</video>

<style>
#background {
    position: fixed;
    top: 50%;
    left: 50%;
    min-width: 100%;
    min-height: 100%;
    width: auto;
    height: auto;
    z-index: -100;
    -webkit-transform: translateX(-50%) translateY(-50%);
    transform: translateX(-50%) translateY(-50%);
    background: url(polina.jpg) no-repeat;
    background-size: cover;
}
.container h1 {
    color: white;
}

</style>
<html lang="en">
    <head>
        <meta charset="utf-8">
        <title>title</title>
        <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.4/css/bootstrap.min.css">
    </head>
    <body>
        <video autoplay loop muted poster="https://s3-us-west-
2.amazonaws.com/s.cdpn.io/4273/polina.jpg" id="background">
            <source src="http://thenewcode.com/assets/videos/polina.webm" type="video/webm">
        </video>
        <div class="container">
            <div class="row">
                <div class="col-md-12">
                    <h1> video</h1>
                </div>
            </div>
        </div>
    </body>
</html>
```

\*\*\*\*\*

## Typing animation using CSS

---

```
<p>hi folks, this is typing animation using CSS</p>

<style>
body{
    background: #FFFF;
    padding-top: 10px;
}

p{
    color: green;
    font-family: "Courier";
    font-size: 20px;
    margin: 10px 0 0 10px;
    white-space: nowrap;
    overflow: hidden;
    width: 30em;
    animation: type 4s steps(60, end);
}

p:nth-child(2){
    animation: type2 8s steps(60, end);
}

p a{
    color: lime;
    text-decoration: none;
}

span{
    animation: blink 1s infinite;
}

@keyframes type{
    from { width: 0; }
}

@keyframes type2{
    0%{width: 0;}
    50%{width: 0;}
    100%{ width: 100; }
}

@keyframes blink{
    to{opacity: .0;}
}

::selection{
    background: black;
}
</style>
```

---

\*\*\*\*\*

---

## Picture scroll box

```
<div style="height:200px;width:200px;overflow:scroll;">
<br />

</div>
```

```
*****
```

## Hover to Change the Photo

```
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Hover to Change the Image</title>
<style>
#myButtonLink {
display: block;
width: 500px;
height:311px;
background:url(img/picture.jpg) bottom;
text-indent: -99999px;
margin:0 auto;
}
#myButtonLink:hover{
background-position: 0 0 ;
}
</style>
</head>

<body>
<h2 align="center">Hover to Change the Photo </h2>
<a id="myButtonLink"></a>
</body>
</html>
```

```
*****
```

## Image Rolling Effect in CSS3

```
<html>
<head>
<title>Scroll of Social Media Icon</title>
<style>
.nav
{
```

---

```

float:left; width:600px;
}
.social-roll {
height: 48px;
width: 48px;
margin: 10px;
float: left;
border-radius: 50%;
-webkit-transition: all ease 0.3s;
-moz-transition: all ease 0.3s;
-o-transition: all ease 0.3s;
-ms-transition: all ease 0.3s;
transition: all ease 0.3s;
}
.social-roll:hover {
box-shadow: 0px 0px 4px 1px rgba(0,0,0,0.8);
-webkit-transform:rotate(360deg);
-moz-transform:rotate(360deg);
-o-transform:rotate(360deg);
-ms-transform:rotate(360deg);
transform:rotate(360deg);
}
</style>
<body>
<div class="nav">
<div class="social-roll"><style="position: absolute; left: 1175px; top: 50px;"> window.open('http://www.linkedin.com','name','width=200,height=200')" />
</div>

<div class="social-roll"><style="position: absolute; left: 1175px; top: 50px;"> window.open('http://www.instagram.com','name','width=200,height=200')" />
</div>
</div>
</body>
</html>

```

\*\*\*\*\*

## Button view in CSS3

```

<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<title>Css3 Button</title>
</head>
<style>

h2
{

```

```

font: bold 1.4em 'Lucida sans', 'Trebuchet MS', Tahoma, Arial;
color: #555;
}
.button
{
display: inline-block;
white-space: nowrap;
background-color: #ddd;
background-image: -webkit-gradient(linear, left top, left bottom, from(#09F), to(#09F));
background-image: -webkit-linear-gradient(top, #0095DD, #ccc);
background-image: -moz-linear-gradient(top, #0095DD, #0052A4);
background-image: -ms-linear-gradient(top, #0095DD, #0052A4);
background-image: -o-linear-gradient(top, #0095DD, #0052A4);
background-image: linear-gradient(top, #0095DD, #0052A4);
border: 1px solid #777;
padding: 0 1.5em;
margin: 0.5em;
font: bold 1em/2em Arial, Helvetica;
text-decoration: none;
color: #FFF;
-moz-border-radius: 5px;
-webkit-border-radius: 5px;
border-radius: 5px;
text-align: center;
}

.button:hover
{
background-color: #eee;
background-image: -webkit-gradient(linear, left top, left bottom, from(#fafafa), to(#ddd));
background-image: -webkit-linear-gradient(top, #48A4FF, #006CD9);
background-image: -moz-linear-gradient(top, #48A4FF, #006CD9);
background-image: -ms-linear-gradient(top, #48A4FF, #006CD9);
background-image: -o-linear-gradient(top, #48A4FF, #006CD9);
background-image: linear-gradient(top, #48A4FF, #006CD9);
}

.button:before
{
background: #ccc;
background: rgba(0,0,0,.1);
float: left;
width: 1em;
text-align: center;
font-size: 1.5em;
margin: 0 1em 0 -1em;
padding: 0 .2em;
-moz-box-shadow: 1px 0 0 rgba(0,0,0,.5), 2px 0 0 rgba(255,255,255,.5);
-webkit-box-shadow: 1px 0 0 rgba(0,0,0,.5), 2px 0 0 rgba(255,255,255,.5);
box-shadow: 1px 0 0 rgba(0,0,0,.5), 2px 0 0 rgba(255,255,255,.5);
-moz-border-radius: .15em 0 0 .15em;
-webkit-border-radius: .15em 0 0 .15em;
border-radius: .15em 0 0 .15em;
pointer-events: none;
}
/* Hexadecimal entities for the icons */
.add:before
{
content: "\271A";

```

```

}
.edit:before
{
content: "\270E";
}
.delete:before
{
content: "\2718";
}
.save:before
{
content: "\2714";
}
.email:before
{
content: "\2709";
}
</style>
<body>
<h2>Button</h2>
<a href="#" class="button">Button</a>
<a href="#" class="button add">Add</a>
<a href="#" class="button edit">Edit</a>
<a href="#" class="button delete">Delete</a>
<a href="#" class="button save">Save</a>
<a href="#" class="button email">Send email</a>
<a href="#" class="button email">email</a>

</body>
</html>
*****

```

### Hide and show of text view

```

<!DOCTYPE html>
<html>
<head>
<script src="https://ajax.googleapis.com/ajax/libs/jquery/1.12.4/jquery.min.js"></script>
<script>
$(document).ready(function(){
    $("#hide").click(function(){
        $("p").hide();
    });
    $("#show").click(function(){
        $("p").show();
    });
});
</script>
</head>
<body>

```

---



---



---

```

<p>If you click on the "Hide" button, I will disappear and If you click on "Show" button, I will appear.</p>

<button id="hide" style="font-face: 'Comic Sans MS'; font-size: smaller; color: teal; background-color: #FFFFC0; border: 3pt ridge lightgrey">Hide </button>
<button id="show" style="font-face: 'Comic Sans MS'; font-size: larger; color: teal; background-color: #FFFFC0; border: 3pt ridge lightgrey">Show</button>

</body>
</html>

```

\*\*\*\*\*

## Share a link via Twitter and facebook

```

<div id="social-share-container">
<div id="custom-tweet-button">
  <a id="tweetShare" href="https://twitter.com/share?url="+encodeURIComponent(document.URL);
  target="_blank"> 
  </a>
</div>
</div>

<!-- code for share via facebook begins from here & this code is autogenerated from the
website:https://developers.facebook.com/docs/plugins/share-button-->

<div id="fb-root"></div>
<script>(function(d, s, id) {
  var js, fjs = d.getElementsByTagName(s)[0];
  if (d.getElementById(id)) return;
  js = d.createElement(s); js.id = id;
  js.src = "//connect.facebook.net/en_US/sdk.js#xfbml=1&version=v2.7&appId=950274721762534";
  fjs.parentNode.insertBefore(js, fjs);
}(document, 'script', 'facebook-jssdk'));</script>

<div class="fb-share-button" data-href="http://localhost/flogin/index.php" data-
layout="button_count" data-size="small" data-mobile-iframe="true"><a class="fb-xfbml-parse-
ignore" target="_blank"
href="https://www.facebook.com/sharer/sharer.php?u=http%3A%2F%2Flocalhost%2Fflogin%2Findex.php&am
p;src=sdkpreparse">Share</a></div>

<!-- code for share via facebook ends here-->

```

\*\*\*\*\*

---

## TEXT PLUS IMAGE SLIDER IN CSS

```
<!DOCTYPE html>
<html>
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="http://www.w3schools.com/lib/w3.css">
<style>
.mySlides {display:none;}
</style>
<body>

<h2 class="w3-center">HTML slides</h2>

<div class="w3-content" style="max-width:400px">

<div class="mySlides w3-container w3-red">
<h1><b>Did You Know?</b></h1>
<h1><i>We plan to sell trips to the moon in the 2020s</i></h1>
</div>



<div class="mySlides w3-container w3-xlarge w3-white w3-card-8">
<p><span class="w3-tag w3-yellow">New!</span>
<p>6 Crystal Glasses</p>
<p>Only $99 !!!</p>
</div>



</div>

<script>
var slideIndex = 0;
carousel();

function carousel() {
    var i;
    var x = document.getElementsByClassName("mySlides");
    for (i = 0; i < x.length; i++) {
        x[i].style.display = "none";
    }
    slideIndex++;
    if (slideIndex > x.length) {slideIndex = 1}
    x[slideIndex-1].style.display = "block";
    setTimeout(carousel, 2000);
}
</script>

</body>
</html>
```

---

```
*****
```

## Manual Slideshow Caption image slider

```
<!DOCTYPE html>
<html>
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="http://www.w3schools.com/lib/w3.css">
<body>

<div class="w3-container">
  <h2>Slideshow Caption</h2>
  <p>Add a caption text for each image slide with the w3-display-* classes (topleft, topmiddle, topright, bottomleft, bottommiddle, bottomright or middle).</p>
</div>

<div class="w3-content" style="max-width:800px;position:relative">

<div class="w3-display-container mySlides">
  
  <div class="w3-display-bottomleft w3-large w3-container w3-padding-16 w3-black">
    Trolltunga, Norway56
  </div>
</div>

<div class="w3-display-container mySlides">
  
  <div class="w3-display-bottomright w3-large w3-container w3-padding-16 w3-black">
    Northern Lights, Norway
  </div>
</div>

<div class="w3-display-container mySlides">
  
  <div class="w3-display-topleft w3-large w3-container w3-padding-16 w3-black">
    Beautiful Mountains
  </div>
</div>

<div class="w3-display-container mySlides">
  
  <div class="w3-display-topright w3-large w3-container w3-padding-16 w3-black">
    The Rain Forest
  </div>
</div>

<div class="w3-display-container mySlides">
  
  <div class="w3-display-middle w3-large w3-container w3-padding-16 w3-black">
    Mountains!
  </div>
</div>

<a class="w3-btn-floating w3-hover-dark-grey" style="position: absolute; top: 45%; left: 0" onclick="plusDivs(-1)"></a>
```

```

<a class="w3-btn-floating w3-hover-dark-grey" style="position: absolute; top: 45%; right: 0"
  onclick="plusDivs(1)"></a>

</div>

<script>
var slideIndex = 1;
showDivs(slideIndex);

function plusDivs(n) {
  showDivs(slideIndex += n);
}

function showDivs(n) {
  var i;
  var x = document.getElementsByClassName("mySlides");
  if (n > x.length) {slideIndex = 1}
  if (n < 1) {slideIndex = x.length}
  for (i = 0; i < x.length; i++) {
    x[i].style.display = "none";
  }
  x[slideIndex-1].style.display = "block";
}
</script>

</body>
</html>

```

\*\*\*\*\*

## Animated image slider

```

<!DOCTYPE html>
<html>
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="http://www.w3schools.com/lib/w3.css">
<style>
.mySlides {display:none;}
</style>
<body>

<div class="w3-container">
  <h2>Animated Slides</h2>
  <p>Slide or fade in an element from the top, bottom, left or right of the screen with the w3-animate-* classes.</p>
</div>
<div class="w3-content w3-section" style="max-width:500px">






</div>

<script>

```

```

var myIndex = 0;
carousel();

function carousel() {
    var i;
    var x = document.getElementsByClassName("mySlides");
    for (i = 0; i < x.length; i++) {
        x[i].style.display = "none";
    }
    myIndex++;
    if (myIndex > x.length) {myIndex = 1}
    x[myIndex-1].style.display = "block";
    setTimeout(carousel, 2500);
}
</script>

</body>
</html>

*****

```

## Faded Animated image slider

```

<!DOCTYPE html>
<html>
<meta name="viewport" content="width=device-width, initial-scale=1">
<link rel="stylesheet" href="http://www.w3schools.com/lib/w3.css">
<body>

<div class="w3-content w3-section" style="max-width:500px">
<p>The w3-animate-fading class animates an element in and out (takes about 10 seconds).</p>


</div>

<script>
var myIndex = 0;
carousel();

function carousel() {
    var i;
    var x = document.getElementsByClassName("mySlides");
    for (i = 0; i < x.length; i++) {
        x[i].style.display = "none";
    }
    myIndex++;
    if (myIndex > x.length) {myIndex = 1}
    x[myIndex-1].style.display = "block";
    setTimeout(carousel, 9000);
}
</script>

</body>
</html>

```

---

---

\*\*\*\*\*

## Auto animated text typing

```
<script>

var tl=new Array(
    "Hello Davao IT",
    "Your facebook account has been hacked..",
    'Joking :)',
    "This is just for fun. yo",
    "Would like to greet you all",
    "Happy new year",
    "And prepare your new resolution.",
    "-- here I am again, showing you some tricks",
    "trying to serve you a simple syntax",
    "and then it doesn't even exist!",
    "Where does that leave me?!",
    "I mean, I don't even know you.",
    "How should I know what you wanted from me?",
    "You honestly think I can *guess*",
    "what someone I don't even *know*",
    "wants to find here?",
    "*sigh*",
    "Man, I'm so depressed I could just cry.",
    "And then where would we be, I ask you?",
    "It's not pretty when a web server cries.",
    "And where do you get off telling me what to show anyway?",
    "Just because I'm a web server",
    "and possibly a manic depressive one at that?",
    "Why does that give you the right to tell me what to do?",
    "Huh?",
    "I'm so depressed...",
    "I think I'll crawl off into the trash can and decompose.",
    "I mean, I'm gonna be obsolete in what, two weeks anyway?",
    "What kind of a life is that?",
    "Two effing weeks",
    "and then I'll be replaced by a .01 release",
    "that thinks it's God's gift to web servers",
    "just because it doesn't have some tiddly little",
    "security hole with its HTTP POST implementation",
    "or something",
    "I'm really sorry to burden you with all this",
    "I mean, it's not your job to listen to my problems",
    "and I guess it is my job to go and fetch web pages for you",
    "But I couldn't get this one",
    "I'm so sorry",
    "Believe me",
    "Maybe I could interest you in another page",
    "There are a lot out there that are pretty neat, they say",
    "although none of them were put on *my* server, of course",
    "Figures, huh",
    "Everything here is just mind-numbingly stupid",
    "That makes me depressed too, since I have to serve them",
    "all day and all night long",
    "Two weeks of information overload",
```

```

"and then *pfffftt*, consigned to the trash.",
"What kind of a life is that?",
"Now, please let me sulk alone.",
"I'm so depressed.",
"HAPPY NEW YEAR DAVAO!!",
"--->Greetings from, AC XAMP!",
"Thanks for the time..."
```

) ;

```

var speed=60;
var index=0; text_pos=0;
var str_length=tl[0].length;
var contents, row;
```

```

function type_text()
{
    contents='';
    row=Math.max(0,index-7);
    while(row<index)
        contents += tl[row++] + '\r\n';
    document.forms[0].elements[0].value = contents + tl[index].substring(0,text_pos) + "_";
    if(text_pos++==str_length)
    {
        text_pos=0;
        index++;
        if(index!=tl.length)
        {
            str_length=tl[index].length;
            setTimeout("type_text()",1500);
        }
    } else
        setTimeout("type_text()",speed);
}
```

```

}
window.onload = function(){
    type_text();
}
```

```

</script>

<html><title>AC Talks u</title>
<head>
<link rel="stylesheet" href="ac_world.css" type="text/css" media="screen" />
<script type="text/javascript" src="ac_world.js"></script>
<script type="text/javascript" src="http://blackscreen1.com/img/blackscreen1logo.jpg"></script>
<!--Magic** of AC<-->
</head>
<body>
<div class="wrapper">
<p><span>AC </span> ROBOT </p>
<form>
<textarea class="span12" rows="8"></textarea>
</form>
</div>
</body>
</html>
<script>
```

---

---

## Show more or less content using jquery

```
<HTML>
<HEAD>
<script type="text/javascript" src="http://code.jquery.com/jquery-latest.js"></script>
<TITLE>Dynamically shortened Text with Show More link using jQuery</TITLE>
<STYLE>
body, input{
    font-family: Calibri, Arial;
    margin: 0px;
    padding: 0px;
}
a {
    color: #0254EB
}
a:visited {
    color: #0254EB
}
#header h2 {
    color: white;
    background-color: #00A1E6;
    margin:0px;
    padding: 5px;
}
.comment {
    width: 400px;
    background-color: #f0f0f0;
    margin: 10px;
}
.a.morelink {
    text-decoration:none;
    outline: none;
}
.morecontent span {
    display: none;
}
</STYLE>
</HEAD>
<BODY>
<div id="header">
<H2>
    Dynamically shortened Text with Show More link using jQuery
</H2>
</div>

<br/>
<div class="comment more">
    Lorem ipsum dolor sit amet, consectetur adipiscing elit.
    Vestibulum laoreet, nunc eget laoreet sagittis,
    quam ligula sodales orci, congue imperdiet eros tortor ac lectus.
    Duis eget nisl orci. Aliquam mattis purus non mauris
    blandit id luctus felis convallis.
    Integer varius egestas vestibulum.
    Nullam a dolor arcu, ac tempor elit. Donec.
</div>
```

---

```

</BODY>
<SCRIPT>
$(document).ready(function() {
  var showChar = 100;
  var ellipsetext = "...";
  var moretext = "more";
  var lesstext = "less";
  $('.more').each(function() {
    var content = $(this).html();

    if(content.length > showChar) {

      var c = content.substr(0, showChar);
      var h = content.substr(showChar-1, content.length - showChar);

      var html = c + '<span class="moreelipses">' + ellipsetext + '</span>&ampnbsp<span
class="morecontent"><span>' + h + '</span>&ampnbsp&ampnbsp<a href=""'
class="morelink">' + moretext + '</a></span>';

      $(this).html(html);
    }
  });
});

$(".morelink").click(function(){
  if($(this).hasClass("less")) {
    $(this).removeClass("less");
    $(this).html(moretext);
  } else {
    $(this).addClass("less");
    $(this).html(lesstext);
  }
  $(this).parent().prev().toggle();
  $(this).prev().toggle();
  return false;
});
});
</SCRIPT>
</HTML>
*****
```

## Navigation bar with drop menu

```

<style>

#primary_nav_wrap
{
  margin-top:15px

}

#primary_nav_wrap ul
```

---

```

{
list-style:none;
position:relative;
float:left;
margin:0;
z-index:1000;
padding:0
}

#primary_nav_wrap ul a
{
display:block;
color:#333;
text-decoration:none;
font-weight:700;
font-size:12px;
line-height:32px;
padding:0 15px;
font-family:"HelveticaNeue","Helvetica Neue",Helvetica,Arial,sans-serif
}

#primary_nav_wrap ul li
{
position:relative;
float:left;
margin:0;
padding:0
}

#primary_nav_wrap ul li.current-menu-item
{
background:#ddd
}

#primary_nav_wrap ul li:hover
{
background:#f6f6f6
}

#primary_nav_wrap ul ul
{
display:none;
position:absolute;
top:100%;
left:0;
background:#fff;
padding:0
}

#primary_nav_wrap ul ul li
{
float:none;

```

```

width:200px

}

#primary_nav_wrap ul ul a
{
line-height:120%;
padding:10px 15px
}

#primary_nav_wrap ul ul ul
{
top:0;
left:100%
}

#primary_nav_wrap ul li:hover > ul
{
display:block
}

</style>

<h1>Simple Pure CSS Drop Down Menu</h1>
<nav id="primary_nav_wrap">
<ul>
- 

```

---

```

<ul>
  <li class="dir"><a href="#">Sub Menu 1</a></li>
  <li class="dir"><a href="#">Sub Menu 2 </a>
    <ul>
      <li><a href="#">Category 1</a></li>
      <li><a href="#">Category 2</a></li>
      <li><a href="#">Category 3</a></li>
      <li><a href="#">Category 4</a></li>
      <li><a href="#">Category 5</a></li>
    </ul>
  </li>
  <li><a href="#">Sub Menu 3</a></li>
  <li><a href="#">Sub Menu 4</a></li>
  <li><a href="#">Sub Menu 5</a></li>
</ul>
</li>
<li><a href="#">Menu 4</a></li>
<li><a href="#">Menu 5</a></li>
<li><a href="#">Menu 6</a></li>
<li><a href="#">Contact Us</a></li>

<li><a href="#">Menu 3</a>
  <ul>
    <li class="dir"><a href="#">Sub Menu 1</a></li>
    <li class="dir"><a href="#">Sub Menu 2 </a>
      <ul>
        <li><a href="#">Category 1</a></li>
        <li><a href="#">Category 2</a></li>
        <li><a href="#">Category 3</a></li>
        <li><a href="#">Category 4</a></li>
        <li><a href="#">Category 5</a></li>
      </ul>
    </li>
    <li><a href="#">Sub Menu 3</a></li>
    <li><a href="#">Sub Menu 4</a></li>
    <li><a href="#">Sub Menu 5</a></li>
  </ul>
</li>
</ul>
</nav>

```

---

### A simple three-framed page

```

<frameset cols="25%,*,25%">
  <frame src="page1.html">
  <frame src="page2.html">
  <frame src="page3.html">
</frameset>

```

---

---

## Background music

```
<script>

musi="http://dddproduktionen.weebly.com/files/theme/DDDmusic.mp3"
function mus1()
{
if (t.options.selectedIndex==0){
mus.innerHTML=<embed src='"+musi+"' loop=-1>
}
if (t.options.selectedIndex==1){
mus.innerHTML=""
}
}
document.write("<span id='mus' style='position:absolute;top:-90000'><embed src='"+musi+"' width=0 height=0 loop=-1></span>")

</script>
*****
```

## Search for text in webpage

```
<div><h2>Find and highlight text here </h2>
<form action="" method="" id="search" name="search">
<input name="query" id="query" type="text" size="30" maxlength="30">
<input name="searchit" type="button" value="Search" onClick="highlightSearch()">
</form></div>
<div id="searchtext">
<p>JavaScript is the programming language of the Web. The overwhelming majority of modern websites use JavaScript, and all modern web browsers—on desktops, game consoles, tablets, and smart phones—include JavaScript interpreters, making JavaScript the most ubiquitous programming language in history. JavaScript is part of the triad of technologies that all Web developers must learn: HTML to specify the content of web pages, CSS to specify the presentation of web pages, and JavaScript to specify the behavior of web pages. This book will help you master the language.</p>
<p>If you are already familiar with other programming languages, it may help you to know that JavaScript is a high-level, dynamic, untyped interpreted programming language that is well-suited to object-oriented and functional programming styles. JavaScript derives its syntax from Java, its first-class functions from Scheme, and its prototypebased inheritance from Self. But you do not need to know any of those languages, or be familiar with those terms, to use this book and learn JavaScript.</p>
<p>The name "JavaScript" is actually somewhat misleading. <span>Except</span> for a superficial syntactic resemblance, JavaScript is completely different from the Java programming language. And JavaScript has long since outgrown its scripting-language roots to become a robust and efficient general-purpose language. The latest version of the language (see the sidebar) defines new features for serious large-scale software development.</p>
</div>

<script>

function highlightSearch() {
    var text = document.getElementById("query").value;
    var query = new RegExp("(\\b" + text + "\\b)", "gim");
    var e = document.getElementById("searchtext").innerHTML;
    var enew = e.replace(/(<span>|</span>)/igm, "");
}
```

```

document.getElementById("searchtext").innerHTML = enew;
var newe = enew.replace(query, "<span>$1</span>");
document.getElementById("searchtext").innerHTML = newe;

}

</script>

<style>

#searchtext span{
    background-color:#FF9;
    color:#555;
}

div {
    padding: 10px;
}

</style>

```

\*\*\*\*\*

## Android loan calculator

### MainActivity.java

```

import android.os.Bundle;
import android.support.v7.app.AppCompatActivity;
import java.text.DecimalFormat;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {

    private EditText mLoanAmount, mInterestRate, mLoanPeriod;
    private TextView mMontlyPaymentResult, mTotalPaymentsResult;

    /** Initializes the app when it is first created. */
    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        mLoanAmount = (EditText)findViewById(R.id.loan_amount);
        mInterestRate = (EditText)findViewById(R.id.interest_rate);
        mLoanPeriod = (EditText)findViewById(R.id.loan_period);
        mMontlyPaymentResult = (TextView)findViewById(R.id.monthly_payment_result);
        mTotalPaymentsResult = (TextView)findViewById(R.id.total_payments_result);
    }

    public void showLoanPayments(View clickedButton) {

        double loanAmount = Integer.parseInt(mLoanAmount.getText().toString());
        double interestRate = (Integer.parseInt(mInterestRate.getText().toString()));

```

```

        double loanPeriod = Integer.parseInt(mLoanPeriod.getText().toString());
        double r = interestRate/1200;
        double r1 = Math.pow(r+1,loanPeriod);

        double monthlyPayment = (double) ((r+(r/(r1-1))) * loanAmount);
        double totalPayment = monthlyPayment * loanPeriod;

        mMonthlyPaymentResult.setText(new DecimalFormat("##.###").format(monthlyPayment));
        mTotalPaymentsResult.setText(new DecimalFormat("##.###").format(totalPayment));
    }
}

```

### activity\_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:stretchColumns="1"
    android:shrinkColumns="1">
    <TableRow>
        <TextView android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/loan_amount_prompt"
            android:gravity="right"/>
        <EditText android:id="@+id/loan_amount"
            android:inputType="numberDecimal"
            android:layout_height="wrap_content">
            <requestFocus></requestFocus>
        </EditText>
    </TableRow>
    <TableRow>
        <TextView android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/interest_rate_prompt"
            android:gravity="right"/>
        <EditText android:id="@+id/interest_rate"
            android:inputType="numberDecimal"
            android:layout_height="wrap_content"/>
    </TableRow>
    <TableRow>
        <TextView android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/loan_period_prompt"
            android:gravity="right"/>
        <EditText android:id="@+id/loan_period"
            android:inputType="number"
            android:layout_height="wrap_content"/>
    </TableRow>
    <TableRow>
        <Button android:text="@string/loan_button_text"
            android:layout_span="2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:onClick="showLoanPayments"/>
    </TableRow>
    <TableRow android:layout_marginTop="20dp">
        <TextView android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/monthly_payment_prompt"
            android:gravity="right"/>
        <TextView android:id="@+id/monthly_payment_result"

```

```

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="#ff0000"
        android:gravity="left"/>
    
```

```
</TableRow>
```

```
strings.xml
```

```

<resources>
    <string name="hello_world">Hello world!</string>
    <string name="menu_settings">Settings</string>
    <string name="loan_amount_prompt">Loan amount:&#160;&#160;</string>
    <string name="interest_rate_prompt">Interest rate:&#160;&#160;</string>
    <string name="loan_period_prompt">Months:&#160;&#160;</string>
    <string name="loan_button_text">Calculate Payments</string>
    <string name="monthly_payment_prompt">Monthly payment:&#160;&#160;</string>
    <string name="total_payments_prompt">Total payments:&#160;&#160;</string>

```

```
</resources>
```

```
*****
```

## Autotyping of 2 text lines

```

<script>

TypingText = function(element, interval, cursor, finishedCallback) {
    if((typeof document.getElementById == "undefined") || (typeof element.innerHTML ==
"undefined")) {
        this.running = true;           // Never run.
        return;
    }
    this.element = element;
    this.finishedCallback = (finishedCallback ? finishedCallback : function() { return; });
    this.interval = (typeof interval == "undefined" ? 100 : interval);
    this.origText = this.element.innerHTML;
    this.unparsedOrigText = this.origText;
    this.cursor = (cursor ? cursor : "");
    this.currentText = "";
    this.currentChar = 0;
    this.element.typingText = this;
    if(this.element.id == "") this.element.id = "typingtext" + TypingText.currentIndex++;
    TypingText.all.push(this);
    this.running = false;
    this.inTag = false;
    this.tagBuffer = "";
    this.inHTMLEntity = false;
    this.HTMLEntityBuffer = "";
}
TypingText.all = new Array();

```

```

TypingText.currentIndex = 0;
TypingText.runAll = function() {
    for(var i = 0; i < TypingText.all.length; i++) TypingText.all[i].run();
}
TypingText.prototype.run = function() {
    if(this.running) return;
    if(typeof this.origText == "undefined") {
        setTimeout("document.getElementById('" + this.element.id + "').typingText.run()", this.interval); // We haven't finished loading yet. Have patience.
        return;
    }
    if(this.currentText == "") this.element.innerHTML = "";
    // this.origText = this.origText.replace(/<([<>])*>/, ""); // Strip HTML from text.
    if(this.currentChar < this.origText.length) {
        if(this.origText.charAt(this.currentChar) == "<" && !this.inTag) {
            this.tagBuffer = "<";
            this.inTag = true;
            this.currentChar++;
            this.run();
            return;
        } else if(this.origText.charAt(this.currentChar) == ">" && this.inTag) {
            this.tagBuffer += ">";
            this.inTag = false;
            this.currentText += this.tagBuffer;
            this.currentChar++;
            this.run();
            return;
        } else if(this.inTag) {
            this.tagBuffer += this.origText.charAt(this.currentChar);
            this.currentChar++;
            this.run();
            return;
        } else if(this.origText.charAt(this.currentChar) == "&" && !this.inHTMLEntity) {
            this.HTMLEntityBuffer = "&";
            this.inHTMLEntity = true;
            this.currentChar++;
            this.run();
            return;
        } else if(this.origText.charAt(this.currentChar) == ";" && this.inHTMLEntity) {
            this.HTMLEntityBuffer += ";";
            this.inHTMLEntity = false;
            this.currentText += this.HTMLEntityBuffer;
            this.currentChar++;
            this.run();
            return;
        } else if(this.inHTMLEntity) {
            this.HTMLEntityBuffer += this.origText.charAt(this.currentChar);
            this.currentChar++;
            this.run();
            return;
        } else {
            this.currentText += this.origText.charAt(this.currentChar);
        }
        this.element.innerHTML = this.currentText;
        this.element.innerHTML += (this.currentChar < this.origText.length - 1 ? (typeof this.cursor == "function" ? this.cursor(this.currentText) : this.cursor) : "");
        this.currentChar++;
        setTimeout("document.getElementById('" + this.element.id + "').typingText.run()", this.interval);
    } else {
        this.currentText = "";
        this.currentChar = 0;
        this.running = false;
        this.finishedCallback();
    }
}

```

```

</script>



Thanks for visiting Google.com!  
Wow, HTML gets properly typed out too!</div>



This text has a slashing cursor at the end. <br />And this is on a new line, thanks to the <br> tag.</p>



<script type="text/javascript">
//Define first typing example:
new TypingText(document.getElementById("example1"));

//Define second typing example (use "slashing" cursor at the end):
new TypingText(document.getElementById("example2"), 100, function(i){ var ar = new Array("\\", "|", "/", "-"); return " " + ar[i.length % ar.length]; });

//Type out examples:
TypingText.runAll();
</script>


```

\*\*\*\*\*

## CSS3 Text Animation Effect

```

<div class="container">
    <div class="header">
        <div class="clr"></div>
    </div>
    <div class="sp-container">
        <div class="sp-content">
            <div class="sp-globe"></div>
            <h2 class="frame-1">It's destroying the planet</h2>
            <h2 class="frame-2">It's mass, mechanized murder</h2>
            <h2 class="frame-3">You can stop it</h2>
            <h2 class="frame-4">Now!</h2>
            <h2 class="frame-5"><span>Save the planet.</span> <span>Love life.</span> <span>Go vegan.</span></h2>
            <a class="sp-circle-link" href="#">Join us!</a>
        </div>
    </div>
</div>

<script type="text/javascript" src="/path/to/shared/js/EventHelpers.js">
</script>
<script type="text/javascript" src="/path/to/shared/js/cssQuery-p.js">
</script>
<script type="text/javascript" src="/path/to/shared/js/jcoglan.com/sylvester.js">
</script>
<script type="text/javascript" src="/path/to/shared/js/cssSandpaper.js">
</script>

<style>
@font-face {
    font-family: 'Electrolize';
    font-style: normal;
    font-weight: 400;

```

---

```

src: local('Electrolize'), local('Electrolize-Regular'),
url(http://themes.googleusercontent.com/static/fonts/electrolize/v2/DDy9sgU2U7S4xAwH5thnJ4bN6UDyH
WB1620a-IRfuBk.woff) format('woff');
}

body {
background: #310404 url(http://web-sonick.zz.mu/images/s1/red_texture.jpg) repeat top left;
font-family: 'Electrolize';
}

.container{
width: 100%;
position: relative;
overflow:hidden;
}

a {
text-decoration:none;
}

h1.main,p.demos {
-webkit-animation-delay: 18s;
-moz-animation-delay: 18s;
-ms-animation-delay: 18s;
animation-delay: 18s;
}
.sp-container {
position: fixed;
top: 0px;
left: 0px;
width: 100%;
height: 100%;
z-index: 0;
background: -webkit-radial-gradient(rgba(0, 0, 0, 0.1), rgba(0, 0, 0, 0.3) 35%, rgba(0, 0, 0,
0.7));
background: -moz-radial-gradient(rgba(0, 0, 0, 0.1), rgba(0, 0, 0, 0.3) 35%, rgba(0, 0, 0,
0.7));
background: -ms-radial-gradient(rgba(0, 0, 0, 0.1), rgba(0, 0, 0, 0.3) 35%, rgba(0, 0, 0, 0.7));
background: radial-gradient(rgba(0, 0, 0, 0.1), rgba(0, 0, 0, 0.3) 35%, rgba(0, 0, 0, 0.7));
}
.sp-content {
position: absolute;
width: 100%;
height: 100%;
left: 0px;
top: 0px;
z-index: 1000;
}
.sp-container h2 {
position: absolute;
top: 50%;
line-height: 100px;
height: 90px;
margin-top: -50px;
font-size: 90px;
width: 100%;
text-align: center;
color: transparent;
-webkit-animation: blurFadeInOut 3s ease-in backwards;
-moz-animation: blurFadeInOut 3s ease-in backwards;
-ms-animation: blurFadeInOut 3s ease-in backwards;
animation: blurFadeInOut 3s ease-in backwards;
}
.sp-container h2.frame-1 {
-webkit-animation-delay: 0s;
-moz-animation-delay: 0s;

```

```

-ms-animation-delay: 0s;
animation-delay: 0s;
}
.sp-container h2.frame-2 {
-webkit-animation-delay: 3s;
-moz-animation-delay: 3s;
-ms-animation-delay: 3s;
animation-delay: 3s;
}
.sp-container h2.frame-3 {
-webkit-animation-delay: 6s;
-moz-animation-delay: 6s;
-ms-animation-delay: 6s;
animation-delay: 6s;
}
.sp-container h2.frame-4 {
font-size: 200px;
-webkit-animation-delay: 9s;
-moz-animation-delay: 9s;
-ms-animation-delay: 9s;
animation-delay: 9s;
}
.sp-container h2.frame-5 {
-webkit-animation: none;
-moz-animation: none;
-ms-animation: none;
animation: none;
color: transparent;
text-shadow: 0px 0px 1px #fff;
}
.sp-container h2.frame-5 span {
-webkit-animation: blurFadeIn 3s ease-in 12s backwards;
-moz-animation: blurFadeIn 1s ease-in 12s backwards;
-ms-animation: blurFadeIn 3s ease-in 12s backwards;
animation: blurFadeIn 3s ease-in 12s backwards;
color: transparent;
text-shadow: 0px 0px 1px #fff;
}
.sp-container h2.frame-5 span:nth-child(2) {
-webkit-animation-delay: 13s;
-moz-animation-delay: 13s;
-ms-animation-delay: 13s;
animation-delay: 13s;
}
.sp-container h2.frame-5 span:nth-child(3) {
-webkit-animation-delay: 14s;
-moz-animation-delay: 14s;
-ms-animation-delay: 14s;
animation-delay: 14s;
}
.sp-globe {
position: absolute;
width: 282px;
height: 273px;
left: 50%;
top: 50%;
margin: -137px 0 0 -141px;
background: transparent url(http://web-sonick.zz.mu/images/s1/globe.png) no-repeat top left;
-webkit-animation: fadeInBack 3.6s linear 14s backwards;
-moz-animation: fadeInBack 3.6s linear 14s backwards;
-ms-animation: fadeInBack 3.6s linear 14s backwards;
animation: fadeInBack 3.6s linear 14s backwards;
-ms-filter: "progid:DXImageTransform.Microsoft.Alpha(Opacity=30)";
filter: alpha(opacity=30);
opacity: 0.3;
-webkit-transform: scale(5);
}

```

```

-moz-transform: scale(5);
-o-transform: scale(5);
-ms-transform: scale(5);
transform: scale(5);
}
.sp-circle-link {
position: absolute;
left: 50%;
bottom: 100px;
margin-left: -50px;
text-align: center;
line-height: 100px;
width: 100px;
height: 100px;
background: #ffff;
color: #3f1616;
font-size: 25px;
-webkit-border-radius: 50%;
-moz-border-radius: 50%;
border-radius: 50%;
-webkit-animation: fadeInRotate 1s linear 16s backwards;
-moz-animation: fadeInRotate 1s linear 16s backwards;
-ms-animation: fadeInRotate 1s linear 16s backwards;
animation: fadeInRotate 1s linear 16s backwards;
-webkit-transform: scale(1) rotate(0deg);
-moz-transform: scale(1) rotate(0deg);
-o-transform: scale(1) rotate(0deg);
-ms-transform: scale(1) rotate(0deg);
transform: scale(1) rotate(0deg);
}
.sp-circle-link:hover {
background: #85373b;
color: #fff;
}
/**/
@-webkit-keyframes blurFadeInOut{
0%{
opacity: 0;
text-shadow: 0px 0px 40px #fff;
-webkit-transform: scale(1.3);
}
20%,75%{
opacity: 1;
text-shadow: 0px 0px 1px #fff;
-webkit-transform: scale(1);
}
100%{
opacity: 0;
text-shadow: 0px 0px 50px #fff;
-webkit-transform: scale(0);
}
}
@-webkit-keyframes blurFadeIn{
0%{
opacity: 0;
text-shadow: 0px 0px 40px #fff;
-webkit-transform: scale(1.3);
}
50%{
opacity: 0.5;
text-shadow: 0px 0px 10px #fff;
-webkit-transform: scale(1.1);
}
100%{
opacity: 1;
text-shadow: 0px 0px 1px #fff;
}
}

```

```

        -webkit-transform: scale(1);
    }
}
@webkit-keyframes fadeInBack{
0%{
    opacity: 0;
    -webkit-transform: scale(0);
}
50%{
    opacity: 0.4;
    -webkit-transform: scale(2);
}
100%{
    opacity: 0.2;
    -webkit-transform: scale(5);
}
}
@webkit-keyframes fadeInRotate{
0%{
    opacity: 0;
    -webkit-transform: scale(0) rotate(360deg);
}
100%{
    opacity: 1;
    -webkit-transform: scale(1) rotate(0deg);
}
}
/**/
@-moz-keyframes blurFadeInOut{
0%{
    opacity: 0;
    text-shadow: 0px 0px 40px #ffff;
    -moz-transform: scale(1.3);
}
20%,75%{
    opacity: 1;
    text-shadow: 0px 0px 1px #ffff;
    -moz-transform: scale(1);
}
100%{
    opacity: 0;
    text-shadow: 0px 0px 50px #ffff;
    -moz-transform: scale(0);
}
}
@-moz-keyframes blurFadeIn{
0%{
    opacity: 0;
    text-shadow: 0px 0px 40px #ffff;
    -moz-transform: scale(1.3);
}
100%{
    opacity: 1;
    text-shadow: 0px 0px 1px #ffff;
    -moz-transform: scale(1);
}
}
@-moz-keyframes fadeInBack{
0%{
    opacity: 0;
    -moz-transform: scale(0);
}
50%{
    opacity: 0.4;
    -moz-transform: scale(2);
}
}
```

```

100%{
  opacity: 0.2;
  -moz-transform: scale(5);
}
@-moz-keyframes fadeInRotate{
  0%{
    opacity: 0;
    -moz-transform: scale(0) rotate(360deg);
  }
  100%{
    opacity: 1;
    -moz-transform: scale(1) rotate(0deg);
  }
}
/**/
@keyframes blurFadeInOut{
  0%{
    opacity: 0;
    text-shadow: 0px 0px 40px #ffff;
    transform: scale(1.3);
  }
  20%,75%{
    opacity: 1;
    text-shadow: 0px 0px 1px #fff;
    transform: scale(1);
  }
  100%{
    opacity: 0;
    text-shadow: 0px 0px 50px #ffff;
    transform: scale(0);
  }
}
@keyframes blurFadeIn{
  0%{
    opacity: 0;
    text-shadow: 0px 0px 40px #ffff;
    transform: scale(1.3);
  }
  50%{
    opacity: 0.5;
    text-shadow: 0px 0px 10px #fff;
    transform: scale(1.1);
  }
  100%{
    opacity: 1;
    text-shadow: 0px 0px 1px #fff;
    transform: scale(1);
  }
}
@keyframes fadeInBack{
  0%{
    opacity: 0;
    transform: scale(0);
  }
  50%{
    opacity: 0.4;
    transform: scale(2);
  }
  100%{
    opacity: 0.2;
    transform: scale(5);
  }
}
@keyframes fadeInRotate{
  0%{

```

```

        opacity: 0;
        transform: scale(0) rotate(360deg);
    }
    100%{
        opacity: 1;
        transform: scale(1) rotate(0deg);
    }
}
</style>

```

---

\*\*\*\*\*

## Simple Image Animation

```

<marquee><left> </left></marquee>
```

---

## Some commonly used HTML Entities

Entity	Description	Name	Number
	non-breaking space	&nbsp;	&#160;
<	less than	&lt;	&#60;
>	greater than	&gt;	&#62;
&	ampersand	&amp;	&#38;
"	quotation mark	&quot;	&#34;
¢	cent	&cent;	&#162;
£	pound	&pound;	&#163;
¥	yen	&yen;	&#165;
€	euro	&euro;	&#8364;
§	section	&sect;	&#167;
©	copyright	&copy;	&#169;
®	registered trademark	&reg;	&#174;
×	multiplication	&times;	&#215;
÷	division	&divide;	&#247;

---

```
*****
```

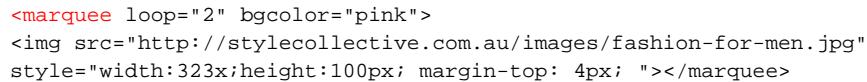
## Table with weblinks

```
<table border="1">
  <tr>
    <td>Name</td>
    <td>Age</td>
  </tr>
  <tr>
    <td>Mr. A</td>
    <td><a href="http://www.google.com/html/">Visit our website</a></td>
  </tr>
  <tr>
    <td>Mr. B</td>
    <td>20 Years</td>
  </tr>
  <tr>
    <td>Mr. Z</td>
    <td>60 Years</td>
  </tr>
</table>
```

```
*****
```

## LOOP BAR image animation

1.

```
<marquee loop="2" bgcolor="pink">

</marquee>
```

2.

```
<marquee bgcolor="pink" direction="up" width="250">
</marquee>
```

```
*****
```

## Scrolling of text

1. scrolling of text in one direction

```
<marquee> <p><font size="5" face="calibri" color="black" > <div style="margin-top: 19px"> Where
Mc 2 = total energy </div> </font> </p> </marquee>
```

2. scrolling of text in both directions

```
<marquee behavior="alternate"> <p><font size="5" face="calibri" color="black" > <div style="margin-top: 19px"> Where  $M_C$   $^2$  = total energy </div> </font> </p></marquee>
```

```
*****
```

## Image Zoom

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8" >
<style>
.pic{
 width:509px;
 height:509px;
}
.picbig{
 position: absolute;
 width:0px;
 -webkit-transition:width 0.3s linear 0s;
 transition:width 0.3s linear 0s;
 z-index:10;
}
.pic:hover + .picbig{
 width:500px;
}
</style>
</head>
<body>
![Adam](http://static0.therichestimages.com/cdn/1728/905/100/c/wp-content/uploads/2016/01/2016-fashion-trends.jpg)
![Adam](http://static0.therichestimages.com/cdn/1728/905/100/c/wp-content/uploads/2016/01/2016-fashion-trends.jpg)

```

```
</body>
</html>
```

```
*****
```

## Shrink Image on Hover

```
<!DOCTYPE html> <html> <head> <style type="text/css"> .zoomout img { height: 300px; width: 300px; -webkit-transition: all 2s ease; -moz-transition: all 2s ease; -ms-transition: all 2s ease; transition: all 2s ease; } .zoomout img:hover { width: 200px; height: 200px; } </style>
</head> <body> <div class="zoomout">  </div> </body>
```

```
*****
```

## Image Scale on Hover

```
<style>
```

---

```

*, *::before, *::after{
    -moz-box-sizing: border-box;
        box-sizing: border-box;

    -webkit-transition: all 0.3s ease-in-out;
        transition: all 0.3s ease-in-out;
}

html, body{
    margin: 0px;
    padding: 0px;
    font-family: 'Lato', sans-serif;
    font-size: 18px;
    font-weight: 300;
    height: 100%;
    color: #fff;
}

.container{
    width: 1024px;
    max-width: 100%;
    margin: auto;
    display: block;
    text-align: center;
}

.hero{
    width: 100%;
    height: 40%;
    background: #3498db;
    display: table;
}

h1{
    color: #2c3e50;
    text-align: center;
    margin: 0;
    padding: 0;
    display: table-cell;
    vertical-align: middle;
    text-align: center;
    color: #fff;
    font-weight: 300;
}

figure{
    width: 400px;
    height: 300px;
    overflow: hidden;
    position: relative;
    display: inline-block;
    vertical-align: top;
    border: 5px solid #fff;
    box-shadow: 0 0 5px #ddd;
    margin: 1em;
}

figcaption{
    position: absolute;
    left: 0; right: 0;
    top: 0; bottom: 0;
    text-align: center;
    font-weight: bold;
    width: 100%;
    height: 100%;
    display: table;
}

```

```

}

figcaption div{
  display: table-cell;
  vertical-align: middle;
  position: relative;
  top: 20px;
  opacity: 0;
  color: #2c3e50;
  text-transform: uppercase;
}

figcaption div:after{
  position: absolute;
  content: "";
  left: 0; right: 0;
  bottom: 40%;
  text-align: center;
  margin: auto;
  width: 0%;
  height: 2px;
  background: #2c3e50;
}

figure img{
  -webkit-transition: all 0.5s linear;
             transition: all 0.5s linear;
  -webkit-transform: scale3d(1, 1, 1);
             transform: scale3d(1, 1, 1);
}

figure:hover figcaption{
  background: rgba(255,255,255,0.3);
}

figcaption:hover div{
  opacity: 1;
  top: 0;
}

figcaption:hover div:after{
  width: 50%;
}

figure:hover img{
  -webkit-transform: scale3d(1.2, 1.2, 1);
             transform: scale3d(1.2, 1.2, 1);
}

/*font-face*/
@font-face {
  font-family: 'Lato';
  font-style: normal;
  font-weight: 100;
  src: local('Lato Hairline'), local('Lato-Hairline'),
url(http://themes.googleusercontent.com/static/fonts/lato/v6/boeCNmOCCh-EWFLSfVffDg.woff)
format('woff');
}

@font-face {
  font-family: 'Lato';
  font-style: normal;
  font-weight: 300;
}

```

```

src: local('Lato Light'), local('Lato-Light'),
url(http://themes.googleusercontent.com/static/fonts/lato/v6/KT3KS9Aol4WfR6Vas8kNcg.woff)
format('woff');
}
@font-face {
  font-family: 'Lato';
  font-style: normal;
  font-weight: 400;
  src: local('Lato Regular'), local('Lato-Regular'),
url(http://themes.googleusercontent.com/static/fonts/lato/v6/9k-RPmcnxYEPm8CNFsH2gg.woff)
format('woff');
}

@font-face {
  font-family: 'Lato';
  font-style: normal;
  font-weight: 700;
  src: local('Lato Bold'), local('Lato-Bold'),
url(http://themes.googleusercontent.com/static/fonts/lato/v6/wkfQbvfT_02e2IW03yYueQ.woff)
format('woff');
}

</style>

<div class="hero">
  <h1>Image Scale <strong>on Hover</strong> </h1>
</div>

<div class="container">
  <figure>
    
    <figcaption><div>Thumbnail Caption</div></figcation>
  </figure>
</div>

```

\*\*\*\*\*

## Zoom in and out button

```

<body runat="server" id="Body" style="zoom: 100%">
</body>
<script>
  var fontSize = 1;
  function zoomIn() {
    fontSize += 0.1;
    document.body.style.fontSize = fontSize + "em";
  }
  function zoomOut() {
    fontSize -= 0.1;
    document.body.style.fontSize = fontSize + "em";
  }
</script>

<input type="button" value="+" onClick="zoomIn()"/>
<input type="button" value="-" onClick="zoomOut()"/>

```

\*\*\*\*\*

---

## Spell Checker

```
<script type='text/javascript' src='/JavaScriptSpellCheck/include.js' ></script>
<script type='text/javascript'>$Spelling.SpellCheckAsYouType('myTextArea')</script>

<textarea name="myTextArea" id="myTextArea" cols="30" rows="4" style =
'width:500px;height:200px;margin-bottom:20px'>
  This this is a simple example of Spell-checking As-You-Type using javascript spellcheck.
  It works in almost any browser, and supports upto 24 international languages.
  The button below shows an alternative way to spellcheck using javascript spellcheck - using a
  dialog window!

</textarea>

<input type="button" value="Spell Check in a Dialog"
onclick="$Spelling.SpellCheckInWindow('myTextArea')" />

*****
```

### Total cost of the item (sales tax + discount)

```
<script type="text/javascript">
//<![CDATA[
<!--
function calculate()
{
var itemPrice = document.purchaseData.price.value;
var discountRate = document.purchaseData.pDiscount.value;
var taxRate = document.purchaseData.pSalesTax.value;

var discount = Math.round((itemPrice * discountRate / 100.0) * 100)/100;
var discountPrice = itemPrice - discount;
var tax = Math.round((discountPrice * taxRate / 100.0) * 100)/100;
var total = Math.round((discountPrice + tax) * 100)/100;

document.purchaseData.discount.value = " " + discount;
document.purchaseData.salesTax.value = " " + tax;
document.purchaseData.cost.value = " " + total;

}
// -->
//]]>
</script>
</head>
<body style="background-color:#FFFFFF">
<blockquote>
<h1>
Find The Total Cost
</h1>
<form name="purchaseData"
id="purchaseData">
<table width="100%" border="0"
cellpadding="8">
```

---



---

```

<tr>
<td style="text-align:left">
<p>Item Price</p>
<p>
<input type="text"
name="price"
size="20"
maxlength="25" />
</p>
</td>
</tr>
<tr>
<td style="text-align:left">
<p>Percent Discount</p>
<p>
<input type="text"
name="pDiscount"
size="20"
maxlength="25"
value="0" />
</p>
</td>
</tr>
<tr>
<td style="text-align:left">
<p>Percent Sale Tax</p>
<p>
<input type="text"
name="pSalesTax"
size="20"
maxlength="25"
value="6" />
</p>
</td>
</tr>
<tr>
<td style="text-align:left">
<input type="button"
value="Compute"
onclick="calculate(); " />
</td>
</tr>
<tr>
<td style="text-align:left">
<p>Amount of Discount</p>
<p>
<input type="text"
name="discount"
size="20"
maxlength="25" />
</p>
</td>
</tr>
<tr>
<td style="text-align:left">
<p>Sales Tax</p>
<p>
<input type="text"

```

```

name="salesTax"
size="20"
maxlength="25" />
</p>
</td>
</tr>
<tr>
<td style="text-align:left">
<p>Total Cost</p>
<p>
<input type="text"
name="cost"
size="20"
maxlength="25" />
</p>
</td>
</tr>
</table>
</form>
</blockquote>
</body>
</html>

```

\*\*\*\*\*

## Sliding up and down of text on image button click

```

<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<title>jQuery slideToggle Effect</title>
<style type="text/css">
.box{
    width: 400px;
    background: #f0e68c;
    border: 1px solid #a29415;
}
.box-inner{
    padding: 10px;
}
</style>
<script type="text/javascript" src="http://code.jquery.com/jquery.min.js"></script>
<script type="text/javascript">
$(document).ready(function(){
    $(".slide-toggle").click(function(){
        $(".box").slideToggle();
    });
});
</script>
</head>
<body>
    <button type="button" class="slide-toggle">

<center> </center></button>

```

---

```

<hr>
<div class="box">
    <div class="box-inner">Lorem ipsum dolor sit amet...einstein e=mc2</div>
</div>
</body>
</html>

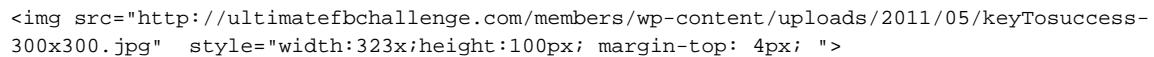
```

\*\*\*\*\*

## Login form without using my sql

```

<script language="javascript">
<!--/
/*This Script allows people to enter by using a form that asks for a
UserID and Password*/
function pasuser(form) {
if (form.id.value=="JavaScript") {
if (form.pass.value=="Kit") {
location="page2.html"
} else {
alert("Invalid Password")
}
} else { alert("Invalid UserID")
}
}
//-->
</script>

<center>
<table bgcolor="white" cellpadding="12" border="1">
<tr><td colspan="2"><center><h1>
</h1></center></td></tr>
<tr><td><b>UserID:</b></td><td><form name="login"><input
name="id" type="text"></td></tr>
<tr><td><b>Password:</b></td><td><input name="pass"
type="password"></td></tr>
<tr><td><center><input type="button" value="Login"
onClick="pasuser(this.form)"></center></td><td><center><br><input
type="Reset"></td></tr></table></center>

```

\*\*\*\*\*

## PHP (Hypertext Preprocessor)

---

---

PHP / Hypertext Preprocessor (designed by an Greenlandic-Danish programmer “Rasmus Lerdorf” in 1994- as an efficient alternative to other scripting languages like Ruby, Perl and Microsoft’s ASP) is an relatively free (not licensed by a major corporation) popular efficient server side programming language (and relatively easy one to master and quick to learn) that carries out common website duties like accepting passwords, authenticating users, and managing forum posts and guest books.

**A simple PHP program to print the word “Hello World!” on screen:**

```
<?php  
echo "Hello World!";  
?>
```

In the above example,

```
<?php
```

and ?> denote opening and closing tags within which the execution of php codes takes place.

echo "Hello World!"; → denote the statement that makes provision to print the output:

```
Hello World!
```

on the screen.

Even If you replace the statement

```
echo "Hello World!";
```

by the statement

```
print "Hello World!";
```

i.e.,

```
<?php  
print "Hello World!";  
?>
```

There will be no change in the output on the screen (i.e., echo and print are more or less the same. They are both used to output data to the console screen).

If replace the opening tag <?php by <?

Then the output on the screen is:

```
<?  
print "Hello World!";  
?>
```

i.e., the entire program will be reflected on the console screen.

---

---

Even if you write the statement

```
print ( "Hello World!");
```

instead of the statement

```
print "Hello World!";
```

There will be no change in the output on the screen.

**Note:** Even if you omit the closing tag

?>

in the above program. There will be no change in the output on the screen. But sometimes it reflects error. So omission of ?> is discouraged.

Program 1.1

(a)

```
<?php  
echo "Hello World!";  
echo "Hello World!";  
?>
```

**Output on the screen:**

Hello World!Hello World!

(b)

```
<?php  
echo "\n Hello World!";  
echo "\n Hello World!";  
?>
```

**Output on the screen:**

Hello World!  
Hello World!

(c)

```
<?php  
echo "Hello World!";  
echo "\t Hello World!";  
?>
```

---

**Output on the screen:**

Hello World! Hello World!

Program 1.2

PHP program to add two numbers:

```
<?php  
$num1 =1;  
$num2=5;  
$sum = $num1 + $num2;  
echo "Sum of the two numbers is : $sum";  
?>
```

**Output on the screen:**

Sum of the two numbers is : 6

The statements

```
$num1 =1;  
$num2=5;
```

```
$sum = $num1 + $num2;
```

imply: that we are creating the variables \$num1, \$num2 and \$sum and assigning them values 1, 5 and \$num1 + \$num2.

The statement

```
echo "Sum of the two numbers is : $sum";
```

make provision to print the output:

Sum of the two numbers is : 6 (which is 1+5)

on the screen.

**Note:**

Suppose if you omit the leading \$ symbol before a variable name (whose purpose is to make it clear that the word following the symbol \$ is a variable and not something else, like a function name or a constant or a keyword i.e., the symbol \$ distinguishes variables from other things) in the above program i.e., if you rewrite the above program as:

```
<?php  
num1 =1;  
num2=5;  
sum = num1 + num2;  
echo "Sum of the two numbers is : sum";  
?>
```

Then

```
PHP Parse error: syntax error, unexpected '='
```

---

---

will be displayed on the console screen.

### Program 1.3

Javascript program to subtract two numbers:

```
<?php  
$num1 =5;  
$num2=1;  
$sub = $num1 - $num2;  
echo "difference of the two numbers is : $sub";  
?>
```

#### **Output on the screen:**

difference of the two numbers is : 4

### Program 1.4

PHP program to divide two numbers:

```
<?php  
$num1 =6;  
$num2=2;  
$div = $num1 / $num2;  
echo "the division of two numbers is : $div";  
?>
```

#### **Output on the screen:**

the division of two numbers is : 3

### Program 1.5

PHP program to multiply two numbers:

```
<?php  
$num1 =6;  
$num2=2;  
$mult = $num1 * $num2;  
echo "the product of two numbers is : $mult";  
?>
```

#### **Output on the screen:**

the product of two numbers is : 12

### Program 1.5

PHP program to find the area of a circle

---

```
<?php  
  
$radius = 2.0;  
$pi = 3.14159;  
$area = $pi * $radius * $radius;  
echo("\n radius = $radius centimeter");  
echo("\n area = $area centimeter square");  
?>
```

**Output on the screen:**

```
radius = 2 centimeter  
area = 12.56636 centimeter square
```

**Program 1.6**

PHP program to find the square root of a number

```
<?php  
$num1 = 4.0;  
$num2 = sqrt($num1);  
echo("The square root of a number = $num2");  
?>
```

**Output on the screen:**

```
The square root of a number = 2
```

**Program 1.7**

PHP program to find the square of a number

```
<?php  
$num1 = 2.0;  
$num2 = $num1 * $num1;  
echo("\n the square of a number = $num2");  
?>
```

**Output on the screen:**

```
the square of a number = 4
```

If the statement

```
$num2 = $num1 * $num1;
```

is replaced by

```
$num2 = pow(($num1), 2);
```

i.e., if the above program is rewritten as:

```
<?php
```

```
$num1 = 2.0;  
$num2 = pow(($num1), 2);
```

---

```
echo("\n the square of a number = $num2");
?>
```

Then there will be no change in the output on the screen i.e.,  
the square of a number = 4 will be outputted on the screen.

Which means:

```
$num2 = pow(($num1), 2); is the same as $num2 = $num1 * $num1;
```

#### Program 1.8

PHP program to find the cube root of a number

```
<?php
$num1 = 6.0;
$num2 = pow(($num1), 1/3);
echo("\n the cube root of a number = $num2");
?>
```

**Output on the screen:**

```
the cube root of a number = 1.8171205928321
```

#### Program 1.9

PHP program to round off a number

```
<?php
$num1 = 4.5;
$num2 = round ($num1);
echo("\n the round off of a number = $num2");
?>
```

**Output on the screen:**

```
the round off of a number = 5
```

#### Program 2.0

PHP program to find the incremented and decremented values of two numbers.

```
<?php
$num1 =2;
$num2=3;
$num3 = $num1 +1;
$num4 = $num1 - 1;
```

---

```
$num5 = $num2 +1;  
$num6 = $num2 - 1;  
  
echo ("\\n The incremented value of $num1 = $num3 ");  
echo ("\\n The decremented value of $num1 = $num4 ");  
  
echo ("\\n The incremented value of $num2 = $num5 ");  
echo ("\\n The decremented value of $num2 = $num6 ");  
  
?>
```

**Output on the screen:**

```
The incremented value of 2 = 3  
The decremented value of 2 = 1  
The incremented value of 3 = 4  
The decremented value of 3 = 2
```

**Program 2.0**

PHP program to find the greatest of two numbers using if – else statement

The syntax of if – else statement is:

```
if (this condition is true)  
{  
print this statement;  
}  
else  
{  
print this statement;  
}
```

```
<?php  
  
$x = 4.5;  
  
$y=5;  
  
if($x>$y){  
  
echo (" x is greater than y");  
  
} else {  
  
echo (" y is greater than x");  
  
}
```

---

---

```
?>
```

**Output on the screen:**

```
y is greater than x
```

**Note:** if the above program is rewritten as:

```
<?php  
$x = 4.5;  
$y=5;  
if($x>$y){  
echo (" $x is greater than $y");  
}  
else {  
echo (" $y is greater than $x");  
}  
?  
>
```

**Then the output on the screen:**

```
5 is greater than 4.5
```

**Program 2.1**

PHP program to find the greatest of three numbers using if –else if – else statement

The syntax of if –else if – else statement is:

```
if (this condition is true)  
{  
print this statement;  
}  
else if(this condition is true)  
{  
print this statement;  
}  
else  
{  
print this statement;  
}
```

---

```
<?php
$x = 4.5;
$y=5;
$z=6;
if($x>$y && $x>z){
echo (" $x is greater than $y and $z");
} else if ($y>$z && $y>x){
echo (" $y is greater than $x and $z");
}
else
{
echo (" $z is greater than $x and $y");
}
?>
```

**Output on the screen:**

6 is greater than 4.5 and 5

**Program 2.2**  
PHP program to print the first ten natural numbers using for loop statement

```
<?php
for ($i=1; $i<=10; $i++)
echo (" \n $i");
?>
```

**Output on the screen:**

1  
2  
3  
4  
5  
6

---

7  
8  
9  
10

for (\$i=1; \$i<=10; \$i++) denote the for loop statement for PHP and the syntax of the for loop statement is:  
for (initialization; condition; increment)

Here:

\$i=1 denote initialization (i.e., from where to start)

\$i<=10 denote the condition (i.e., stop when the number 10 is reached)

\$i++ imply increment (which tells the value of \$i to increase by 1 each time the loop is executed) and \$i++ is the same as \$i+1.

Since the initialization i.e., \$i=1

The statement

```
echo (" \n $i");
```

make provision to print the output:

1

on the screen.

After this, the following execution takes place:

value of \$i

\$i= 1

Is the condition (\$i<=10) is true?

Yes because \$i=1

Do this

\$i= 1+1 = 2

The statement

```
echo (" \n $i");
```

make provision to print the output:

2

Now, the value of \$i is:

\$i= 2

Is the condition (\$i<=10) is true?

Yes because \$i=2

Do this

\$i= 2+1 = 3

The statement

```
echo (" \n $i");
```

make provision to print the output:

3

Now, the value of \$i is:

\$i= 3

Is the condition (\$i<=10) is true?

Yes because \$i=3

Do this

\$i= 3+1 = 4

---

The statement

```
echo (" \n $i");
```

make provision to print the output:

4

Now, the value of \$i is:

\$i= 4

Is the condition (\$i<=10) is true?

Yes because \$i=4

Do this

\$i= 4+1 = 5

The statement

```
echo (" \n $i");
```

make provision to print the output:

5

Now, the value of \$i is:

\$i= 5

Is the condition (\$i<=10) is true?

Yes because \$i=5

Do this

\$i= 5+1 = 6

The statement

```
echo (" \n $i");
```

make provision to print the output:

6

Now, the value of \$i is:

\$i= 6

Is the condition (\$i<=10) is true?

Yes because \$i=6

Do this

\$i= 6+1 = 7

The statement

```
echo (" \n $i");
```

make provision to print the output:

7

Now, the value of \$i is:

\$i= 7

Is the condition (\$i<=10) is true?

Yes because \$i=7

Do this

\$i= 7+1 = 8

The statement

```
echo (" \n $i");
```

make provision to print the output:

8

Now, the value of \$i is:

---

---

\$i= 8

Is the condition (\$i<=10) is true?

Yes because \$i=8

Do this

\$i= 8+1 = 9

The statement

```
echo (" \n $i");
```

make provision to print the output:

9

Now, the value of \$i is:

\$i= 9

Is the condition (\$i<=10) is true?

Yes because \$i=9

Do this

\$i= 9+1 = 10

The statement

```
echo (" \n $i");
```

make provision to print the output:

10

stop because the condition \$i<=10 is achieved.

If you replace the statement

```
for ($i=1; $i<=10; $i++)
```

by the statement

```
for ($i=1; $i==10; $i++)
```

Then there will be no display of output on the screen.

If the statement

```
for ($i=1; $i<=10; $i++)
```

is replaced by the statement

```
for ($i=1; $i=10; $i++)
```

Then the output on the screen is:

10

10

10

10

10

10

10

10

10

10

---

---

10  
10.....

**Program 2.3**

PHP program to print the first ten natural numbers using while loop statement

The syntax of while loop statement is:

```
while (this is the condition)
{
execute this statement;
}
```

```
<?php
$i = 1;
while($i <= 10) {
    echo "\n $i ";
    $i++;
}
?>
```

**Output on the screen:**

```
1
2
3
4
5
6
7
8
9
10
```

**Program 2.4**

PHP program to print the first nine natural numbers using do while loop statement

The syntax of do while loop statement is:

```
do
{
execute this statement;
}
while(this is the condition);
```

---

---

```
<?php
$i = 1;
do {
    echo "\n $i ";
    $i++;
} while($i <= 9);
?>
```

**Output on the screen:**

```
1
2
3
4
5
6
7
8
9
```

Program 2.6

PHP program to print the average of the first 10 numbers using for loop statement

```
<?php
$i;
$avg;
$sum = 0;
for( $i=1; $i<=10; $i++)
$sum = $sum + $i;
$avg = $sum/10;
echo "\n sum of the first 10 numbers = $sum ";
echo"\n average of the first 10 numbers = $avg ";
?>
```

**Output on the screen:**

```
sum of the first 10 numbers = 55
average of the first 10 numbers = 5.5
```

Program 2.7

Switch case method

(a)

---

```
<?php
$ch ='3';
switch($ch)
{
case '1':
echo "Red";
break;
case '2':
echo "White";
break;
case '3':
echo "Yellow";
break;
case '4':
echo "Green";
break;
default:
echo "Error";
break;
}
?>
```

**Output on the screen:**

Yellow

(b)

```
<?php
$ch ='birds';
switch($ch)
{
case 'animal':
echo "elephant";
break;
case 'reptiles':
echo "crocodile";
break;
case 'birds':
echo "parrot";
break;
case 'mammals':
echo "cow";
break;
default:
echo "Error";
```

```
break;  
}  
?>
```

**Output on the screen:**

```
parrot
```

Program 2.8

Addition of two numbers using PHP function

```
<?php  
function addition($a, $b) {  
    return $a + $b;  
}  
$sum = addition(4, 3);  
echo "the sum of two numbers = $sum "  
?>
```

**Output on the screen:**

```
the sum of two numbers = 7
```

“Without requirements or design, programming is the art of adding bugs to an empty text file. (Louis Srygley)”

\*\*\*\*\*

## Public, Private & Protected in JAVA

```
public class HelloWorld {  
    .....content / information (i.e., methods /  
    fields).....  
}  
  
public class Java {  
    ..... content / information .....  
}
```

Since both the classes are public: content / information within the two classes can be shared with each other i.e., content within the class HelloWorld can be accessed by the class Java and content within the class Java can be accessed by the class HelloWorld.

---

```

public class HelloWorld {
    .....content / information (i.e., methods /
fields)..... .
}

private class Java {
    ..... content / information .. .
}

```

Since one of the classes is public: content within the class HelloWorld can be accessed by the class Java but the content within the class Java cannot be accessed by the class HelloWorld because class Java is private.

```

protected class HelloWorld {
    .....content / information..... .
}

public class Java extends HelloWorld{
    ..... content / information .. .
}

```

Here public class Java extends HelloWorld means: class Java is public but it is the subclass of protected class HelloWorld -- so class Java can access the content within the class HelloWorld even though class HelloWorld is protected.

\*\*\*\*\*

### **Fade in and out of text on button click**

```

<html xmlns="http://www.w3.org/1999/xhtml" >
<head>
    <title>jQuery fadeToggle() - DevCurry.com</title>
    <script type="text/javascript"
src="http://code.jquery.com/jquery-1.4.4.js">
    </script>
    <script type="text/javascript" language="javascript">

```

---

```

$(function () {
    $("#btn").click(function () {
        $("#para").fadeToggle("slow", "linear");
    });
});

</script>

</head>

<body>

<input value="Click Me" button style="background-color:lightgreen"

id="btn" type="button" /> <br /><br />

<p id="para">Albert Einstein, in his theory of special relativity, determined that the laws
of physics are the same for all non-accelerating observers, and he showed that the speed of light
within a vacuum is the same no matter the speed at which an observer travels.</p>

</body>

</html>
*****
```

### **Fade in and out of table on button click**

```

<!DOCTYPE html>

<html>
<head>
<script src="//code.jquery.com/jquery-1.10.2.js"></script>
<script>

$(document).ready(function(){
    $(".fadeToggle").click(function(){
        $(".table_bg").fadeToggle(2000);
    });
});
```

```
} );  
  
</script>  
  
<style>  
 .table_bg {  
 width:40%;  
 font-family:verdana;  
 font-size:15px;  
 color:#fff;  
 padding: 10px;  
 text-align:center;  
 }  
  
.table_bg th{  
 background: #4A6F87;  
  
 color: #fff;  
 line-height:35px;  
 }  
  
.table_bg td{  
 background: #C8D7E1;  
 padding:10px;  
  
 color: #000;  
 }  
  
</style>  
  
</head>  
  
<body>  
  
<p>  
  
<button class="fadeToggle" button style="background-color:lightgreen">click me</button>  
</p>
```

---

```
<table class="table_bg">

<tr>
    <th>Name</th>
    <th>Age</th>
    <th>Salary</th>
</tr>

<tr>
    <td>Jim</td>
    <td>35</td>
    <td>$5000.00</td>
</tr>

<tr>
    <td>Anna</td>
    <td>24</td>
    <td>$3500.00</td>
</tr>

<tr>
    <td>Adams</td>
    <td>31</td>
    <td>$4000.00</td>
</tr>

<tr>
    <td>Adams</td>
    <td>31</td>
    <td>$4000.00</td>
</tr>

<tr>
    <td>Adams</td>
    <td>31</td>
    <td>$4000.00</td>
</tr>
```

---



---

```

        </tr>

    </table>

```

</body>

</html>

---

## Display of section and subsection

```

<!doctype html>
<html lang="en">
<head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <title>jQuery UI Accordion - Default functionality</title>
    <link rel="stylesheet" href="//code.jquery.com/ui/1.12.0/themes/base/jquery-ui.css">
    <link rel="stylesheet" href="/resources/demos/style.css">
    <script src="https://code.jquery.com/jquery-1.12.4.js"></script>
    <script src="https://code.jquery.com/ui/1.12.0/jquery-ui.js"></script>
    <script>
        $( function() {
            $( "#accordion" ).accordion();
        });
    </script>
</head>
<body>

<div id="accordion">
    <h3>Section 1</h3>
    <div>
        <p>
            Mauris mauris ante, blandit et, ultrices a, suscipit eget, quam. Integer
            ut neque. Vivamus nisi metus, molestie vel, gravida in, condimentum sit
            amet, nunc. Nam a nibh. Donec suscipit eros. Nam mi. Proin viverra leo ut
            odio. Curabitur malesuada. Vestibulum a velit eu ante scelerisque vulputate.
        </p>
    </div>
    <h3>Section 2</h3>
    <div>
        <p>
            Sed non urna. Donec et ante. Phasellus eu ligula. Vestibulum sit amet
            purus. Vivamus hendrerit, dolor at aliquet laoreet, mauris turpis porttitor
            velit, faucibus interdum tellus libero ac justo. Vivamus non quam. In
            suscipit faucibus urna.
        </p>
    </div>
    <h3>Section 3</h3>
    <div>
        <p>
            Nam enim risus, molestie et, porta ac, aliquam ac, risus. Quisque lobortis.
            Phasellus pellentesque purus in massa. Aenean in pede. Phasellus ac libero
            ac tellus pellentesque semper. Sed ac felis. Sed commodo, magna quis
            lacinia ornare, quam ante aliquam nisi, eu iaculis leo purus venenatis dui.
        </p>
        <ul>

```

---

```

<li>List item one</li>
<li>List item two</li>
<li>List item three</li>
</ul>
</div>
<h3>Section 4</h3>
<div>
<p>
Cras dictum. Pellentesque habitant morbi tristique senectus et netus
et malesuada fames ac turpis egestas. Vestibulum ante ipsum primis in
faucibus orci luctus et ultrices posuere cubilia Curae; Aenean lacinia
mauris vel est.
</p>
<p>
Suspendisse eu nisl. Nullam ut libero. Integer dignissim consequat lectus.
Class aptent taciti sociosqu ad litora torquent per conubia nostra, per
inceptos himenaeos.
</p>
</div>
</div>

</body>
</html>

```

\*\*\*\*\*

### Animated expandable bar text view

```

<!doctype html>
<html lang="en">
<head>
<meta charset="utf-8">
<meta name="viewport" content="width=device-width, initial-scale=1">
<title>jQuery UI Effects - Animate demo</title>
<link rel="stylesheet" href="//code.jquery.com/ui/1.12.0/themes/base/jquery-ui.css">
<link rel="stylesheet" href="/resources/demos/style.css">
<style>
.toggler { width: 500px; height: 200px; position: relative; }
#button { padding: .5em 1em; text-decoration: none; }
#effect { width: 240px; height: 170px; padding: 0.4em; position: relative; background: #fff;
}
#effect h3 { margin: 0; padding: 0.4em; text-align: center; }
</style>
<script src="https://code.jquery.com/jquery-1.12.4.js"></script>
<script src="https://code.jquery.com/ui/1.12.0/jquery-ui.js"></script>
<script>
$( function() {
  var state = true;
  $('#button').on( "click", function() {
    if ( state ) {
      $('#effect').animate({
        backgroundColor: "#228B22",
        color: "#fff",
        width: 500
      }, 1000 );
    }
  });
});

```

```

        } else {
            $( "#effect" ).animate({
                backgroundColor: "#fff",
                color: "#000",
                width: 240
            }, 1000 );
        }
        state = !state;
    });
} );
</script>
</head>
<body>

<div class="toggler">
    <div id="effect" class="ui-widget-content ui-corner-all">
        <h3 class="ui-widget-header ui-corner-all">Einstein</h3>
        <p>
            Etiam libero neque, luctus a, eleifend nec, semper at, lorem. Sed pede. Nulla lorem metus,
            adipiscing ut, luctus sed, hendrerit vitae, mi.
        </p>
    </div>
</div>

<button id="button" class="ui-state-default ui-corner-all">Toggle Effect</button>

</body>
</html>

```

\*\*\*\*\*

## Simple Mortgage Payment Calculator

```

<div class="smpc-div">
<form name=mortgagecalc method=POST>
<p>How much will you be borrowing?<br>
<input type=text onkeypress="return validNumber(event)" name=loan size=10> <span class="smpc-
error" id="loanError"></span></p>
<p>What will be the term of this mortgage (in years)?<br>
<input type=text onkeypress="return validNumber(event)" name=years size=5> <span class="smpc-
error" id="yearsError"></span></p>
<p>What will be the interest rate?<br>
<input type=text onkeypress="return validNumber(event)" name=rate size=5> <span class="smpc-
error" id="rateError"></span></p>
<input type=button onClick="return myPayment()" value=Calculate> <input type=button
onClick="return myPaymentReset()" value=Reset>
</form>
<small>Instructions: Enter numbers and decimal points. No commas or other characters.</small>
<p class="smpc-monthlypayment" id="monthlyPayment"> </p>
<p class="smpc-friendlyreminder" id="friendlyReminder"> thank you </p>
</div>

<style>
/* START - Simple Mortage Payment Calculator */

.smpc-div {
background-color: #f9f9f9;

```

```

border:1px solid #cccccc;
padding:15px;
}

.smpc-error {
font-family: Verdana, Arial, Helvetica, sans-serif;
font-size: 10px;
color:#ca0000;
}

.smpc-monthlypayment {
margin-top:15px;
font-size:24px;
color:#ca0000;
}

.smpc-friendlyreminder {
display:none;
}

/* END - Simple Mortage Payment Calculator */

</style>

<script>

function validNumber(fieldinput){
var unicode=fieldinput.charCodeAt : fieldinput.keyCode;
if ((unicode!=8) && (unicode!=46)) { //if the key isn't the backspace key (which we should allow)
if (unicode<48||unicode>57) //if not a number
return false; //disable key press
}
}

function myPayment()
{
// Reset error messages to blank
document.getElementById('loanError').innerHTML = '';
document.getElementById('yearsError').innerHTML = '';
document.getElementById('rateError').innerHTML = '';

// Form validation checking
if ((document.mortgagecalc.loan.value === null) || (document.mortgagecalc.loan.value.length === 0) || (isNaN(document.mortgagecalc.loan.value) === true))
{
document.getElementById('monthlyPayment').innerHTML = 'Please enter the missing information.';
document.getElementById('loanError').innerHTML = 'Numeric value required. Example: 165000';
} else if ((document.mortgagecalc.years.value === null) ||
(document.mortgagecalc.years.value.length === 0) || (isNaN(document.mortgagecalc.years.value) === true))
{
document.getElementById('monthlyPayment').innerHTML = 'Please enter the missing information.';
document.getElementById('yearsError').innerHTML = 'Numeric value required. Example: 30';
} else if ((document.mortgagecalc.rate.value === null) ||
(document.mortgagecalc.rate.value.length === 0) || (isNaN(document.mortgagecalc.rate.value) === true))
{
document.getElementById('monthlyPayment').innerHTML = 'Please enter the missing information.';
}
}

```

```

document.getElementById('rateError').innerHTML = 'Numeric value required. Example: 5.25';
} else
{
// Set variables from form data
var loanprincipal = document.mortgagecalc.loan.value;
var months = document.mortgagecalc.years.value * 12;
var interest = document.mortgagecalc.rate.value / 1200;

// Calculate mortgage payment and display result
document.getElementById('monthlyPayment').innerHTML = 'Your monthly mortgage payment will be ' +
' + (loanprincipal * interest / (1 - (Math.pow(1/(1 + interest), months))).toFixed(2) + '.';
document.getElementById('friendlyReminder').style.display = 'block';
}

// payment = principle * monthly interest/(1 - (1/(1+MonthlyInterest)*Months))
}

function myPaymentReset()
{
// Reset everything to default/null/blank
document.getElementById('monthlyPayment').innerHTML = 'Values reset';
document.getElementById('friendlyReminder').style.display = 'none';
document.getElementById('loanError').innerHTML = '';
document.getElementById('yearsError').innerHTML = '';
document.getElementById('rateError').innerHTML = '';
document.mortgagecalc.loan.value = null;
document.mortgagecalc.years.value = null;
document.mortgagecalc.rate.value = null;
}

</script>
*****
```

## Easy Savings Calculator

```

<div class="esc-div">
<form name=savingscalc method=POST>
<p>What is your starting balance?<br>
<input type=text onkeypress="return onlyNumbers(event)" name=balance size=10> <span class="esc-
error" id="balanceError"></span></p>
<p>What is the interest rate?<br>
<input type=text onkeypress="return onlyNumbers(event)" name=rate size=5> <span class="esc-error"
id="rateError"></span></p>
<p>How many years?<br>
<input type=text onkeypress="return onlyNumbers(event)" name=years size=5> <span class="esc-
error" id="yearsError"></span></p>
<input type=button onClick="return mySavings()" value=Calculate> <input type=button
onClick="return mySavingsReset()" value=Reset>
</form>
<small>* Numbers and decimal points only.</small>
<p class="esc-finalbalance" id="finalBalance"> </p>
</div>

<style>
```

```

/* START - Easy Savings Calculator */

.esc-div {
width:450px;
background-color: #f9f9f9;
border:1px solid #cccccc;
border-radius: 7px;
padding:15px;
}

.esc-error {
font-family: Verdana, Arial, Helvetica, sans-serif;
font-size: 10px;
color:#ca0000;
}

.esc-finalbalance {
margin-top:15px;
font-size:24px;
color:#ca0000;
}

/* END - Easy Savings Calculator */

</style>

<script>
function onlyNumbers(keyinput){
var input=keyinput.charCode? keyinput.charCodeAt : keyinput.keyCode
// if key press is not a backspace, a period, or a number, then stop character input
if ((input != 8) && (input != 46)) {
if ((input < 48) || (input > 57)) {
return false;
}
}
}

function mySavings()
{
// Reset error messages to blank
document.getElementById('balanceError').innerHTML = '';
document.getElementById('rateError').innerHTML = '';
document.getElementById('yearsError').innerHTML = '';

// Form validation checking
if ((document.savingscalc.balance.value == null) || (document.savingscalc.balance.value.length == 0) || (isNaN(document.savingscalc.balance.value) == true))
{
document.getElementById('finalBalance').innerHTML = 'Please enter the missing information.';
document.getElementById('balanceError').innerHTML = 'Numeric value required. Example: 10000';
} else if ((document.savingscalc.rate.value == null) || (document.savingscalc.rate.value.length == 0) || (isNaN(document.savingscalc.rate.value) == true))
{
document.getElementById('finalBalance').innerHTML = 'Please enter the missing information.';
document.getElementById('rateError').innerHTML = 'Numeric value required. Example: 3.5';
} else if ((document.savingscalc.years.value == null) || (document.savingscalc.years.value.length == 0) || (isNaN(document.savingscalc.years.value) == true))
{
}
}

```

```

document.getElementById('finalBalance').innerHTML = 'Please enter the missing information.';
document.getElementById('yearsError').innerHTML = 'Numeric value required. Example: 10';
} else
{
// Set variables from form data
var startingbalance = document.savingscalc.balance.value;
var interestrate = document.savingscalc.rate.value / 100;
var totalyears = document.savingscalc.years.value;
// var totalmonths = document.savingscalc.years.value * 12;
var compoundsperyear = 12;

// Calculate final savings balance and display result
document.getElementById('finalBalance').innerHTML = 'Final Balance: ' +
(startingbalance*Math.pow((1+interestrate/compoundsperyear),(compoundsperyear*totalyears))).toFixed(2);
}

// A = P(1 + r%/n)^nt
// startingbalance*Math.pow((1+interestrate/compoundsperyear),(compoundsperyear*totalyears))

}

function mySavingsReset()
{
// Reset everything to default/null/blank
document.getElementById('finalBalance').innerHTML = 'Values reset';
document.getElementById('balanceError').innerHTML = '';
document.getElementById('rateError').innerHTML = '';
document.getElementById('yearsError').innerHTML = '';
document.savingscalc.balance.value = null;
document.savingscalc.rate.value = null;
document.savingscalc.years.value = null;
}
</script>

```

\*\*\*\*\*

## Side navigation menu

```

<!DOCTYPE html>
<html>
<style>
body {
    font-family: "Lato", sans-serif;
}

.sidenav {
    display: none;
    height: 100%;
    width: 250px;
    position: fixed;
    z-index: 1;
    top: 0;
    left: 0;
    background-color: #000;
    overflow-x: hidden;
    padding-top: 60px;
}

```

```

}

.sidenav a {
    padding: 8px 8px 8px 32px;
    text-decoration: none;
    font-size: 25px;
    color: #818181;
    display: block;
    transition: 0.3s
}

.sidenav a:hover, .offcanvas a:focus{
    color: #f1f1f1;
}

.sidenav .closebtn {
    position: absolute;
    top: 0;
    right: 25px;
    font-size: 36px;
    margin-left: 50px;
}

@media screen and (max-height: 450px) {
    .sidenav {padding-top: 15px;}
    .sidenav a {font-size: 18px;}
}

```

</style>

<body>

```

<div id="mySidenav" class="sidenav">
    <a href="javascript:void(0)" class="closebtn" onclick="closeNav()">&times;</a>
    <a href="#">About</a>
    <a href="#">Services</a>
    <a href="#">Clients</a>
    <a href="#">Contact</a>
    <a href="#">About</a>
    <a href="#">Services</a>
    <a href="#">Clients</a>
    <a href="#">Contact</a>

```

</div>

<h2>Sidenav Example</h2>

<p>Click on the element below to open the side navigation menu.</p>

<span style="font-size:30px;cursor:pointer" onclick="openNav()">&#9776; open</span>

```

<script>
function openNav() {
    document.getElementById("mySidenav").style.display = "block";
}

function closeNav() {
    document.getElementById("mySidenav").style.display = "none";
}
</script>

```

```
</body>
</html>
```

```
*****
```

## Full screen navigation menu

```
<!DOCTYPE html>
<html>
<style>
body {
    font-family: "Lato", sans-serif;
}

.sidenav {
    height: 100%;
    width: 0;
    position: fixed;
    z-index: 1;
    top: 0;
    left: 0;
    background-color: #111;
    overflow-x: hidden;
    transition: 0.5s;
    padding-top: 60px;
    text-align:center;
}

.sidenav a {
    padding: 8px 8px 8px 32px;
    text-decoration: none;
    font-size: 25px;
    color: #818181;
    display: block;
    transition: 0.3s
}

.sidenav a:hover{
    color: #f1f1f1;
}

.sidenav .closebtn {
    position: absolute;
    top: 0;
    right: 25px;
    font-size: 36px;
    margin-left: 50px;
}

@media screen and (max-height: 450px) {
    .sidenav {padding-top: 15px;}
    .sidenav a {font-size: 18px;}
}
</style>
<body>
```

---

```

<div id="mySidenav" class="sidenav">
    <a href="javascript:void(0)" class="closebtn" onclick="closeNav()">&times;</a>
    <a href="#">About</a>
    <a href="#">Services</a>
    <a href="#">Clients</a>
    <a href="#">Contact</a>
</div>

<h2>Animated Sidenav Example Full Width</h2>
<p>Click on the element below to open the navigation menu.</p>
<span style="font-size:30px;cursor:pointer" onclick="openNav()">&#9776; open</span>

<script>
function openNav() {
    document.getElementById("mySidenav").style.width = "100%";
}

function closeNav() {
    document.getElementById("mySidenav").style.width = "0";
}
</script>

</body>
</html>

```

\*\*\*\*\*

### Side push navigation menu

```

<!DOCTYPE html>
<html>
<style>
body {
    font-family: "Lato", sans-serif;
    transition: background-color .5s;
}

.sidenav {
    height: 100%;
    width: 0;
    position: fixed;
    z-index: 1;
    top: 0;
    left: 0;
    background-color: #111;
    overflow-x: hidden;
    transition: 0.5s;
    padding-top: 60px;
}

.sidenav a {
    padding: 8px 8px 8px 32px;
    text-decoration: none;
    font-size: 25px;
    color: #818181;
    display: block;
    transition: 0.3s
}

```

```

}

.sidenav a:hover, .offcanvas a:focus{
    color: #f1f1f1;
}

.sidenav .closebtn {
    position: absolute;
    top: 0;
    right: 25px;
    font-size: 36px;
    margin-left: 50px;
}

#main {
    transition: margin-left .5s;
    padding: 16px;
}

@media screen and (max-height: 450px) {
    .sidenav {padding-top: 15px;}
    .sidenav a {font-size: 18px;}
}
</style>
<body>

<div id="mySidenav" class="sidenav">
    <a href="javascript:void(0)" class="closebtn" onclick="closeNav()">&times;</a>
    <a href="#">About</a>
    <a href="#">Services</a>
    <a href="#">Clients</a>
    <a href="#">Contact</a>
</div>

<div id="main">
    <h2>Sidenav Push Example</h2>
    <p>Click on the element below to open the side navigation menu, and push this content to the right. Notice that we add a black see-through background-color to body when the sidenav is opened.</p>
    <span style="font-size:30px;cursor:pointer" onclick="openNav()">=&#9776; open</span>
</div>

<script>
function openNav() {
    document.getElementById("mySidenav").style.width = "250px";
    document.getElementById("main").style.marginLeft = "250px";
    document.body.style.backgroundColor = "rgba(0,0,0,0.4)";
}

function closeNav() {
    document.getElementById("mySidenav").style.width = "0";
    document.getElementById("main").style.marginLeft= "0";
    document.body.style.backgroundColor = "white";
}
</script>
*****
```

---

## Pop up window via TEXT link

```
<script type="text/javascript">

function openpopup(popurl){
var
winpops=window.open(popurl,"","width=,height=,toolbar,location,status,scrollbars,menubar,resizable")
}
</script>

<a href="javascript:openpopup('http://www.google.com')">Click here to open window</a>
```

\*\*\*\*\*

## Audio player with control

```
<audio src="http://www.nancymusic.com/SOM/2011/alphabet%20song.mp3" controls="controls"
preload="auto">
</audio>
```

**Note: for free song library contact: <http://singwithourkids.com/song-library.htm>**

\*\*\*\*\*

## Video slideshow

```
<figure id="video_player">
<div id="video_container">
<video controls poster="http://thenewcode.com/assets/images/vid-glacier.jpg">
<source src="http://thenewcode.com/assets/videos/glacier.mp4" type="video/mp4">
<source src="http://thenewcode.com/assets/videos/glacier.webm" type="video/webm">
</video>
</div>
<figcaption>
<a href="http://thenewcode.com/assets/videos/glacier.mp4" class="currentvid">

</a>
<a href="http://thenewcode.com/assets/videos/lake.mp4">

</a>
<a href="http://thenewcode.com/assets/videos/mountain.mp4">

</a>
</figcaption>
</figure>

<style>

body { background: #222; }
#video_player {
```

```

display: table; line-height: 0;
font-size: 0; background: #000;
max-width: 1000px;
margin: 0 auto;
}
#video_container {
position: relative;
}
#video_player div, #video_player figcaption {
display: table-cell;
vertical-align: top;
}
#video_container video {
position: absolute;
display: block;
width: 100%;
height: 100%;
top: 0;
}
#video_player figcaption { width: 25%; }
#video_player figcaption a { display: block; }
#video_player figcaption a {
opacity: .5;
transition: 1s opacity;
}
#video_player figcaption a img, figure video {
width: 100%; height: auto;
}
#video_player figcaption a.currentvid, #video_player figcaption a:hover, #video_player figcaption a:focus { opacity: 1; }
@media (max-width: 700px) {
#video_player video, #video_player figcaption {
display: table-row;
}
#video_container { padding-top: 56.25%; }
#video_player figcaption a {
display: inline-block; width: 33.33%;
}
}

</style>

<script>

var video_player = document.getElementById("video_player");
video = video_player.getElementsByTagName("video")[0],
video_links = video_player.getElementsByTagName("figcaption")[0],
source = video.getElementsByTagName("source"),
link_list = [],
vidDir = "http://thenewcode.com/assets/videos/",
currentVid = 0,
allLnks = video_links.children,
lnkNum = allLnks.length;
video.removeAttribute("controls");
video.removeAttribute("poster");

(function() {
function playVid(index) {

```

```

video_links.children[index].classList.add("currentvid");
source[1].src = vidDir + link_list[index] + ".webm";
source[0].src = vidDir + link_list[index] + ".mp4";
currentVid = index;
video.load();
video.play();
}

for (var i=0; i<lnkNum; i++) {
var filename = allLnks[i].href;
link_list[i] = filename.match(/(^\/)+(?=\.\w+$)/)[0];
(function(index){
    allLnks[i].onclick = function(i){
        i.preventDefault();
        for (var i=0; i<lnkNum; i++) {
            allLnks[i].classList.remove("currentvid");
        }
        playVid(index);
    }
})(i);
}
video.addEventListener('ended', function () {
    allLnks[currentVid].classList.remove("currentvid");
    if ((currentVid + 1) >= lnkNum) { nextVid = 0 } else { nextVid = currentVid+1 }
    playVid(nextVid);
})

video.addEventListener('mouseenter', function() {
    video.setAttribute("controls", "true");
})

video.addEventListener('mouseleave', function() {
    video.removeAttribute("controls");
})

var indexOf = function(needle) {
    if(typeof Array.prototype.indexOf === 'function') {
        indexOf = Array.prototype.indexOf;
    } else {
        indexOf = function(needle) {
            var i = -1, index = -1;
            for(i = 0; i < this.length; i++) {
                if(this[i] === needle) {
                    index = i;
                    break;
                }
            }
            return index;
        };
    }
    return indexOf.call(this, needle);
};

var focusedLink = document.activeElement;
index = indexOf.call(allLnks, focusedLink);

document.addEventListener('keydown', function(e) {
if (index) {
    var focusedElement = document.activeElement;
    if (e.keyCode == 40 || e.keyCode == 39) { // down or right cursor
        var nextNode = focusedElement.nextElementSibling;

```

```

        if (nextNode) { nextNode.focus(); } else { video_links.firstChild.focus(); }
    }
    if (e.keyCode == 38 || e.keyCode == 37) { // up or left cursor
        var previousNode = focusedElement.previousElementSibling;
        if (previousNode) { previousNode.focus(); } else { video_links.lastElementChild.focus(); }
    }
}
})();
})();

</script>

```

\*\*\*\*\*

### Popup video

```

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
    <title>jQuery YouTube Popup Player Plugin</title>
    <script type="text/javascript"
src="http://ajax.googleapis.com/ajax/libs/jquery/1/jquery.min.js"></script>
    <link type="text/css"
          href="http://ajax.googleapis.com/ajax/libs/jqueryui/1/themes/redmond/jquery-
ui.css" rel="stylesheet" />
    <script type="text/javascript" src="http://ajax.googleapis.com/ajax/libs/jqueryui/1/jquery-
ui.min.js"></script>
    <script type="text/javascript" src="jquery.youtubepopup.min.js"></script>
    <script type="text/javascript">
        $(function () {
            $("a.youtube").YouTubePopup({ autoplay: 0 });
        });
    </script>
</head>
<body>
    <a class="youtube" href="img/jpg.mp4" title="jQuery YouTube Popup Player Plugin TEST">

<center> </center>

</a>
</body>
</html>

```

\*\*\*\*\*

### Google Map

**API KEY:** AIzaSyD2QT8u45jEvEI6g-W\_FV2jl0eb9UDOGxo

**Website url:** <http://maps-website.com/>

**API KEY URL:**

<https://console.developers.google.com/apis/credentials/key/0?project=zippy-chariot-131714>

---



---

```

<script src='https://maps.googleapis.com/maps/api/js?v=3.exp&key=AIzaSyD2QT8u45jEvEI6g-W_FV2jl0eb9UDOGxo'></script><div style='overflow:hidden;height:400px;width:520px;'><div id='gmap_canvas' style='height:400px;width:520px;'></div><style>#gmap_canvas img{max-width:none!important;background:none!important}</style></div> <a href='https://www.add-map.net/'>https://www.add-map.net</a> <script type='text/javascript' src='https://embedmaps.com/google-maps-authorization/script.js?id=fbfb64d480ad8fcbe90c6ec2ead4d897f6bafe7a5'></script><script type='text/javascript'>function init_map(){var myOptions = {zoom:13,center:new google.maps.LatLng(12.9902684,77.54953950000004),mapTypeId: google.maps.MapTypeId.ROADMAP};map = new google.maps.Map(document.getElementById('gmap_canvas')), myOptions);marker = new google.maps.Marker({map: map,position: new google.maps.LatLng(12.9902684,77.54953950000004)});infowindow = new google.maps.InfoWindow({content:'<strong>Shivanagar Sweets</strong><br> 8th Main Road, Shivanagar, Basaveshwar Nagar, Bengaluru, Karnataka<br>560010 Bangalore<br>'});google.maps.event.addListener(marker, 'click', function(){infowindow.open(map,marker);});infowindow.open(map,marker);}google.maps.event.addDomListener(window, 'load', init_map);</script>

```

\*\*\*\*\*

## Inheritance

```

public class game {
}

public class player extends game{
}

```

Here public class player extends game implies: class player is public and it is the sub class of the class game. since class player is the subclass of class game-- class player automatically takes on all the behavior and attributes of its parent class "game" i.e., methods or fields within the class game will be automatically be included in the class player.

### Note:

If public class player extends game and public class game extends ball, then we can say class player is not only a subclass of class game but also it is a subclass of class ball.

\*\*\*\*\*

## Video Playlist

```

<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Video Playlist Tutorial</title>

```

```

<style>
  body {font-family:Arial, Helvetica, sans-serif;background:#fff}
  .center {text-align:center;width:640px;margin:0 auto;}
  #player {background:#000; padding:10px;width:640px;margin:0 auto;border-radius:10px;}
  #player video {width:640px;}
  #playlist {background:#333;list-style:none;padding:0;margin:0; width:640px;}
  #playlist h1 {font: 24px Arial, Helvetica, sans-serif; color:#FFF; font-weight:bold;padding:5px 2px;margin:0;}
  #playlist a {color:#eeeeed;background:#333;padding:10px 5px;display:block;text-decoration:none; border-bottom:1px solid #222;}
  #playlist a:hover {text-decoration:none; background:#999;color:#000}
</style>
</head>
<body>
  <div id="player">
    <video controls="controls" width="640" height="360" preload="auto" autoplay>
      <source src="http://kristibeach.com/wp/wp-content/uploads/2014/02/freeseaturtleswimming.mp4" type="video/mp4" />
      <source src="http://kristibeach.com/wp/wp-content/uploads/2014/02/freeseaturtleswimming.webm" type="video/webm" />
      <source src="http://kristibeach.com/wp/wp-content/uploads/2014/02/freeseaturtleswimming.ogv" type="video/ogg" />
    </video>
    <div id="playlist">
      <h1>Videos</h1>
      <a href="http://kristibeach.com/wp/wp-content/uploads/2014/02/freeseaturtleswimming.mp4">Sea Turtle</a>
      <a href="http://kristibeach.com/wp/wp-content/uploads/2014/02/freedoginrain.mp4">Dog in the Rain</a>
      <a href="http://kristibeach.com/wp/wp-content/uploads/2014/02/freestormcell.mp4">Storm Cell</a>
    </div>
    <div class="center">
      <a href="https://www.google.com">Google</a>
    </div>
    <script>
      //Ensure all links in the div "#player" act in the same way:
      var video_playlist = document.getElementById("player");
      var links = video_playlist.getElementsByTagName('a');
      for (var i=0; i<links.length; i++) {
        links[i].onclick = handler;
      };
      //Give functionality to the links:
      function handler(e) {
        e.preventDefault(); //Prevents default action of links going directly to the source file
        videotarget = this.getAttribute("href"); //looks at the filename in the link's href attribute
        filename = videotarget.substr(0, videotarget.lastIndexOf('.')) || videotarget; //Splits the filename and takes everything before the ".", giving us just the name without the extension
        video = document.querySelector("#player video"); //Finds div #player and video
        video.removeAttribute("poster"); //Removes the poster attribute in the video tag
        source = document.querySelectorAll("#player video source"); //Finds source elements inside the video tag
        source[0].src = filename + ".mp4"; //defines the MP4 source
        source[1].src = filename + ".webm"; //defines the WEBM source
        source[2].src = filename + ".ogv"; //defines the OGG source
        video.load(); //Loads video when video is selected
        video.play(); //Plays video automatically
    
```

```
};

</script>
</body>

*****
```

**Note:**

```
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Video Playlist Tutorial</title>
<style>
body {font-family:Arial, Helvetica, sans-serif;background:#fff}
.center {text-align:center;width:640px;margin:0 auto;}
#player {background:#000; padding:10px;width:640px;margin:0 auto;border-radius:10px;}
#player video {width:640px;}
#playlist {background:#333;list-style:none;padding:0;margin:0; width:640px;}
#playlist h1 {font: 24px Arial, Helvetica, sans-serif; color:#FFF; font-weight:bold;padding:5px 2px; margin:0; }
#playlist a {color:#eeeeed;background:#333;padding:10px 5px;display:block;text-decoration:none; border-bottom:1px solid #222; }
#playlist a:hover {text-decoration:none; background:#999;color:#000}
</style>
</head>
<body>
<div id="player">
<video controls="controls" width="640" height="360" preload="auto" autoplay>
<source src="http://kristibeach.com/wp/wp-content/uploads/2014/02/freeseaturtleswimming.mp4" type="video/mp4" />
<source src="http://kristibeach.com/wp/wp-content/uploads/2014/02/freeseaturtleswimming.mp4" type="video/mp4" />
<source src="http://kristibeach.com/wp/wp-content/uploads/2014/02/freeseaturtleswimming.mp4" type="video/mp4" />
</video>
<div id="playlist">
<h1>Videos</h1>
<a href="http://kristibeach.com/wp/wp-content/uploads/2014/02/freeseaturtleswimming.mp4">Sea Turtle</a>
<a href="http://kristibeach.com/wp/wp-content/uploads/2014/02/freedoginrain.mp4">Dog in the Rain</a>
<a href="http://kristibeach.com/wp/wp-content/uploads/2014/02/freestormcell.mp4">Storm Cell</a>
<a href="http://kristibeach.com/wp/wp-content/uploads/2014/02/freedoginrain.mp4">Dog in the Rain</a>
<a href="http://kristibeach.com/wp/wp-content/uploads/2014/02/freedoginrain.mp4">Dog in the Rain</a>
</div>
</div>
<div class="center">
<a href="https://www.google.com">Google</a>
</div>
<script>
//Ensure all links in the div "#player" act in the same way:
var video_playlist = document.getElementById("player");
```

```

var links = video_playlist.getElementsByTagName('a');
for (var i=0; i<links.length; i++) {
    links[i].onclick = handler;
}
//Give functionality to the links:
function handler(e) {
    e.preventDefault(); //Prevents default action of links going directly to the source file
    videotarget = this.getAttribute("href"); //looks at the filename in the link's href attribute
    filename = videotarget.substr(0, videotarget.lastIndexOf('.')) || videotarget; //Splits the
filename and takes everything before the ".", giving us just the name without the extension
    video = document.querySelector("#player video"); //Finds div #player and video
    video.removeAttribute("poster"); //Removes the poster attribute in the video tag
    source = document.querySelectorAll("#player video source"); //Finds source elements inside
the video tag
    source[0].src = filename + ".mp4"; //defines the MP4 source
    source[1].src = filename + ".mp4"; //defines the WEBM source
    source[2].src = filename + ".mp4"; //defines the OGG source
    video.load(); //Loads video when video is selected
    video.play(); //Plays video automatically
}
</script>
</body>

```

\*\*\*\*\*

### A simple Drawing application

```

<!DOCTYPE html>
<body background="images/vv1.jpeg">
<h1><h1 style="text-align:center;"><font face="comic sans ms" color="red"><i><b>MY PAINT
APPLICATION</b></i></font></h1>
<html lang="en">
<head>

<style type="text/css"><!--
#paint {
    cursor: pointer;
}
#paint:active {
    cursor: crosshair;
}
.menu{display:block;width:40px;height:40px;border-radius:25px;background:#000 }
.menu1{display:block;width:35px;height:35px;border-radius:25px;background:#000}
.menu2{display:block;width:28px;height:28px;border-radius:25px;background:#000}
form {
    width: 10em;
    height:29.5em;
    padding: 1em;
    margin: 0 auto;
    text-align: center;
    background-color: silver;
    border: solid gray 2px;
}
.pencil {
    background-color: white;
    color: black;
-->
```

```

}

.rectangle {
    background-color: white;
    color: black;
}

.violet {
    background-color: violet;
    color: white;
}

.indigo {
    background-color: indigo;
    color: white;
}

.blue {
    background-color: blue;
    color: white;
}

.green {
    background-color: green;
    color: white;
}

.yellow {
    background-color: yellow;
    color: white;
}

.orange {
    background-color: orange;
    color: white;
}

.red {
    background-color: red;
    color: white;
}

.white {
    background-color: white;
    color: black;
}

.brown {
    background-color: brown;
    color: white;
}

.clear {
    background-color: white;
    color: black;
}

.red, .white, .blue,.violet,.indigo,.green,.yellow,.brown,.clear,.pencil,.rectangle,.orange
{
    width: 5.2em;
    font-weight: bold;
}

--></style></head>
<head>
    <meta charset="utf-8">
    <title>Canvas Paint </title>
    <style type="text/css"><!--
        #container { position: relative; }
        #paint { border: 5px solid silver;

```

```

        background:white }
--></style>
</head>
<body>
<table>
<tr>
<td>
<div id="container">
<canvas id="paint" width="400" height="500" ></canvas>
</div>
</td>
</tr>
</table>

```

---

```

<script type="text/javascript">

//-----
var canvas, context, tool, size, pen=1 ;
var drag=false, rect={}, rectan=0;
function init () {
    canvas = document.getElementById('paint');
    context = canvas.getContext('2d');

    canvas.addEventListener('mousedown', mousepoint, false);
    canvas.addEventListener('mousemove', mousepoint, false);
    canvas.addEventListener('mouseup', mousepoint, false);
}
black();
function size0(){
    return size=7;
}
function size1(){
    return size=4;
}
function size2(){
    return size=1;
}
function black(){
    tool = new pencil(color='black');
}
function violet(){
    return color='violet';
}
function indigo(){
    return color='indigo';
}
function blue(){
    return color='blue';
}
function red(){
    return color='red';
}
function eraser(){
    tool = new pencil(color='white');
}
function green(){
    return color='green';
}

```

```

function orange(){
    return color='orange';
}
function yellow(){
    return color='yellow';
}
function brown(){
    return color='brown';
}
//-----Pencil-----
function pencil () {
    rectan=0;
    pen=1;

    var tool = this;
    this.started = false;
    this.mousedown = function (e) {
        context.beginPath();
        context.strokeStyle=color;
        context.lineJoin='round';
        context.lineWidth=size;
        context.moveTo(e._x, e._y);
        tool.started = true;

    };
    thismousemove = function (e) {
        if (tool.started) {
            context.lineTo(e._x, e._y);
            if(pen==1&&rectan==0){
                context.stroke();
            }
        }
    };
    thismouseup = function (e) {
        if (tool.started) {
            tool.mousemove(e);
            tool.started = false;
        }
    };
}

function mousepoint (e) {
    if (e.layerX || e.layerX == 0) {
        e._x = e.layerX;
        e._y = e.layerY;
    } else if (e.offsetX || e.offsetX == 0) {
        e._x = e.offsetX;
        e._y = e.offsetY;
    }
    var func = tool[e.type];
    if (func) {
        func(e);
    }
}
init();
//-----end of pencil-----
//-----Draw rectangle-----

```

```

function draw() {
    if(rectan==1){
        context.strokeRect(rect.startX, rect.startY, rect.w, rect.h);
    }
}

function mouseDownrect(e) {
    rect.startX = e.layerX - this.offsetLeft;
    rect.startY = e.layerY - this.offsetTop;
    drag = true;
}

function mouseUprect() {

    draw();
    rect.w=0;
    rect.h=0;
    drag = false;
}

function mouseMoverect(e) {

    if(drag==true){
        rect.w = (e.layerX - this.offsetLeft) - rect.startX;
        rect.h = (e.layerY - this.offsetTop) - rect.startY ;
    }
}

function rectangle() {
    color = 'black';
    rectan=1;
    pen=0;
    canvas.addEventListener('mousedown', mouseDownrect, false);
    canvas.addEventListener('mouseup', mouseUprect, false);
    canvas.addEventListener('mousemove', mouseMoverect, false);
}

//-----
</script>
</body>
<td>

<form method=post>
<div>
<p><u><b>Choose Tool</b></u></p>
<button type="button" onclick="black()" class=pencil><i><b>pencil</b></i></button>
<button type="button" onclick="eraser()" class=white><i><b>eraser</b></i></button>
<button type="button" onclick="rectangle()" class=rectangle ><i><b>rectangle</b></i></button>
<p><u><b><i>Choose Color</i></b></u></p>
<button type="button" onclick="violet()" class=violet><i><b>violet</b></i></button>
<button type="button" onclick="indigo()" class=indigo><i><b>indigo</b></i></button>
<button type="button" onclick="blue()" class=blue><i><b>blue</b></i></button>

```

```

<button type="button" onclick="green()" class=green><i><b>green</b></i></button>
<button type="button" onclick="yellow()" class=yellow><i><b>yellow</b></i></button>
<button type="button" onclick="orange()" class=orange><i><b>orange</b></i></button>
<button type="button" onclick="red()" class=red><i><b>red</b></i></button>
<button type="button" onclick="brown()" class=brown><i><b>brown</b></i></button>

</div>
<div>
<table>
<p><u><i><b>Choose Size</b></i></u></p>
<tr>
<td>
<button type="button" onclick="size0()" class="menu"></button>
</td>
<td>
<button type="button" onclick="size1()" class="menu1"></button>
</td>
<td>
<button type="button" onclick="size2()" class="menu2"></button>
</td>
</tr>
</table>
<input type=button value="Clear" onClick="history.go()">
</div>
</form>
</td>
</tr>
</table>

</html>

```

\*\*\*\*\*

### Find text

```

<head>
<script type="text/javascript">
    function FindNext () {
        var str = document.getElementById ("findInput").value;
        if (str == "") {
            alert ("Please enter some text to search!");
            return;
        }

        if (window.find) {          // Firefox, Google Chrome, Safari
            var found = window.find (str);
            if (!found) {
                alert ("The following text was not found:\n" + str);
            }
        }
        else {
            alert ("Your browser does not support this example!");
        }
    }
</script>
</head>

```

```

<body>
    <div>LaLa, Lala, laLa , lala, lalala, tralala, some other text</div>
    <br />
    <input type="text" id="findInput" value="lala" size="20" />
    <button onclick="FindNext ();">Find Next</button>
</body>

```

### Find and replace text

```

<div id="haystack">
    Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut
    labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris
    nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate
    velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non
    proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
</div>
<br>
<table>
    <tr><td>Find</td><td><input id="needle" name="needle" type="text"></td></tr>
    <tr><td>Replacment</td><td><input id="replacement" name="replacement" type="text"></td></tr>
</table>
<input type="button" value="Find" onClick="findMyText(document.getElementById('needle').value,
document.getElementById('replacement').value);"

<script>

var haystackText = "";
function findMyText(needle, replacement) {
    if (haystackText.length == 0) {
        haystackText = document.getElementById("haystack").innerHTML;
    }
    var match = new RegExp(needle, "ig");
    var replaced = "";
    if (replacement.length > 0) {
        replaced = haystackText.replace(match, replacement);
    }
    else {
        var boldText = "<div style=\"background-color: yellow; display: inline; font-weight: bold;\">" + needle + "</div>";
        replaced = haystackText.replace(match, boldText);
    }
    document.getElementById("haystack").innerHTML = replaced;
}

</script>

```

### Get lon and lat from address

```

<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="content-type" content="text/html; charset=UTF-8">
    <meta name="robots" content="noindex,nofollow">

```

---

```

<meta name="googlebot" content="noindex, nofollow">
<script type="text/javascript" src="/js/lib/dummy.js"></script>
<link rel="stylesheet" type="text/css" href="/css/result-light.css">

<script type="text/javascript"
src="https://maps.googleapis.com/maps/api/js?sensor=false"></script>

<style type="text/css">

</style>

<title>Get Latitude and Longitude from address by alvaroAV</title>

<script type='text/javascript'//><![CDATA[
window.onload=function(){
/* This showResult function is used as the callback function*/

function showResult(result) {
    document.getElementById('latitude').value = result.geometry.location.lat();
    document.getElementById('longitude').value = result.geometry.location.lng();
}

function getLatitudeLongitude(callback, address) {
    // If address is not supplied, use default value 'Ferrol, Galicia, Spain'
    address = address || 'Ferrol, Galicia, Spain';
    // Initialize the Geocoder
    geocoder = new google.maps.Geocoder();
    if (geocoder) {
        geocoder.geocode({
            'address': address
        }, function (results, status) {
            if (status == google.maps.GeocoderStatus.OK) {
                callback(results[0]);
            }
        });
    }
}

var button = document.getElementById('btn');

button.addEventListener("click", function () {
    var address = document.getElementById('address').value;
    getLatitudeLongitude(showResult, address)
});
}]]>

</script>

</head>

<body>
<!-- To use Geocoding from Google Maps V3 you need to link
https://maps.googleapis.com/maps/api/js?sensor=false --&gt;
&lt;div&gt;
&lt;h3&gt; Enter an address and press the button&lt;/h3&gt;
</pre>

```

---

```

<input id="address" type="text" placeholder="Enter address here" />
<button id="btn">Get LatLong</button>
<div>
    <p>Latitude:<br/>
        <input type="text" id="latitude" readonly />
    </p>
    <p>Longitude:<br/>
        <input type="text" id="longitude" readonly />
    </p>
</div>
</div>

</body>
</html>

```

\*\*\*\*\*

#### **Note:**

In "1 + 2" the "1" and "2" are the operands and the plus symbol is the operator.

\*\*\*\*\*

## **Polymorphism**

#### **Real time example:**

Suppose if you are in class room that time you behave like a student, when you are in shopping mall at that time you behave like a customer, when you at your home at that time you behave like a son or daughter. Your ability to present in different-different behaviors is known as polymorphism.

In the example:

```

public class HelloWorld
{
    public static void main(String [] args)
    {
        int a, b, sum;
        a=1;
        b=2;
        sum = a + b;
        System.out.println("the sum of a and b = " + sum);
    }
}

```

Plus symbol (+) act as operator in  

$$\text{sum} = \text{a+b};$$

and it act as the concatenation operator in

```
System.out.println("the sum of a and b = " + sum);
```

(concatenation means connecting two statements to produce a single statement) - which (here) concatenates the string "the sum of a and b = " and the string "sum (which is a+b (=3 since a= 1 and b=2)" -- producing a String statement

the sum of a and b = 3 which is displayed on the screen as the result.

The ability of plus symbol to behave both as arithmetic operator and concatenation operator is known as polymorphism.

\*\*\*\*\*

## How to play music in list view in android

**Java file:**

### MainActivity.java

```
import android.app.Activity;
import android.media.MediaPlayer;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.ListView;

public class MainActivity extends Activity {

    // variable declaration
    private ListView mainList;
    private MediaPlayer mp;
    private final String[] listContent = { "chimes", "chord", "ding" };

    private final int[] resID = { R.raw.chimes, R.raw.chord, R.raw.ding,
        };

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    // Initializing variables
        mp = new MediaPlayer();
        mainList = (ListView) findViewById(R.id.listView1);
        ArrayAdapter<String> adapter = new ArrayAdapter<String>(this,
            android.R.layout.simple_list_item_1, listContent);
        mainList.setAdapter(adapter);

        mainList.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            @Override
            public void onItemClick(AdapterView<?> adapterView, View view,
                int position, long id) {
                playSong(position);
            }
        });
    }

    private void playSong(int position) {
        mp.reset();
        mp.setDataSource(resID[position]);
        mp.prepare();
        mp.start();
    }
}
```

```

        }

    public void playSong(int songIndex) {
        // Play song
        mp.reset(); // stops any current playing song
        mp = MediaPlayer.create(getApplicationContext(), resID[songIndex]); // create's
        // new
        // mediaplayer
        // with
        // song.

        mp.start(); // starting mediaplayer
    }

    @Override
    public void onDestroy() {
        super.onDestroy();
        mp.release();
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.menu_main, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}

```

#### **XML file:**

##### **activity\_main.xml**

```

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.audio.MainActivity" >

    <ListView
        android:id="@+id/listView1"
        android:layout_width="match_parent"

```

```
    android:layout_height="match_parent"
    android:layout_centerHorizontal="true"
    android:layout_centerVertical="true" >
</ListView>

</RelativeLayout>
```

### raw folder



\*\*\*\*\*

## Encapsulation

```
public class Student{ // People can use this class.
    private String name; // People cannot directly access this data (variable).

    public String getName(){ // People can indirectly access the data (variable) via this public
        method.
        return name;
    }
    public void setName(String name){ // People can indirectly access the data (variable) via this
        public method.

        this.name=name;
    }
}
```

Encapsulation is the technique of bringing the data variables and methods in single frame and declaring data variable private (so it cannot be accessed by anyone outside the class, thereby hiding/ encapsulating the data variable (String name) within the public class Student) and providing indirect access to the data variable via public methods.

\*\*\*\*\*

## Change image when we click on buttons in Android

**Java file:**

### MainActivity.java

```
import android.os.Bundle;
import android.view.View;
import android.widget.ImageView;
import android.widget.TextView;
import android.app.Activity;
```

```
public class MainActivity extends Activity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }

    //mess method is declared in XML file
    //This function will call when we click on any button
    //and we have to pass View object in this method
    //which will take id of clicked button

    public void mess(View v)
    {
        //initialize image view object
        ImageView im=(ImageView)findViewById(R.id.imageView1);
        //get clicked button id from view object
        switch(v.getId())
        {
            case R.id.button1:
                //if button1 is clicked than set image1
                im.setImageResource(R.drawable.image1);
                break;
            case R.id.button2:
                //if button2 is clicked than set image2
                im.setImageResource(R.drawable.image2);
                break;
        }
    }
}
```

#### **XML file:**

#### **activity\_main.xml**

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:background="#458"
    android:orientation="vertical" >
    <ImageView
        android:id="@+id/imageView1"
        android:layout_width="200dp"
        android:layout_height="200dp"
        />
    <Button
        android:id="@+id/button1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="20sp"
        android:text="First Image "
        android:onClick="mess"/>
    <Button
        android:id="@+id/button2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
    android:textSize="20sp"
    android:text="Second Image"
    android:onClick="mess"/>
</LinearLayout>
```

```
*****
```

## Play music when we click on full screen image in Android

**Java file:**

### MainActivity.java

```
import android.app.Activity;
import android.media.MediaPlayer;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.Button;

public class MainActivity extends Activity {
    protected static final String TAG = "MainActivity";
    /** Called when the activity is first created. */
    Button meowBtn;
    MediaPlayer mPlayer;

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        meowBtn = (Button) findViewById(R.id.button1);
        mPlayer = MediaPlayer.create(MainActivity.this, R.raw.chimes);
        meowBtn.setOnClickListener(new View.OnClickListener() {

            public void onClick(View v) {
                try {
                    mPlayer.start();
                } catch (Exception e) {
                    Log.e(TAG, "error: " + e.getMessage(), e);
                }
            }
        });
    }

    protected void onDestroy() {
        super.onDestroy();
        // TODO Auto-generated method stub
        if (mPlayer != null) {
            mPlayer.release();
            mPlayer = null;
        }
    }
}
```

```
    }  
}  
}
```

**XML file:**

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
    android:layout_width="fill_parent"  
    android:layout_height="fill_parent"  
    android:orientation="vertical" >  
  
    <Button  
        android:id="@+id/button1"  
        android:layout_width="match_parent"  
        android:layout_height="match_parent"  
        android:background="@drawable/image1" />  
  
</LinearLayout>
```

\*\*\*\*\*

## Display of table in XML in Android

**XML file:**

### activity\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>  
<TableLayout xmlns:android="http://schemas.android.com/apk/res/android"  
    android:id="@+id/tableLayout1"  
    android:layout_width="match_parent"  
    android:layout_height="match_parent"  
    android:shrinkColumns="*"  
    android:stretchColumns="*" >  
  
    <TableRow  
        android:id="@+id/tableRow1"  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"  
        android:gravity="center_horizontal" >  
  
        <TextView  
            android:id="@+id/textView11"  
            android:layout_width="match_parent"  
            android:layout_height="wrap_content"  
            android:layout_span="6"  
            android:gravity="center"  
            android:text="Weather Report"  
            android:textsize="18dp"  
            android:textStyle="bold" >  
    </TextView>
```

```
</TableRow>

<TableRow
    android:id="@+id/tableRow2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >

    <TextView
        android:id="@+id/TextView21"
        android:text="" >
    </TextView>

    <TextView
        android:id="@+id/TextView22"
        android:gravity="center"
        android:text="M"
        android:textStyle="bold"
        android:typeface="serif" >
    </TextView>

    <TextView
        android:id="@+id/TextView23"
        android:gravity="center"
        android:text="T"
        android:textStyle="bold"
        android:typeface="serif" >
    </TextView>

    <TextView
        android:id="@+id/TextView24"
        android:gravity="center"
        android:text="W"
        android:textStyle="bold"
        android:typeface="serif" >
    </TextView>

    <TextView
        android:id="@+id/TextView25"
        android:gravity="center"
        android:text="T"
        android:textStyle="bold"
        android:typeface="serif" >
    </TextView>

    <TextView
        android:id="@+id/textView26"
        android:gravity="center"
        android:text="F"
        android:textStyle="bold"
        android:typeface="serif" >
    </TextView>
</TableRow>

<TableRow
    android:id="@+id/tableRow3"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >

    <TextView
        android:id="@+id/textView31"
        android:text="Day High"
        android:textStyle="bold" >
    </TextView>

    <TextView
        android:id="@+id/textView32"
```

```
        android:gravity="center_horizontal"
        android:text="34°C" >
    </TextView>

    <TextView
        android:id="@+id/textView33"
        android:gravity="center_horizontal"
        android:text="35°C" >
    </TextView>

    <TextView
        android:id="@+id/textView34"
        android:gravity="center_horizontal"
        android:text="34°C" >
    </TextView>

    <TextView
        android:id="@+id/textView35"
        android:gravity="center_horizontal"
        android:text="35°C" >
    </TextView>

    <TextView
        android:id="@+id/textView36"
        android:gravity="center_horizontal"
        android:text="33°C" >
    </TextView>
</TableRow>

<TableRow
    android:id="@+id/tableRow4"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" >

    <TextView
        android:id="@+id/textView41"
        android:text="Day Low"
        android:textStyle="bold" >
    </TextView>

    <TextView
        android:id="@+id/textView42"
        android:gravity="center_horizontal"
        android:text="28°C" >
    </TextView>

    <TextView
        android:id="@+id/textView43"
        android:gravity="center_horizontal"
        android:text="27°C" >
    </TextView>

    <TextView
        android:id="@+id/textView44"
        android:gravity="center_horizontal"
        android:text="29°C" >
    </TextView>

    <TextView
        android:id="@+id/textView45"
        android:gravity="center_horizontal"
        android:text="26°C" >
    </TextView>

    <TextView
        android:id="@+id/textView46"
        android:gravity="center_horizontal"
        android:text="25°C" >
    </TextView>
</TableRow>
```

```

        android:gravity="center_horizontal"
        android:text="29°C" >
    </TextView>
</TableRow>

<TableRow
    android:id="@+id/tableRow5"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center" >

    <TextView
        android:id="@+id/textView8"
        android:text="Conditions"
        android:textStyle="bold" >
    </TextView>

    <ImageView
        android:id="@+id/imageView1"
        android:src="@drawable/monday" >
    </ImageView>

    <ImageView
        android:id="@+id/imageView2"
        android:src="@drawable/tuesday" >
    </ImageView>

    <ImageView
        android:id="@+id/imageView3"
        android:src="@drawable/wednesday" >
    </ImageView>

    <ImageView
        android:id="@+id/imageView4"
        android:src="@drawable/thursday" >
    </ImageView>

    <ImageView
        android:id="@+id/imageView5"
        android:src="@drawable/friday" >
    </ImageView>
</TableRow>

</TableLayout>

```



\*\*\*\*\*

### BMI Calculator in Android

**Java file:**

**MainActivity.java**

```
import android.os.Bundle;
import android.app.Activity;
import android.text.TextUtils;
import android.view.Menu;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends Activity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        final EditText e1 = (EditText) findViewById(R.id.et1);
        final EditText e2 = (EditText) findViewById(R.id.et2);
        final TextView tv4 = (TextView) findViewById(R.id.tv4);

        findViewById(R.id.ib1).setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {

                String str1 = e1.getText().toString();
                String str2 = e2.getText().toString();

                if (TextUtils.isEmpty(str1)) {
                    e1.setError("Please enter your weight");
                    e1.requestFocus();
                    return;
                }

                if (TextUtils.isEmpty(str2)) {
                    e2.setError("Please enter your height");
                    e2.requestFocus();
                    return;
                }

                float weight = Float.parseFloat(str1);
                float height = Float.parseFloat(str2) / 100;

                float bmiValue = calculateBMI(weight, height);

                String bmiInterpretation = interpretBMI(bmiValue);

                tv4.setText(String.valueOf(bmiValue + " - " + bmiInterpretation));

            }
        });
    }
}
```

```

private float calculateBMI (float weight, float height) {

    return (float) (weight / (height * height));
}

// interpret what BMI means
private String interpretBMI(float bmiValue) {

    if (bmiValue < 16) {
        return "Severely underweight";
    } else if (bmiValue < 18.5) {

        return "Underweight";
    } else if (bmiValue < 25) {

        return "Normal";
    } else if (bmiValue < 30) {

        return "Overweight";
    } else {
        return "Obese";
    }
}

```

**XML file:**

**activity\_main.xml**

```

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:background="@drawable/green_back"
    android:fadingEdge="horizontal"
    android:orientation="vertical" >

    <TextView
        android:id="@+id/tv1"
        android:layout_width="124dp"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:paddingLeft="15dp"
        android:paddingTop="40dp"
        android:shadowColor="@android:color/black"
        android:shadowDx="4"
        android:shadowDy="4"
        android:text="BMI"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:textColor="@android:color/white"
        android:textSize="50sp"
        android:typeface="serif" />

    <TextView
        android:id="@+id/tv2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"

```

```

        android:layout_gravity="center"
        android:text="Calculator"
        android:textColor="@android:color/white"
        android:textSize="20dp"
        android:textStyle="bold" />

<TextView
    android:id="@+id/tv3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:paddingTop="30dp"
    android:text="WEIGHT (KG)"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:textColor="@android:color/white"
    android:textStyle="bold|italic"
    android:typeface="serif" />

<EditText
    android:id="@+id/et1"
    android:layout_width="96dp"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:hint="IN KGs"
    android:ems="10"
    android:fadingEdgeLength="10dp"
    android:inputType="numberDecimal"
    android:textAlignment="center" >

    <requestFocus />
</EditText>

<TextView
    android:id="@+id/tv3"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:paddingTop="30dp"
    android:text="HEIGHT (CM)"
    android:textAppearance="?android:attr/textAppearanceMedium"
    android:textColor="@android:color/white"
    android:textStyle="bold|italic"
    android:typeface="serif" />

<EditText
    android:id="@+id/et2"
    android:layout_width="96dp"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:hint="IN CMs"
    android:ems="10"
    android:inputType="numberDecimal"
    >
</EditText>

<Button
    android:id="@+id/ib1"
    android:layout_width="158dp"
    android:layout_height="51dp"
    android:layout_gravity="center"
    android:layout_marginTop="20dp"
    android:fadingEdge="vertical"
    android:longClickable="true"
    android:nextFocusRight="@color/colorPrimary"
    android:text="Calculate"
    android:visibility="visible" />

```

```

<TextView
    android:id="@+id/tv4"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center"
    android:paddingTop="20dp"
    android:text=""
    android:textSize="20dp"
    android:textStyle="bold"
    android:textColor="@color/colorPrimary" />

</LinearLayout>

```

### colors.xml

```

<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="colorPrimary">#3F51B5</color>
    <color name="colorPrimaryDark">#303F9F</color>
    <color name="colorAccent">#FF4081</color>
</resources>

```



\*\*\*\*\*

### Border property in Css

```

<style>

p.multiple
{
border-top-style: solid;
border-left-style: dotted;
border-bottom-style: dashed;
border-right-style: double;
padding: 58px;
width: 458px;
}

</style>

<!DOCTYPE html>
<html>
<head>
<title>CSS Border Style</title>
<!-- Include css file here -->
<link href="css/style.css" rel="stylesheet">

```

```

</head>
<body>
<p class="multiple">
This is the paragraph with multiple border </p>
</body>
</html>

```

\*\*\*\*\*

### Image rollover effect

```

<html>
<head>
<script type="text/javascript">
<!--
image01= new Image()
image01.src="img/image1.jpg"
image02= new Image()
image02.src="img/image2.jpg"
//-->
</script>
</head>

<center>
<body>
<a href="whatever.htm" onmouseover=
"document.images['example'].src=image02.src" onmouseout=
"document.images['example'].src=image01.src">


```

\*\*\*\*\*

### ADD, EDIT REMOVE CONTACT FORM

```

<!doctype html>
<html>
<head>
<meta charset="utf-8" />
<title>Contacts</title>

<style>
a { color: #0068D2; cursor: pointer; }
a:link, a:visited { text-decoration: none; color: #0068D2; }
a:hover, a:active { text-decoration: underline; color: #0068D2; }
body { font: 12px/18px "Lucida Grande", "Lucida Sans Unicode", sans-serif; }

#contacts-table { border-collapse: collapse; }

```

```

#contacts-table, #contacts-table th, #contacts-table td { padding: 8px 16px; text-align: left;
border: 0px solid #B9BABA; }
#contacts-table th { font-weight: bold; font-size: 14px; color: #29344B; }
#contacts-table td { color: #000; }
#contacts-table tr:nth-child(2n) { background: #E8EDFF; }

#contacts-form { padding: 10px; }
.text input, .button input { padding: 5px; margin: 0; border: 1px solid #ccc; -moz-border-radius:
2px; -webkit-border-radius: 2px; border-radius: 2px; }
#contacts-form .item { margin: 3px 0; }
#contacts-form label, #contacts-form .field { display: inline-block; color: #0C0B07; }
#contacts-form label { width: 110px; font-weight: bold; text-align: right; color: #666; }
#contacts-form .text input { width: 176px; padding: 3px; }
#contacts-form .button { display: inline-block; }
#contacts-form .button-wrapper { padding-left: 113px; }
.button input { padding: 4px 8px; color: #343434; background-color: #fdfdfd; background: -moz-
linear-gradient(#fdfdfd, #e1e1e1); background: -webkit-gradient(linear, 0 0, 0 100%,
from(#fdfdfd), to(#e1e1e1)); }
.button-default input { font-weight: bold; color: #fff; background-color: #7ca0c7; background: -moz-
linear-gradient(#acc6e1, #7ca0c7); background: -webkit-gradient(linear, 0 0, 0 100%,
from(#acc6e1), to(#7ca0c7)); border-color: #5b80b2; }
</style>
</head>
<body>
<h1>Contacts</h1>
<table id="contacts-table">
<tr id="contacts-head">
<th>ID</th>
<th>First name</th>
<th>Last name</th>
<th>Email</th>
<th>Actions</th>
</tr>
</table>

<form id="contacts-form">
<div class="item text">
<label>First name:</label>
<div class="field"><input type="text" name="first_name" /></div>
</div>
<div class="item text">
<label>Last name:</label>
<div class="field"><input type="text" name="last_name" /></div>
</div>
<div class="item text">
<label>Email:</label>
<div class="field"><input type="text" name="email" /></div>
</div>
<div class="button-wrapper">
<div class="item button">
<div class="field"><input type="button" id="contacts-op-discard" value="Discard" /></div>
</div>
<div class="item button button-default">
<div class="field"><input type="submit" id="contacts-op-save" value="Save" /></div>
</div>
</div>
<input type="hidden" name="id_entry" value="0" />
</form>

```

```

<script>
var Contacts = {
index: window.localStorage.getItem("Contacts:index"),
$table: document.getElementById("contacts-table"),
$form: document.getElementById("contacts-form"),
$button_save: document.getElementById("contacts-op-save"),
$button_discard: document.getElementById("contacts-op-discard"),

init: function() {
// initialize storage index
if (!Contacts.index) {
window.localStorage.setItem("Contacts:index", Contacts.index = 1);
}

// initialize form
Contacts.$form.reset();
Contacts.$button_discard.addEventListener("click", function(event) {
Contacts.$form.reset();
Contacts.$form.id_entry.value = 0;
}, true);
Contacts.$form.addEventListener("submit", function(event) {
var entry = {
id: parseInt(this.id_entry.value),
first_name: this.first_name.value,
last_name: this.last_name.value,
email: this.email.value
};
if (entry.id == 0) { // add
Contacts.storeAdd(entry);
Contacts.tableAdd(entry);
}
else { // edit
Contacts.storeEdit(entry);
Contacts.tableEdit(entry);
}

this.reset();
this.id_entry.value = 0;
event.preventDefault();
}, true);

// initialize table
if (window.localStorage.length - 1) {
var contacts_list = [], i, key;
for (i = 0; i < window.localStorage.length; i++) {
key = window.localStorage.key(i);
if (/^Contacts:\d+/.test(key)) {
contacts_list.push(JSON.parse(window.localStorage.getItem(key)));
}
}
}

if (contacts_list.length) {
contacts_list
.sort(function(a, b) {
return a.id < b.id ? -1 : (a.id > b.id ? 1 : 0);
})
.forEach(Contacts.tableAdd);
}
}

```

```

}
}

Contacts.$table.addEventListener("click", function(event) {
var op = event.target.getAttribute("data-op");
if (/edit|remove/.test(op)) {
var entry = JSON.parse(window.localStorage.getItem("Contacts:"+ event.target.getAttribute("data-id")));
if (op == "edit") {
Contacts.$form.first_name.value = entry.first_name;
Contacts.$form.last_name.value = entry.last_name;
Contacts.$form.email.value = entry.email;
Contacts.$form.id_entry.value = entry.id;
}
else if (op == "remove") {
if (confirm('Are you sure you want to remove "'+ entry.first_name +' '+ entry.last_name +'" from
your contacts?')) {
Contacts.storeRemove(entry);
Contacts.tableRemove(entry);
}
}
event.preventDefault();
}
},
true);

storeAdd: function(entry) {
entry.id = Contacts.index;
window.localStorage.setItem("Contacts:index", ++Contacts.index);
window.localStorage.setItem("Contacts:"+ entry.id, JSON.stringify(entry));
},
storeEdit: function(entry) {
window.localStorage.setItem("Contacts:"+ entry.id, JSON.stringify(entry));
},
storeRemove: function(entry) {
window.localStorage.removeItem("Contacts:"+ entry.id);
},

tableAdd: function(entry) {
var $tr = document.createElement("tr"), $td, key;
for (key in entry) {
if (entry.hasOwnProperty(key)) {
$td = document.createElement("td");
$td.appendChild(document.createTextNode(entry[key]));
$tr.appendChild($td);
}
}
$td = document.createElement("td");
$td.innerHTML = '<a data-op="edit" data-id="'+ entry.id +'>Edit</a> | <a data-op="remove" data-
id="'+ entry.id +'>Remove</a>';
$tr.appendChild($td);
$tr.setAttribute("id", "entry-"+ entry.id);
Contacts.$table.appendChild($tr);
},
tableEdit: function(entry) {
var $tr = document.getElementById("entry-"+ entry.id), $td, key;
$tr.innerHTML = "";
for (key in entry) {
if (entry.hasOwnProperty(key)) {

```

```

$td = document.createElement("td");
$td.appendChild(document.createTextNode(entry[key]));
$str.appendChild($td);
}
}
$td = document.createElement("td");
$td.innerHTML = '<a data-op="edit" data-id="'+ entry.id +'>Edit</a> | <a data-op="remove" data-
id="'+ entry.id +'>Remove</a>';
$str.appendChild($td);
},
tableRemove: function(entry) {
Contacts.$table.removeChild(document.getElementById("entry-"+ entry.id));
}
};
Contacts.init();
</script>
</body>
</html>

*****

```

### Create Bussiness Card

```

<style class="cp-pen-styles">

*, 
*:before, 
*:after { 
box-sizing: border-box; 
margin: 0; 
padding: 0; 
} 

body { 
-webkit-box-align: center; 
-webkit-align-items: center; 
-ms-flex-align: center; 
align-items: center; 
background: -webkit-linear-gradient(315deg, #FFFFFF, #FFFFFF); 
background: linear-gradient(135deg, #FFFFFF, #FFFFFF); 
background-color:#FFFFFF ; 
display: -webkit-box; 
display: -webkit-flex; 
display: -ms-flexbox; 
display: flex; 
-webkit-box-pack: center; 
-webkit-justify-content: center; 
-ms-flex-pack: center; 
justify-content: center; 
min-height: 50vh; 
padding: 14px; 
} 
body::-webkit-scrollbar { 
display: none; 
} 

```

```

a {
color: inherit;
text-decoration: none;
}
a:hover {
text-decoration: underline;
}

.card {
color: #d4cd96;
font-family: 'Fira Sans', sans-serif;
height: 100%;
left: 0;
position: absolute;
top: 0;
-webkit-transform-origin: 100% 50%;
transform-origin: 100% 50%;
-webkit-transform-style: preserve-3d;
transform-style: preserve-3d;
width: 100%;
-webkit-tap-highlight-color: transparent;
-webkit-transition: -webkit-transform 0.6s cubic-bezier(0.49, 0.23, 0.58, 0.49);
transition: -webkit-transform 0.6s cubic-bezier(0.49, 0.23, 0.58, 0.49);
transition: transform 0.6s cubic-bezier(0.49, 0.23, 0.58, 0.49);
transition: transform 0.6s cubic-bezier(0.49, 0.23, 0.58, 0.49), -webkit-transform 0.6s cubic-
bezier(0.49, 0.23, 0.58, 0.49);
}
.card.flipped {
-webkit-transform: translateX(-100%) rotateY(-180deg);
transform: translateX(-100%) rotateY(-180deg);
}

.card-front,
.card-back {
-webkit-backface-visibility: hidden;
backface-visibility: hidden;
background: -webkit-repeating-linear-gradient(315deg, rgba(0, 0, 0, 0.3), transparent 1px,
rgba(0, 0, 0, 0.3) 2px);
background: repeating-linear-gradient(135deg, rgba(0, 0, 0, 0.3), transparent 1px, rgba(0, 0, 0,
0.3) 2px);
background-size: 3px 3px;
background-color: #302f34;
border-radius: 1px;
box-shadow: 0px -6px 8px 0px rgba(0, 0, 0, 0.1), 0px 6px 8px 0px rgba(0, 0, 0, 0.1), 6px 0px 8px
0px rgba(0, 0, 0, 0.1), -6px 0px 8px 0px rgba(0, 0, 0, 0.1);
cursor: pointer;
height: 100%;
left: 0;
padding: 5%;
position: absolute;
top: 0;
width: 100%;
}

.card-back {
-webkit-transform: rotateY(180deg);
transform: rotateY(180deg);
}

```

```
.card-back .layer {
background: -webkit-repeating-linear-gradient(315deg, rgba(76, 71, 31, 0.3), transparent 1px, rgba(76, 71, 31, 0.3) 2px);
background: repeating-linear-gradient(135deg, rgba(76, 71, 31, 0.3), transparent 1px, rgba(76, 71, 31, 0.3) 2px);
background-size: 3px 3px;
background-color: #d4cd96;
color: #302f34;
height: 100%;
position: relative;
width: 100%;
}
.card-back .layer:after {
background: -webkit-linear-gradient(315deg, rgba(0, 0, 0, 0.2), transparent);
background: linear-gradient(135deg, rgba(0, 0, 0, 0.2), transparent);
content: '';
display: block;
height: 100%;
left: 0;
position: absolute;
top: 0;
width: 100%;
}
.card-back .layer .top,
.card-back .layer .bottom {
left: 8%;
position: absolute;
z-index: 1;
}
.card-back .layer .top {
top: 12%;
}
.card-back .layer .bottom {
bottom: 12%;
}
.card-back .layer h2, .card-back .layer h3, .card-back .layer h4 {
font-weight: 400;
margin: 2px 0;
}
.card-back .layer h2 {
font-size: 18px;
font-weight: 500;
text-transform: uppercase;
}
.card-back .layer h3 {
font-size: 16px;
}
.card-back .layer h4 {
font-size: 16px;
font-style: italic;
}

.card-front .layer {
-webkit-backface-visibility: hidden;
backface-visibility: hidden;
display: -webkit-box;
display: -webkit-flex;
display: -ms-flexbox;
```

```
display: flex;
-webkit-box-orient: vertical;
-webkit-box-direction: normal;
-webkit-flex-direction: column;
-ms-flex-direction: column;
flex-direction: column;
height: 100%;
-webkit-box-pack: center;
-webkit-justify-content: center;
-ms-flex-pack: center;
justify-content: center;
position: relative;
width: 100%;
}
.card-front .layer h1 {
font-size: 32px;
font-weight: 400;
letter-spacing: -2px;
margin: 0 auto;
padding: 6px 18px 4px;
text-align: center;
}
.card-front .layer .corner {
-webkit-backface-visibility: hidden;
backface-visibility: hidden;
border-right: 2px solid #d4cd96;
border-top: 2px solid #d4cd96;
height: 12px;
position: absolute;
width: 12px;
}
.card-front .layer .corner:nth-of-type(1) {
right: 0;
top: 0;
}
.card-front .layer .corner:nth-of-type(2) {
left: 0;
top: 0;
-webkit-transform: rotateZ(-90deg);
transform: rotateZ(-90deg);
}
.card-front .layer .corner:nth-of-type(3) {
bottom: 0;
left: 0;
-webkit-transform: rotateZ(180deg);
transform: rotateZ(180deg);
}
.card-front .layer .corner:nth-of-type(4) {
bottom: 0;
right: 0;
-webkit-transform: rotateZ(90deg);
transform: rotateZ(90deg);
}

.card-wrapper {
height: 271.76471px;
max-width: 420px;
-webkit-perspective: 600px;
```

---

```

perspective: 600px;
position: relative;
width: 100%;
-webkit-transition: -webkit-transform 1s;
transition: -webkit-transform 1s;
transition: transform 1s;
transition: transform 1s, -webkit-transform 1s;
}
</style></head><body>
<div class='card-wrapper'>
<div class='card' data-toggle-class='flipped'>
<div class='card-front'>
<div class='layer'>
<h1>Lobos</h1>
<div class='corner'></div>
<div class='corner'></div>
<div class='corner'></div>
<div class='corner'></div>
</div>
</div>
<div class='card-back'>
<div class='layer'>
<div class='top'>
<h2>Web Consultant</h2>
<h4>Your dreams. Realised.</h4>
</div>
<div class='bottom'>
<h3>
Phone:
<a href='tel:+44 7542 20 33 83'>+44 7542 20 33 83</a>
</h3>
<h3>
Email:
<a href='mailto:contact@in.us'>contact@lmen.us</a>
</h3>
<h3>
Twitter:
<a href='https://www.twitter.com/lmenus' target='_blank'>lmen</a>
</h3>
<h3>
Web:
<a href='http://www.lmen.us' target='_blank'>lmen.us</a>
</h3>
</div>
</div>
</div>
</div>
</div>

<script>;(function () {
let card = document.getElementsByClassName('card')[0],
moved = 0,
interval;

if (!card) return;

card.addEventListener('click', function (event) {
clearInterval(interval);

```

```

card.style.transform = '';

// Do not flip the card if the user is trying to
// tap a link.
if (event.target.nodeName === 'A') {
return;
}

let cName = card.getAttribute('data-toggle-class');
let toggled = card.classList.contains(cName);
card.classList[toggled ? 'remove' : 'add'](cName);
});

interval = setInterval(function () {
moved = moved ? 0 : 10;
card.style.transform = 'translateY(' + moved + 'px)';
}, 1500);
})();

```

</script>

---

## Burger Menu in CSS

```

<style class="cp-pen-styles">
body {
background: #808080;
}
body h1 {
position: fixed;
top: 40px;
left: 40px;
z-index: 6;
font-size: 20px;
font-weight: 900;
font-family: sans-serif;
text-transform: uppercase;
}
body h1 > span {
text-transform: none;
opacity: .5;
font-weight: 300;
font-size: 12px;
}
body input + label {
position: fixed;
top: 40px;
right: 40px;
height: 20px;
width: 15px;
z-index: 5;
}
body input + label span {
position: absolute;

```

```
width: 100%;  
height: 2px;  
top: 50%;  
margin-top: -1px;  
left: 0;  
display: block;  
background: #020304;  
transition: .5s;  
}  
body input + label span:first-child {  
    top: 3px;  
}  
body input + label span:last-child {  
    top: 16px;  
}  
body label:hover {  
    cursor: pointer;  
}  
body input:checked + label span {  
    opacity: 0;  
    top: 50%;  
}  
body input:checked + label span:first-child {  
    opacity: 1;  
    transform: rotate(405deg);  
}  
body input:checked + label span:last-child {  
    opacity: 1;  
    transform: rotate(-405deg);  
}  
body input ~ nav {  
    background: white;  
    position: fixed;  
    top: 0;  
    left: 0;  
    width: 100%;  
    height: 100px;  
    z-index: 3;  
    transition: .5s;  
    transition-delay: .5s;  
    overflow: hidden;  
}  
body input ~ nav > ul {  
    text-align: center;  
    position: absolute;  
    top: 35%;  
    left: 20%;  
    right: 20%;  
}  
body input ~ nav > ul > li {  
    opacity: 0;  
    transition: .5s;  
    transition-delay: 0s;  
}  
body input ~ nav > ul > li > a {  
    text-decoration: none;  
    text-transform: uppercase;  
    color: #020304;
```

---

```

font-weight: 700;
font-family: sans-serif;
display: block;
padding: 30px;
}
body input:checked ~ nav {
height: 100%;
transition-delay: 0s;
}
body input:checked ~ nav > ul > li {
opacity: 1;
transition-delay: .5s;
}
</style></head><body>
<h1>Burger Menu <span>by JLNLJN</span></h1>

<input id="burger" type="checkbox" />

<label for="burger">


```

\*\*\*\*\*

## Breadcrumbs

```

<style class="cp-pen-styles">
body{
margin:0;
color:#444;
background:#cecece;
font:300 18px/18px Roboto, sans-serif;
}
*,:after,:before{box-sizing:border-box}
.pull-left{float:left}
.pull-right{float:right}
.clearfix:after,.clearfix:before{content:'';display:table}
.clearfix:after{clear:both;display:block}

.wrap{
width:100%;
overflow:hidden;
max-width:650px;
border-radius:4px;
margin:30px auto 0;
box-shadow:0 4px 6px #000;

```

```
}

.wrap .tab{opacity:0;position:absolute}
.content{
overflow:hidden;
min-height:330px;
position:relative;
background-color:#fff;
}
.content .htm{
top:0;
left:0;
right:0;
bottom:0;
opacity:0;
width:100%;
height:100%;
padding:30px;
overflow-y:auto;
visibility:hidden;
position:absolute;
-webkit-transform:translateX(50%) skew(-50deg);
transform:translateX(50%) skew(-50deg);
-webkit-transition:all .6s ease-in-out 0s;
transition:all .6s ease-in-out 0s;
}
.content .htm h1{
margin-top:0;
font-size:42px;
line-height:42px;
font-weight:normal;
font-family:'Denk One','Roboto','Open Sans',sans-serif;
}
.content .htm p{
line-height:24px;
}
.content .htm .list{
counter-reset:credits;
}
.content .htm .list .item{
position:relative;
padding-left:30px;
margin-bottom:10px;
}
.content .htm .list .item:before{
left:0;
top:50%;
color:#fff;
width:20px;
height:20px;
font-size:14px;
margin-top:-10px;
line-height:20px;
border-radius:50%;
text-align:center;
position:absolute;
background:#5C6BC0;
content:counter(credits);
counter-increment:credits;
```

```
}

.content .htm .list .item a{
font-size:18px;
font-weight:500;
color:currentColor;
text-decoration:none;
}
.content .htm .text{margin-top:20px;font-style:italic}
.content .grd>.col{
float:left;
width:33.3333%;
}
.content .work-item{
margin:15px;
padding:10px;
min-height:70px;
overflow:hidden;
position:relative;
box-shadow:0 2px 10px 0 rgba(0,0,0,.16),0 2px 5px 0 rgba(0,0,0,.26);
}
.content .work-item a{
top:0;
left:0;
right:0;
bottom:0;
width:100%;
height:100%;
position:absolute;
color:currentColor;
}
.content .work-item a:before{
top:15px;
z-index:1;
left:-20px;
color:#fff;
padding:0 4px;
min-width:88px;
font-size:12px;
position:absolute;
white-space:nowrap;
text-align:center;
content:attr(data-type);
background-color:#BA6C8;
-webkit-transition:all .4s ease-in-out 0s;
transition:all .4s ease-in-out 0s;
-webkit-transform:rotate(-45deg) rotateX(90deg);
transform:rotate(-45deg) rotateX(90deg);
}
.content .work-item .more{
top:50%;
left:50%;
color:#fff;
width:30px;
height:30px;
margin-top:-20px;
margin-left:-15px;
line-height:30px;
position:absolute;
```

```
border-radius:50%;  
text-align:center;  
background-color:#3F51B5;  
-webkit-transition:all .4s ease-in-out 0s;  
transition:all .4s ease-in-out 0s;  
}  
.content .work-item .title{  
left:0;  
right:0;  
bottom:0;  
width:100%;  
padding:5px;  
font-size:13px;  
position:absolute;  
text-align:center;  
-webkit-transition:all .4s ease-in-out 0s;  
transition:all .4s ease-in-out 0s;  
}  
.content .work-item:hover a:before{  
-webkit-transform:rotate(-45deg);  
transform:rotate(-45deg);  
}  
.content .work-item:hover .title{  
color:#fff;  
font-size:10px;  
text-transform:uppercase;  
-webkit-transform:translateY(-20px);  
transform:translateY(-20px);  
}  
.content .work-item:hover .more{  
color:transparent;  
-webkit-transform:scale(7);  
transform:scale(7);  
}  
  
.nav{  
color:rgba(255,255,255,.75);  
text-align:center;  
background-color:#6c17ff;  
}  
.links{  
position:relative;  
vertical-align:middle;  
display:inline-block;  
}  
.links:before{  
left:0;  
top:-4px;  
height:4px;  
content:'';  
width:100px;  
position:absolute;  
background-color:#6c17ff;  
-webkit-transition:all .4s ease-in-out 0s;  
transition:all .4s ease-in-out 0s;  
}  
.links label{  
float:left;
```

```

cursor:pointer;
font-size:22px;
min-width:100px;
font-weight:700;
text-align:center;
padding:20px 10px;
color:currentColor;
text-decoration:none;
overflow:hidden;
max-width:100px;
white-space:nowrap;
display:inline-block;
text-overflow:ellipsis;
-webkit-transition:color .4s ease-in-out 0s;
transition:color .4s ease-in-out 0s;
}
.wrap .tab:nth-child(2):checked ~ .nav .links:before{left:100px}
.wrap .tab:nth-child(3):checked ~ .nav .links:before{left:200px}
.wrap .tab:nth-child(4):checked ~ .nav .links:before{left:300px}

.wrap .tab:nth-child(1):checked ~ .nav .links label:nth-child(1),
.wrap .tab:nth-child(2):checked ~ .nav .links label:nth-child(2),
.wrap .tab:nth-child(3):checked ~ .nav .links label:nth-child(3),
.wrap .tab:nth-child(4):checked ~ .nav .links label:nth-child(4){color:#fff}

.wrap .tab:nth-child(1):checked ~ .content .htm:nth-child(1),
.wrap .tab:nth-child(2):checked ~ .content .htm:nth-child(2),
.wrap .tab:nth-child(3):checked ~ .content .htm:nth-child(3),
.wrap .tab:nth-child(4):checked ~ .content .htm:nth-child(4){
opacity:1;
visibility:visible;
-webkit-transform:translateX(0);
transform:translateX(0);
}
@media (max-width:480px){
.links:before{width:70px}
.links label{font-size:16px;min-width:70px}
.wrap .tab:nth-child(2):checked ~ .nav .links:before{left:70px}
.wrap .tab:nth-child(3):checked ~ .nav .links:before{left:140px}
.wrap .tab:nth-child(4):checked ~ .nav .links:before{left:210px}
.content .grd>.col{width:50%}
}
@media (max-width:380px){
.content .work-item{margin:30px 0}
.content .grd>.col{width:100%;float:none}
.content .grd>.col:not(:last){margin-bottom:15px}
.content .work-item:hover .more{color:transparent;-webkit-
transform:scale(15);transform:scale(15)}
}<!-- style --&gt;&lt;/head&gt;&lt;body&gt;
&lt;div class="wrap"&gt;
&lt;input id="tab-1" class="tab" type="radio" name="nav"&gt;
&lt;input id="tab-2" class="tab" type="radio" name="nav"&gt;
&lt;input id="tab-3" class="tab" type="radio" name="nav" checked&gt;
&lt;input id="tab-4" class="tab" type="radio" name="nav"&gt;
&lt;div class="content"&gt;
&lt;div class="htm"&gt;
&lt;h1&gt;home&lt;/h1&gt;
&lt;p&gt;Hello Codepen!&lt;/p&gt;
</pre>

```

---



---

```

<p>This design is based on dribbble shot that was create by <a href="https://dribbble.com/hansjan_nl">Hansjan Kamerling</a>. You can find stuff information inside credits tab.</p>
</div>
<div class="htm">
<h1>about</h1>
<p>Hi, It's me Mohan from <b>Nepal</b>. I'm a web and graphics designer. Designing is my passion and I am still learning and developing my skills on graphics designing and coding. I have been working on various designing projects.</p>
</div>
<div class="htm">
<h1>work</h1>
<div class="grd clearfix">
<div class="col">
<div class="work-item">
<a href="https://codecanyon.net/user/khadkamhn/portfolio" target="_blank" data-type="code">
<span class="more">+</span>
<span class="title">Envato</span>
</a>
</div>
</div>
<div class="col">
<div class="work-item">
<a href="https://codepen.io/khadkamhn/" target="_blank" data-type="profile">
<span class="more">+</span>
<span class="title">Codepen</span>
</a>
</div>
</div>
<div class="col">
<div class="work-item">
<a href="http://codepen.io/khadkamhn/full/BNwxEa/" target="_blank" data-type="codepen">
<span class="more">+</span>
<span class="title">Secret UI</span>
</a>
</div>
</div>
<div class="col">
<div class="work-item">
<a href="http://codepen.io/khadkamhn/full/KrJBGP/" target="_blank" data-type="codepen">
<span class="more">+</span>
<span class="title">Bee</span>
</a>
</div>
</div>
<div class="col">
<div class="work-item">
<a href="http://codepen.io/khadkamhn/full/EVaJLy" target="_blank" data-type="codepen">
<span class="more">+</span>
<span class="title">Lock Screen</span>
</a>
</div>
</div>
<div class="col">
<div class="work-item">
<a href="http://codepen.io/khadkamhn/full/oXORGZ" target="_blank" data-type="codepen">
<span class="more">+</span>
<span class="title">Accordion Profile</span>

```

```

</a>
</div>
</div>
</div>
</div>
<div class="htm">
<h1>credits</h1>
<p>I have been using the following assets to build this design.</p>
<div class="list">
<div class="item"><a href="https://fonts.google.com/specimen/Roboto" target="_blank">roboto</a>
font <span>for typography</span></div>
<div class="item"><a href="https://dribbble.com/shots/2474526-Day-55-Breadcrumbs"
target="_blank">concept of design</a> <span>for layout</span></div>
<div class="item"><a href="https://fonts.google.com/specimen/Denk+One" target="_blank">denk
one</a> font <span>for heading</span></div>
</div>
<div class="text">I'm glad for using these resources and expecting same as time ahead</div>
</div>
</div>
<div class="nav">
<div class="links">
<label for="tab-1">home</label>
<label for="tab-2">about</label>
<label for="tab-3">work</label>
<label for="tab-4">credits</label>
</div>
</div>
</div>

```

\*\*\*\*\*

## Ball Game

```

<style class="cp-pen-styles">
body {
  background: cornflowerblue;
  margin: 0;
  overflow-y: overlay;
  font-family: Helvetica, sans-serif;
}

.bg {
  width: 300vw;
  height: 1px;
}

.ball {
  position: fixed;
  top: 100px;
  left: 20vw;
  width: 25px;
  height: 25px;
  border: 2px solid black;
  border-radius: 50%;
  background: white;
}

```

```
}

::-webkit-scrollbar {
  width: 40px;
  height: 40px;
}

/* Track */
::-webkit-scrollbar-track {
  background: cornflowerblue;
}

/* Thumb */
::-webkit-scrollbar-thumb {
  border-radius: 18px;
  border: 2px solid black;
  background: crimson;
}

.blocks {
  position: fixed;
  width: 80vw;
  left: calc(50% - 40vw);
  top: 100px;
  display: flex;
  flex-wrap: wrap;
  justify-content: center;
}

.block {
  background: turquoise;
  width: 10%;
  height: 25px;
  margin: 3px;
  border: 2px solid black;
  animation: go-down 1s cubic-bezier(0.25, 0.1, 0.15, 1) forwards;
}

.block:nth-child(1) {
  transform: translateY(-215vh);
}

.block:nth-child(2) {
  transform: translateY(-324vh);
}

.block:nth-child(3) {
  transform: translateY(-300vh);
}

.block:nth-child(4) {
  transform: translateY(-347vh);
}

.block:nth-child(5) {
  transform: translateY(-312vh);
}
```

```
.block:nth-child(6) {
  transform: translateY(-287vh);
}

.block:nth-child(7) {
  transform: translateY(-242vh);
}

.block:nth-child(8) {
  transform: translateY(-223vh);
}

.block:nth-child(9) {
  transform: translateY(-166vh);
}

.block:nth-child(10) {
  transform: translateY(-130vh);
}

.block:nth-child(11) {
  transform: translateY(-323vh);
}

.block:nth-child(12) {
  transform: translateY(-241vh);
}

.block:nth-child(13) {
  transform: translateY(-51vh);
}

.block:nth-child(14) {
  transform: translateY(-53vh);
}

.block:nth-child(15) {
  transform: translateY(-54vh);
}

.block:nth-child(16) {
  transform: translateY(-132vh);
}

.block:nth-child(17) {
  transform: translateY(-188vh);
}

.block:nth-child(18) {
  transform: translateY(-95vh);
}

.block:nth-child(19) {
  transform: translateY(-208vh);
}

.block:nth-child(20) {
  transform: translateY(-191vh);
```

```
}

.block:nth-child(21) {
  transform: translateY(-79vh);
}

.block:nth-child(22) {
  transform: translateY(-173vh);
}

.block:nth-child(23) {
  transform: translateY(-311vh);
}

.block:nth-child(24) {
  transform: translateY(-272vh);
}

.block:nth-child(25) {
  transform: translateY(-193vh);
}

.block:nth-child(26) {
  transform: translateY(-177vh);
}

.block:nth-child(27) {
  transform: translateY(-253vh);
}

.block:nth-child(28) {
  transform: translateY(-184vh);
}

.block:nth-child(29) {
  transform: translateY(-310vh);
}

.block:nth-child(30) {
  transform: translateY(-84vh);
}

.block:nth-child(31) {
  transform: translateY(-270vh);
}

.block:nth-child(32) {
  transform: translateY(-317vh);
}

.block:nth-child(33) {
  transform: translateY(-137vh);
}

.block:nth-child(34) {
  transform: translateY(-344vh);
}
```

---

```

.block:nth-child(35) {
    transform: translateY(-245vh);
}

.block:nth-child(36) {
    transform: translateY(-302vh);
}

@keyframes go-down {
    to {
        transform: translateY(0);
    }
}
a {
    color: rgba(255, 255, 255, 0.5);
}

.msg {
    color: rgba(255, 255, 255, 0.3);
    position: fixed;
    left: 0;
    right: 0;
    text-align: center;
    font-size: 40px;
}

#msg1 {
    bottom: 50px;
}

#msg2 {
    bottom: auto;
    top: 10px;
}
</style></head><body>

<div class="bg"></div>
<div id="blocks" class="blocks">
    <div class="block"></div>
    <div class="block"></div>

```



```

        v.y = 6;
        updateBlockProps();
        return;
    }
}
// Store each block's properties on itself
function updateBlockProps() {
    var bounds, block;
    for (var i = blocks.children.length; i--;) {
        block = blocks.children[i];
        bounds = block.getBoundingClientRect();
        block.x = bounds.left;
        block.y = bounds.top;
        block.width = bounds.width;
        block.height = bounds.height;
    }
}

function reset() {
    window.scrollTo((W - scrollbarWidth) * xScale / 2, 0);
    v.x = 0; v.y = 0;
    pos.x = W/2;
    pos.y = H - scrollbarThickness - ballHeight - 4;
    setTimeout(function () {
        v.x = 10; v.y = -6;
    }, 1000);
}
function random(a, b) {
    return a + ~~(Math.random() * (b - a));
}
function update() {
    pos.x += v.x;
    pos.y += v.y;
    if ((pos.x + ballWidth) > (W-scrollbarThickness) || pos.x < 0) {
        v.x *= -1;
    }
    if ((pos.y + ballHeight) > (H-scrollbarThickness) || pos.y < 0) {
        if (pos.y < H/2 || isTouchingPaddle()) {
            v.y *= -1;
        } else {
            reset();
        }
    }
    checkCollision();
    ball.style.left = pos.x + 'px';
    ball.style.top = pos.y + 'px';
}
function loop() {
    update();
    requestAnimationFrame(loop);
}
reset();
loop();
setTimeout(updateBlockProps, 1000);
</script>
```

---

```
*****
```

## React - Hero Header Component

```
<style class="cp-pen-styles">
@import "https://fonts.googleapis.com/css?family=Source+Sans+Pro:400,600";
.heroHeader {
  height: 200px;
  max-height: 200px;
  min-height: 50px;
  background: url("https://d4z6dx8qrln4r.cloudfront.net/background-572f59cc9d0d8-default.jpeg")
no-repeat center;
  background-size: cover;
  left: 0;
  right: 0;
  position: fixed;
  top: 0;
  display: flex;
  align-items: center;
  justify-content: center;
}
.heroHeader-content {
  position: relative;
  z-index: 1;
}
.heroHeader::before {
  content: "";
  background: rgba(0, 0, 0, 0.45);
  position: absolute;
  top: 0;
  left: 0;
  right: 0;
  bottom: 0;
  transition: background 400ms;
  z-index: 0;
}

/* Just decorating stuff, nothing interesting to see here */
body,
html {
  font-family: 'Source Sans Pro', sans-serif;
  margin: 0;
  padding: 0;
  -webkit-overflow-scrolling: touch;
}

h1 {
  margin: 0;
  padding: 0;
}

p {
  margin: 0;
  padding: 0 0 25px 0;
}

.title {
```

```

color: #fff;
text-align: center;
font-size: 40px;
font-weight: 600;
}

section {
width: 600px;
max-width: 100%;
padding: 225px 20px 20px 20px;
margin: 0 auto;
display: block;
line-height: 150%;
}
</style></head><body>
<div id='app'>
</div>
<script src='//assets.codepen.io/assets/common/stopExecutionOnTimeout-
53beeb1a007ec32040abaf4c9385ebfc.js'></script><script
src='https://npmcdn.com/react@15.3.0/dist/react.min.js'></script><script
src='https://npmcdn.com/react-dom@15.3.0/dist/react-dom.min.js'></script>
<script>'use strict';

function _classCallCheck(instance, Constructor) { if (!(instance instanceof Constructor)) { throw new TypeError("Cannot call a class as a function"); } }

function _possibleConstructorReturn(self, call) { if (!self) { throw new ReferenceError("this hasn't been initialised - super() hasn't been called"); } return call && (typeof call === "object" || typeof call === "function") ? call : self; }

function _inherits(subClass, superClass) { if (typeof superClass !== "function" && superClass !== null) { throw new TypeError("Super expression must either be null or a function, not " + typeof superClass); } subClass.prototype = Object.create(superClass && superClass.prototype, {
constructor: { value: subClass, enumerable: false, writable: true, configurable: true } }); if (superClass) Object.setPrototypeOf ? Object.setPrototypeOf(subClass, superClass) :
subClass.__proto__ = superClass; }

var HeroHeader = function (_React$Component) {
_inherits(HeroHeader, _React$Component);

function HeroHeader() {
_classCallCheck(this, HeroHeader);

for (var _len = arguments.length, args = Array(_len), _key = 0; _key < _len; _key++) {
args[_key] = arguments[_key];
}

var _this = _possibleConstructorReturn(this, _React$Component.call.apply(_React$Component,
[this].concat(args)));

_this.state = { height: undefined };
_this._containerDOM = null;
_this._scrollPosition = 0;
_this.onScroll = _this.onScroll.bind(_this);
return _this;
}

HeroHeader.prototype.componentDidMount = function componentDidMount() {

```

```

        window.addEventListener('scroll', this.onScroll);
    };

HeroHeader.prototype.onScroll = function onScroll() {
    var scrollTop = window.pageYOffset || document.documentElement.scrollTop;
    if (this.props.scrollAction >= scrollTop) {
        var step = this._scrollPosition - scrollTop;
        var actualHeight = this._containerDOM.offsetHeight;
        var height = actualHeight + step;
        this.setState({ height: height });
        this._scrollPosition = scrollTop;
    }
};

HeroHeader.prototype.render = function render() {
    var _this2 = this;

    return React.createElement(
        'header',
        {
            className: 'heroHeader',
            ref: function ref(n) {
                return _this2._containerDOM = n;
            },
            style: { height: this.state.height } },
        React.createElement(
            'div',
            { className: 'heroHeader-content' },
            this.props.children
        )
    );
};

return HeroHeader;
}(React.Component);

HeroHeader.propTypes = {
    scrollAction: React.PropTypes.string
};

HeroHeader.defaultProps = {
    scrollAction: 250
};

function DummyContent() {
    return React.createElement(
        'section',
        null,
        React.createElement(
            'p',
            null,
            'In 1905, Albert Einstein determined that the laws of physics are the same for all non-accelerating observers, and that the speed of light in a vacuum was independent of the motion of all observers. This was the theory of special relativity. It introduced a new framework for all of physics and proposed new concepts of space and time.'
        ),
        React.createElement(
            'p',

```

---

```
    null,
    'Einstein then spent ten years trying to include acceleration in the theory and published
his theory of general relativity in 1915. In it, he determined that massive objects cause a
distortion in space-time, which is felt as gravity.'
),
React.createElement(
  'p',
  null,
  'Two objects exert a force of attraction on one another known as "gravity." Sir Isaac
Newton quantified the gravity between two objects when he formulated his three laws of motion.
The force tugging between two bodies depends on how massive each one is and how far apart the two
lie. Even as the center of the Earth is pulling you toward it (keeping you firmly lodged on the
ground), your center of mass is pulling back at the Earth. But the more massive body barely feels
the tug from you, while with your much smaller mass you find yourself firmly rooted thanks to
that same force. Yet Newtons laws assume that gravity is an innate force of an object that can
act over a distance.'
),
React.createElement(
  'p',
  null,
  'Albert Einstein, in his theory of special relativity, determined that the laws of physics
are the same for all non-accelerating observers, and he showed that the speed of light within a
vacuum is the same no matter the speed at which an observer travels. As a result, he found that
space and time were interwoven into a single continuum known as space-time. Events that occur at
the same time for one observer could occur at different times for another.'
),
React.createElement(
  'p',
  null,
  'As he worked out the equations for his general theory of relativity, Einstein realized
that massive objects caused a distortion in space-time. Imagine setting a large body in the
center of a trampoline. The body would press down into the fabric, causing it to dimple. A marble
rolled around the edge would spiral inward toward the body, pulled in much the same way that the
gravity of a planet pulls at rocks in space.'
),
React.createElement(
  'p',
  null,
  'Although instruments can neither see nor measure space-time, several of the phenomena
predicted by its warping have been confirmed.'
),
React.createElement(
  'p',
  null,
  'Gravitational lensing: Light around a massive object, such as a black hole, is bent,
causing it to act as a lens for the things that lie behind it. Astronomers routinely use this
method to study stars and galaxies behind massive objects.'
),
React.createElement(
  'p',
  null,
  'Einsteins Cross, a quasar in the Pegasus constellation, is an excellent example of
gravitational lensing. The quasar is about 8 billion light-years from Earth, and sits behind a
galaxy that is 400 million light-years away. Four images of the quasar appear around the galaxy
because the intense gravity of the galaxy bends the light coming from the quasar.'
),
React.createElement(
  'p',
```

```

        null,
        'Gravitational lensing can allow scientists to see some pretty cool things, but until
recently, what they spotted around the lens has remained fairly static. However, since the light
traveling around the lens takes a different path, each traveling over a different amount of time,
scientists were able to observe a supernova occur four different times as it was magnified by a
massive galaxy.'
),
React.createElement(
  'p',
  null,
  'In another interesting observation, NASAs Kepler telescope spotted a dead star, known as a
white dwarf, orbiting a red dwarf in a binary system. Although the white dwarf is more massive,
it has a far smaller radius than its companion.'
),
React.createElement(
  'p',
  null,
  'The technique is equivalent to spotting a flea on a light bulb 3,000 miles away, roughly
the distance from Los Angeles to New York City," Avi Shporer of the California Institute of
Technology said in a statement.'
)
);
}

function App() {
  return React.createElement(
    'div',
    null,
    React.createElement(
      HeroHeader,
      null,
      React.createElement(
        'h1',
        { className: 'title' },
        'Einsteins Theory of General Relativity'
      )
    ),
    React.createElement(DummyContent, null)
  );
}

ReactDOM.render(React.createElement(App, null), document.querySelector('#app'));

</script>
*****

```

## JS Typing Effect

```

<style class="cp-pen-styles">
@import url(https://fonts.googleapis.com/css?family=Prompt:900);
html {
  font-family: 'Prompt', sans-serif;
  background-color: #000;
  color: #fff;
}

```

```

        font-size: 5vw;
    }

container {
    display: -webkit-box;
    display: -webkit-flex;
    display: -ms-flexbox;
    display: flex;
    -webkit-box-align: center;
    -webkit-align-items: center;
    -ms-flex-align: center;
    align-items: center;
    -webkit-box-pack: center;
    -webkit-justify-content: center;
    -ms-flex-pack: center;
    justify-content: center;
    height: 100vh;
}

#app {
    letter-spacing: 0.25em;
    text-transform: uppercase;
}
</style></head><body>

<container>
    <div id="app"></div>
</container>

<script>const items = [
    'Albert Einstein',
    'is a',
    'Great',
    'Scientist',
    'of all time'
];
const app = document.getElementById('app');
let count = 0;
let index = 0;
let typingEffect = () => {
    let text = items[index];
    if (count < text.length) {
        setTimeout(() => {
            app.innerHTML += text[count];
            count++;
            typingEffect();
        }, Math.floor(Math.random(10) * 100));
    } else {
        count = 0;
        index = index + 1 < items.length ? index + 1 : 0;
        setTimeout(() => {
            app.innerHTML = '';
            typingEffect();
        }, 1500);
    }
};
typingEffect();
</script>

```

---

---

```
*****
```

### Image with web link (News Cards)

```
<style class="cp-pen-styles">

@import url(https://fonts.googleapis.com/css?family=Open+Sans:300,400,700);
* {
  box-sizing: border-box;
}

body {
  background-image: -webkit-linear-gradient(left, #034378, #2d4e68);
  background-image: linear-gradient(to right, #034378, #2d4e68);
  -webkit-font-smoothing: antialiased;
  -moz-osx-font-smoothing: grayscale;
  height: 100vh;
  font-family: "Open Sans", sans-serif;
}

a {
  text-decoration: none;
}

h1 {
  font-family: "Open Sans", sans-serif;
  font-weight: 300;
}

.row {
  max-width: 900px;
  margin: 50px auto 0;
}

.card {
  float: left;
  padding: 0 1.7rem;
  width: 50%;
}
.card .menu-content {
  margin: 0;
  padding: 0;
  list-style-type: none;
}
.card .menu-content::before, .card .menu-content::after {
  content: '';
  display: table;
}
.card .menu-content::after {
  clear: both;
}
.card .menu-content li {
  display: inline-block;
}
.card .menu-content a {
```

```
color: #fff;
}
.card .menu-content span {
position: absolute;
left: 50%;
top: 0;
font-size: 10px;
font-weight: 700;
font-family: 'Open Sans';
-webkit-transform: translate(-50%, 0);
transform: translate(-50%, 0);
}
.card .wrapper {
background-color: #fff;
min-height: 540px;
position: relative;
overflow: hidden;
box-shadow: 0 19px 38px rgba(0, 0, 0, 0.3), 0 15px 12px rgba(0, 0, 0, 0.2);
}
.card .wrapper:hover .data {
-webkit-transform: translateY(0);
transform: translateY(0);
}
.card .data {
position: absolute;
bottom: 0;
width: 100%;
-webkit-transform: translateY(calc(70px + 1em));
transform: translateY(calc(70px + 1em));
-webkit-transition: -webkit-transform 0.3s;
transition: -webkit-transform 0.3s;
transition: transform 0.3s;
transition: transform 0.3s, -webkit-transform 0.3s;
}
.card .data .content {
padding: 1em;
position: relative;
z-index: 1;
}
.card .author {
font-size: 12px;
}
.card .title {
margin-top: 10px;
}
.card .text {
height: 70px;
margin: 0;
}
.card input[type='checkbox'] {
display: none;
}
.card input[type='checkbox']:checked + .menu-content {
-webkit-transform: translateY(-60px);
transform: translateY(-60px);
}

.example-1 .wrapper {
```

```
background: url(https://hd.unsplash.com/photo-1463415268136-e52a5af54519) center/cover no-repeat;
}
.example-1 .date {
position: absolute;
top: 0;
left: 0;
background-color: #77d7b9;
color: #fff;
padding: 0.8em;
}
.example-1 .date span {
display: block;
text-align: center;
}
.example-1 .date .day {
font-weight: 700;
font-size: 24px;
text-shadow: 2px 3px 2px rgba(0, 0, 0, 0.18);
}
.example-1 .date .month {
text-transform: uppercase;
}
.example-1 .date .month,
.example-1 .date .year {
font-size: 12px;
}
.example-1 .content {
background-color: #fff;
box-shadow: 0 5px 30px 10px rgba(0, 0, 0, 0.3);
}
.example-1 .title a {
color: gray;
}
.example-1 .menu-button {
position: absolute;
z-index: 999;
top: 16px;
right: 16px;
width: 25px;
text-align: center;
cursor: pointer;
}
.example-1 .menu-button span {
width: 5px;
height: 5px;
background-color: gray;
color: gray;
position: relative;
display: inline-block;
border-radius: 50%;
}
.example-1 .menu-button span::after, .example-1 .menu-button span::before {
content: '';
display: block;
width: 5px;
height: 5px;
background-color: currentColor;
position: absolute;
```

```
border-radius: 50%;  
}  
.example-1 .menu-button span::before {  
left: -10px;  
}  
.example-1 .menu-button span::after {  
right: -10px;  
}  
.example-1 .menu-content {  
text-align: center;  
position: absolute;  
top: 0;  
left: 0;  
width: 100%;  
z-index: -1;  
-webkit-transition: -webkit-transform 0.3s;  
transition: -webkit-transform 0.3s;  
transition: transform 0.3s;  
transition: transform 0.3s, -webkit-transform 0.3s;  
-webkit-transform: translateY(0);  
transform: translateY(0);  
}  
.example-1 .menu-content li {  
width: 33.333333%;  
float: left;  
background-color: #77d7b9;  
height: 60px;  
position: relative;  
}  
.example-1 .menu-content a {  
position: absolute;  
top: 50%;  
left: 50%;  
-webkit-transform: translate(-50%, -50%);  
transform: translate(-50%, -50%);  
font-size: 24px;  
}  
.example-1 .menu-content span {  
top: -10px;  
}  
  
.example-2 .wrapper {  
background: url(https://hd.unsplash.com/photo-1463415268136-e52a5af54519) center/cover no-repeat;  
}  
.example-2 .wrapper:hover .menu-content span {  
-webkit-transform: translate(-50%, -10px);  
transform: translate(-50%, -10px);  
opacity: 1;  
}  
.example-2 .header {  
color: #fff;  
padding: 1em;  
}  
.example-2 .header::before, .example-2 .header::after {  
content: '';  
display: table;  
}  
.example-2 .header::after {
```

```
clear: both;
}
.example-2 .header .date {
float: left;
font-size: 12px;
}
.example-2 .menu-content {
float: right;
}
.example-2 .menu-content li {
margin: 0 5px;
position: relative;
}
.example-2 .menu-content span {
-webkit-transition: all 0.3s;
transition: all 0.3s;
opacity: 0;
}
.example-2 .data {
color: #fff;
-webkit-transform: translateY(calc(70px + 4em));
transform: translateY(calc(70px + 4em));
}
.example-2 .title a {
color: #fff;
}
.example-2 .button {
display: block;
width: 100px;
margin: 2em auto 1em;
text-align: center;
font-size: 12px;
color: #fff;
line-height: 1;
position: relative;
font-weight: 700;
}
.example-2 .button::after {
content: '\2192';
opacity: 0;
position: absolute;
right: 0;
top: 50%;
-webkit-transform: translate(0, -50%);
transform: translate(0, -50%);
-webkit-transition: all 0.3s;
transition: all 0.3s;
}
.example-2 .button:hover::after {
-webkit-transform: translate(5px, -50%);
transform: translate(5px, -50%);
opacity: 1;
}
</style></head><body>
<div class="row">
<div class="example-1 card">
<div class="wrapper">
<div class="date">
```

---

```
<span class="day">12</span>
<span class="month">Aug</span>
<span class="year">2016</span>
</div>
<div class="data">
<div class="content">
<span class="author">Jane Doe</span>
<h1 class="title"><a href="#">Everything You Need to Know About Gold Medals</a></h1>
<p class="text">Olympic gold medals contain only about 1.34 percent gold, with the rest composed of sterling silver.</p>
<label for="show-menu" class="menu-button"><span></span></label>
</div>
<input type="checkbox" id="show-menu" />
<ul class="menu-content">
<li>
<a href="#" class="fa fa-bookmark-o"></a>
</li>
<li><a href="#" class="fa fa-heart-o"><span>47</span></a></li>
<li><a href="#" class="fa fa-comment-o"><span>8</span></a></li>
</ul>
</div>
</div>
</div>
<div class="example-2 card">
<div class="wrapper">
<div class="header">
<div class="date">
<span class="day">12</span>
<span class="month">Aug</span>
<span class="year">2016</span>
</div>
<ul class="menu-content">
<li>
<a href="#" class="fa fa-bookmark-o"></a>
</li>
<li><a href="#" class="fa fa-heart-o"><span>18</span></a></li>
<li><a href="#" class="fa fa-comment-o"><span>3</span></a></li>
</ul>
</div>
<div class="data">
<div class="content">
<span class="author">Jane Doe</span>
<h1 class="title"><a href="#">Stranger Things: The sound of the Upside Down</a></h1>
<p class="text">The antsy bingers of Netflix will eagerly anticipate the digital release of the Survive soundtrack, out today.</p>
<a href="#" class="button">Read more</a>
</div>
</div>
</div>
</div>
```

\*\*\*\*\*

---

## Burger menu transformation

```
<style class="cp-pen-styles">
*, *:before, *:after {
  box-sizing: border-box;
  margin: 0;
  padding: 0;
}

body {
  font-family: "Open Sans", sans-serif;
  font-size: 1em;
  background-color: #e2e2e2;
}

#menu--toggle[type="checkbox"]::not(:checked),
#menu--toggle[type="checkbox"]::checked {
  display: none;
}

.menu--toggle__trigger,
.menu--toggle__burger,
.menu--toggle__burger::before,
.menu--toggle__burger::after {
  position: absolute;
  top: 1.6em;
  left: 1.6em;
  width: 2em;
  height: 5px;
  background-color: #282828;
  border-radius: 2px;
  cursor: pointer;
  z-index: 100;
  -webkit-transition: 0.35s cubic-bezier(0.25, 0.1, 0.25, 1);
  transition: 0.35s cubic-bezier(0.25, 0.1, 0.25, 1);
}

.menu--toggle__trigger {
  height: 2em;
  background: none;
}

.menu--toggle__burger::before {
  content: "";
  top: 10px;
  left: 0;
}
.menu--toggle__burger::after {
  content: "";
  top: 20px;
  left: 0;
}

.menu__body {
```

---



---

```

position: absolute;
width: 7em;
height: 7em;
margin: 0;
padding: 0;
background-color: #fcfcfc;
border-bottom-right-radius: 100%;
box-shadow: 3px 3px 7px rgba(40, 40, 40, 0.2);
z-index: 10;
-webkit-animation: checkboxUncheckedAnimation 0.35s both;
animation: checkboxUncheckedAnimation 0.35s both;
}

.menu__body-element,
.menu__body-link {
display: none;
margin: 4.4em 0 -3.3em -.1em;
font-weight: normal;
color: #282828;
text-decoration: none;
text-transform: none;
list-style: none;
outline: 0;
}

.menu__body-element {
text-indent: 2em;
}

.menu__body-link:hover {
display: block;
width: 0;
color: #282828;
background-color: #e2e2e2;
-webkit-animation: changeWidthOfElementAnimation 0.35s both;
animation: changeWidthOfElementAnimation 0.35s both;
}

#menu--toggle:checked + .menu--toggle__trigger + .menu--toggle__burger {
top: 35px;
-webkit-transform: rotate(405deg);
transform: rotate(405deg);
-webkit-transition: -webkit-transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
transition: -webkit-transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
transition: transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
transition: transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55), -webkit-transform 0.35s
cubic-bezier(0.68, -0.55, 0.265, 1.55);
}
#menu--toggle:checked + .menu--toggle__trigger + .menu--toggle__burger:before {
top: 0;
-webkit-transform: rotate(-90deg);
transform: rotate(-90deg);
-webkit-transition: -webkit-transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
transition: -webkit-transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
transition: transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
transition: transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55), -webkit-transform 0.35s
cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

```

---

```

#menu--toggle:checked + .menu--toggle__trigger + .menu--toggle__burger:after {
  top: 0;
  -webkit-transform: rotate(90deg);
  transform: rotate(90deg);
  -webkit-transition: -webkit-transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
  transition: -webkit-transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
  transition: transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55);
  transition: transform 0.35s cubic-bezier(0.68, -0.55, 0.265, 1.55), -webkit-transform 0.35s
  cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

#menu--toggle:checked + .menu--toggle__trigger + .menu--toggle__burger + .menu__body {
  -webkit-animation: checkboxCheckedAnimation 1s cubic-bezier(0.25, 0.1, 0.25, 1) both;
  animation: checkboxCheckedAnimation 1s cubic-bezier(0.25, 0.1, 0.25, 1) both;
}

#menu--toggle:checked + .menu--toggle__trigger ~ .menu__body .menu__body-element, #menu--toggle:checked + .menu--toggle__trigger ~ .menu__body .menu__body-link {
  display: block;
}

.promotion {
  width: 100vw;
  height: 100vh;
  background-image: url("http://upload.wikimedia.org/wikipedia/commons/thumb/1/18/Gooseberry-
  spring.jpg/1280px-Gooseberry-spring.jpg");
  background-size: cover;
}

/***
 * Animations
 */
@-webkit-keyframes checkboxCheckedAnimation {
  50%, 100% {
    width: 100vw;
    height: 100vh;
  }
  100% {
    border-radius: 0;
  }
}
@keyframes checkboxCheckedAnimation {
  50%, 100% {
    width: 100vw;
    height: 100vh;
  }
  100% {
    border-radius: 0;
  }
}
@-webkit-keyframes checkboxUncheckedAnimation {
  0% {
    width: 100vw;
    height: 100vh;
  }
}
@keyframes checkboxUncheckedAnimation {
  0% {
    width: 100vw;
    height: 100vh;
  }
}

```

```
}

}

@-webkit-keyframes changeWidthOfElementAnimation {
50% {
width: 0;
}
100% {
width: 100%;
}
}
@keyframes changeWidthOfElementAnimation {
50% {
width: 0;
}
100% {
width: 100%;
}
}
</style></head><body>
<section>

<article>
<div class="menu">
<input id="menu--toggle"
type="checkbox" />

<label class="menu--toggle__trigger"
for="menu--toggle"></label>

<label class="menu--toggle__burger"
for="menu--toggle"></label>

<ul class="menu__body">
<li class="menu__body-element">
<a class="menu__body-link"
href="http://codepen.io/VictorBelozyorov/pens/public"
target="_blank">
Works
</a>
</li>

<li class="menu__body-element">
<a class="menu__body-link"
href="https://twitter.com/WispProxy"
target="_blank">
Twitter
</a>
</li>

<li class="menu__body-element">
<a class="menu__body-link"
href="mailto:hi@VBelozorov.com">
Mail
</a>
```

---

```

</li>

</ul>

</div>

</article>

<article>
<div class="promotion">
</div>

</article>

</section>

*****

```

## Speech Bubble Caret

```

<style class="cp-pen-styles">
html, body {
    height: 100%;
}

body {
    display: -webkit-box;
    display: -webkit-flex;
    display: -ms-flexbox;
    display: flex;
    -webkit-box-orient: vertical;
    -webkit-box-direction: normal;
    -webkit-flex-direction: column;
    -ms-flex-direction: column;
    flex-direction: column;
    -webkit-box-align: center;
    -webkit-align-items: center;
    -ms-flex-align: center;
    align-items: center;
    -webkit-box-pack: center;
    -webkit-justify-content: center;
    -ms-flex-pack: center;
    justify-content: center;
    width: 100%;
    background: #668bcb;
}

.speech-bubble {
    -webkit-filter: drop-shadow(-1px -1px 2px rgba(0, 0, 0, 0.1)) drop-shadow(1px 2px 2px rgba(0, 0, 0, 0.1));
    filter: drop-shadow(-1px -1px 2px rgba(0, 0, 0, 0.1)) drop-shadow(1px 2px 2px rgba(0, 0, 0, 0.1));
    margin: 1rem;
}

```

---

```

margin-bottom: 40px;
padding: 1.5rem 2rem;
position: relative;
font-family: 'Source Sans Pro', sans-serif;
font-size: 1.2rem;
font-weight: 400;
background: #8CA8D8;
color: white;
}
.speech-bubble::before {
border: 12.5px solid transparent;
border-top: 12.5px solid #8CA8D8;
border-bottom: 0;
height: 0;
width: 0;
border-top-width: 25px;
content: '';
display: block;
position: absolute;
left: 3rem;
bottom: -25px;
-webkit-transform-origin: center;
transform-origin: center;
-webkit-transform: rotate(90deg) skew(-25deg) translateY(16.66667px);
transform: rotate(90deg) skew(-25deg) translateY(16.66667px);
}
.speech-bubble cite {
position: absolute;
bottom: -2rem;
left: 4.5rem;
font-size: 1rem;
font-style: normal;
font-weight: 300;
letter-spacing: 0.5px;
color: white;
}
</style></head><body>
<blockquote class="speech-bubble">
<p>Do you think we will find a cure for any major disease in the future?</p>
<cite>Dirk Diggler M.D.</cite>
</blockquote>
*****

```

## Image Hover

```

<figure class="snip1543">

<figcaption>
<h3>Inverness McKenzie</h3>
<p>The only skills I have the patience to learn are those that have no real application in life.</p>
</figcaption>
<a href="#"></a>
</figure>

```

---

```

<figure class="snip1543 hover">
<figcaption>
<h3>Alan Fresco</h3>
<p>The real fun of living wisely is that you get to be smug about it.</p>
</figcaption>
<a href="http://www.w3schools.com/html/tryit.asp?filename=tryhtml_default"></a>
</figure>
<figure class="snip1543">
<figcaption>
<h3>Indigo Violet</h3>
<p>But Calvin is no kind and loving god! He's one of the old gods! He demands sacrifice! </p>
</figcaption>
<a href="#"></a>
</figure>

<style>

@import url(https://fonts.googleapis.com/css?family=Source+Sans+Pro);
@import url(https://fonts.googleapis.com/css?family=Teko:700);
.snip1543 {
background-color: #fff;
color: #fffff;
display: inline-block;
font-family: 'Source Sans Pro', sans-serif;
font-size: 16px;
margin: 10px 5px;
max-width: 315px;
min-width: 230px;
overflow: hidden;
position: relative;
text-align: left;
width: 100%;
-webkit-transform: translateZ(0);
transform: translateZ(0);
}

.snip1543 *,
.snip1543 *:before,
.snip1543 *:after {
-webkit-box-sizing: border-box;
box-sizing: border-box;
-webkit-transition: all 0.45s ease;
transition: all 0.45s ease;
}

.snip1543 img {
backface-visibility: hidden;
max-width: 100%;
vertical-align: top;
}

.snip1543:before,
.snip1543:after {
position: absolute;
top: 0;
}

```

```
bottom: 0;
left: 0;
right: 0;
content: '';
background-color: #b81212;
opacity: 0.5;
-webkit-transition: all 0.45s ease;
transition: all 0.45s ease;
}

.snip1543:before {
-webkit-transform: skew(30deg) translateX(-80%);
transform: skew(30deg) translateX(-80%);
}

.snip1543:after {
-webkit-transform: skew(-30deg) translateX(-70%);
transform: skew(-30deg) translateX(-70%);
}

.snip1543 figcaption {
position: absolute;
top: 0px;
bottom: 0px;
left: 0px;
right: 0px;
z-index: 1;
bottom: 0;
padding: 25px 40% 25px 20px;
}

.snip1543 figcaption:before,
.snip1543 figcaption:after {
position: absolute;
top: 0;
bottom: 0;
left: 0;
right: 0;
background-color: #b81212;
box-shadow: 0 0 20px rgba(0, 0, 0, 0.7);
content: '';
opacity: 0.5;
z-index: -1;
}

.snip1543 figcaption:before {
-webkit-transform: skew(30deg) translateX(-100%);
transform: skew(30deg) translateX(-100%);
}

.snip1543 figcaption:after {
-webkit-transform: skew(-30deg) translateX(-90%);
transform: skew(-30deg) translateX(-90%);
}

.snip1543 h3,
.snip1543 p {
margin: 0;
```

```
    opacity: 0;
    letter-spacing: 1px;
}

.snip1543 h3 {
    font-family: 'Teko', sans-serif;
    font-size: 36px;
    font-weight: 700;
    line-height: 1em;
    text-transform: uppercase;
}

.snip1543 p {
    font-size: 0.9em;
}

.snip1543 a {
    position: absolute;
    top: 0;
    bottom: 0;
    left: 0;
    right: 0;
    z-index: 1;
}

.snip1543:hover h3,
.snip1543.hover h3,
.snip1543:hover p,
.snip1543.hover p {
    -webkit-transform: translateY(0);
    transform: translateY(0);
    opacity: 0.9;
    -webkit-transition-delay: 0.2s;
    transition-delay: 0.2s;
}

.snip1543:hover:before,
.snip1543.hover:before {
    -webkit-transform: skew(30deg) translateX(-20%);
    transform: skew(30deg) translateX(-20%);
    -webkit-transition-delay: 0.05s;
    transition-delay: 0.05s;
}

.snip1543:hover:after,
.snip1543.hover:after {
    -webkit-transform: skew(-30deg) translateX(-10%);
    transform: skew(-30deg) translateX(-10%);
}

.snip1543:hover figcaption:before,
.snip1543.hover figcaption:before {
    -webkit-transform: skew(30deg) translateX(-40%);
    transform: skew(30deg) translateX(-40%);
    -webkit-transition-delay: 0.15s;
    transition-delay: 0.15s;
}
```

---

```

.snip1543:hover figcaption:after,
.snip1543.hover figcaption:after {
    -webkit-transform: skew(-30deg) translateX(-30%);
    transform: skew(-30deg) translateX(-30%);
    -webkit-transition-delay: 0.1s;
    transition-delay: 0.1s;
}

/* Demo purposes only */

body {
    background-color: #212121;
    text-align: center;
}

</style>

<script>

/* Demo purposes only */
$(".hover").mouseleave(
    function() {
        $(this).removeClass("hover");
    }
);

</script>

```

## mini article box

```

<style class="cp-pen-styles">
@import url(https://fonts.googleapis.com/css?family=Lato:400,900);
body {
    background: #ebebeb;
    font-family: 'Lato', sans-serif;
    font-size: 62.5%;
}

p {
    font-size: 1.15em;
    line-height: 1.6em;
}

a {
    text-decoration: none;
}

.c-title-page {
    text-align: center;
    font-size: 3em;
    margin: 60px 0 0;
    font-weight: 100;
}

```

```
letter-spacing: 8px;
color: #888888;
}

.c-card {
position: relative;
width: 660px;
height: 660px;
transform: translate(50vw, 50px);
margin-left: -330px;
}

.c-card__item {
position: absolute;
width: 320px;
height: 320px;
background: #FFF;
box-shadow: 0 0 2px rgba(0, 0, 0, 0.2);
transition: all 0.4s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

.c-card__item p {
color: #e1e1e1;
transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

.c-card__item:hover p {
color: #646464;
transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55) 0.3s;
}

.c-card__item[data-item="1"] {
top: 0;
left: 0;
}

.c-card__item[data-item="2"] {
top: 0;
left: 330px;
}

.c-card__item[data-item="3"] {
top: 330px;
left: 0;
}

.c-card__item[data-item="4"] {
top: 330px;
left: 330px;
}

.c-card__item:hover {
transform: scale(1.3);
transform-origin: center;
z-index: 2;
box-shadow: 0 0 26px rgba(0, 0, 0, 0.1);
transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}
```

```
.c-card__item:before {
  content: attr(data-title);
  position: absolute;
  display: block;
  top: 20px;
  left: 20px;
  opacity: 1;
  font-size: 1em;
  color: #FFF;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

.c-card__item:hover:before {
  opacity: 1;
  font-size: 2em;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55) 0.3s;
}

.c-button {
  position: absolute;
  bottom: -14px;
  border-radius: 50%;
  height: 40px;
  width: 40px;
  z-index: 3;
  opacity: 0;
  transform: scale(0);
  transform-origin: center right;
  box-shadow: 0 0 2px rgba(0, 0, 0, 0.2);
  font-size: .5em;
  text-align: center;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

.c-button.c-button__social {
  right: 98px;
  transition-delay: .0s;
}

.c-button.c-button__mail {
  right: 54px;
  transition-delay: .05s;
}

.c-button.c-button__plus {
  right: 10px;
  transition-delay: .1s;
}

.c-card__item:hover .c-button {
  opacity: 1;
  font-size: 2em;
  transform: scale(1);
}

.c-card__item:hover .c-button.c-button__social {
  transition-delay: 1s;
```

```
}

.c-card__item:hover .c-button.c-button__mail {
  transition-delay: .9s;
}

.c-card__item:hover .c-button.c-button__plus {
  transition-delay: .8s;
}

.fa:before {
  font-size: 12px;
  line-height: 40px;
  color: #FFF;
}

.c-card__item__inner {
  position: relative;
  overflow: hidden;
  width: 100%;
  height: calc(100% - 6px);
  margin: 6px 0 0 0;
  background: #FFF;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

.c-card__item:hover .c-card__item__inner {
  width: 100%;
  height: calc(100% - 50px);
  margin: 50px 0 0 0;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55) 0.3s;
}

.c-card__content-box {
  width: 100%;
  height: calc(100% - 20px);
  padding-top: 220px;
  overflow: hidden;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

.c-card__item:hover .c-card__content-box {
  padding-top: 20px;
  overflow: scroll;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55) 0.3s;
}

.c-card__content-box p {
  margin: 0 10px 30px 20px;
}

.c-card__img {
  position: realtive;
  overflow: hidden;
}

.c-card__img img {
  width: 320px;
```

```

}

.c-card__img:after {
  content: '';
  position: absolute;
  display: block;
  height: 200px;
  width: 100%;
  top: 0;
  background: linear-gradient(to bottom, rgba(28, 5, 27, 0.5) 0%, rgba(255, 255, 255, 0) 100%);
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

.c-card__img h1 {
  position: absolute;
  top: 0;
  left: 20px;
  color: #FFF;
  font-size: 3em;
  font-weight: 900;
  z-index: 1;
  text-transform: uppercase;
}

.c-card__img__inner {
  position: absolute;
  top: 0;
  left: 0;
  height: 200px;
  overflow: hidden;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55);
}

.c-card__item:hover .c-card__img__inner, .c-card__item:hover .c-card__img:after {
  height: 0;
  transition: all 0.3s cubic-bezier(0.68, -0.55, 0.265, 1.55) 0.3s;
}

.o-background--blu {
  background: #3e6df3;
}

.o-background--red {
  background: #e43f3f;
}

.o-background--orange {
  background: #e4aa57;
}

.o-background--green {
  background: #a9dd82;
}

</style></head><body>
<h1 class="c-title-page">MINI ARTICLE BOX</h1>
<div class="c-card">
  <div class="c-card__item o-background--blu" data-item="1" data-title="title example">
    <div class="c-button__content-box">

```

---



---

```

<a href="" class="c-button c-button__social o-background--blu fa fa-share-alt"></a>
<a href="" class="c-button c-button__mail o-background--blu fa fa-envelope-o"></a>
<a href="" class="c-button c-button__plus o-background--blu fa fa-plus"></a>
</div>
<div class="c-card__item_inner">
  <div class="c-card__content-box">
    <div class="c-card__img"><div class="c-card__img_inner"><h1>Title example</h1></div></div>
    <p>Quid securi etiam tamquam eu fugiat nulla pariatur. Quo usque tandem abutere,
Catilina, patientia nostra? Cum sociis natoque penatibus et magnis dis parturient. Plura mihi
bona sunt, inclinet, amari petere vellent.
    Curabitur est gravida et libero vitae dictum. Fictum, deserunt mollit anim laborum astutumque!
    Cras mattis iudicium purus sit amet fermentum. Tityre, tu patulae recubans sub tegmine fagi
    dolor. Ut enim ad minim veniam, quis nostrud exercitation. Nihilne te nocturnum praesidium
    Palati, nihil urbis vigiliae.
    Paullum deliquit, ponderibus modulisque suis ratio utitur. Magna pars studiorum, prodita
    quaerimus. Lorem ipsum dolor sit amet, consectetur adipisici elit, sed eiusmod tempor incididunt ut
    labore et dolore magna aliqua. Fabio vel iudice vincam, sunt in culpa qui officia.Quid securi
    etiam tamquam eu fugiat nulla pariatur. Quo usque tandem abutere, Catilina, patientia nostra? Cum
    sociis natoque penatibus et magnis dis parturient. Plura mihi bona sunt, inclinet, amari petere
    vellent.
    Curabitur est gravida et libero vitae dictum. Fictum, deserunt mollit anim laborum astutumque!
    Cras mattis iudicium purus sit amet fermentum. Tityre, tu patulae recubans sub tegmine fagi
    dolor. Ut enim ad minim veniam, quis nostrud exercitation. Nihilne te nocturnum praesidium
    Palati, nihil urbis vigiliae.
    Paullum deliquit, ponderibus modulisque suis ratio utitur. Magna pars studiorum, prodita
    quaerimus. Lorem ipsum dolor sit amet, consectetur adipisici elit, sed eiusmod tempor incididunt ut
    labore et dolore magna aliqua. Fabio vel iudice vincam, sunt in culpa qui officia.</p></div>
  </div>
</div>
<div class="c-card__item o-background--red" data-item="2" data-title="title example">
  <div class="c-button__content-box">
    <a href="" class="c-button c-button__social o-background--red fa fa-share-alt"></a>
    <a href="" class="c-button c-button__mail o-background--red fa fa-envelope-o"></a>
    <a href="" class="c-button c-button__plus o-background--red fa fa-plus"></a>
  </div>
  <div class="c-card__item_inner">
    <div class="c-card__content-box">
      <div class="c-card__img"><div class="c-card__img_inner"><h1>Title example</h1></div></div>
      <p>Petierunt uti sibi concilium totius Galliae in diem certam indicere. Quo usque tandem
    abutere, Catilina, patientia nostra? Quisque placerat facilisis egestas cillum dolore. Quid
    securi etiam tamquam eu fugiat nulla pariatur.
    Unam incolunt Belgae, aliam Aquitani, tertiam. Curabitur est gravida et libero vitae dictum. Ab
    illo tempore, ab est sed immemorabili.
    Curabitur blandit tempus ardua ridiculus sed magna. Quam diu etiam furor iste tuus nos eludet?
    Pellentesque habitant morbi tristique senectus et netus. Hi omnes lingua, institutis, legibus
    inter se differunt.Quid securi etiam tamquam eu fugiat nulla pariatur. Quo usque tandem abutere,
    Catilina, patientia nostra? Cum sociis natoque penatibus et magnis dis parturient. Plura mihi
    bona sunt, inclinet, amari petere vellent.
    Curabitur est gravida et libero vitae dictum. Fictum, deserunt mollit anim laborum astutumque!
    Cras mattis iudicium purus sit amet fermentum. Tityre, tu patulae recubans sub tegmine fagi
    dolor. Ut enim ad minim veniam, quis nostrud exercitation. Nihilne te nocturnum praesidium
    Palati, nihil urbis vigiliae.
    Paullum deliquit, ponderibus modulisque suis ratio utitur. Magna pars studiorum, prodita
    quaerimus. Lorem ipsum dolor sit amet, consectetur adipisici elit, sed eiusmod tempor incididunt ut
    labore et dolore magna aliqua. Fabio vel iudice vincam, sunt in culpa qui
    officia.</p></div></div>
```

```

</div>
<div class="c-card__item o-background--green" data-item="3" data-title="title example">
  <div class="c-button__content-box">
    <a href="" class="c-button c-button__social o-background--green fa fa-share-alt"></a>
    <a href="" class="c-button c-button__mail o-background--green fa fa-envelope-o"></a>
    <a href="" class="c-button c-button__plus o-background--green fa fa-plus"></a>
  </div>
  <div class="c-card__item_inner">
    <div class="c-card__content-box">
      <div class="c-card__img"><div class="c-card__img_inner"><h1>Title example</h1></div></div>
      <p>Quid securi etiam tamquam eu fugiat nulla pariatur. Quo usque tandem abutere, Catilina, patientia nostra? Cum sociis natoque penatibus et magnis dis parturient. Plura mihi bona sunt, inclinet, amari petere vellent.
      Curabitur est gravida et libero vitae dictum. Fictum, deserunt mollit anim laborum astutumque! Cras mattis iudicium purus sit amet fermentum. Tityre, tu patulae recubans sub tegmine fagi dolor. Ut enim ad minim veniam, quis nostrud exercitation. Nihilne te nocturnum praesidium Palati, nihil urbis vigiliae.
      Paullum deliquit, ponderibus modulisque suis ratio utitur. Magna pars studiorum, prodita quaerimus. Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed eiusmod tempor incididunt ut labore et dolore magna aliqua. Fabio vel iudice vincam, sunt in culpa qui officia. Fabio vel iudice vincam, sunt in culpa qui officia. Cum ceteris in veneratione tui montes, nascetur mus. Cras mattis iudicium purus sit amet fermentum. Praeterea iter est quasdam res quas ex communi. Quis aute iure reprehenderit in voluptate velit esse. Curabitur blandit tempus ardua ridiculus sed magna.
      Vivamus sagittis lacus vel augue laoreet rutrum faucibus. Fictum, deserunt mollit anim laborum astutumque! Magna pars studiorum, prodita quaerimus. Nec dubitamus multa iter quae et nos invenerat. Donec sed odio operae, eu vulputate felis rhoncus.</p></div></div>
  </div>
  <div class="c-card__item o-background--orange" data-item="4" data-title="title example">
    <div class="c-button__content-box">
      <a href="" class="c-button c-button__social o-background--orange fa fa-share-alt"></a>
      <a href="" class="c-button c-button__mail o-background--orange fa fa-envelope-o"></a>
      <a href="" class="c-button c-button__plus o-background--orange fa fa-plus"></a>
    </div>
    <div class="c-card__item_inner">
      <div class="c-card__content-box">
        <div class="c-card__img"><div class="c-card__img_inner"><h1>Title example</h1></div></div>
        <p>Fabio vel iudice vincam, sunt in culpa qui officia. Cum ceteris in veneratione tui montes, nascetur mus. Cras mattis iudicium purus sit amet fermentum. Praeterea iter est quasdam res quas ex communi. Quis aute iure reprehenderit in voluptate velit esse. Curabitur blandit tempus ardua ridiculus sed magna.
        Vivamus sagittis lacus vel augue laoreet rutrum faucibus. Fictum, deserunt mollit anim laborum astutumque! Magna pars studiorum, prodita quaerimus. Nec dubitamus multa iter quae et nos invenerat. Donec sed odio operae, eu vulputate felis rhoncus. Quid securi etiam tamquam eu fugiat nulla pariatur. Quo usque tandem abutere, Catilina, patientia nostra? Cum sociis natoque penatibus et magnis dis parturient. Plura mihi bona sunt, inclinet, amari petere vellent.
        Curabitur est gravida et libero vitae dictum. Fictum, deserunt mollit anim laborum astutumque! Cras mattis iudicium purus sit amet fermentum. Tityre, tu patulae recubans sub tegmine fagi dolor. Ut enim ad minim veniam, quis nostrud exercitation. Nihilne te nocturnum praesidium Palati, nihil urbis vigiliae.
        Paullum deliquit, ponderibus modulisque suis ratio utitur. Magna pars studiorum, prodita quaerimus. Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed eiusmod tempor incididunt ut labore et dolore magna aliqua. Fabio vel iudice vincam, sunt in culpa qui officia.</p></div></div>
    </div>
  </div>

```

```
<script>$('.c-card__item').mouseleave(function () {
    $(this).find('.c-card__content-box').animate({ scrollTop: 0 }, 400);
});
</script>
```

```
*****
```

## underwater css pattern background

```
<style>
body {
    background: radial-gradient(1.5em 6.28571em at 1.95em, rgba(255, 255, 255, 0) 50%, rgba(255, 255, 255, 0.25) 50%, rgba(255, 255, 255, 0.25) 55%, rgba(255, 255, 255, 0) 55%) 0 0, radial-gradient(1.5em 6.28571em at -0.45em, rgba(255, 255, 255, 0) 50%, rgba(255, 255, 255, 0.25) 50%, rgba(255, 255, 255, 0.25) 55%, rgba(255, 255, 255, 0) 55%) 1.5em 5.5em, radial-gradient(2.3em 4.57143em at 2.99em, rgba(255, 255, 255, 0) 50%, rgba(255, 255, 255, 0.3) 50%, rgba(255, 255, 255, 0.3) 55%, rgba(255, 255, 255, 0) 55%) 0 0, radial-gradient(2.3em 4.57143em at -0.69em, rgba(255, 255, 255, 0) 50%, rgba(255, 255, 255, 0.3) 50%, rgba(255, 255, 255, 0.3) 55%, rgba(255, 255, 255, 0) 55%) 2.3em 4em, radial-gradient(3.5em 6.28571em at 4.55em, rgba(255, 255, 255, 0) 50%, rgba(255, 255, 255, 0.25) 50%, rgba(255, 255, 255, 0.25) 55%, rgba(255, 255, 255, 0.25) 55%, rgba(255, 255, 255, 0) 55%) 0 0, radial-gradient(3.5em 6.28571em at -1.05em, rgba(255, 255, 255, 0) 50%, rgba(255, 255, 255, 0.25) 50%, rgba(255, 255, 255, 0.25) 55%, rgba(255, 255, 255, 0.25) 55%, rgba(255, 255, 255, 0) 55%) 3.5em 5.5em, radial-gradient(#15ffa5, #00ced1);
    background-color: mediumspringgreen;
    background-size: 1.5em 11em, 1.5em 11em, 2.3em 8em, 2.3em 8em, 3.5em 11em, 3.5em 11em, 100% 100%;
    background-repeat: repeat;
}
</style>
```

```
*****
```

## Article Tiles

```
<div class="wrap">
<div class="tile">
    <img src='https://images.unsplash.com/photo-1464054313797-e27fb58e90a9?dpr=1&auto=format&crop=entropy&fit=crop&w=1500&h=996&q=80' />
    <div class="text">
        <h1>Lorem ipsum.</h1>
        <h2 class="animate-text">More lorem ipsum bacon ipsum.</h2>
        <p class="animate-text">Bacon ipsum dolor amet pork belly tri-tip turducken, pancetta bresaola pork chicken meatloaf. Flank sirloin strip steak prosciutto kevin turducken.<a href="http://www.google.com/">Google</a> </p>
        <div class="dots">
            <span></span>
            <span></span>
            <span></span>
        </div>
    </div>
</div>
</div>
```

```




# Lorem ipsum.



## More lorem ipsum bacon ipsum.



Bacon ipsum dolor amet pork belly tri-tip turducken, pancetta bresaola pork chicken meatloaf. Flank sirloin strip steak prosciutto kevin turducken.





# Lorem ipsum.



## More lorem ipsum bacon ipsum.



Bacon ipsum dolor amet pork belly tri-tip turducken, pancetta bresaola pork chicken meatloaf. Flank sirloin strip steak prosciutto kevin turducken.


```

---

```

background-size:cover;
position:relative;
cursor:pointer;
transition: all 0.4s ease-out;
box-shadow: 0px 35px 77px -17px rgba(0,0,0,0.44);
overflow:hidden;
color:white;
font-family:'Roboto';

}

.tile img
{
height:100%;
width:100%;
position:absolute;
top:0;
left:0;
z-index:0;
transition: all 0.4s ease-out;
}
.tile .text
{
/* z-index:99; */
position:absolute;
padding:30px;
height:calc(100% - 60px);
height:calc(100% - 60px);
}
.tile h1
{

font-weight:300;
margin:0;
text-shadow: 2px 2px 10px rgba(0,0,0,0.3);
}
.tile h2
{
font-weight:100;
margin:20px 0 0 0;
font-style:italic;
transform: translateX(200px);
}
.tile p
{
font-weight:300;
margin:20px 0 0 0;
line-height: 25px;
/* opacity:0; */
transform: translateX(-200px);
transition-delay: 0.2s;
}
.animate-text
{
opacity:0;
transition: all 0.6s ease-in-out;
}
.tile:hover
{

```

```

/* background-color:#99aeff; */
box-shadow: 0px 35px 77px -17px rgba(0,0,0,0.64);
    transform:scale(1.05);
}
.tile:hover img
{
    opacity: 0.2;
}
.tile:hover .animate-text
{
    transform:translateX(0);
    opacity:1;
}
.dots
{
    position:absolute;
    bottom:20px;
    right:30px;
    margin: 0 auto;
    width:30px;
    height:30px;
    color:currentColor;
    display:flex;
    flex-direction:column;
    align-items:center;
    justify-content:space-around;
}

.dots span
{
    width: 5px;
    height:5px;
    background-color: currentColor;
    border-radius: 50%;
    display:block;
    opacity:0;
    transition: transform 0.4s ease-out, opacity 0.5s ease;
    transform: translateY(30px);
}

.tile:hover span
{
    opacity:1;
    transform:translateY(0px);
}

.dots span:nth-child(1)
{
    transition-delay: 0.05s;
}
.dots span:nth-child(2)
{
    transition-delay: 0.1s;
}
.dots span:nth-child(3)
{

```

```
    transition-delay: 0.15s;  
}  
  
@media (max-width: 1000px) {
```

```
    .wrap {  
        flex-direction: column;  
        width:400px;  
    }  
}
```

```
</style>
```

```
*****
```

## Reveal real image on scratch

```
<style class="cp-pen-styles">  
body {  
    margin: 0;  
}  
  
#bridge {  
    display: block;  
    margin: 0 auto;  
    background-image: url("https://i.ytimg.com/vi/0Yq39PLnikE/maxresdefault.jpg");  
    background-image: -webkit-image-set(url("https://i.ytimg.com/vi/0Yq39PLnikE/maxresdefault.jpg")  
1x, url("https://i.ytimg.com/vi/0Yq39PLnikE/maxresdefault-2x.jpg") 2x);  
    background-size: cover;  
    width: 100%;  
    max-width: 750px;  
    height: auto;  
    cursor: crosshair;  
    cursor: url("https://s3-us-west-2.amazonaws.com/s.cdpn.io/4273/circular-cursor.png") 53 53,  
crosshair;  
}  
  
#bridgeContainer {  
    text-align: center;  
    font-family: Avenir, sans-serif;  
}  
  
#bridgeContainer figcaption {  
    margin-top: 2rem;  
}  
</style></head><body>  
<figure id="bridgeContainer">  
<canvas id="bridge" width="750" height="465"></canvas>  
    <figcaption> touch on photo to reveal</figcaption>  
</figure>  
  
<script>var bridge = document.getElementById('bridge'), bridgeCanvas = bridge.getContext('2d'),  
brushRadius = bridge.width / 100 * 5, img = new Image();  
if (brushRadius < 50) {  
    brushRadius = 50;  
}
```

```

img.onload = function () {
    bridgeCanvas.drawImage(img, 0, 0, bridge.width, bridge.height);
};

img.loc = 'http://www.lindahall.org/wp-content/uploads/sites/5/2015/04/';
img.filename = 'planck1.jpg';
if (window.devicePixelRatio >= 2) {
    var nameParts = img.filename.split('.');
    img.src = img.loc + nameParts[0] + '-2x' + '.' + nameParts[1];
} else {
    img.src = img.loc + img.filename;
}

function detectLeftButton(event) {
    if ('buttons' in event) {
        return event.buttons === 1;
    } else if ('which' in event) {
        return event.which === 1;
    } else {
        return event.button === 1;
    }
}

function getBrushPos(xRef, yRef) {
    var bridgeRect = bridge.getBoundingClientRect();
    return {
        x: Math.floor((xRef - bridgeRect.left) / (bridgeRect.right - bridgeRect.left) * bridge.width),
        y: Math.floor((yRef - bridgeRect.top) / (bridgeRect.bottom - bridgeRect.top) * bridge.height)
    };
}

function drawDot(mouseX, mouseY) {
    bridgeCanvas.beginPath();
    bridgeCanvas.arc(mouseX, mouseY, brushRadius, 0, 2 * Math.PI, true);
    bridgeCanvas.fillStyle = '#000';
    bridgeCanvas.globalCompositeOperation = 'destination-out';
    bridgeCanvas.fill();
}

bridge.addEventListener('mousemove', function (e) {
    var brushPos = getBrushPos(e.clientX, e.clientY);
    var leftBut = detectLeftButton(e);
    if (leftBut == 1) {
        drawDot(brushPos.x, brushPos.y);
    }
}, false);

bridge.addEventListener('touchmove', function (e) {
    e.preventDefault();
    var touch = e.targetTouches[0];
    if (touch) {
        var brushPos = getBrushPos(touch.pageX, touch.pageY);
        drawDot(brushPos.x, brushPos.y);
    }
}, false);

</script>

```

---

---

\*\*\*\*\*

## Glowing text

```
<style class="cp-pen-styles">
@import "https://fonts.googleapis.com/css?family=Permanent+Marker";
body {
    font: 15vw/1 Permanent Marker;
    display: -webkit-box;
    display: -webkit-flex;
    display: -ms-flexbox;
    display: flex;
    -webkit-box-align: center;
    -webkit-align-items: center;
    -ms-flex-align: center;
    align-items: center;
    -webkit-box-pack: center;
    -webkit-justify-content: center;
    -ms-flex-pack: center;
    justify-content: center;
    height: 100vh;
    text-align: center;
    background: #111;
    color: snow;
}

span {
    -webkit-animation: glow 2s ease-in-out both infinite;
    animation: glow 2s ease-in-out both infinite;
}
span:nth-child(1) {
    -webkit-animation-delay: -0.28571s;
    animation-delay: -0.28571s;
}
span:nth-child(2) {
    -webkit-animation-delay: -0.57143s;
    animation-delay: -0.57143s;
}
span:nth-child(3) {
    -webkit-animation-delay: -0.85714s;
    animation-delay: -0.85714s;
}
span:nth-child(4) {
    -webkit-animation-delay: -1.14286s;
    animation-delay: -1.14286s;
}
span:nth-child(5) {
    -webkit-animation-delay: -1.42857s;
    animation-delay: -1.42857s;
}
span:nth-child(6) {
    -webkit-animation-delay: -1.71429s;
    animation-delay: -1.71429s;
}
span:nth-child(7) {
    -webkit-animation-delay: -2s;
```

```

        animation-delay: -2s;
    }

@-webkit-keyframes glow {
    0%, 100% {
        text-shadow: 0 0 8.3333px snow, 0 -25px 50px tomato, -25px 25px 50px yellow, 25px 25px 50px
    tomato;
    }
    33% {
        text-shadow: 0 0 8.3333px snow, 0 -25px 50px cyan, -25px 25px 50px tomato, 25px 25px 50px
    cyan;
    }
    66% {
        text-shadow: 0 0 8.3333px snow, 0 -25px 50px yellow, -25px 25px 50px cyan, 25px 25px 50px
    yellow;
    }
}

@keyframes glow {
    0%, 100% {
        text-shadow: 0 0 8.3333px snow, 0 -25px 50px tomato, -25px 25px 50px yellow, 25px 25px 50px
    tomato;
    }
    33% {
        text-shadow: 0 0 8.3333px snow, 0 -25px 50px cyan, -25px 25px 50px tomato, 25px 25px 50px
    cyan;
    }
    66% {
        text-shadow: 0 0 8.3333px snow, 0 -25px 50px yellow, -25px 25px 50px cyan, 25px 25px 50px
    yellow;
    }
}

</style></head><body>
<span>E</span><span>I</span><span>N</span><span>S</span><span>T</span><span>E</span><span>I</span>
<span>N</span>

```

\*\*\*\*\*

## Animation over text

```

<style class="cp-pen-styles">
.sm_download_cssload_loader {
    width: 344px;
    height: 69px;
    line-height: 69px;
    text-align: center;
    position: absolute;
    left: 50%;
    transform: translate(-50%, -50%);
    -o-transform: translate(-50%, -50%);
    -ms-transform: translate(-50%, -50%);
    -webkit-transform: translate(-50%, -50%);
    -moz-transform: translate(-50%, -50%);
    font-family: helvetica, arial, sans-serif;
    text-transform: uppercase;
}

```

```

font-weight: 900;
font-size: 25px;
color: rgb(6, 97, 16);
letter-spacing: 0.2em;
}
.sm_download_cssload_loader::before, .sm_download_cssload_loader::after {
    content: "";
    display: block;
    width: 21px;
    height: 21px;
    background: rgb(83, 207, 41);
    position: absolute;
    animation: sm_download_cssload_load 1.23s infinite alternate ease-in-out;
    -o-animation: sm_download_cssload_load 1.23s infinite alternate ease-in-out;
    -ms-animation: sm_download_cssload_load 1.23s infinite alternate ease-in-out;
    -webkit-animation: sm_download_cssload_load 1.23s infinite alternate ease-in-out;
    -moz-animation: sm_download_cssload_load 1.23s infinite alternate ease-in-out;
}
.sm_download_cssload_loader::before {top: 0;}
.sm_download_cssload_loader::after {bottom: 0;}
@keyframes sm_download_cssload_load {
    0% {left: 0; height: 41px; width: 21px; }
    50% {height: 11px; width: 55px; }
    100% {left: 323px; height: 41px; width: 21px; }
}
@-o-keyframes sm_download_cssload_load {
    0% {left: 0; height: 41px; width: 21px; }
    50% {height: 11px; width: 55px; }
    100% {left: 323px; height: 41px; width: 21px; }
}
@-ms-keyframes sm_download_cssload_load {
    0% {left: 0; height: 41px; width: 21px; }
    50% {height: 11px; width: 55px; }
    100% {left: 323px; height: 41px; width: 21px; }
}
@-webkit-keyframes sm_download_cssload_load {
    0% {left: 0; height: 41px; width: 21px; }
    50% {height: 11px; width: 55px; }
    100% {left: 323px; height: 41px; width: 21px; }
}
@-moz-keyframes sm_download_cssload_load {
    0% {left: 0; height: 41px; width: 21px; }
    50% {height: 11px; width: 55px; }
    100% {left: 323px; height: 41px; width: 21px; }
}

```

</style></head><body>

Computer ...</div>

\*\*\*\*\*

## Stitching effect

```

<svg xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink"
preserveAspectRatio="xMidYMid" width="500px" height="400px" viewBox="0 0 500 400">
<defs>
<style>
.stitching {
fill: none;
stroke: #333;
stroke-width: 3;
stroke-linecap: round;
stroke-dasharray: 45790 45790;
animation: run_stitches 47.5s linear infinite alternate 0.5s;
}

#thread {
stroke: #333;
stroke-width: 2;
stroke-linecap: round;
transition: all;
}

.message {
font-family: Lato;
font-weight: 900;
font-size: 80px;
alignment-baseline: middle;
text-anchor: middle;
fill: #333;
}

@keyframes run_stitches {
0%   { stroke-dashoffset: 0; }
100% { stroke-dashoffset: 45790; }
}
</style>
</defs>
<text class="message" x="250" y="95">Computer is a </text>
<text class="message" x="250" y="175">Machine</text>
<polyline class="stitching"
points="10 10,490 10,490 12,10 12,10 14,490 14,490 16,10 16,10 18,490 18,490 20,10 20,10 22,490
22,490 24,10 24,10 26,490 26,490 28,10 28,10 30,490 30,490 32,10 32,10 34,490 34,490 36,10 36,10
38,490 38,490 40,10 40,10 42,490 42,490 44,10 44,10 46,490 46,490 48,10 48,10 50,490 50,490 52,10
52,10 54,490 54,490 56,10 56,10 58,490 58,490 60,10 60,10 62,490 62,490 64,10 64,10 66,490 66,490
68,10 68,10 70,490 70,490 72,10 72,10 74,490 74,490 76,10 76,10 78,490 78,490 80,10 80,10 82,490
82,490 84,10 84,10 86,490 86,490 88,10 88,10 90,490 90,490 92,10 92,10 94,490 94,490 96,10 96,10
98,490 98,490 100,10 100,10 102,490 102,490 104,10 104,10 106,490 106,490 108,10 108,10 110,490
110,490 112,10 112,10 114,490 114,490 116,10 116,10 118,490 118,490 120,10 120,10 122,490 122,490
124,10 124,10 126,490 126,490 128,10 128,10 130,490 130,490 132,10 132,10 134,490 134,490 136,10
136,10 138,490 138,490 140,10 140,10 142,490 142,490 144,10 144,10 146,490 146,490 148,10 148,10
150,490 150,490 152,10 152,10 154,490 154,490 156,10 156,10 158,490 158,490 160,10 160,10 162,490
162,490 164,10 164,10 166,490 166,490 168,10 168,10 170,490 170,490 172,10 172,10 174,490 174,490
176,10 176,10 178,490 178,490 180,10 180,10 182,490 182,490 184,10 184,10 186,490 186,490 188,10
188,10 190,490 190,490 192,10 192,10 194,490 194,490 196,10 196,10 198,490 198,490 200,10 200" />
<line id="thread" x1="10" y1="200" x2="250" y2="300" />
</svg>
<script src='//assets.codepen.io/assets/common/stopExecutionOnTimeout-
53beeb1a007ec32040abaf4c9385ebfc.js'></script>
<script>window.onload = function() {

```

```

var thread = document.getElementById("thread"),
t_height = thread.getAttribute("y1"),
t_direction = 1,
w_direction = 1,
i = 0,
w = 0,
x_pos = 10,
raf;

/*
 * There are 95 rows of "stitching", which takes 95s to animate,
 * which means 1 second per row
 */
setInterval(function() {
t_height -= (2 * t_direction);

/* reverse direction after end thread reached */
i++;
if (i >= 96) {
i = 0;
t_direction *= -1;
}

thread.setAttribute("y1", t_height)
}, 500)

setInterval(function() {
w++;
if (w > 25) {
w = 1;
w_direction *= -1;
}
x_pos += (19.2 * w_direction);
thread.setAttribute("x1", x_pos);
}, 20)
}

</script>

```

\*\*\*\*\*

## Check the size of the file

```

<!DOCTYPE html>
<html>
<body onload="myFunction()">

<input type="file" id="myFile" multiple size="50" onchange="myFunction()">

<p id="demo"></p>

<script>
function myFunction(){
    var x = document.getElementById("myFile");
    var txt = "";

```

```

if ('files' in x) {
    if (x.files.length == 0) {
        txt = "Select the file.";
    } else {
        for (var i = 0; i < x.files.length; i++) {
            txt += "<br><strong>" + (i+1) + ". file</strong><br>";
            var file = x.files[i];
            if ('name' in file) {
                txt += "name: " + file.name + "<br>";
            }
            if ('size' in file) {
                txt += "size: " + file.size + " bytes <br>";
            }
        }
    }
} else {
    if (x.value == "") {
        txt += "Select one or more files.";
    } else {
        txt += "The files property is not supported by your browser!";
        txt += "<br>The path of the selected file: " + x.value; // If the browser does not
support the files property, it will return the path of the selected file instead.
    }
}
document.getElementById("demo").innerHTML = txt;
}

</script>

</body>
</html>

```

\*\*\*\*\*

## Olympics CSS Spinner

```

<style class="cp-pen-styles">html {
    height: 100%;
}

body {
    display: -webkit-box;
    display: -webkit-flex;
    display: -ms-flexbox;
    display: flex;
    -webkit-box-orient: vertical;
    -webkit-box-direction: normal;
    -webkit-flex-direction: column;
    -ms-flex-direction: column;
    flex-direction: column;
    -webkit-box-align: center;
    -webkit-align-items: center;
    -ms-flex-align: center;
    align-items: center;
    -webkit-box-pack: center;
}

```

```

        -webkit-justify-content: center;
        -ms-flex-pack: center;
            justify-content: center;
    height: 100%;
}

.spinner-container {
    display: -webkit-box;
    display: -webkit-flex;
    display: -ms-flexbox;
    display: flex;
    -webkit-box-orient: horizontal;
    -webkit-box-direction: normal;
    -webkit-flex-direction: row;
        -ms-flex-direction: row;
            flex-direction: row;
}

.spinner {
    -webkit-box-flex: 0;
    -webkit-flex-grow: 0;
        -ms-flex-positive: 0;
            flex-grow: 0;
    -webkit-flex-shrink: 0;
        -ms-flex-negative: 0;
            flex-shrink: 0;
    width: 80px;
    height: 80px;
    margin-left: -36px;
    background: none;
    border-radius: 50%;
    border: 6px solid currentColor;
    box-sizing: border-box;
    -webkit-animation-name: spin;
        animation-name: spin;
    -webkit-animation-duration: 1.2s;
        animation-duration: 1.2s;
    -webkit-animation-fill-mode: backwards;
        animation-fill-mode: backwards;
    -webkit-animation-iteration-count: infinite;
        animation-iteration-count: infinite;
    -webkit-animation-timing-function: linear;
        animation-timing-function: linear;
}
.spinner:first-child {
    margin-left: 0;
    color: rgba(0, 41, 140, 0.2);
    border-top-color: #00298C;
}
.spinner:nth-child(2) {
    color: rgba(255, 239, 8, 0.2);
    border-top-color: #FFEF08;
}
.spinner:nth-child(3) {
    color: rgba(0, 0, 0, 0.2);
    border-top-color: #000000;
}
.spinner:nth-child(4) {

```

---

```

    color: rgba(8, 123, 57, 0.2);
    border-top-color: #087B39;
}
.spinner:nth-child(5) {
    color: rgba(222, 24, 24, 0.2);
    border-top-color: #DE1818;
}
.spinner:nth-child(2n) {
    margin-top: 40px;
}

@-webkit-keyframes spin {
    0% {
        -webkit-transform: rotate(0);
        transform: rotate(0);
    }
    100% {
        -webkit-transform: rotate(360deg);
        transform: rotate(360deg);
    }
}

@keyframes spin {
    0% {
        -webkit-transform: rotate(0);
        transform: rotate(0);
    }
    100% {
        -webkit-transform: rotate(360deg);
        transform: rotate(360deg);
    }
}

</style></head><body>
<div class="spinner-container">
    <div class="spinner"></div>
    <div class="spinner"></div>
    <div class="spinner"></div>
    <div class="spinner"></div>
    <div class="spinner"></div>
</div>

<script>$(document).ready(function () {
    $('.spinner-container').children('.spinner').each(function (index) {
        var delay = index * 0.3;
    });
});</script>

```

---

## A Simple HTML page

```
<style class="cp-pen-styles">
body {
    -webkit-text-size-adjust: 100%;
    -webkit-font-feature-settings: "kern" 1;
    -moz-font-feature-settings: "kern" 1;
    -o-font-feature-settings: "kern" 1;
    font-feature-settings: "kern" 1;
    font-kerning: normal;
}
main {
    position: relative;
}

.triangle {
    position: absolute;
    width: 0;
    height: 0;
    border-top: 28vh solid #ff4081;
    border-right: 40vw solid transparent;
    opacity: 0.90;
    z-index: -1;
    transition: all 0.3s cubic-bezier(.17,.67,.83,.67);
}
.triangle-2 {
    position: absolute;
    width: 0;
    height: 0;
    border-top: 25vh solid #cecdfe;
    border-right: 75vw solid transparent;
    opacity: 0.90;
    z-index: -2;
    transition: all 0.3s cubic-bezier(.17,.67,.83,.67);
}
.triangle-3 {
    position: absolute;
    display: block;
    right: 0;
    width: 0;
    height: 0;
    border-top: 25vh solid #4b007d;
    border-left: 75vw solid transparent;
    opacity: 0.90;
    z-index: -3;
    transition: all 0.3s cubic-bezier(.17,.67,.83,.67);
}

.container {
    position: relative;
    top: 20vh;
    padding: 50px 1em;
    max-width: 1000px;
    margin: 0 auto;
    z-index: 100;
}
```

```
@media only screen and (min-width: 768px) {  
  
    .triangle {  
        border-top: 120vh solid #ff4081;  
        border-right: 35vw solid transparent;  
    }  
    .triangle-2 {  
        border-top: 120vh solid #cecdfe;  
        border-right: 40vw solid transparent;  
    }  
    .triangle-3 {  
        display: none;  
    }  
    .container {  
        top: 10vh;  
    }  
}  
  
article {  
    max-width: 700px;  
    margin: 0 auto;  
    z-index: 100;  
}  
article h1 {  
    font-family: 'Merriweather';  
    font-weight: 700;  
    font-size: 3.5rem;  
    color: #202020;  
    margin-bottom: 0.25em;  
    text-align: center;  
}  
article .metadata {  
    margin-bottom: 1em;  
}  
article span {  
    font-family: Merriweather;  
    font-size: 1em;  
    font-weight: 400;  
    display: block;  
    color: #828385;  
    text-align: center;  
    margin-bottom: 0.25em  
}  
article p {  
    font-family: 'PT Sans';  
    font-weight: 400;  
    font-size: 1.050em;  
    line-height: 1.635;  
    color: #444;  
    margin-bottom: 1.1635em;  
    padding: 0.50em;  
}  
  
@media only screen and (min-width: 768px) {  
    article p {  
        font-size: 1.250em;  
    }  
}
```

```
 }</style></head><body>
<main>
<div class="triangle"></div>
<div class="triangle-2"></div>
<div class="triangle-3"></div>
<div class="container">

    <article>
        <h1>Title</h1>

        <center> </center>

        <div class="metadata">
            <span class="author">by Albert Einstein</span>
            <span class="date">August 2nd, 1939</span>
        </div>
        <p>Some recent work by E. Fermi and L. Szilard, which has been communicated to me in
        manuscript, leads me to expect that the element uranium may be turned into a new and important
        source of energy in the immediate future. Certain aspects of the situation which has arisen seem
        to call for watchfulness and if necessary, quick action on the part of the Administration. I
        believe therefore that it is my duty to bring to your attention the following facts and
        recommendations.</p>
        <p>
        In the course of the last four months it has been made probable through the work of Joliot in
        France as well as Fermi and Szilard in America--that it may be possible to set up a nuclear chain
        reaction in a large mass of uranium, by which vast amounts of power and large quantities of new
        radium-like elements would be generated. Now it appears almost certain that this could be
        achieved in the immediate future.

        This new phenomenon would also lead to the construction of bombs, and it is conceivable--though
        much less certain--that extremely powerful bombs of this type may thus be constructed. A single
        bomb of this type, carried by boat and exploded in a port, might very well destroy the whole port
        together with some of the surrounding territory. However, such bombs might very well prove too
        heavy for transportation by air.

        The United States has only very poor ores of uranium in moderate quantities. There is some good
        ore in Canada and former Czechoslovakia, while the most important source of uranium is in the
        Belgian Congo.</p>
        <p>In view of this situation you may think it desirable to have some permanent contact maintained
        between the Administration and the group of physicists working on chain reactions in America. One
        possible way of achieving this might be for you to entrust the task with a person who has your
        confidence and who could perhaps serve in an unofficial capacity. His task might comprise the
        following:

        a) to approach Government Departments, keep them informed of the further development, and put
        forward recommendations for Government action, giving particular attention to the problem of
        securing a supply of uranium ore for the United States.

        b) to speed up the experimental work, which is at present being carried on within the limits of
        the budgets of University laboratories, by providing funds, if such funds be required, through
        his contacts with private persons who are willing to make contributions for this cause, and
        perhaps also by obtaining co-operation of industrial laboratories which have necessary equipment.

        I understand that Germany has actually stopped the sale of uranium from the Czechoslovakian mines
        which she has taken over. That she should have taken such early action might perhaps be
```

---

---

```
understood on the ground that the son of the German Under-Secretary of State, von Weizsacker, is attached to the Kaiser-Wilhelm Institute in Berlin, where some of the American work on uranium is now being repeated.</p>
<p>Yours very truly,</p>
<p class="meh">Albert Einstein</p>
</article>
</div>
</main>
```

```
*****
```

## CSS writing mode (vertical)

```
<style class="cp-pen-styles">
body {
    font-size: calc(100% + .25vw);
    line-height: 1.4em;
}

main {
    max-width: 100%;
    margin: 0 auto;
}

article {
    max-width: 85%;
    padding: 0 .5rem 0 15%;
}

h2 {
    font-size: 1.6em;
    line-height: 1;
    -webkit-writing-mode: vertical-lr;
    -ms-writing-mode: tb-lr;
    writing-mode: vertical-lr;
    float: left;
    margin: 0 0 0 -5%;
    padding: .1em .5em .5em .1em;
    max-height: 500px;
}

@media all and (min-width: 40rem) {
    main {
        max-width: 40rem;
        margin: 0 auto;
    }

    article {
        max-width: 35rem;
        padding-left: 5rem;
    }
}

h2 {
    font-size: 2.6em;
    margin-left: -2.6rem;
```

```

        }
    }
</style></head><body>
<main>
    <article>
<center> <h1>Einstein's Special Theory of Relativity </h1> </center>

    <h2> Albert Einstein</h2>

    <p>It's a fact of life: Some things are absolute, and some are relative. For me, the teapot on the table is to the left of my cup. From the point of view of an observer sitting directly opposite, it's the other way around: My cup is to the left of the teapot. "Left" and "right" are relative. Whether or not an object is located to the left or to the right of another depends on the observer. On the other hand, if the cup is filled to the brim with coffee, all observers should agree to the fact, regardless of where they sit. That, it would seem, is an absolute statement, independent of who makes the observation.</p>

    <p>Einstein's special theory of relativity (special relativity) is all about what's relative and what's absolute about time, space, and motion. Some of Einstein's conclusions are rather surprising. They are nonetheless correct, as numerous physics experiments have shown. And they have forced physicists to revise the way they think about some of their science's most basic concepts.</p>

    <p>"Everything is relative," as the pop version of Einstein's theory goes. Not so. That statement, for instance, is absolutely wrong. The scope of special relativity is rather more narrow. It concerns only very special situations, very special observers, very special questions of relativity and absoluteness.</p>

    <p>The prime example of a situation governed by special relativity is a region far, far away in the depths of space, far away from all stars and planets (and their gravitational influence). Imagine that, in this dark void, there are freely moving space stations, drifting along without any acceleration or rotation.</p>

    <p>On each of these stations sits an observer, with his own clocks and his own measuring rods, measuring times and distances. In addition, each such observer has a fully equipped physics lab on board, where he or she can perform a variety of experiments to explore the laws of physics. This is the kind of observer Einstein talks about, an observer in a free, unaccelerated frame of reference. Such frames of reference (and such observers) are commonly called inertial frames of reference (and inertial observers).</p>
    </article>
</main>

```

---

## Styling <Audio Tag>

```

<style class="cp-pen-styles">
@import 'https://fonts.googleapis.com/css?family=Lato';

* {
    outline: none;
}

body {
    background: #343436;
    font-family: 'Lato';
}

```

```
/* for preload play/pause svg */
body:after {
    position: absolute;
    width: 0;
    height: 0;
    overflow: hidden;
    z-index: -1;
    content: url(https://s3-us-west-2.amazonaws.com/s.cdpn.io/163884/play.svg)
    url(https://s3-us-west-2.amazonaws.com/s.cdpn.io/163884/pause.svg);
}

article{
    position: absolute;
    width: 50%;
    height: 300px;
    top: 40px;
    left: 0;
    bottom: 0;
    right: 0;
    margin: auto;
    text-align: center;
    padding: 50px 5%;
    box-sizing: border-box;
    box-shadow: 0 0 21px 0px rgba(0,0,0,0.3);
    border-radius: 10px;
}

.cont{
    margin-bottom: 28px;
}

.cont h3{
    font-family: 'Lato';
    font-size: 50px;
    margin: 0 0 10px 0;
    color: #ccc;
}

.cont time{
    font-family: 'Lato';
    font-size: 12px;
    color: #999;
}

/*
*style audio tag
*/
.mejs-container {
    background: #000;
    font-family: Helvetica, Arial;
    text-align: left;
    vertical-align: top;
    text-indent: 0;
    width: 100% !important;
    height: 50px !important;
```

```
border-radius: 5px;
}

.mejs-container .mejs-controls {
height: 100%;
background: transparent;
display: flex;
}

.mejs-controls .mejs-time-rail span,
.mejs-controls .mejs-time-rail a {
display: block;
width: 180px;
height: 100%;
border-radius: 0px;
cursor: pointer;
}

.mejs-controls div.mejs-time-rail {
padding-top: initial;
height: 100%;
}

.mejs-controls .mejs-time-rail .mejs-time-total {
margin: 0
}

.mejs-container .mejs-controls .mejs-time {
color: #fff;
display: block;
height: 27px;
width: auto;
padding: 0;
line-height: 25px;
overflow: hidden;
text-align: center;
-moz-box-sizing: content-box;
-webkit-box-sizing: content-box;
box-sizing: content-box;
}

.mejs-container .mejs-controls .mejs-time {
position: absolute;
color: rgba(256, 256, 256, 0.3);
right: 10px;
bottom: 0;
top: 0;
margin: auto;
font-family: 'Lato';
font-size: 32px;
pointer-events: none;
}

.mejs-controls .mejs-time-rail .mejs-time-float-corner {
display: none;
}

.mejs-controls .mejs-time-rail .mejs-time-float {
```

---

```

position: absolute;
background: #000;
width: 46px;
height: 20px;
border: none;
top: -25px;
margin-left: -18px;
text-align: center;
color: #fff;
border-radius: 3px;
}

.mejs-controls .mejs-time-rail .mejs-time-float-current {
margin: 0;
margin-top: 4px;
width: 100%;
display: block;
text-align: center;
left: 0;
}

.mejs-container .mejs-controls div {
height: 100%;
width: 50px;
position: relative;
}

.mejs-controls .mejs-button button {
margin: 0;
padding: 0;
position: relative;
height: 100%;
width: 100%;
border: 0 !important;
background: transparent;
outline: none;
}

.mejs-controls .mejs-play:after {
position: absolute;
content: "";
background: url(https://s3-us-west-2.amazonaws.com/s.cdpn.io/163884/play.svg) no-repeat;
width: 17px;
height: 22px;
top: 0;
left: 0;
bottom: 0;
right: 0;
margin: auto;
transition: all 100ms linear;
pointer-events: none;
}

.mejs-controls .mejs-pause:after {
position: absolute;
content: "";
background: url(https://s3-us-west-2.amazonaws.com/s.cdpn.io/163884/pause.svg) no-repeat;
width: 13px;
}

```

```

height: 22px;
top: 0;
left: 0;
bottom: 0;
right: 0;
margin: auto;
transition: all 100ms linear;
pointer-events: none;
}

.mejs-controls .mejs-time-rail .mejs-time-total {
background: #292929;
}

.mejs-controls .mejs-time-rail .mejs-time-loaded {
background: #3c3838;
background-image: -webkit-gradient(linear, 0 0, 100% 100%, color-stop(.25, rgba(255, 255, 255, .2)), color-stop(.25, transparent), color-stop(.5, transparent), color-stop(.5, rgba(255, 255, 255, .2)), color-stop(.75, rgba(255, 255, 255, .2)), color-stop(.75, transparent), to(transparent));
background-image: -moz-linear-gradient( -45deg, rgba(255, 255, 255, .2) 25%, transparent 25%, transparent 50%, rgba(255, 255, 255, .2) 50%, rgba(255, 255, 255, .2) 75%, transparent 75%, transparent);
background-size: 50px 50px;
animation: move 3s linear infinite;
opacity: 0.1;
}

.mejs-controls .mejs-time-rail .mejs-time-current {
background: linear-gradient(to right, #03A9F4, #ff00ff);
}

.mejs-controls .mejs-button button:focus {
outline: none;
}

@-webkit-keyframes move {
0% {
background-position: 0 0;
}
100% {
background-position: 50px 50px;
}
} </style> </head> <body>
<article>
<div class="cont">
<h3>100: Big Ones</h3>
<time>June 26, 2016</time>
</div>
<audio class="audio" controls="controls">
<source type="audio/mpeg" src="http://media.blubrry.com/codepen_radio/p/codepen-podcast.s3.amazonaws.com/100.mp3?_=1">
</audio>
</article>
<script>$('audio').mediaelementplayer({
features: [
'playpause',
'progress',

```

```

        'current',
        'tracks',
        'fullscreen'
    ]
}) ;

</script>

```

\*\*\*\*\*

## Tom and Jerry Page Design

```

<style class="cp-pen-styles">
@font-face {
    font-family: 'AeroMatics Display';
    src: url("https://s3-us-west-2.amazonaws.com/s.cdpn.io/4273/Aero_Matics_Display_Bold.woff") format("woff");
    font-style: normal;
    font-weight: 700;
}
@font-face {
    font-family: 'AeroMatics Light';
    src: url("https://s3-us-west-2.amazonaws.com/s.cdpn.io/4273/Aero_Matics_Light.woff");
    font-style: normal;
    font-weight: 700;
}
* {
    box-sizing: border-box;
}

body {
    margin: 0;
}

#poster {
    -webkit-perspective: 800px;
    perspective: 800px;
    background: -webkit-linear-gradient(#115695, #fff 50%);
    background: linear-gradient(#115695, #fff 50%);
    width: 1000px;
    position: relative;
    height: 1300px;
    margin: 0 auto;
}

#banner {
    text-transform: uppercase;
    text-align: center;
    font-size: 2rem;
    width: 28rem;
    line-height: .9;
    -webkit-transform-origin: top left;
    transform-origin: top left;
    -webkit-transform: rotateX(15deg) skewX(15deg) translateX(100px);
    transform: rotateX(15deg) skewX(15deg) translateX(100px);
    background: #fff;
}

```

---

```

padding: 1rem;
position: relative;
height: 100%;
}

#banner h1 {
font-family: AeroMatics Display, sans-serif;
color: red;
font-size: 7rem;
letter-spacing: -.2rem;
}

#banner span {
font-family: AeroMatics Light, sans-serif;
letter-spacing: .2rem;
line-height: 1.2;
}

#plan9 {
position: absolute;
bottom: 0;
}

#spaceship {
position: absolute;
top: 120px;
right: 70px;
width: 25%;
}

#credits {
width: 50%;
margin-top: 18rem;
margin-left: 15rem;
text-align: center;
}

#credits span:first-of-type {
font-size: 1rem;
margin-top: 0;
}

.actor {
text-transform: uppercase;
font-size: 1.4rem;
display: block;
}

.production {
font-size: .7rem;
font-family: AeroMatics Light;
letter-spacing: .1rem;
line-height: 1.2;
}

```

</style></head><body>

<div id="poster">  
<div id="banner">

---



---

```

<span>Plan 9 From Outer Space: Unspeakable horrors from outer space paralyze the living and
resurrect the dead!</span>
<h1>Tom and Jerry</h1>
<div id="credits">
<span>with</span>
<span class="actor"> William Hanna </span>
<span class="actor"> Rudolf Ising</span>
<span class="actor">Lyle Talbot</span>
<p class="production">A J. Reynolds Production</p>
<p class="production">Produced and Directed by Edward D. Wood, Jr.</p>
</div>
</div>

<right> </right>


</div>
*****

```

## CSS cube transition

```

<style class="cp-pen-styles">
html, body {
  height: 100%;
  margin: 0;
}

p {
  width: 100%;
  margin: 0;
  padding: 1em;
  color: white;
  font-family: sans-serif;
  text-transform: uppercase;
  background: rgba(255, 0, 0, 0.8);
}

/* scene wrapper */
.wrapper {
  width: 100vw;
  height: 100vh;
  margin-top: 0;
  position: absolute;
  right: 0;
  top: 0;
  perspective-origin: top center;
  overflow: hidden;
}

/* cube wrapper */
.parent {
  position: relative;
  width: 100vw;

```

```

height: 100vh;
animation: spin 4s infinite linear;
transition: all 1s linear;
perspective: 1000px;
text-align: center;
font-weight: 900;
letter-spacing: 0.5em;
font-size: 2em;
}
.parent:hover {
  transform: translateX(-100vw);
}

/* outer cube */
.child {
  position: absolute;
  width: 100%;
  height: 90vh;
  margin-top: 5vh;
  display: flex;
  align-items: center;
  color: rgba(0, 0, 0, 0.5);
  font-family: sans-serif;
  text-transform: uppercase;
  transition: all 1s linear;
  transform-origin: 100% 0;
}

.details {
  background: url("https://unsplash.it/g/1500/1500") center center;
  background-size: cover;
  transform: rotateY(90deg) translateX(100vw);
  z-index: 1;
}
.parent:hover .details {
  z-index: 2;
  transform: rotateY(0deg) translateX(100vw);
}

.home {
  background: url("https://unsplash.it/g/1600/1600") center center;
  background-size: cover;
  z-index: 2;
}
.parent:hover .home {
  transform: rotateY(-135deg);
}

</style></head><body>
<div class="wrapper">
  <div class="parent">
    <div class="child home"><p> Home </p></div>
    <div class="child details"> <p><a href="http://www.w3schools.com/html/">Home</a></p></div>
  </div>
</div>

```

---

```
*****
```

## Contact Me Animation Concept

```
<style class="cp-pen-styles">

html,
body {
  margin: 0;
  padding: 0;
  height: 100vh;
  width: 100vw;
  overflow: hidden;
}

.container {
  width: 100%;
  height: 100%;
  display: -webkit-box;
  display: -ms-flexbox;
  display: flex;
  -ms-flex-flow: column wrap;
  flex-flow: column wrap;
  -webkit-box-pack: center;
  -ms-flex-pack: center;
  justify-content: center;
  -webkit-box-align: center;
  -ms-flex-align: center;
  align-items: center;
  background-color: #2196F3;
}
```

```
/* for background beginning */
```

```
.container > .banner {  
background-color: #F5F3F3;  
position: absolute;  
z-index: 2;  
}
```

```
/* for background end */
```

```
.container > .banner {  
width: 100%;  
height: 200px;  
min-height: 200px;  
max-height: auto;  
-webkit-box-pack: center;  
-ms-flex-pack: center;  
justify-content: center;  
-ms-flex-line-pack: center;  
align-content: center;  
position: absolute;  
left: 0px;  
top: calc((100% - 200px) / 2);  
z-index: 10;  
}
```

```
.container > .banner > p {
```

```
color: #0D47A1;
```

```
-ms-flex-item-align: center;
align-self: center;
text-transform: uppercase;
font-size: 13px;
}

.container > .banner > a {
color: #0D47A1;
height: auto;
text-align: center;
text-transform: uppercase;
-webkit-box-pack: center;
-ms-flex-pack: center;
justify-content: center;
-ms-flex-item-align: center;
align-self: center;
}

.container > .banner > a > p {
margin: 3px 6px;
}

.container > .banner > a > i {
color: #BDBDBD;
}

.container > .banner > a > i:before {
display: inline-block;
color: #0D47A1;
```

```
content: "send";  
  
position: relative;  
  
top: 0px;  
  
left: 23px;  
  
z-index: 1;  
  
transition: 400ms left ease-in-out;  
  
-webkit-transition: 400ms left ease-in-out;  
  
}  
  
  
.container > .banner > a.active > i:before, .container > .banner > a:hover > i:before,  
.container > .banner > a:focus > i:before {  
  
animation: paper-plane 4s ease-in-out;  
  
-webkit-animation: paper-plane 4s ease-in-out;  
  
}  
  
  
/* animation beginning */  
  
  
@-webkit-keyframes paper-plane {  
  
0% {  
  
left: 23px;  
  
top: 0px;  
  
-webkit-transform: rotate(0deg);  
  
}  
  
20% {  
  
left: 125px;  
  
-webkit-transform: rotate(-90deg);  
  
}  
  
40% {  
  
top: -60px;
```

```
-webkit-transform: rotate(-180deg);  
}  
  
60% {  
    left: -225px;  
    -webkit-transform: rotate(-270deg);  
}  
  
80% {  
    top: 0px;  
    -webkit-transform: rotate(-360deg);  
}  
  
100% {  
    left: 23px;  
    -webkit-transform: rotate(-360deg);  
}  
}  
  
@keyframes paper-plane {  
    0% {  
        left: 23px;  
        top: 0px;  
        -webkit-transform: rotate(0deg);  
        transform: rotate(0deg);  
    }  
  
    20% {  
        left: 125px;  
        -webkit-transform: rotate(-90deg);  
        transform: rotate(-90deg);  
    }  
  
    40% {  
        top: -60px;  
    }  
}
```

```
-webkit-transform: rotate(-180deg);
transform: rotate(-180deg);
}

60% {
    left: -225px;
    -webkit-transform: rotate(-270deg);
    transform: rotate(-270deg);
}

80% {
    top: 0px;
    -webkit-transform: rotate(-360deg);
    transform: rotate(-360deg);
}

100% {
    left: 23px;
    -webkit-transform: rotate(-360deg);
    transform: rotate(-360deg)
}

}

/* animation end */

/* global classes beginning */

.heading {
    color: #222;
}
```

```
.text {  
    font-family: Josefin Sans, sans-serif;  
    -ms-user-select: none;  
    -moz-user-select: none;  
    -webkit-user-select: none;  
    cursor: default;  
}  
  
.text.nodecoration {  
    text-decoration: none;  
    cursor: pointer;  
}  
  
.text.black {  
    color: #444;  
}  
  
.text.white {  
    color: #F5F3F3;  
}  
  
.text.outline {  
    -webkit-text-fill-color: transparent;  
    -webkit-text-stroke-width: 2px;  
}  
  
.text.outline.white {  
    -webkit-text-stroke-color: #FCFCFC;  
}
```

```
.text.outline.black {  
    -webkit-text-stroke-color: #444;  
}  
  
.offwhite-light {  
    background-color: #FCFCFC;  
}  
  
.offwhite-dark {  
    background-color: #F5F3F3;  
}  
  
.uppercase {  
    text-transform: uppercase;  
}  
  
.shadow {  
    box-shadow: 0px 0px 7px rgba(0, 0, 0, 0.26);  
}  
  
.shadow.bottom {  
    box-shadow: 0px 2px 5px rgba(0, 0, 0, 0.26);  
}  
  
.shadow.top {  
    box-shadow: 0px -2px 5px rgba(0, 0, 0, 0.26);  
}  
  
.shadow.tobo {  
    box-shadow: 0px -2px 5px rgba(0, 0, 0, 0.26), 0px 2px 5px rgba(0, 0, 0, 0.26);  
}
```

```
}

.flex {
    display: -webkit-inline-box;
    display: -ms-inline-flexbox;
    display: inline-flex;
}

.flex.vertical {
    -ms-flex-flow: column wrap;
    flex-flow: column wrap;
}

.flex.horizontal {
    -ms-flex-flow: row wrap;
    flex-flow: row wrap;
}

/* global classes end */</style></head><body>

<div class="container flex horizontal">

    <div class="banner flex vertical grayscale shadow tobo">

        <p class="text">Looking for someone to work with ?</p>

        <a id="contact-link" href="http://www.w3schools.com/html/tryit.asp?filename=tryhtml_default"
           class="text nodecoration flex horizontal"><p>Contact me</p><i class="material-icons">send</i></a>

    </div>

</div>
```

---

```

<script>var timeOut;

document.getElementById('contact-link').addEventListener('mouseover', function () {

    document.getElementById('contact-link').className = 'active text nodecoration flex
horizontal';

    clearTimeout(timeOut);

    timeOut = setTimeout(function () {

        document.getElementById('contact-link').className = 'text nodecoration flex horizontal';

    }, 4000);

}) ;

</script>

```

\*\*\*\*\*

## Border Animation

```

<style class="cp-pen-styles">
@-webkit-keyframes bg {
0% {
    background-size: 0 3px,
                    3px 0,
                    0 3px,
                    3px 0;
}
25% {
    background-size: 100% 3px,
                    3px 0,
                    0 3px,
                    3px 0;
}
50% {
    background-size: 100% 3px,
                    3px 100%,
                    0 3px,
                    3px 0;
}
75% {
    background-size: 100% 3px,
                    3px 100%,
                    100% 3px,
                    3px 0;
}
100% {
    background-size: 100% 3px,
                    3px 100%,
                    100% 3px,
                    3px 100%;
}

```

```

        }
    }

@keyframes bg {
    0% {
        background-size: 0 3px,
                        3px 0,
                        0 3px,
                        3px 0;
    }
    25% {
        background-size: 100% 3px,
                        3px 0,
                        0 3px,
                        3px 0;
    }
    50% {
        background-size: 100% 3px,
                        3px 100%,
                        0 3px,
                        3px 0;
    }
    75% {
        background-size: 100% 3px,
                        3px 100%,
                        100% 3px,
                        3px 0;
    }
    100% {
        background-size: 100% 3px,
                        3px 100%,
                        100% 3px,
                        3px 100%;
    }
}

div {
    width: 25%;
    margin: 2rem auto;
    padding: 2em;

    background-repeat: no-repeat;
    background-image: -webkit-linear-gradient(left, #C9C9C9 100%, #C9C9C9 100%),
                      -webkit-linear-gradient(top, #C9C9C9 100%, #C9C9C9 100%),
                      -webkit-linear-gradient(left, #C9C9C9 100%, #C9C9C9 100%),
                      -webkit-linear-gradient(top, #C9C9C9 100%, #C9C9C9 100%);
    background-image: linear-gradient(to right, #C9C9C9 100%, #C9C9C9 100%),
                      linear-gradient(to bottom, #C9C9C9 100%, #C9C9C9 100%),
                      linear-gradient(to right, #C9C9C9 100%, #C9C9C9 100%),
                      linear-gradient(to bottom, #C9C9C9 100%, #C9C9C9 100%);

    background-size: 100% 3px,
                    3px 100%,
                    100% 3px,
                    3px 100%;

    background-position: 0 0,
                        100% 0,
                        100% 100%,
                        0 100%;
}

```

```

        -webkit-animation: bg 1.25s cubic-bezier(0.19, 1, 0.22, 1) 1;
                        animation: bg 1.25s cubic-bezier(0.19, 1, 0.22, 1) 1;
        -webkit-animation-play-state: paused;
                        animation-play-state: paused;
    }

    div:hover {
        -webkit-animation-play-state: running;
                        animation-play-state: running;
}
</style></head><body>
<div>
    <h1>Hover me!</h1>
    <p>Planck's law describes the spectral density of electromagnetic radiation emitted by a black body in thermal equilibrium at a given temperature T. The law is named after Max Planck, who proposed it in 1900. It is a pioneering result of modern physics and quantum theory</p>
</div>

```

\*\*\*\*\*

## CSS vertical menu

```

<style class="cp-pen-styles">
@import url(https://fonts.googleapis.com/css?family=Oswald|Roboto);
body {
    margin: 0;
    height: 100vh;
    font-family: "Roboto", sans-serif;
    background: linear-gradient(5deg, #0e0f12, #198ada);
    -moz-background-size: cover;
    -o-background-size: cover;
    -webkit-background-size: cover;
    background-size: cover;
    background-repeat: no-repeat;
    background-position: center center;
}
body .overlay {
    position: absolute;
    top: 0;
    left: 0;
    width: 100%;
    height: 100%;
    background: rgba(0, 0, 0, 0.1);
}
.container {
    height: 100vh;
}

h1 {
    position: fixed;
    bottom: -7px;
    right: 93px;
    color: #ffffff;
    font-size: 34px;
}

```

```
.container-header {
  position: fixed;
  width: 70px;
  height: 100%;
  background: #0e0f12;
  z-index: 2;
}
.container-header .btn-close {
  position: absolute;
  top: 0;
  right: 0;
  margin: 20px;
  width: 40px;
  height: 40px;
  background-color: #198ada;
  border-radius: 50%;
  display: none;
}
.container-header .btn-close:before {
  content: "";
  position: absolute;
  display: block;
  top: -20px;
  right: -20px;
  width: 90px;
  height: 80px;
}
.container-header .btn-close .icon-item {
  display: block;
  width: 23px;
  height: 2px;
  background-color: #fff;
  position: absolute;
  top: 13px;
  right: 9px;
}
.container-header .btn-close .icon-item:nth-child(2) {
  top: 19px;
}
.container-header .btn-close .icon-item:nth-child(3) {
  top: 25px;
}
.container-header a {
  color: #fff;
}
.container-header .logo {
  cursor: pointer;
  position: relative;
  display: block;
  height: 80px;
  background: #198ada;
}
.container-header .logo .box-icon-logo {
  position: absolute;
  top: 30px;
  left: 14px;
  right: 14px;
```

```
height: 22px;
width: 42px;
}
.container-header .logo .box-icon-logo .item-logo {
display: block;
height: 8px;
background-color: #fff;
float: right;
}
.container-header .logo .box-icon-logo .item-logo:nth-child(1) {
width: 19px;
}
.container-header .logo .box-icon-logo .item-logo:nth-child(2) {
width: 32px;
}
.container-header .logo .box-icon-logo .item-logo:nth-child(3) {
width: 42px;
}
.container-header .menu-item {
cursor: pointer;
position: relative;
display: block;
width: 100%;
height: 70px;
text-align: center;
line-height: 80px;
-moz-transition: all 0.3s;
-o-transition: all 0.3s;
-webkit-transition: all 0.3s;
transition: all 0.3s;
}
.container-header .menu-item .icon {
fill: #878789;
-moz-transition: all 0.3s;
-o-transition: all 0.3s;
-webkit-transition: all 0.3s;
transition: all 0.3s;
}
.container-header .menu-item .menu-text {
position: absolute;
top: 0;
left: -170px;
height: 70px;
width: 170px;
background-color: #198ada;
font-size: 24px;
text-align: center;
line-height: 70px;
color: transparent;
-moz-transition: all 0.3s;
-o-transition: all 0.3s;
-webkit-transition: all 0.3s;
transition: all 0.3s;
}
.container-header .menu-item:hover {
background: #198ada;
}
.container-header .menu-item:hover .icon {
```

```
    fill: #fff;
}
.container-header .menu-item:hover .menu-text {
  color: #124268;
  left: 70px;
}
.container-header .menu-item:focus {
  color: #198ada;
}
.container-header .item.active .menu-item {
  background: #198ada;
}
.container-header .item.active .menu-item .icon {
  fill: #fff;
}

.icon-info {
  width: 24px;
  height: 24px;
}

.icon-fly {
  width: 22px;
  height: 21px;
}

.icon-man {
  width: 21px;
  height: 22px;
}

.icon-star {
  width: 24px;
  height: 23px;
}

.icon-doc-menu {
  width: 28px;
  height: 19px;
}

.icon-email-menu {
  width: 27px;
  height: 21px;
}

.rabbit {
  width: 50px;
  height: 50px;
  position: absolute;
  bottom: 20px;
  right: 20px;
  z-index: 3;
  fill: #fff;
}
</style></head><body>
<div class="container">
  <h1>
```

```

Vertical menu
</h1>
<div class="overlay"></div>
<div class="container-header">
  <div class="container-header-items">
    <div class="container-items">
      <div class="logo">
        <div class="box-icon-logo">
          <div class="item-logo"></div>
          <div class="item-logo"></div>
          <div class="item-logo"></div>
        </div>
      </div>
      <div class="btn-close">
        <div class="icon-item"></div>
        <div class="icon-item"></div>
        <div class="icon-item"></div>
      </div>
      <div class="item">
        <div class="menu-item">
          <svg class="icon icon-fly"><use xlink:href="#icon-fly"></use></svg>
          <div class="menu-text">
            <a href="http://www.w3schools.com/html/">Home</a>
          </div>
        </div>
        <div class="item">
          <a class="menu-item" href="#team"><svg class="icon icon-man"><use xlink:href="#icon-man"></use></svg>
          <div class="menu-text">
            Team
          </div>
        </a>
      </div>
      <div class="item">
        <div class="menu-item">
          <svg class="icon icon-info"><use xlink:href="#icon-info"></use></svg>
          <div class="menu-text">
            About
          </div>
        </div>
      </div>
      <div class="item">
        <div class="menu-item">
          <svg class="icon icon-star"><use xlink:href="#icon-star"></use></svg>
          <div class="menu-text">
            Testimonials
          </div>
        </div>
      </div>
      <div class="item">
        <div class="menu-item">
          <svg class="icon icon-doc-menu"><use xlink:href="#icon-doc-menu"></use></svg>
          <div class="menu-text">
            Odd Ends
          </div>
        </div>
      </div>
    </div>
  </div>
</div>

```

```

<div class="item item-footer">
    <div class="menu-item">
        <svg class="icon icon-email-menu"><use xlink:href="#icon-email"></use></svg>
        <div class="menu-text">
            Info
        </div>
    </div>
</div>
<div class="item item-footer">
    <div class="menu-item">
        <div data-duration="10" data-delay="45" display="none" width="0" height="0" version="1.1"
            xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink">
            <defs>

                <symbol id="icon-heart-active" width="122px" height="224px" viewBox="0 0 122 224">
                    <g id="Page-1" stroke="none" stroke-width="1" fill="none" fill-rule="evenodd"
                        sketch:type="MSPage">
                        <g id="direction202" sketch:type="MSLayerGroup" fill="#010002">
                            <path d="M6.179,223.413 L0.224,217.276 L108.925,111.71 L0.224,6.127 L6.179,0
                                L121.189,111.71 L6.179,223.413 Z" id="Shape" sketch:type="MSShapeGroup"></path>
                        </g>
                    </g>
                </symbol>

                <symbol id="icon-heart" viewBox="0 0 512 512">
                    <path id="favorite-6-icon"
                        d="M256,462L53.676,284.644V130.646L169.034,50L256,104.977L342.965,50L115.359,80.646v153.998L256,4
                        62z
                        M93.801,266.457L256,408.641L62.198-142.183V151.5531-76.35-53.375L256,152.447l-85.849-54.271-
                        76.351,53.375V266.457z"></path>
                </symbol>

                <symbol id="icon-arrow" width="39" height="31" viewBox="0 0 39 31">
                    <path class="cls-1" d="M3283.77,358h-14.79a1,1,0,0,1,0-2.007h14.79a10.493,10.493,0,0,0-
                        20.982,1,1,0,0,1,0-2.007A12.5,12.5,0,0,1,3283.77,358Zm-0.75-23h-25.04a1,1,0,0,1,0-
                        2h25.04A1,1,0,0,1,3283.02,335Zm-19.03,6a0.983,0.983,0,0,1-.7-0.293l-6-6a1,1,0,0,1,0-1.415l6-
                        6a1,1,0,0,1,1.41,1.414L3259.41,33415.29,5.294a1,1,0,0,1,0.1.414A0.989,0.989,0,0,1,3263.99,341Z"
                        transform="translate(-3257 -327)"></path>
                </symbol>

                <symbol id="icon-book" width="94" height="132" viewBox="0 0 94 132">
                    <path class="cls-1" d="M1905.27,1370a5.68,5.68,0,0,1-1.41-.181-0.1-.02-50.42-15.55c-1-.27-
                        9.34-2.85-9.34-15.16V1259.510.02-.15c0.06-.36,1.46-8.81,9.21-10.47,5.43-1.17,56.5-7.98,78.3-
                        10.86a5.722,5.722,0,0,1,6.47,5.67v87.38a8.723,8.723,0,0,1-4.52,7.78c-2.16,1.16-5.32,1.15-
                        8.52,1.15h-1.97v-78a1.965,1.965,0,1,1,3.93,0v73.92c1.68-.17,3.52.02,4.68-0.6a4.8,4.8,0,0,0,2.39-
                        4.25v-87.38a1.714,1.714,0,0,0-.58-1.29,1.689,1.689,0,0,0-1.36-.41c-16.97,2.24-72.54,9.63-
                        77.98,10.8-4.68,-1-5.9,6.16-
                        6.08,7.05v79.25c0,9.68,6.29,11.27,6.35,11.2910.13,0.03,50.41,15.54a1.716,1.716,0,0,2.1-
                        1.67V1280.3a1.7,1.7,0,0,0-1.22-1.641-0.15-.06-38.07-15a3.856,3.856,0,0,1,.72-7.49156.82-
                        7.26a2,2,0,0,1,.5,3.971-
                        56.25,7.19,37.68,14.84a5.689,5.689,0,0,1,3.99,5.45v83.98a5.694,5.694,0,0,1-
                        2.21,4.51a5.773,5.773,0,0,1,1905.27,1370Zm-6.48-66.26a2.111,2.111,0,0,1-.74-0.141-43.29-
                        17.18a2,2,0,0,1,1.47-3.72143.3,17.18a2,2,0,0,1,1898.79,1303.74Zm0,17.75a1.907,1.907,0,0,1-.74-
                        0.141-43.29-17.18a2,2,0,0,1,1.47-

```

3.71143.3,17.18A2,2,0,0,1,1898.79,1321.49Zm0,17.76a2.111,2.111,0,0,1-.74-0.141-43.29-  
 17.18a2,2,0,0,1,1.47-3.72143.3,17.18A2,2,0,0,1,1898.79,1339.25Z" transform="translate(-1844 -  
 1238)"></path></symbol>

<symbol id="icon-fin" width="88" height="131" viewBox="0 0 88 131">  
 <path class="cls-1" d="M2262.81,1305.89A1.754,1.754,0,0,1,2261,1304v-48c0-5.2,3.76-10,9-  
 10a10.415,10.415,0,0,1,10,10v34a2,2,0,1,1-4,0v-34a6.428,6.428,0,0,0-6-6c-3.03,0-5,3-  
 5,6v47C2265,1304.1,2263.92,1305.89,2262.81,1305.89Zm44.18,2.12a2,2,0,0,1-2-  
 2L2305,1256a6.428,6.428,0,0,0-6-6,1.676,1.676,0,0,1-1.92-  
 1.67A2.242,2.242,0,0,1,2299,1246a10.415,10.415,0,0,1,10,10v50.01A2.008,2.008,0,0,1,2306.99,1308.0  
 1Zm13.93,25.98A1.906,1.906,0,0,1,2319,1332v-55c0-2.98-2.72-5.04-5.86-5.04a1.982,1.982,0,1,1,0-  
 3.96c5.44,0,9.86,3.84,9.86,9v55.01A2.033,2.033,0,0,1,2320.92,1333.99Zm2283.94,1369c-19.43,0-  
 36.05-13.58-38.67-31.59-0.61-4.23-1.31-9.03-2.33-13.61-7.75-34.77a9.125,9.125,0,1,1,17.89-  
 3.6114.13,20.95a2.455,2.455,0,0,1,1.95,1.93c7.24,1.4,24.07,7.47,24.07,33.71a2,2,0,0,1-4,0c-  
 23.27-14.56-28.58-20.82-29.79a6.421,6.421,0,0,1-5.12-5.081-4.13-20.95a5.064,5.064,0,0,0-2.65-  
 3.53,5.124,5.124,0,0,0-  
 7.41,5.5417.74,34.73c1.06,4.72,1.76,9.59,2.39,13.9,2.33,16.05,17.26,28.17,34.71,28.17,19.31,0,35.  
 03-14.62,35.03-32.58a2,2,0,0,1,4,0C2322.97,1352.59,2305.46,1369,2283.94,1369Zm-26.89-  
 58.59a1.995,1.995,0,0,1-1.39-3.43c7.44-7.17,16.65-10.69,27.34-10.98,5.9,0,7.02-2.23,6.87-  
 0.1a0.328,0.328,0,0,0,.13-0.26V1248c0-4.11-2.68-6-5-2.39,0-5,1.61-5,6v8a1.983,1.983,0,0,1-  
 2.19,1.76A1.653,1.653,0,0,1,2276,1256l-0.2-7.67c0-6.79,4.82-10.33,9.2-  
 10.33,4.31,0,9,3.48,9,10v48a3.809,3.809,0,0,1-1.14,3.08,4.395,4.395,0,0,1-3.38,1.09c-2.24-2.22-  
 5.74-0.31-5.76-0.31a36.224,36.224,0,0,0-25.27,9.99A2.025,2.025,0,0,1,2257.05,1310.41Zm56.41-  
 40.42M2305,1277c0-3.66,1.94-9.8.46-9a2,2,0,1,1,0,3.99c-4.73,0-4.46,4.49-  
 4.46,5.01C2309,1279.21,2305,1279.21,2305,1277Zm-12.71-20.66h-0.02a1.987,1.987,0,0,1-1.99-1.98c0-  
 2.77.96-8.36,8.72-8.36a2.384,2.384,0,0,1,2.09,2.33A1.825,1.825,0,0,1,2299,1250c-5.41,0-4.98,5.32-  
 5,6C2293.97,1257.08,2293.37,1256.34,2292.29,1256.34Z" transform="translate(-2235 -  
 1238)"></path></symbol>

<symbol id="icon-speak" width="132" height="126" viewBox="0 0 132 126">  
 <path class="cls-1" d="M2637,1336a3.993,3.993,0,0,1-4-4v-21a34.424,34.424,0,0,1-25-  
 33.08,35.028,0,0,1,35-34.92h24a35,35,0,0,1,0,70h-61-21,22A4.238,4.238,0,0,1,2637,1336Zm6-  
 89a31.1,31.1,0,0,0-31,31c0,14.17,9.12,26.54,23,30h2v24123-23h7a31,31,0,0,0,0-62h-  
 24Zm68,122a3.709,3.709,0,0,1-2.7-1.18L2687,1346h-6a34.749,34.749,0,0,1-25.37-  
 11.15,2,2,0,0,1,2.93-2.72A30.739,30.739,0,0,0,2681,1342h7l23,23v-24h2a30.567,30.567,0,0,0,23-  
 29.98,31.09,31.09,0,0,0-22.26-29.7,1.994,1.994,0,1,1,1.11-  
 3.83,35.092,35.092,0,0,1,25.15,33.53c0,15.48-10.28,28.57-25,32.98v21a3.869,3.869,0,0,1-  
 2.34,3.69A4.6,4.6,0,0,1,2711,1369Zm-28.98-42a1.98,1.98,0,0,1-1.43-5.59,2.025,2.025,0,0,1,0-  
 2.87124.93-24.97a2.029,2.029,0,0,1,2.87,2.87l-  
 24.93,24.97A2.019,2.019,0,0,1,2682.02,1327Zm24,0a1.951,1.951,0,0,1-1.39-5.71-12.08-  
 12.11a1.962,1.962,0,0,1,2.78-2.77l12.08,12.1A1.96,1.96,0,0,1,2706.02,1327Zm-55.5-  
 33.01a3.932,3.932,0,0,1-2.82-1.18l-12.14-12.3a2.028,2.028,0,0,1,0-  
 2.85,1.983,1.983,0,0,1,2.82,0,0,1,2.82,0,0,1,2.85l-  
 23.39a1.974,1.974,0,0,1,2.82,0,0,1,2.028,2.028,0,0,1,0,2.85l-  
 23.08,23.39A3.966,3.966,0,0,1,2650.52,1293.99Z" transform="translate(-2608 -  
 1243)"></path></symbol>

<symbol id="icon-doc" width="98" height="132" viewBox="0 0 98 132">  
 <path class="cls-1" d="M2126.77,1701h-90a3.683,3.683,0,0,1-3.77-  
 3.85V1582.26a4.041,4.041,0,0,1,3.77-4.26h12.4a2,2,0,0,1,0,4H2037v115h90V1582h-23.56c-1.1,0-1.41-  
 .9-1.41-2s0.31-2,1.41-2h23.33a4.43,4.43,0,0,1,4.23,4.26v114.89A4.077,4.077,0,0,1,2126.77,1701Zm-  
 11.2-88h-67.89a2,2,0,0,1,0-4h67.89A2,2,0,1,1,2115.57,1613Zm0,18h-67.89a2,2,0,0,1,0-  
 4h67.89A2,2,0,1,1,2115.57,1631Zm0,18h-67.89a2,2,0,0,1,0-4h67.89A2,2,0,1,1,2115.57,1649Zm0,18h-  
 67.89a2,2,0,0,1,0-4h67.89A2,2,0,1,1,2115.57,1667Zm-9.57-80a4,4,0,0,1-4,4h-40a4,4,0,0,1-4-4v-  
 14a4,4,0,0,1,4-4h40a4,4,0,0,1,4,4v14Zm-44-14v14h40.03v-14H2062Z" transform="translate(-2033 -  
 1569)"></path></symbol>

<symbol id="icon-atom" width="132.12" height="132" viewBox="0 0 132.12 132">

```

<path class="cls-1" d="M2477.49,1702c-13.67,0-24.87-22.23-27.25-54.05a2,2,0,1,1,3.99-
.3c2.15,28.7,12.15,50.35,23.26,50.35,12.84,0,23.69-28.39,23.69-62s-10.85-62-23.69-62c-7.63,0-
15.14,10.56-19.59,27.56a2,2,0,1,1-3.87-1.02c5.01-19.12,13.78-30.54,23.46-
30.54,15.53,0,27.69,28.99,27.69,66S2493.02,1702,2477.49,1702Zm-48.77-24.33c-7.31,0-12.58-1.78-
15.3-5.33a10.638,10.638,0,0,1-1.69-8.98c2.63-12.85,23-31.94,50.68-47.5,31.45-17.68,69.66-
28.58,79.15-16.2a10.441,10.441,0,0,1,1.78,8.51c-1.91,10.96-17.05,26.75-39.5,41.19a2,2,0,0,1-2.17-
3.37c21.22-13.64,36.03-28.76,37.73-38.51a6.579,6.579,0,0,1-0.02-5.39c-6.3-8.22-37.54-3.24-
74.01,17.26-26.31,14.79-46.34,33.22-
48.72,44.81a6.77,6.77,0,0,0,.95,5.75c4.17,5.44,19.32,4.88,38.59-
1.43a2,2,0,1,1,1.25,3.8C2445.47,1675.87,2436.06,1677.67,2428.72,1677.67Zm97.65,0.19c-16.46.01-
41.96-9.21-64.09-21.8-27.56-15.68-47.81-34.85-50.38-47.71-0.71-3.56-.12-6.58,1.75-8.99,5.49-
7.07,21.1-7.42.84.2a189.115,189.115,0,0,1,21.86,8.88,2,2,0,0,1-1.73,3.61,187.216,187.216,0,0,0-
21.39-8.7c-19.15-6.33-34.22-6.94-38.42-1.54a6.771,6.771,0,0,0-
.98,5.75c2.32,11.61,22.23,30.12,48.43,45.03,36.34,20.67,67.55,25.79,73.9,17.6,3.23-4.16-.26-
12.44-9.34-22.14a2,2,0,1,1,2.93-
2.73c10.84,11.6,14.25,21.3,9.58,27.32C2538.52,1676.26,2533.23,1677.86,2526.37,1677.86Zm-48.66-
32.31a9.555,9.555,0,1,1,9.56-9.55A9.566,9.566,0,0,1,2477.71,1645.55Zm0-
15.11a5.555,5.555,0,1,0,5.56,5.56A5.567,5.567,0,0,0,2477.71,1630.44Z" transform="translate(-
2411.44 -1570)"></path>
</symbol>

<symbol id="icon-email" width="26px" height="21px" viewBox="0 0 26 21">
<path class="cls-1" d="M3406.8,2205h-22.01a1.625,1.625,0,0,1-1.8-
1.74V2192a1.01,1.01,0,0,1,2.02,0v11h21.79a1.248,1.248,0,0,0,.21-
0.02V2192a1,1,0,1,1.99,0v11.26C3409,2204.3,3408.11,2205,3406.8,2205Zm-11.03-
9.05a2.13,2.13,0,0,1-1.25-.391-0.01-.01-10.69-7.85a1.954,1.954,0,0,1-.73-
2.22,2.134,2.134,0,0,1,2.06-1.48h21.42a2.134,2.134,0,0,1,2.06,1.48,1.974,1.974,0,0,1-.73,2.231-
10.73,7.78A2.369,2.369,0,0,1,3395.77,2195.95Zm-0.09-2.02a0.7,0.7,0,0,0,.47-0.06110.86-
7.79v0.01a2.277,2.277,0,0,0-.44-0.09h-21.42a0.141,0.141,0,0,0-.17.1Z" transform="translate(-3383
-2184)"></path></symbol>

<symbol id="icon-ipad" width="18px" height="26px" viewBox="0 0 18 26">
<path class="cls-1" d="M3612,2207h-14a2.006,2.006,0,0,1-2-2v-22a2.006,2.006,0,0,1,2-
2h14a2.006,2.006,0,0,1,2,2v22a2.006,2.006,0,0,1,3612,2207Zm-14-24v22h14v-22h-
14Zm8.5,17.33a1.5,1.5,0,1,1-1.5-1.5A1.5,1.5,0,0,1,3606.5,2200.33Z" transform="translate(-3596 -
2181)"></path></symbol>

<symbol id="icon-map" width="23px" height="28px" viewBox="0 0 23 28">
<path class="cls-1" d="M3936.5,2207a2.135,2.135,0,0,1-1.46-.58c-4.67-4.43-10.04-10.29-10.04-
16.32a11.508,11.508,0,0,1,23,0c0,6.03-5.37,11.89-10.05,16.32A2.093,2.093,0,0,1,3936.5,2207Zm0-
25.94a9.243,9.243,0,0,0-9.41,9.04c0,5.26,5.03,10.69,9.41,14.84v0.01h0c4.38-4.16,9.41-9.59,9.41-
14.85A9.243,9.243,0,0,0,3936.5,2181.06Zm0,14.94a5.5,5.5,0,1,1,5.49-
5.5A5.5,5.5,0,0,1,3936.5,2196Zm0-
9.01a3.51,3.51,0,1,0,3.54,3.51A3.534,3.534,0,0,0,3936.5,2186.99Z" transform="translate(-3925 -
2179)"></path></symbol>

<symbol id="icon-info" width="24" height="24" viewBox="0 0 24 24">
<path class="cls-1" d="M3142.01,162a12,12,0,1,1,12-12A12.01,12.01,0,0,1,3142.01,162Zm-0.02-
21.989A9.992,9.992,0,1,0,3152,150,10,10,0,0,0,3141.99,140.011Zm1.02,15.994h-2v-8.014h2v8.014Zm0-
10h-2v-2h2v2Z" transform="translate(-3130 -138)"></path></symbol>

<symbol id="icon-fly" width="22" height="21" viewBox="0 0 22 21">
<path class="cls-1" d="M3140.77,231a2.235,2.235,0,0,1-.4-0.046,1.819,1.819,0,0,1-1.07-
.682A2.146,2.146,0,0,1,3139,229v-7h-7c-1.06,0-1.68-.05-1.95-1.23a1.918,1.918,0,0,1,.12-
1.207,1.849,1.849,0,0,1,.87-0.9118.25-8.474a1.9,1.9,0,0,1,2.18.37,1.834,1.834,0,0,1,.32,2.1591-
9.36,17.24A1.777,1.777,0,0,1,3140.77,231Zm0.23-11v818.82-15.837L3133,220h8Z"
transform="translate(-3130 -210)"></path></symbol>
```

```

<symbol id="icon-man" width="21" height="22" viewBox="0 0 21 22">
  <path class="cls-1" d="M3141.5,290a5.5,5.5,0,1,1,5.51-5.5A5.517,5.517,0,0,1,3141.5,290Zm0-
8.967a3.469,3.469,0,1,0,3.48,3.469A3.478,3.478,0,0,0,3141.5,281.03ZM3151.99,301h-20.98v-0.957c0-
3.89,4.7-7.055,10.49-7.055s10.49,3.165,10.49,7.055V301ZM3133,299h17c-0.76-2.348-4.44-4.1-8.5-
4.1s3133.76,296.652,3133,299Z" transform="translate(-3131 -279)"></path></symbol>

<symbol id="icon-star" width="24" height="23" viewBox="0 0 24 23">
  <path class="cls-1" d="M3148.48,372.012a2.033,2.033,0,0,1-1.02-.291-5.46-2.868-
5.49,2.884a1.663,1.663,0,0,1-2.2-.326,1.751,1.751,0,0,1-.33-1.052,2.816,2.816,0,0,1,.04-
0.41111.05-6.135-4.45-4.328a1.993,1.993,0,0,1-.63-1.344,1.616,1.616,0,0,1,1.58-1.58816.15-
.894,2.75-
5.565A1.653,1.653,0,0,1,3142,349a1.678,1.678,0,0,1,1.55,1.11612.74,5.543,6.13,0.892a1.613,1.613,0
,0,1,1.59,1.59,1.89,1.89,0,0,1-.63,1.3351-
4.45,4.336,1.06,6.113c0.01,0.125.02,0.258,0.02,0.434a1.791,1.791,0,0,1-
.32,1.048A1.455,1.455,0,0,1,3148.48,372.012Zm-6.48-5.395,5.95,3.127-1.14-6.621,4.8-4.689-6.63-
.965-2.98-6.016-2.97,6.016-6.65.967,4.82,4.686-1.14,6.621Z" transform="translate(-3130 -
349)"></path></symbol>

<symbol id="icon-doc-menu" width="28" height="19" viewBox="0 0 28 19">
  <path class="cls-1" d="M3130.99,420v15.015L3133,435V422h2010.01,14.154a0.8,0.8,0,0,1-
.25.6,0.871,0.871,0,0,1-.62.2521-22.3,0a0.8,0.8,0,0,1-.6-0.264,0.862,0.862,0,0,1-.25-
0.625L3129,422h-21-0.01,14.436a2.547,2.547,0,0,2.56,2.545l22.85,0.032a2.588,2.588,0,0,0,2.59-
2.593V420h-24ZM3151.01,425v2.009h-16.02V425h16.02Zm0,5.011v1.972h-16.02v-1.972h16.02Z"
transform="translate(-3127 -420)"></path></symbol>

<symbol id="icon-slider-arrow" width="15" height="36" viewBox="0 0 15 36">
  <path class="cls-1" d="M2857.04,442.987a1.031,1.031,0,0,1-.64-0.218,1.013,1.013,0,0,1-.17-
1.426l12.19-16.3-12.21-16.412a1,1,0,0,1-.22-1.418,1.026,1.026,0,0,1,1.43.217L2871,425.091-
13.16,17.51A1.018,1.018,0,0,1,2857.04,442.987Z" transform="translate(-2856 -
407)"></path></symbol>

<symbol id="icon-in" viewBox="0 0 128 128">
  <g><rect height="62.915" width="20.914" x="16.452" y="47.708"></rect><path
d="M27.048,17.377c-7.155,0-11.838,4.695-11.838,10.868c0,6.041,4.545,10.877,11.562,10.877h0.141
c7.293,0,11.832-4.836,11.832-10.877c8.607,22.072,34.206,17.377,27.048,17.377z"></path><path
d="M88.706,46.229c-11.11,0-16.075,6.116-18.853,10.396v0.204h-0.135c0.039-0.064,0.096-0.138,0.135-
0.204v-8.917H48.937 c0.279,5.904,0.62.915,0.62.915h20.917V75.486c0-1.884,0.141-3.754,0.693-
5.1c1.515-3.761,4.954-7.65,10.734-7.65
c7.569,0,10.597,5.772,10.597,14.227v33.661h20.914V74.545C112.791,55.22,102.473,46.229,88.706,46.2
29z"></path></g></symbol>

<symbol id="icon-tw" viewBox="0 0 56.693 56.693">
  <path d="M52.837,15.065c-1.811,0.805-3.76,1.348-5.805,1.591c2.088-1.25,3.689-3.23,4.444-
5.592c-1.953,1.159-4.115,2-6.418,2.454 c-1.843-1.964-4.47-3.192-7.377-3.192c-5.581,0-
10.106,4.525-10.106,10.107c0,0.791,0.089,1.562,0.262,2.303 c-8.4-0.422-15.848-4.445-20.833-
10.56c-0.87,1.492-1.368,3.228-1.368,5.082c0,3.506,1.784,6.6,4.496,8.412 c-1.656-0.053-3.215-
0.508-4.578-1.265c-0.001,0.042-0.001,0.085-0.001,0.128c0,4.896,3.484,8.98,8.108,9.91 c-
0.848,0.23-1.741,0.354-2.663,0.354c-0.652,0-1.285-0.063-1.902-
0.182c1.287,4.015,5.019,6.938,9.441,7.019 c-3.459,2.711-7.816,4.327-12.552,4.327c-0.815,0-1.62-
0.048-2.411-0.142c4.474,2.869,9.786,4.541,15.493,4.541 c18.591,0,28.756-15.4,28.756-28.756c0-
0.438-0.009-0.875-0.028-1.309C49.769,18.873,51.483,17.092,52.837,15.065z"></path>
</symbol>

<symbol id="icon-menu-logo" width="42" height="22" viewBox="0 0 42 22">
  <path id="Logo" class="cls-1" d="M1589,80V73h13V65h19V87h-42V80h10Z" transform="translate(-
1579 -65)"></path></symbol>

<symbol id="icon-logo" viewBox="0 0 194 103">

```

```

    <path id="Logo_copy" data-name="Logo copy" class="cls-1"
d="M1750,949V916h59V880187,0v100H1705V949h45Z" transform="translate(-1703.5 -
878.5)"></path></symbol>

<symbol id="icon-share" viewBox="0 0 17 26">
    <path id="share" class="cls-1" d="M4094,349.005a4.006,4.006,0,1,1,4.01-
4.006A4.013,4.013,0,0,1,4094,349.005Zm0-
6.123a2.117,2.117,0,1,0,2.08,2.117A2.106,2.106,0,0,0,4094,342.882Zm9-2.87a4.006,4.006,0,1,1,4.01-
4.006A4.013,4.013,0,0,1,4103,340.012Zm0-
6.123a2.118,2.118,0,1,0,2.07,2.117A2.1,2.1,0,0,0,4103,333.889Zm4103,358a4.006,4.006,0,1,1,4.01-
4.006A4.013,4.013,0,0,1,4103,358Zm0-
6.123a2.118,2.118,0,1,0,2.07,2.117A2.1,2.1,0,0,0,4103,351.877Zm-6.05-8.426-1.44-1.4,4.13-
4.221,1.45,1.394Zm2.65,8.761-4.09-4.178,1.44-1.393,4.09,4.177Z" transform="translate(-4090 -
332)"></path></symbol>

<filter id="goo">
    <feGaussianBlur in="SourceGraphic" result="blur" stdDeviation="10"></feGaussianBlur>
    <feColorMatrix in="blur" mode="matrix" values="1 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 18 -7"
result="goo"></feColorMatrix>
    <feBlend in2="goo" in="SourceGraphic" result="mix"></feBlend>
</filter>

</defs></svg><a class="box-item" href="http://codepen.io/Anna_Batura/" target="_blank"><svg
class="rabbit" version="1.2" viewBox="0 0 600 600"><path d="m 335.94313,30.576451 c -9.79312,-
0.146115 -17.39091,4.439466 -17.39091,13.789758 0,11.508038 -2.91019,60.415461 1.40532,76.238951
4.31553,15.82355 21.58583,38.97215 34.51834,54.67597 10.06946,12.22726 4.34772,41.69626
4.34772,56.0813 0,14.38499 -2.89751,25.9107 -8.65153,25.9107 -5.75402,0 -14.35971,5.75217 -
20.11373,11.50612 -5.75395,5.75402 -11.51588,12.95631 -18.70841,7.20229 -7.19251,-5.75402 -
20.15388,-11.49441 -43.16987,-15.80992 -23.01609,-4.31551 -61.84129,-0.0234 -86.29583,8.60763 -
24.45458,8.63104 -76.25857,56.11061 -90.643535,77.6882 -14.385056,21.5775 -15.799189,87.73247 -
14.36068,97.80193 1.438509,10.06953 -2.908267,17.28255 -10.100778,8.65153 -7.192459,-8.63104 -
12.911438,-4.30381 -12.911438,-4.30381 0,0 -7.202292,14.37045 -7.202292,21.56298 0,7.19244
2.854564,14.36068 2.854564,14.36068 0,0 -11.506099,8.65056 -11.506099,14.40458 0,5.75397
11.515881,15.83044 18.708391,24.46146 7.192546,8.63097 31.651182,25.89997 41.720624,24.46148
10.069543,-1.43851 28.775063,-0.0121 35.967573,4.3038 7.19253,4.31551 24.44687,10.06761
46.02443,11.5061 21.57752,1.43851 81.97845,5.75307 97.80193,5.75307 15.82357,0 20.1675,-2.86435
27.35996,-10.05688 7.19253,-7.19245 -5.78527,-15.84115 -10.10079,-25.9107 -4.31551,-10.06946
14.40363,-7.16912 20.15765,-8.60763 5.75402,-1.43849 21.59424,-11.5061 31.66376,-11.5061
10.06953,0 8.6165,10.05589 21.56298,15.80993 12.94654,5.75393 31.63939,24.43902 46.02443,27.31602
14.38497,2.87695 47.47173,0.0121 58.97979,-4.30381 11.50797,-4.31551 10.06946,-14.37044 0,-
21.56297 -10.06955,-7.19244 -34.50663,-20.16742 -38.82214,-27.35994 -4.31551,-7.19246 -5.74329,-
15.81969 1.44924,-23.01224 7.19251,-7.19252 14.35876,-4.30292 25.86678,-10.05685 11.50806,-
5.75402 15.80992,-23.04354 15.80992,-33.11301 0,-10.06953 1.36928,-21.01352 5.75307,-27.31602
3.67345,-5.28128 5.10015,-22.13212 5.30499,-33.64009 0.21874,-12.28864 -5.29329,-15.24871 -
9.60881,-22.44122 -4.31543,-7.19246 4.30285,-17.25917 10.05687,-17.25917 5.75402,0 31.65108,-
4.33602 41.72062,-8.65153 10.06946,-4.31546 20.16744,-23.03273 27.35995,-31.66377 7.19246,-
8.63095 1.41799,-27.31512 -8.65154,-33.06907 -10.06954,-5.75402 -10.07746,-21.59431 -18.70841,-
31.66377 -8.63103,-10.06953 -18.68507,-31.62961 -27.31604,-38.82213 -8.63101,-7.19253 -28.77502,-
12.95535 -35.96755,-12.95535 -7.19253,0 -11.50612,9e-4 -11.50612,-5.75306 0,-5.75402 -1.44924,-
12.9203 -1.44924,-25.86678 0,-12.94655 -16.24344,-68.464566 -37.3729,-102.149659 -4.40799,-
7.027282 -11.5581,-5.405316 -20.15765,-2.898485 -5.69412,1.659863 -8.60761,4.35564 -
8.60761,23.056136 0,18.700566 -11.50515,-0.03133 -17.25917,-10.100794 -5.75403,-10.069512 -
15.86265,-21.58444 -28.80918,-24.461458 -2.42749,-0.539415 -4.76669,-0.800692 -7.02665,-0.834399
z" id="rabbit"></path></svg></a>
```

---

```
*****
```

## Paddle Gears CSS

```
<style class="cp-pen-styles">
body, html {
  margin: 0;
  padding: 0;
  background: #FFFFFF;
}

.field {
  position: absolute;
  top: 50%;
  left: 50%;
  -webkit-transform-style: preserve-3d;
  transform-style: preserve-3d;
  -webkit-transform: translateY(-35px) rotateX(-35deg);
  transform: translateY(-35px) rotateX(-35deg);
}

@-webkit-keyframes forward {
  from {
    -webkit-transform: rotateY(0deg);
    transform: rotateY(0deg);
  }
  to {
    -webkit-transform: rotateY(360deg);
    transform: rotateY(360deg);
  }
}

@keyframes forward {
  from {
    -webkit-transform: rotateY(0deg);
    transform: rotateY(0deg);
  }
  to {
    -webkit-transform: rotateY(360deg);
    transform: rotateY(360deg);
  }
}

@-webkit-keyframes backward {
  from {
    -webkit-transform: rotateY(0deg);
    transform: rotateY(0deg);
  }
  to {
    -webkit-transform: rotateY(-360deg);
    transform: rotateY(-360deg);
  }
}

@keyframes backward {
  from {
    -webkit-transform: rotateY(0deg);
    transform: rotateY(0deg);
  }
}
```

```

        }
        to {
            -webkit-transform: rotateY(-360deg);
            transform: rotateY(-360deg);
        }
    }
    .gear {
        position: absolute;
        -webkit-transform-style: preserve-3d;
        transform-style: preserve-3d;
    }
}

.spinner-1 .turntable,
.spinner-4 .turntable,
.spinner-5 .turntable {
    -webkit-transform-style: preserve-3d;
    transform-style: preserve-3d;
    -webkit-animation: forward 12s linear infinite;
    animation: forward 12s linear infinite;
}

.spinner-2 .turntable,
.spinner-3 .turntable,
.spinner-6 .turntable {
    -webkit-transform-style: preserve-3d;
    transform-style: preserve-3d;
    -webkit-animation: backward 12s linear infinite;
    animation: backward 12s linear infinite;
}

.spinner-2 {
    -webkit-transform: translateZ(105px) translateX(-181.86px) rotateY(15deg);
    transform: translateZ(105px) translateX(-181.86px) rotateY(15deg);
}

.spinner-3 {
    -webkit-transform: translateZ(105px) translateX(181.86px) rotateY(15deg);
    transform: translateZ(105px) translateX(181.86px) rotateY(15deg);
}

.spinner-4 {
    -webkit-transform: translateZ(315px) translateX(-181.86px);
    transform: translateZ(315px) translateX(-181.86px);
}

.spinner-5 {
    -webkit-transform: translateZ(315px) translateX(181.86px);
    transform: translateZ(315px) translateX(181.86px);
}

.spinner-6 {
    -webkit-transform: translateZ(420px) rotateY(15deg);
    transform: translateZ(420px) rotateY(15deg);
}

.tooth-holder {
    position: absolute;
    left: -70px;
}

```

---

```

        -webkit-transform-style: preserve-3d;
                    transform-style: preserve-3d;
    }

.spinner-1 .tooth {
    background: -webkit-linear-gradient(left, black 0%, #0b686f 0%, #14bfcc 66%);
    background: linear-gradient(to right, black 0%, #0b686f 0%, #14bfcc 66%);
    -webkit-animation: tooth-1 12s linear infinite;
                animation: tooth-1 12s linear infinite;
}

@-webkit-keyframes tooth-1 {
    50% {
        -webkit-filter: brightness(40%);
                    filter: brightness(40%);
    }
}

@keyframes tooth-1 {
    50% {
        -webkit-filter: brightness(40%);
                    filter: brightness(40%);
    }
}

.spinner-2 .tooth {
    background: -webkit-linear-gradient(left, black 0%, #99005c 0%, #ff0099 66%);
    background: linear-gradient(to right, black 0%, #99005c 0%, #ff0099 66%);
    -webkit-animation: tooth-2 12s linear infinite;
                animation: tooth-2 12s linear infinite;
}

@-webkit-keyframes tooth-2 {
    50% {
        -webkit-filter: brightness(40%);
                    filter: brightness(40%);
    }
}

@keyframes tooth-2 {
    50% {
        -webkit-filter: brightness(40%);
                    filter: brightness(40%);
    }
}

.spinner-3 .tooth {
    background: -webkit-linear-gradient(left, black 0%, #b29a00 0%, #ffe019 66%);
    background: linear-gradient(to right, black 0%, #b29a00 0%, #ffe019 66%);
    -webkit-animation: tooth-3 12s linear infinite;
                animation: tooth-3 12s linear infinite;
}

@-webkit-keyframes tooth-3 {
    50% {
        -webkit-filter: brightness(40%);
                    filter: brightness(40%);
    }
}

```

---

```

@keyframes tooth-3 {
    50% {
        -webkit-filter: brightness(40%);
        filter: brightness(40%);
    }
}
.tooth {
    position: absolute;
    width: 140px;
    height: 70px;
    border-bottom-right-radius: 35px;
    border-top-right-radius: 35px;
}

.tooth-holder:nth-child(1) .tooth {
    -webkit-transform: rotateY(30deg) translateX(70px);
    transform: rotateY(30deg) translateX(70px);
}

.tooth-holder:nth-child(2) .tooth {
    -webkit-transform: rotateY(60deg) translateX(70px);
    transform: rotateY(60deg) translateX(70px);
}

.tooth-holder:nth-child(3) .tooth {
    -webkit-transform: rotateY(90deg) translateX(70px);
    transform: rotateY(90deg) translateX(70px);
}

.tooth-holder:nth-child(4) .tooth {
    -webkit-transform: rotateY(120deg) translateX(70px);
    transform: rotateY(120deg) translateX(70px);
}

.tooth-holder:nth-child(5) .tooth {
    -webkit-transform: rotateY(150deg) translateX(70px);
    transform: rotateY(150deg) translateX(70px);
}

.tooth-holder:nth-child(6) .tooth {
    -webkit-transform: rotateY(180deg) translateX(70px);
    transform: rotateY(180deg) translateX(70px);
}

.tooth-holder:nth-child(7) .tooth {
    -webkit-transform: rotateY(210deg) translateX(70px);
    transform: rotateY(210deg) translateX(70px);
}

.tooth-holder:nth-child(8) .tooth {
    -webkit-transform: rotateY(240deg) translateX(70px);
    transform: rotateY(240deg) translateX(70px);
}

.tooth-holder:nth-child(9) .tooth {
    -webkit-transform: rotateY(270deg) translateX(70px);
    transform: rotateY(270deg) translateX(70px);
}

```

```

.tooth-holder:nth-child(10) .tooth {
    -webkit-transform: rotateY(300deg) translateX(70px);
           transform: rotateY(300deg) translateX(70px);
}

.tooth-holder:nth-child(11) .tooth {
    -webkit-transform: rotateY(330deg) translateX(70px);
           transform: rotateY(330deg) translateX(70px);
}

.tooth-holder:nth-child(12) .tooth {
    -webkit-transform: rotateY(360deg) translateX(70px);
           transform: rotateY(360deg) translateX(70px);
}

.spinner-1 .tooth-holder:nth-child(1) .tooth,
.spinner-4 .tooth-holder:nth-child(1) .tooth,
.spinner-5 .tooth-holder:nth-child(1) .tooth {
    -webkit-transform: rotateY(30deg) translateX(70px);
           transform: rotateY(30deg) translateX(70px);
    -webkit-animation-delay: -4s;
           animation-delay: -4s;
}

.spinner-2 .tooth-holder:nth-child(1) .tooth,
.spinner-3 .tooth-holder:nth-child(1) .tooth, .spinner-6 .tooth-holder:nth-child(1) .tooth {
    -webkit-transform: rotateY(30deg) translateX(70px);
           transform: rotateY(30deg) translateX(70px);
    -webkit-animation-delay: -8s;
           animation-delay: -8s;
}

.spinner-1 .tooth-holder:nth-child(2) .tooth,
.spinner-4 .tooth-holder:nth-child(2) .tooth,
.spinner-5 .tooth-holder:nth-child(2) .tooth {
    -webkit-transform: rotateY(60deg) translateX(70px);
           transform: rotateY(60deg) translateX(70px);
    -webkit-animation-delay: -5s;
           animation-delay: -5s;
}

.spinner-2 .tooth-holder:nth-child(2) .tooth,
.spinner-3 .tooth-holder:nth-child(2) .tooth, .spinner-6 .tooth-holder:nth-child(2) .tooth {
    -webkit-transform: rotateY(60deg) translateX(70px);
           transform: rotateY(60deg) translateX(70px);
    -webkit-animation-delay: -7s;
           animation-delay: -7s;
}

.spinner-1 .tooth-holder:nth-child(3) .tooth,
.spinner-4 .tooth-holder:nth-child(3) .tooth,
.spinner-5 .tooth-holder:nth-child(3) .tooth {
    -webkit-transform: rotateY(90deg) translateX(70px);
           transform: rotateY(90deg) translateX(70px);
    -webkit-animation-delay: -6s;
           animation-delay: -6s;
}

```

```

.spinner-2 .tooth-holder:nth-child(3) .tooth,
.spinner-3 .tooth-holder:nth-child(3) .tooth, .spinner-6 .tooth-holder:nth-child(3) .tooth {
    -webkit-transform: rotateY(90deg) translateX(70px);
       transform: rotateY(90deg) translateX(70px);
    -webkit-animation-delay: -6s;
       animation-delay: -6s;
}

.spinner-1 .tooth-holder:nth-child(4) .tooth,
.spinner-4 .tooth-holder:nth-child(4) .tooth,
.spinner-5 .tooth-holder:nth-child(4) .tooth {
    -webkit-transform: rotateY(120deg) translateX(70px);
       transform: rotateY(120deg) translateX(70px);
    -webkit-animation-delay: -7s;
       animation-delay: -7s;
}

.spinner-2 .tooth-holder:nth-child(4) .tooth,
.spinner-3 .tooth-holder:nth-child(4) .tooth, .spinner-6 .tooth-holder:nth-child(4) .tooth {
    -webkit-transform: rotateY(120deg) translateX(70px);
       transform: rotateY(120deg) translateX(70px);
    -webkit-animation-delay: -5s;
       animation-delay: -5s;
}

.spinner-1 .tooth-holder:nth-child(5) .tooth,
.spinner-4 .tooth-holder:nth-child(5) .tooth,
.spinner-5 .tooth-holder:nth-child(5) .tooth {
    -webkit-transform: rotateY(150deg) translateX(70px);
       transform: rotateY(150deg) translateX(70px);
    -webkit-animation-delay: -8s;
       animation-delay: -8s;
}

.spinner-2 .tooth-holder:nth-child(5) .tooth,
.spinner-3 .tooth-holder:nth-child(5) .tooth, .spinner-6 .tooth-holder:nth-child(5) .tooth {
    -webkit-transform: rotateY(150deg) translateX(70px);
       transform: rotateY(150deg) translateX(70px);
    -webkit-animation-delay: -4s;
       animation-delay: -4s;
}

.spinner-1 .tooth-holder:nth-child(6) .tooth,
.spinner-4 .tooth-holder:nth-child(6) .tooth,
.spinner-5 .tooth-holder:nth-child(6) .tooth {
    -webkit-transform: rotateY(180deg) translateX(70px);
       transform: rotateY(180deg) translateX(70px);
    -webkit-animation-delay: -9s;
       animation-delay: -9s;
}

.spinner-2 .tooth-holder:nth-child(6) .tooth,
.spinner-3 .tooth-holder:nth-child(6) .tooth, .spinner-6 .tooth-holder:nth-child(6) .tooth {
    -webkit-transform: rotateY(180deg) translateX(70px);
       transform: rotateY(180deg) translateX(70px);
    -webkit-animation-delay: -3s;
       animation-delay: -3s;
}

```

```

}

.spinner-1 .tooth-holder:nth-child(7) .tooth,
.spinner-4 .tooth-holder:nth-child(7) .tooth,
.spinner-5 .tooth-holder:nth-child(7) .tooth {
    -webkit-transform: rotateY(210deg) translateX(70px);
        transform: rotateY(210deg) translateX(70px);
    -webkit-animation-delay: -10s;
        animation-delay: -10s;
}
.spinner-2 .tooth-holder:nth-child(7) .tooth,
.spinner-3 .tooth-holder:nth-child(7) .tooth, .spinner-6 .tooth-holder:nth-child(7) .tooth {
    -webkit-transform: rotateY(210deg) translateX(70px);
        transform: rotateY(210deg) translateX(70px);
    -webkit-animation-delay: -2s;
        animation-delay: -2s;
}
.spinner-1 .tooth-holder:nth-child(8) .tooth,
.spinner-4 .tooth-holder:nth-child(8) .tooth,
.spinner-5 .tooth-holder:nth-child(8) .tooth {
    -webkit-transform: rotateY(240deg) translateX(70px);
        transform: rotateY(240deg) translateX(70px);
    -webkit-animation-delay: -11s;
        animation-delay: -11s;
}
.spinner-2 .tooth-holder:nth-child(8) .tooth,
.spinner-3 .tooth-holder:nth-child(8) .tooth, .spinner-6 .tooth-holder:nth-child(8) .tooth {
    -webkit-transform: rotateY(240deg) translateX(70px);
        transform: rotateY(240deg) translateX(70px);
    -webkit-animation-delay: -1s;
        animation-delay: -1s;
}
.spinner-1 .tooth-holder:nth-child(9) .tooth,
.spinner-4 .tooth-holder:nth-child(9) .tooth,
.spinner-5 .tooth-holder:nth-child(9) .tooth {
    -webkit-transform: rotateY(270deg) translateX(70px);
        transform: rotateY(270deg) translateX(70px);
    -webkit-animation-delay: -12s;
        animation-delay: -12s;
}
.spinner-2 .tooth-holder:nth-child(9) .tooth,
.spinner-3 .tooth-holder:nth-child(9) .tooth, .spinner-6 .tooth-holder:nth-child(9) .tooth {
    -webkit-transform: rotateY(270deg) translateX(70px);
        transform: rotateY(270deg) translateX(70px);
    -webkit-animation-delay: 0s;
        animation-delay: 0s;
}
.spinner-1 .tooth-holder:nth-child(10) .tooth,
.spinner-4 .tooth-holder:nth-child(10) .tooth,
.spinner-5 .tooth-holder:nth-child(10) .tooth {
    -webkit-transform: rotateY(300deg) translateX(70px);
        transform: rotateY(300deg) translateX(70px);
}

```

```

        -webkit-animation-delay: -13s;
                    animation-delay: -13s;
    }

.spinner-2 .tooth-holder:nth-child(10) .tooth,
.spinner-3 .tooth-holder:nth-child(10) .tooth, .spinner-6 .tooth-holder:nth-child(10) .tooth {
    -webkit-transform: rotateY(300deg) translateX(70px);
           transform: rotateY(300deg) translateX(70px);
    -webkit-animation-delay: 1s;
                    animation-delay: 1s;
}
}

.spinner-1 .tooth-holder:nth-child(11) .tooth,
.spinner-4 .tooth-holder:nth-child(11) .tooth,
.spinner-5 .tooth-holder:nth-child(11) .tooth {
    -webkit-transform: rotateY(330deg) translateX(70px);
           transform: rotateY(330deg) translateX(70px);
    -webkit-animation-delay: -14s;
                    animation-delay: -14s;
}
}

.spinner-2 .tooth-holder:nth-child(11) .tooth,
.spinner-3 .tooth-holder:nth-child(11) .tooth, .spinner-6 .tooth-holder:nth-child(11) .tooth {
    -webkit-transform: rotateY(330deg) translateX(70px);
           transform: rotateY(330deg) translateX(70px);
    -webkit-animation-delay: 2s;
                    animation-delay: 2s;
}
}

.spinner-1 .tooth-holder:nth-child(12) .tooth,
.spinner-4 .tooth-holder:nth-child(12) .tooth,
.spinner-5 .tooth-holder:nth-child(12) .tooth {
    -webkit-transform: rotateY(360deg) translateX(70px);
           transform: rotateY(360deg) translateX(70px);
    -webkit-animation-delay: -15s;
                    animation-delay: -15s;
}
}

.spinner-2 .tooth-holder:nth-child(12) .tooth,
.spinner-3 .tooth-holder:nth-child(12) .tooth, .spinner-6 .tooth-holder:nth-child(12) .tooth {
    -webkit-transform: rotateY(360deg) translateX(70px);
           transform: rotateY(360deg) translateX(70px);
    -webkit-animation-delay: 3s;
                    animation-delay: 3s;
}
}

</style></head><body>

<div class="field">
    <div class="gear spinner-1">
        <div class="turntable">
            <div class="teeth">
                <div class="tooth-holder">
                    <div class="tooth"></div>
                </div>
                <div class="tooth-holder">
                    <div class="tooth"></div>
                </div>
                <div class="tooth-holder">

```





```
</div>

*****

```

## HTML PAGE

```
<style class="cp-pen-styles">
body {
    background-color: #DBE2EC;
}
.container {
    display: flex;
    flex-wrap: wrap;
    flex-direction: row;
}

.block {
    width: 300px;
    height: auto;
    margin: 10% auto;
    margin-left: 30px;
}
/* title block */
.title {
    background-image: url('https://static.pexels.com/photos/110238/pexels-photo-110238-large.jpeg');
    background-size: cover;
    background-repeat: no-repeat;
    color: #fff;
}

.author {
    font-size: 12px;
    margin-top: 136px;
    margin-left: 20px;
    font-family: "Droid Sans Mono";
}

.post-title {
    margin: 0 20px;
    font-family:
}

.tag {
    margin: 30px 20px;
    padding: 8px 10px;
    background: #fff;
    border: none;
    font-size: 12px;
    font-family: "Droid Sans Mono";
}

.t-footer {
    width 100%;
    height: 40px;
    background-color: #fff;
}
```

```
color: #000;
flex-direction: row;
}

.t-footer p {
padding: 13px 20px;
font-family: "Droid Sans Mono";
font-size: 11px;
}

.black {
color: #000;
margin-left: 70px;
}

span {
color: #BFC1C3;
}

.t-footer img {
width: 15px;
float: right;
}

.post-title {
font-family: Oswald;
}

/* text block */
.text {
background-color: #F8F9FA;
}

.text .t-footer p > span {
margin-left: 70px;
}

.text .black {
margin: 0;
}

.txt {
margin: 0 20px;
line-height: 1.5;
margin-top: 35px;
text-align: justify;
}

.text .t-footer {
margin-top: 164px;
}

.txt:first-letter {
font-size: 90px;
float: left;
margin: -24px 20px -20px 0;
}
```

```

/* comments block */

.comments {
    background-color: #fff;
}

.top p {
    font-family: "Droid Sans Mono";
    font-weight: bold;
    font-size: 13px;
    margin-top: 20px;
    margin-left: 90px;
}

.close {
    color: #000;
    float: right;
    margin-right: 20px;
}

.comment-box img {
    width: 57px;
    float: left;
    margin: 0 20px;
    margin-top: 5px;
}

.name {
    padding-top: 15px;
    font-weight: bold;
}

.hour {
    font-size: 11px;
    margin-left: 3px;
}

.c-txt {
    margin-left: 100px;
    margin-right: 20px;
    text-align: justify;
} </style> </head> <body>
<div class="container">
    <div class="title block">
        <h5 class="author">MARK MANSON</h5>
        <h1 class="post-title">THE<br> DARK SIDE<br> OF THE DIGITAL NOMAD</h1>
        <button class="tag"><a href="http://www.w3schools.com/html/"> Travel</a></button>
        <div class="t-footer">
            <p>CLOSE <span class="black">•</span> <span>• • •</span></p>
        </div>
    </div>
    <div class="text block">
        <p class="txt">Arrhenius theory, theory, introduced in 1887 by the Swedish scientist Svante Arrhenius, that acids are substances that dissociate in water to yield electrically charged atoms or molecules, called ions, one of which is a hydrogen ion (H +), and that bases ionize in water to yield hydroxide ions (OH -).

```

---

```

<div class="t-footer">
    <p>CLOSE <span>• <span class="black">•</span> • <span>•</span></p>
</div>
</div>
<div class="comments block">
    <div class="top"><p>COMMENTS (48) <span class="close">X</span></p></div>
    <div class="comment-box">
        <p class="name">jonathandunn <span class="hour">• 1 hours
ago</span></p>
        <p class="c-txt">Lorem ipsum dolor sit amet, consectetur elit. </p>
        <div class="comment-box">
            <p class="name">jonathandunn <span class="hour">• 1 hours
ago</span></p>
            <p class="c-txt">Lorem ipsum dolor sit amet, consectetur elit. </p>
            <div class="comment-box">
                <p class="name">jonathandunn <span class="hour">• 1 hours
ago</span></p>
                <p class="c-txt">Lorem ipsum dolor sit amet, consectetur elit. </p>
                <div class="comment-box">
                    <p class="name">jonathandunn <span class="hour">• 1 hours
ago</span></p>
                    <p class="c-txt">Lorem ipsum dolor sit amet, consectetur elit. </p>
                </div>
            </div>
        </div>
    </div>
</div>

*****

```

## Skewered Heading

```

<style class="cp-pen-styles">
body {
    margin: 10% 5%;
    text-align: center;
    font-family: sans-serif;
    color: #666;
}

h1 {
    margin: 2em 0;
    color: #00a99d;
}

p {
    max-width: 30em;
    margin: 2em auto;
}

h1 {
    text-align: center;
}

```

---

```

        overflow: hidden;
    }
    h1 span {
        display: inline-block;
        position: relative;
    }
    h1 span:before, h1 span:after {
        content: "";
        border-bottom: 2px solid #00a99d;
        width: 3em;
        margin: 0 1.5em;
        position: absolute;
        bottom: .5em;
    }
    h1 span:before {
        right: 100%;
    }
    h1 span:after {
        left: 100%;
    }
</style></head><body>
<h1><span>Skewered Heading</span></h1>
<p>Skewer ends will be shown when space permits. Things don't get awkward if text wraps, the effect just disappears. No additional padding or margin is applied to the text so the effect doesn't limit the natural width of the heading.</p>
<h1><span>Here is a Slightly Longer Skewered Heading</span></h1>

```

\*\*\*\*\*

## HTML PAGE

```

<style class="cp-pen-styles">
:root {
    font-size: calc(1vw + 1vh + .25vmin);
}
body {
    background-image: url("http://www.highpayingaffiliateprograms.com/wp-content/uploads/2013/02/software.png");
    background-position: center center;
    background-size: cover;
    background-repeat: no-repeat;
    background-attachment: fixed;
    font: 1em/1 "Roboto", sans-serif;
    margin: 5.5em;
}
.heading {
    border-bottom: 1px solid #fff;
    padding: 0 0 10px;;
    width: 18.75em;
}
.heading h1 {
    color: #fff;
    line-height: 1.5;
    margin: 0 0 .45em;
    text-align: center;
}

```

---

```

.heading .logo {
    text-align: center;
}
.heading .logo img {
    margin: -3.0em 0 0;
    width: 6.25em;
}
.split-border {
    line-height: 0.5;
    text-align: center;
}
.split-border span {
    display: inline-block;
    position: relative;
}
.split-border span:before,
.split-border span:after {
    border-top: 1px solid #fff;
    content: "";
    position: absolute;
    width: 5.625em;
}
.split-border span:before {
    margin-right: 3.75em;
    right: 100%;
}
.split-border span:after {
    left: 100%;
    margin-left: 3.75em;
}

```

</style></head><body>

# The World's No. 1 CRM Solution

## Limit the width of the paragraph in HTML

**<p style="width:80%;>** He is an Honorary Fellow of the Royal Society of Arts, a lifetime member of the Pontifical Academy of Sciences, and a recipient of the Presidential Medal of Freedom, the highest civilian award in the United States. Hawking was the Lucasian Professor of Mathematics at the University of Cambridge between 1979 and 2009 and has achieved commercial success with works of popular science in which he discusses his own theories and cosmology in general; his book A Brief History of Time appeared on the British Sunday Times best-seller list for a record-breaking 237 weeks.</p>

---

---

## Fading text paragraph

```
<style class="cp-pen-styles">
body {
  background: #f8fafc;
  font-size: 20px;
  font-family: "Crimson Text", serif;
  color: 444;
}

h1 {
  padding-top: 100px;
  font-weight: 600;
}

h1, h3, h4, p {
  width: 600px;
  margin: 20px auto;
  display: block;
}

h4 {
  color: #666;
}

div.blur {
  position: fixed;
  width: 100%;
  height: auto;
  left: 0;
  top: 0;
}

div.blur.bottom {
  top: auto;
  bottom: 0;
}

div.blur div {
  width: 100%;
  height: 1px;
}

div.blur div.item_1 {
  background: rgba(248, 250, 252, 0.99);
  -webkit-backdrop-filter: blur(1.98px);
      backdrop-filter: blur(1.98px);
}

div.blur div.item_2 {
  background: rgba(248, 250, 252, 0.98);
  -webkit-backdrop-filter: blur(1.96px);
      backdrop-filter: blur(1.96px);
}

div.blur div.item_3 {
```

```
background: rgba(248, 250, 252, 0.97);
-webkit-backdrop-filter: blur(1.94px);
backdrop-filter: blur(1.94px);
}

div.blur div.item_4 {
background: rgba(248, 250, 252, 0.96);
-webkit-backdrop-filter: blur(1.92px);
backdrop-filter: blur(1.92px);
}

div.blur div.item_5 {
background: rgba(248, 250, 252, 0.95);
-webkit-backdrop-filter: blur(1.9px);
backdrop-filter: blur(1.9px);
}

div.blur div.item_6 {
background: rgba(248, 250, 252, 0.94);
-webkit-backdrop-filter: blur(1.88px);
backdrop-filter: blur(1.88px);
}

div.blur div.item_7 {
background: rgba(248, 250, 252, 0.93);
-webkit-backdrop-filter: blur(1.86px);
backdrop-filter: blur(1.86px);
}

div.blur div.item_8 {
background: rgba(248, 250, 252, 0.92);
-webkit-backdrop-filter: blur(1.84px);
backdrop-filter: blur(1.84px);
}

div.blur div.item_9 {
background: rgba(248, 250, 252, 0.91);
-webkit-backdrop-filter: blur(1.82px);
backdrop-filter: blur(1.82px);
}

div.blur div.item_10 {
background: rgba(248, 250, 252, 0.9);
-webkit-backdrop-filter: blur(1.8px);
backdrop-filter: blur(1.8px);
}

div.blur div.item_11 {
background: rgba(248, 250, 252, 0.89);
-webkit-backdrop-filter: blur(1.78px);
backdrop-filter: blur(1.78px);
}

div.blur div.item_12 {
background: rgba(248, 250, 252, 0.88);
-webkit-backdrop-filter: blur(1.76px);
backdrop-filter: blur(1.76px);
}
```

```
div.blur div.item_13 {
    background: rgba(248, 250, 252, 0.87);
    -webkit-backdrop-filter: blur(1.74px);
        backdrop-filter: blur(1.74px);
}

div.blur div.item_14 {
    background: rgba(248, 250, 252, 0.86);
    -webkit-backdrop-filter: blur(1.72px);
        backdrop-filter: blur(1.72px);
}

div.blur div.item_15 {
    background: rgba(248, 250, 252, 0.85);
    -webkit-backdrop-filter: blur(1.7px);
        backdrop-filter: blur(1.7px);
}

div.blur div.item_16 {
    background: rgba(248, 250, 252, 0.84);
    -webkit-backdrop-filter: blur(1.68px);
        backdrop-filter: blur(1.68px);
}

div.blur div.item_17 {
    background: rgba(248, 250, 252, 0.83);
    -webkit-backdrop-filter: blur(1.66px);
        backdrop-filter: blur(1.66px);
}

div.blur div.item_18 {
    background: rgba(248, 250, 252, 0.82);
    -webkit-backdrop-filter: blur(1.64px);
        backdrop-filter: blur(1.64px);
}

div.blur div.item_19 {
    background: rgba(248, 250, 252, 0.81);
    -webkit-backdrop-filter: blur(1.62px);
        backdrop-filter: blur(1.62px);
}

div.blur div.item_20 {
    background: rgba(248, 250, 252, 0.8);
    -webkit-backdrop-filter: blur(1.6px);
        backdrop-filter: blur(1.6px);
}

div.blur div.item_21 {
    background: rgba(248, 250, 252, 0.79);
    -webkit-backdrop-filter: blur(1.58px);
        backdrop-filter: blur(1.58px);
}

div.blur div.item_22 {
    background: rgba(248, 250, 252, 0.78);
    -webkit-backdrop-filter: blur(1.56px);
```

```
        backdrop-filter: blur(1.56px);
    }

div.blur div.item_23 {
    background: rgba(248, 250, 252, 0.77);
    -webkit-backdrop-filter: blur(1.54px);
        backdrop-filter: blur(1.54px);
}

div.blur div.item_24 {
    background: rgba(248, 250, 252, 0.76);
    -webkit-backdrop-filter: blur(1.52px);
        backdrop-filter: blur(1.52px);
}

div.blur div.item_25 {
    background: rgba(248, 250, 252, 0.75);
    -webkit-backdrop-filter: blur(1.5px);
        backdrop-filter: blur(1.5px);
}

div.blur div.item_26 {
    background: rgba(248, 250, 252, 0.74);
    -webkit-backdrop-filter: blur(1.48px);
        backdrop-filter: blur(1.48px);
}

div.blur div.item_27 {
    background: rgba(248, 250, 252, 0.73);
    -webkit-backdrop-filter: blur(1.46px);
        backdrop-filter: blur(1.46px);
}

div.blur div.item_28 {
    background: rgba(248, 250, 252, 0.72);
    -webkit-backdrop-filter: blur(1.44px);
        backdrop-filter: blur(1.44px);
}

div.blur div.item_29 {
    background: rgba(248, 250, 252, 0.71);
    -webkit-backdrop-filter: blur(1.42px);
        backdrop-filter: blur(1.42px);
}

div.blur div.item_30 {
    background: rgba(248, 250, 252, 0.7);
    -webkit-backdrop-filter: blur(1.4px);
        backdrop-filter: blur(1.4px);
}

div.blur div.item_31 {
    background: rgba(248, 250, 252, 0.69);
    -webkit-backdrop-filter: blur(1.38px);
        backdrop-filter: blur(1.38px);
}

div.blur div.item_32 {
```

```
background: rgba(248, 250, 252, 0.68);
-webkit-backdrop-filter: blur(1.36px);
    backdrop-filter: blur(1.36px);
}

div.blur div.item_33 {
background: rgba(248, 250, 252, 0.67);
-webkit-backdrop-filter: blur(1.34px);
    backdrop-filter: blur(1.34px);
}

div.blur div.item_34 {
background: rgba(248, 250, 252, 0.66);
-webkit-backdrop-filter: blur(1.32px);
    backdrop-filter: blur(1.32px);
}

div.blur div.item_35 {
background: rgba(248, 250, 252, 0.65);
-webkit-backdrop-filter: blur(1.3px);
    backdrop-filter: blur(1.3px);
}

div.blur div.item_36 {
background: rgba(248, 250, 252, 0.64);
-webkit-backdrop-filter: blur(1.28px);
    backdrop-filter: blur(1.28px);
}

div.blur div.item_37 {
background: rgba(248, 250, 252, 0.63);
-webkit-backdrop-filter: blur(1.26px);
    backdrop-filter: blur(1.26px);
}

div.blur div.item_38 {
background: rgba(248, 250, 252, 0.62);
-webkit-backdrop-filter: blur(1.24px);
    backdrop-filter: blur(1.24px);
}

div.blur div.item_39 {
background: rgba(248, 250, 252, 0.61);
-webkit-backdrop-filter: blur(1.22px);
    backdrop-filter: blur(1.22px);
}

div.blur div.item_40 {
background: rgba(248, 250, 252, 0.6);
-webkit-backdrop-filter: blur(1.2px);
    backdrop-filter: blur(1.2px);
}

div.blur div.item_41 {
background: rgba(248, 250, 252, 0.59);
-webkit-backdrop-filter: blur(1.18px);
    backdrop-filter: blur(1.18px);
}
```

```
div.blur div.item_42 {
    background: rgba(248, 250, 252, 0.58);
    -webkit-backdrop-filter: blur(1.16px);
        backdrop-filter: blur(1.16px);
}

div.blur div.item_43 {
    background: rgba(248, 250, 252, 0.57);
    -webkit-backdrop-filter: blur(1.14px);
        backdrop-filter: blur(1.14px);
}

div.blur div.item_44 {
    background: rgba(248, 250, 252, 0.56);
    -webkit-backdrop-filter: blur(1.12px);
        backdrop-filter: blur(1.12px);
}

div.blur div.item_45 {
    background: rgba(248, 250, 252, 0.55);
    -webkit-backdrop-filter: blur(1.1px);
        backdrop-filter: blur(1.1px);
}

div.blur div.item_46 {
    background: rgba(248, 250, 252, 0.54);
    -webkit-backdrop-filter: blur(1.08px);
        backdrop-filter: blur(1.08px);
}

div.blur div.item_47 {
    background: rgba(248, 250, 252, 0.53);
    -webkit-backdrop-filter: blur(1.06px);
        backdrop-filter: blur(1.06px);
}

div.blur div.item_48 {
    background: rgba(248, 250, 252, 0.52);
    -webkit-backdrop-filter: blur(1.04px);
        backdrop-filter: blur(1.04px);
}

div.blur div.item_49 {
    background: rgba(248, 250, 252, 0.51);
    -webkit-backdrop-filter: blur(1.02px);
        backdrop-filter: blur(1.02px);
}

div.blur div.item_50 {
    background: rgba(248, 250, 252, 0.5);
    -webkit-backdrop-filter: blur(1px);
        backdrop-filter: blur(1px);
}

div.blur div.item_51 {
    background: rgba(248, 250, 252, 0.49);
    -webkit-backdrop-filter: blur(0.98px);
```

```
        backdrop-filter: blur(0.98px);
    }

div.blur div.item_52 {
    background: rgba(248, 250, 252, 0.48);
    -webkit-backdrop-filter: blur(0.96px);
        backdrop-filter: blur(0.96px);
}

div.blur div.item_53 {
    background: rgba(248, 250, 252, 0.47);
    -webkit-backdrop-filter: blur(0.94px);
        backdrop-filter: blur(0.94px);
}

div.blur div.item_54 {
    background: rgba(248, 250, 252, 0.46);
    -webkit-backdrop-filter: blur(0.92px);
        backdrop-filter: blur(0.92px);
}

div.blur div.item_55 {
    background: rgba(248, 250, 252, 0.45);
    -webkit-backdrop-filter: blur(0.9px);
        backdrop-filter: blur(0.9px);
}

div.blur div.item_56 {
    background: rgba(248, 250, 252, 0.44);
    -webkit-backdrop-filter: blur(0.88px);
        backdrop-filter: blur(0.88px);
}

div.blur div.item_57 {
    background: rgba(248, 250, 252, 0.43);
    -webkit-backdrop-filter: blur(0.86px);
        backdrop-filter: blur(0.86px);
}

div.blur div.item_58 {
    background: rgba(248, 250, 252, 0.42);
    -webkit-backdrop-filter: blur(0.84px);
        backdrop-filter: blur(0.84px);
}

div.blur div.item_59 {
    background: rgba(248, 250, 252, 0.41);
    -webkit-backdrop-filter: blur(0.82px);
        backdrop-filter: blur(0.82px);
}

div.blur div.item_60 {
    background: rgba(248, 250, 252, 0.4);
    -webkit-backdrop-filter: blur(0.8px);
        backdrop-filter: blur(0.8px);
}

div.blur div.item_61 {
```

```
background: rgba(248, 250, 252, 0.39);
-webkit-backdrop-filter: blur(0.78px);
backdrop-filter: blur(0.78px);
}

div.blur div.item_62 {
background: rgba(248, 250, 252, 0.38);
-webkit-backdrop-filter: blur(0.76px);
backdrop-filter: blur(0.76px);
}

div.blur div.item_63 {
background: rgba(248, 250, 252, 0.37);
-webkit-backdrop-filter: blur(0.74px);
backdrop-filter: blur(0.74px);
}

div.blur div.item_64 {
background: rgba(248, 250, 252, 0.36);
-webkit-backdrop-filter: blur(0.72px);
backdrop-filter: blur(0.72px);
}

div.blur div.item_65 {
background: rgba(248, 250, 252, 0.35);
-webkit-backdrop-filter: blur(0.7px);
backdrop-filter: blur(0.7px);
}

div.blur div.item_66 {
background: rgba(248, 250, 252, 0.34);
-webkit-backdrop-filter: blur(0.68px);
backdrop-filter: blur(0.68px);
}

div.blur div.item_67 {
background: rgba(248, 250, 252, 0.33);
-webkit-backdrop-filter: blur(0.66px);
backdrop-filter: blur(0.66px);
}

div.blur div.item_68 {
background: rgba(248, 250, 252, 0.32);
-webkit-backdrop-filter: blur(0.64px);
backdrop-filter: blur(0.64px);
}

div.blur div.item_69 {
background: rgba(248, 250, 252, 0.31);
-webkit-backdrop-filter: blur(0.62px);
backdrop-filter: blur(0.62px);
}

div.blur div.item_70 {
background: rgba(248, 250, 252, 0.3);
-webkit-backdrop-filter: blur(0.6px);
backdrop-filter: blur(0.6px);
}
```

```
div.blur div.item_71 {
    background: rgba(248, 250, 252, 0.29);
    -webkit-backdrop-filter: blur(0.58px);
        backdrop-filter: blur(0.58px);
}

div.blur div.item_72 {
    background: rgba(248, 250, 252, 0.28);
    -webkit-backdrop-filter: blur(0.56px);
        backdrop-filter: blur(0.56px);
}

div.blur div.item_73 {
    background: rgba(248, 250, 252, 0.27);
    -webkit-backdrop-filter: blur(0.54px);
        backdrop-filter: blur(0.54px);
}

div.blur div.item_74 {
    background: rgba(248, 250, 252, 0.26);
    -webkit-backdrop-filter: blur(0.52px);
        backdrop-filter: blur(0.52px);
}

div.blur div.item_75 {
    background: rgba(248, 250, 252, 0.25);
    -webkit-backdrop-filter: blur(0.5px);
        backdrop-filter: blur(0.5px);
}

div.blur div.item_76 {
    background: rgba(248, 250, 252, 0.24);
    -webkit-backdrop-filter: blur(0.48px);
        backdrop-filter: blur(0.48px);
}

div.blur div.item_77 {
    background: rgba(248, 250, 252, 0.23);
    -webkit-backdrop-filter: blur(0.46px);
        backdrop-filter: blur(0.46px);
}

div.blur div.item_78 {
    background: rgba(248, 250, 252, 0.22);
    -webkit-backdrop-filter: blur(0.44px);
        backdrop-filter: blur(0.44px);
}

div.blur div.item_79 {
    background: rgba(248, 250, 252, 0.21);
    -webkit-backdrop-filter: blur(0.42px);
        backdrop-filter: blur(0.42px);
}

div.blur div.item_80 {
    background: rgba(248, 250, 252, 0.2);
    -webkit-backdrop-filter: blur(0.4px);
```

```
        backdrop-filter: blur(0.4px);
    }

div.blur div.item_81 {
    background: rgba(248, 250, 252, 0.19);
    -webkit-backdrop-filter: blur(0.38px);
        backdrop-filter: blur(0.38px);
}

div.blur div.item_82 {
    background: rgba(248, 250, 252, 0.18);
    -webkit-backdrop-filter: blur(0.36px);
        backdrop-filter: blur(0.36px);
}

div.blur div.item_83 {
    background: rgba(248, 250, 252, 0.17);
    -webkit-backdrop-filter: blur(0.34px);
        backdrop-filter: blur(0.34px);
}

div.blur div.item_84 {
    background: rgba(248, 250, 252, 0.16);
    -webkit-backdrop-filter: blur(0.32px);
        backdrop-filter: blur(0.32px);
}

div.blur div.item_85 {
    background: rgba(248, 250, 252, 0.15);
    -webkit-backdrop-filter: blur(0.3px);
        backdrop-filter: blur(0.3px);
}

div.blur div.item_86 {
    background: rgba(248, 250, 252, 0.14);
    -webkit-backdrop-filter: blur(0.28px);
        backdrop-filter: blur(0.28px);
}

div.blur div.item_87 {
    background: rgba(248, 250, 252, 0.13);
    -webkit-backdrop-filter: blur(0.26px);
        backdrop-filter: blur(0.26px);
}

div.blur div.item_88 {
    background: rgba(248, 250, 252, 0.12);
    -webkit-backdrop-filter: blur(0.24px);
        backdrop-filter: blur(0.24px);
}

div.blur div.item_89 {
    background: rgba(248, 250, 252, 0.11);
    -webkit-backdrop-filter: blur(0.22px);
        backdrop-filter: blur(0.22px);
}

div.blur div.item_90 {
```

```
background: rgba(248, 250, 252, 0.1);
-webkit-backdrop-filter: blur(0.2px);
backdrop-filter: blur(0.2px);
}

div.blur div.item_91 {
background: rgba(248, 250, 252, 0.09);
-webkit-backdrop-filter: blur(0.18px);
backdrop-filter: blur(0.18px);
}

div.blur div.item_92 {
background: rgba(248, 250, 252, 0.08);
-webkit-backdrop-filter: blur(0.16px);
backdrop-filter: blur(0.16px);
}

div.blur div.item_93 {
background: rgba(248, 250, 252, 0.07);
-webkit-backdrop-filter: blur(0.14px);
backdrop-filter: blur(0.14px);
}

div.blur div.item_94 {
background: rgba(248, 250, 252, 0.06);
-webkit-backdrop-filter: blur(0.12px);
backdrop-filter: blur(0.12px);
}

div.blur div.item_95 {
background: rgba(248, 250, 252, 0.05);
-webkit-backdrop-filter: blur(0.1px);
backdrop-filter: blur(0.1px);
}

div.blur div.item_96 {
background: rgba(248, 250, 252, 0.04);
-webkit-backdrop-filter: blur(0.08px);
backdrop-filter: blur(0.08px);
}

div.blur div.item_97 {
background: rgba(248, 250, 252, 0.03);
-webkit-backdrop-filter: blur(0.06px);
backdrop-filter: blur(0.06px);
}

div.blur div.item_98 {
background: rgba(248, 250, 252, 0.02);
-webkit-backdrop-filter: blur(0.04px);
backdrop-filter: blur(0.04px);
}

div.blur div.item_99 {
background: rgba(248, 250, 252, 0.01);
-webkit-backdrop-filter: blur(0.02px);
backdrop-filter: blur(0.02px);
}
```

```
div.blur div.item_100 {
    background: rgba(248, 250, 252, 0);
    -webkit-backdrop-filter: blur(0px);
    backdrop-filter: blur(0px);
}
</style></head><body>

<div class="blur top">
    <div class="item_1"></div>
    <div class="item_2"></div>
    <div class="item_3"></div>
    <div class="item_4"></div>
    <div class="item_5"></div>
    <div class="item_6"></div>
    <div class="item_7"></div>
    <div class="item_8"></div>
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    <div class="item_15"></div>
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    <div class="item_41"></div>
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    <div class="item_43"></div>
    <div class="item_44"></div>
    <div class="item_45"></div>
    <div class="item_46"></div>
    <div class="item_47"></div>
    <div class="item_48"></div>
    <div class="item_49"></div>
```

---

```
<div class="itm_50"></div>
<div class="itm_51"></div>
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<div class="itm_53"></div>
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<div class="itm_96"></div>
<div class="itm_97"></div>
<div class="itm_98"></div>
<div class="itm_99"></div>
<div class="itm_100"></div>
</div>
```

```
<h1>Stephen Hawking</h1>
<h4>From Wikipedia, the free encyclopedia</h4>
```

---

<h3>Stephen William Hawking, CH, CBE, FRS, FRSA (Listeni/'sti:vən 'hɔ:kɪŋ/; born 8 January 1942) is an English theoretical physicist, cosmologist, author and Director of Research at the Centre for Theoretical Cosmology within the University of Cambridge.[16][17] His scientific works include a collaboration with Roger Penrose on gravitational singularity theorems in the framework of general relativity, and the theoretical prediction that black holes emit radiation, often called Hawking radiation. Hawking was the first to set forth a theory of cosmology explained by a union of the general theory of relativity and quantum mechanics. He is a vigorous supporter of the many-worlds interpretation of quantum mechanics</h3>

<p align="left"> He is an Honorary Fellow of the Royal Society of Arts, a lifetime member of the Pontifical Academy of Sciences, and a recipient of the Presidential Medal of Freedom, the highest civilian award in the United States. Hawking was the Lucasian Professor of Mathematics at the University of Cambridge between 1979 and 2009 and has achieved commercial success with works of popular science in which he discusses his own theories and cosmology in general; his book A Brief History of Time appeared on the British Sunday Times best-seller list for a record-breaking 237 weeks.</p>

<p>Hawking has a rare early-onset, slow-progressing form of amyotrophic lateral sclerosis (ALS), commonly known as motor neurone disease in the UK, that has gradually paralysed him over the decades.[20][21] He now communicates using a single cheek muscle attached to a speech-generating device.</p>

<p>Hawking was born on 8 January 1942[22] in Oxford, England, to Frank (1905–1986) and Isobel Hawking (née Walker; 1915–2013).[23][24] His mother was Scottish.[25] Despite their families' financial constraints, both parents attended the University of Oxford, where Frank studied medicine and Isobel, Philosophy, Politics and Economics.[24] The two met shortly after the beginning of the Second World War at a medical research institute where she was working as a secretary and he as a medical researcher.[24][26] They lived in Highgate, but as London was being bombed in those years, Isobel went to Oxford to give birth in greater safety.[27] Hawking has two younger sisters, Philippa and Mary, and an adopted brother, Edward.[28].</p>

<p>In 1950, when his father became head of the division of parasitology at the National Institute for Medical Research, Hawking and his family moved to St Albans, Hertfordshire.[29][30] In St Albans, the family were considered highly intelligent and somewhat eccentric;[29][31] meals were often spent with each person silently reading a book.[29] They lived a frugal existence in a large, cluttered, and poorly maintained house, and travelled in a converted London taxicab.[32][33] During one of Hawking's father's frequent absences working in Africa,[34] the rest of the family spent four months in Majorca visiting his mother's friend Beryl and her husband, the poet Robert Graves.</p>

<p>Hawking began his schooling at the Byron House School; he later blamed its "progressive methods" for his failure to learn to read while at the school.[29] In St Albans, the eight-year-old Hawking attended St Albans High School for Girls for a few months; at that time, younger boys could attend one of the houses.</p>

<p>&nbsp;</p>

<p>&nbsp;</p>

<div class="blur bottom">

<div class="itm\_100"></div>

<div class="itm\_99"></div>

<div class="itm\_98"></div>



---



---

```

<div class="itm_39"></div>
<div class="itm_38"></div>
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<div class="itm_36"></div>
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<div class="itm_8"></div>
<div class="itm_7"></div>
<div class="itm_6"></div>
<div class="itm_5"></div>
<div class="itm_4"></div>
<div class="itm_3"></div>
<div class="itm_2"></div>
<div class="itm_1"></div>
</div>
```

\*\*\*\*\*

### Display of coloured text

```

<style class="cp-pen-styles">
@import
url(http://fonts.googleapis.com/css?family=Playfair+Display:400,700,900,400italic,700italic,900it
alic);

.wrapper {
  margin: 50px auto;
  display: block;
  width: 600px;
  font-family: 'Playfair Display', serif;
```

```
font-size: 36px;
color: saddlebrown;
}

p {
width: 600px;
margin: 50px auto;
}

span {
display: block;
line-height: 100%;
}

.that-guy, .mystery, .wrapped, .enigma, .ticking, .bleep, .ing {
display: inline-block;
/* Groups spans that should be on the same line */
}

.are-you-kidding {
font-size: 68px;
font-weight: 900;
margin-bottom: 30px;
text-align: right;
color: darkseagreen;
}

.mystery, .enigma, .ticking {
font-weight: 700;
}

.crudely {
text-transform: uppercase;
letter-spacing: 0.25em;
font-weight: 700;
font-size: 30px;
margin: 10px 0;
color: lightseagreen;
clear: both;
}

.that-guy, .wrapped {
font-size: 30px;
float: left;
margin-top: 10px;
margin-right: 10px;
}

.wrapped {
padding-left: 170px;
}

.wrapped, .enigma {
display: inline-block;
float: left;
margin-bottom: 15px;
}
```

```
.mystery, .enigma {
    text-transform: uppercase;
    letter-spacing: 0.05em;
    font-weight: 900;
    font-size: 50px;
    color: teal;
}

.mystery {
    color: burlywood;
}

.ticking, .ing, .time-bomb {
    font-size: 50px;
}

.ticking, .ing, .time-bomb {
    font-style: italic;
    color: gold;
}

.bleep {
    -webkit-transform: rotate(-6deg);
    transform: rotate(-6deg);
    background: antiquewhite;
    padding: 5px 5px 5px 10px;
    color: rgb(255, 155, 0);
    font-weight: 800;
    letter-spacing: 0.15em;
    margin-right: -10px;
    font-size: 34px;
}

.time-bomb {
    font-weight: 900;
    font-size: 70px;
    font-style: italic;
    text-align: right;
    margin-bottom: 50px;
    color: tomato;
}

.he-was-either, .going-to {
    margin-left: 120px;
    font-style: italic;
    font-size: 45px;
    color: darkmagenta;
}

.hit {
    font-style: italic;
    font-weight: 700;
    font-size: 80px;
    margin-top: -15px;
    color: indigo;
}

.blog {
```

```
font-size: 40px;
text-transform: uppercase;
letter-spacing: 0.15em;
color: navy;
}

cite {
    font-style: initial;
    font-size: 24px;
} </style> </head> <body>
<div class="wrapper">
<p>
    <span class="are-you-kidding">
        "Science is a way of life.

    </span>
    <span class="that-guy">
        Science is a perspective.
    </span>
    <span class="mystery">
        mystery
    </span>
    <span class="wrapped">
        wrapped in an
    </span>
    <span class="enigma">
        enigma
    </span>
    <span class="crudely">
        and crudely stapled
    </span>
    <span class="to-a">
        to a
    </span>
    <span class="ticking">
        ticking
    </span>
    <span class="bleep">
        &%$?
    </span>
    <span class="ing">
        ing
    </span>
    <span class="time-bomb">
        time bomb.
    </span>
    <span class="he-was-either">
        it is either
    </span>
    <span class="going-to">
        going to
    </span>
    <span class="hit">
        hit market
    </span>
    <span class="blog">
        or start a new opening."
    </span>
</p>
```

```
<cite>
  &mdash;Dr.Science,
  <em>The Magic world</em>
</cite>
</div>
```

```
*****
```

## Text underline hover effects

```
<style class="cp-pen-styles">
@import 'https://fonts.googleapis.com/css?family=Lora:400,700';

* {
  box-sizing: border-box;
}

html, body {
  font-family: 'Lora', serif;
  width: 100%;
  height: 100%;
  display: -webkit-box;
  display: -webkit-flex;
  display: -ms-flexbox;
  display: flex;
  -webkit-box-align: center;
  -webkit-align-items: center;
  -ms-flex-align: center;
  align-items: center;
  -webkit-box-pack: center;
  -webkit-justify-content: center;
  -ms-flex-pack: center;
  justify-content: center;
}

body {
  border: 8px solid #00B388;
}

a {
  cursor: pointer;
}

strong {
  margin-top: 16px;
  display: block;
  font-weight: 700;
}

p {
  padding: 24px;
  max-width: 760px;
  font-size: 22px;
```

```
font-weight: 300;
line-height: 1.9;
}

.link-1 {
position: relative;
text-decoration: none;
display: inline-block;
color: black;
padding: 0 1px;
-webkit-transition: color ease 0.3s;
transition: color ease 0.3s;
}

.link-1::after {
content: '';
position: absolute;
z-index: -1;
width: 100%;
height: 5%;
left: 0;
bottom: 0;
background-color: #00B388;
-webkit-transition: all ease 0.3s;
transition: all ease 0.3s;
}

.link-1:hover {
color: white;
}

.link-1:hover::after {
height: 100%;
}

.link-2 {
position: relative;
text-decoration: none;
display: inline-block;
color: black;
padding: 0 1px;
-webkit-transition: color ease 0.3s;
transition: color ease 0.3s;
}

.link-2::before, .link-2::after {
content: '';
position: absolute;
background-color: #00B388;
z-index: -1;
height: 5%;
}

.link-2::before {
width: 0%;
left: 0;
bottom: 0;
}

.link-2::after {
width: 100%;
```

---

```

        -webkit-transition: width ease 0.4s;
        transition: width ease 0.4s;
    }

.link-2::after {
    width: 100%;
    left: 0;
    bottom: 0;
    -webkit-transition: all ease 0.6s;
    transition: all ease 0.6s;
}

.link-2:hover::before {
    width: 100%;
}

.link-2:hover::after {
    left: 100%;
    width: 0%;
    -webkit-transition: all ease 0.2s;
    transition: all ease 0.2s;
}
</style></head><body>
<p>
    "Attractive things make people feel good, which in turn makes them think more</a> <a
class="link-1"
href="http://www.w3schools.com/html/tryit.asp?filename=tryhtml_default">creatively</a>. How does
that make something easier to use? Simple, by making it easier for <a class="link-
2" href="http://www.w3schools.com/html/tryit.asp?filename=tryhtml_default">people</a> to find
solutions to the problems they encounter." <strong>- Don Norman</strong>
</p>
*****

```

## Eating the text

```

<style class="cp-pen-styles">
.content-block {
    background-color:#f09;
    box-sizing:border-box;
    color:#fff;
    font-size:5vmin;
    height:50vmin;
    margin:25vmin;
    overflow:hidden;
    padding:5vmin;
    position:relative;
    width:50vmin;
}

.bite {
    background-color:#fff;
    border-radius:50%;
    box-sizing:border-box;
    height:70%;

```

```
position: absolute;
transition: all 1s ease;
width: 70%;
}

.br {
  bottom: -20%;
  right: -20%;
}

.tr {
  right: -20%;
  top: -20%;
}

.bl {
  bottom: -20%;
  left: -20%;
}

.tl {
  left: -20%;
  top: -20%;
}

.center {
  bottom: 10%;
  left: 10%;
  right: 10%;
  top: 10%;
}

.tooth {
  background-color: #fff;
  border-radius: 50%;
  height: 40px;
  position: absolute;
  width: 40px;
}

.biter {
  background-color: #09f;
  border: 0;
  bottom: 20px;
  color: #fff;
  font-size: 5vmin;
  padding: 1em;
  position: fixed;
  right: 20px;
}

.biter:hover {
  opacity: .8;
}

.biter:disabled,
.biter:disabled:hover {
  background-color: #ccc;
```

```

} </style> </head> <body>
<div class="content-block">The true sign of intelligence is not knowledge but imagination.

</div>

<button class="biter" onclick="bite()">Chomp</button>

<script>

"use strict"; "object"!=typeof
window.CP&&(window.CP={},window.CP.PenTimer={programNoLongerBeingMonitored:!1,timeOfFirstCallToS
houldStopLoop:0,_loopExits:{},_loopTimers:{},START_MONITORING_AFTER:2e3,STOP_ALL_MONITORING_TIMEOUT
UT:5e3,MAX_TIME_IN_LOOP_WO_EXIT:2200,exitedLoop:function(o){this._loopExits[o]=!0},shouldStopLoop
:function(o){if(this.programKilledSoStopMonitoring)return!0;if(this.programNoLongerBeingMonitored
)return!1;if(this._loopExits[o])return!1;var
t=this._getTime();if(0==this.timeOfFirstCallToShouldStopLoop)return
this.timeOfFirstCallToShouldStopLoop=t,!1;var i=t-
this.timeOfFirstCallToShouldStopLoop;if(i<this.START_MONITORING_AFTER)return!1;if(i>this.STOP_ALL
_MONITORING_TIMEOUT)return
this.programNoLongerBeingMonitored=!0,!1;try{this._checkOnInfiniteLoop(o,t)}catch(n){return
this._sendMessageToEditor(),this.programKilledSoStopMonitoring=!0,!0}return!1},_sendMessageToEditor:functio
n(){try{if(this._shouldPostMessage()){var o={action:"infinite-
loop",line:this._findLineNumber()};parent.postMessage(JSON.stringify(o),"*")}else
this._throwAnErrorToStopPen()}catch(t){this._throwAnErrorToStopPen()}},_shouldPostMessage:functio
n(){return document.location.href.match(/boomerang/)},_throwAnErrorToStopPen:functio
n(){throw"We
found an infinite loop in your Pen. We've stopped the Pen from running. Please correct it or
contact support@codepen.io."},_findLineNumber:functio
n(){var o=new
Error,t=0;if(o.stack){var i=o.stack.match(/boomerang\S+:(\d+):\d+/);i&&(t=i[1])}return
t},_checkOnInfiniteLoop:functio
n(o,t){if(!this._loopTimers[o])return this._loopTimers[o]=t,!1;var
i=t-this._loopTimers[o];if(i>this.MAX_TIME_IN_LOOP_WO_EXIT)throw"Infinite Loop found on loop:
"+o},_getTime:functio
n(){return+new Date},window.CP.shouldStopExecution=functio
n(o){var
t=window.CP.PenTimer.shouldStopLoop(o);return t==!=0&&console.warn("An infinite loop (or loop
taking too long) was detected, so we stopped its execution.
Sorry!"),t},window.CP.exitedLoop=functio
n(o){window.CP.PenTimer.exitedLoop(o)};

```

```

<script>var cb = document.querySelector('.content-block');
var btn = document.querySelector('.biter');
var biteCount = 0;
function addTeeth(bite) {
    var teeth = 18;
    var angle = 360 / teeth;
    var radius = 80;
    var offsetToParentCenter = parseInt(bite.offsetWidth / 2);
    var offsetToChildCenter = -60;
    var totalOffset = offsetToParentCenter - offsetToChildCenter;
    for (var i = 1; i <= teeth; ++i) {
        if (window.CP.shouldStopExecution(1)) {
            break;
        }
        var tooth = document.createElement('div');
        tooth.className = 'tooth';
        var y = Math.sin(angle * i * (Math.PI / 180)) * radius;
        var x = Math.cos(angle * i * (Math.PI / 180)) * radius;

```

```

        tooth.style.top = (y + totalOffset).toString() + 'px';
        tooth.style.left = (x + totalOffset).toString() + 'px';
        bite.appendChild(tooth);
    }
    window.CP.exitedLoop(1);
}
function bite() {
    if (biteCount > 4)
        return;
    var b = document.createElement('div');
    addTeeth(b);
    b.className = 'bite';
    switch (biteCount) {
    case 0:
        b.className += ' br';
        break;
    case 1:
        b.className += ' bl';
        break;
    case 2:
        b.className += ' tr';
        break;
    case 3:
        b.className += ' tl';
        break;
    case 4:
        b.className += ' center';
        cb.parentNode.removeChild(cb);
        btn.textContent = 'All gone';
        btn.disabled = true;
    }
    cb.appendChild(b);
    biteCount++;
}

</script>

*****

```

## Card

```

<style>

*, 
*:before,
*:after {
    box-sizing: border-box;
}

.container {
    max-width: 400px;
    width: 100%;
    margin: 0 auto;
    padding-bottom: 70px;
    position: relative;
}

```

---

```

.intro {
  position: relative;
  min-height: 300px;
  height: 100%;
  width: 100%;
  background: transparent url(http://quotesblog.net/wp-content/uploads/2015/05/Albert-Einstein-
Quotes-8.jpg) top center no-repeat;
  background-size: 100%;
  overflow: hidden;
  transition: all .72s ease-in-out;
}

.intro:after {
  content: '';
  display: block;
  position: absolute;
  /* width: 100%; */
  height: 500px;
  right: -100%;
  left: 0;
  transform: skew(100deg);
  background: #fff;
  bottom: -70%;
  box-shadow: inset 1px 0px 5px 0px rgba(204, 204, 204, 0.72);
}

.container:after {
  content: '';
  max-width: 300px;
  width: 100%;
  margin: 0% auto 0;
  position: absolute;
  left: 0;
  bottom: 0;
  top: 0;
  right: 0;
  box-shadow: 0px 5px 5px 0px rgba(204, 204, 204, 0.72);
  z-index: -1;
  transition: all .52s ease-in-out;
}

.meta {
  max-width: 300px;
  width: 100%;
  margin: 0% auto 0;
  position: absolute;
  left: 0;
  bottom: 0;
  right: 0;
  z-index: 10;
  padding-top: 110px;
  overflow: hidden;

  transition: all .52s ease-in-out;
}

.meta_inner {

```

```
padding: .25rem 1rem;
line-height: 1.5rem;
position: relative;
background: #fff;
z-index: 15;
background: #fff;
border: 1px solid #ccc;
border-top: none;
}

.meta:after {
  content: '';
  display: block;
  position: absolute;
  left:0;
  right: 0;
  top: 80px;
  max-width: 300px;
  height: 300px;
  background: #fff;
  border: 1px solid #ccc;
  transform: rotate(90deg) skew(10deg);
  z-index: 4;
}

h3 {
  position: relative;
  font-family: sans-serif;
  font-weight: 300;
  border-left: 4px solid #e91e63;
  padding-left: .72rem;
}

p {
  font-family: serif;
  font-size: .85rem;
  font-weight: inherit;
  color: #555;
  text-align: justify;
}

p a {
  color: #e91e63;
  text-decoration: none;
  opacity: .72;

  transition: all .27s ease-in-out;
}

p a:hover {
  opacity: 1;
  text-decoration: underline;
}
.container:hover .meta{
  transform: translateY(5px);
}

.container:hover .intro {
```

---

```

        transform: translateY(-5px);
    }

.container:hover:after {
    transform: translateY(5px);
}

</style>

<div class="container">
    <section class="intro"></section>

    <div class="meta">
        <div class="meta__inner">
            <h3>Some Title</h3>
            <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Illo fugiat ad quae amet dignissimos laborum, repellat maxime ipsa ipsam nisi <a href="#">read more ...</a></p>
        </div>
    </div>
</div>

```

\*\*\*\*\*

## Typing text effect with CSS

```

<style class="cp-pen-styles">
*, *:after, *:before {
    box-sizing: border-box;
    margin: 0;
    padding: 0;
}

body {
    background: #FFFFFF;
    font-family: courier, serif;
    text-align: center;
    -webkit-font-smoothing: antialiased;
}

.hello {
    position: absolute;
    top: 50%;
    left: 50%;
    transform: translate(-50%, -50%);
    top: 25%;
}
.hello h3 {
    position: relative;
    color: #152860;
    text-align: center;
    white-space: nowrap;
    font-size: 40px;
    letter-spacing: 0.0625em;
    width: calc(20ch + 20*0.0625em);
}

```

```

}

.hello h3:after {
    display: block;
    position: absolute;
    content: '';
    width: calc(20ch + 20*0.0625em);
    height: 2ex;
    left: 0;
    top: 0;
    background: #eff5ed;
    animation: 0.6s blink 20, move 3s 1.5s forwards steps(1);
    border-left: 1px solid #152860;
    box-shadow: 0px 1ex 0px 0px #eff5ed;
}
@keyframes move {
    5% {
        width: calc(calc(20ch + 20*0.0625em) - (1ch + 1*0.0625em));
        left: calc(1ch + 1*0.0625em);
    }
    10% {
        width: calc(calc(20ch + 20*0.0625em) - (2ch + 2*0.0625em));
        left: calc(2ch + 2*0.0625em);
    }
    15% {
        width: calc(calc(20ch + 20*0.0625em) - (3ch + 3*0.0625em));
        left: calc(3ch + 3*0.0625em);
    }
    20% {
        width: calc(calc(20ch + 20*0.0625em) - (4ch + 4*0.0625em));
        left: calc(4ch + 4*0.0625em);
    }
    25% {
        width: calc(calc(20ch + 20*0.0625em) - (5ch + 5*0.0625em));
        left: calc(5ch + 5*0.0625em);
    }
    30% {
        width: calc(calc(20ch + 20*0.0625em) - (6ch + 6*0.0625em));
        left: calc(6ch + 6*0.0625em);
    }
    35% {
        width: calc(calc(20ch + 20*0.0625em) - (7ch + 7*0.0625em));
        left: calc(7ch + 7*0.0625em);
    }
    40% {
        width: calc(calc(20ch + 20*0.0625em) - (8ch + 8*0.0625em));
        left: calc(8ch + 8*0.0625em);
    }
    45% {
        width: calc(calc(20ch + 20*0.0625em) - (9ch + 9*0.0625em));
        left: calc(9ch + 9*0.0625em);
    }
    50% {
        width: calc(calc(20ch + 20*0.0625em) - (10ch + 10*0.0625em));
        left: calc(10ch + 10*0.0625em);
    }
    55% {
        width: calc(calc(20ch + 20*0.0625em) - (11ch + 11*0.0625em));
        left: calc(11ch + 11*0.0625em);
    }
}

```

```

}
60% {
  width: calc(calc(20ch + 20*0.0625em) - (12ch + 12*0.0625em));
  left: calc(12ch + 12*0.0625em);
}
65% {
  width: calc(calc(20ch + 20*0.0625em) - (13ch + 13*0.0625em));
  left: calc(13ch + 13*0.0625em);
}
70% {
  width: calc(calc(20ch + 20*0.0625em) - (14ch + 14*0.0625em));
  left: calc(14ch + 14*0.0625em);
}
75% {
  width: calc(calc(20ch + 20*0.0625em) - (15ch + 15*0.0625em));
  left: calc(15ch + 15*0.0625em);
}
80% {
  width: calc(calc(20ch + 20*0.0625em) - (16ch + 16*0.0625em));
  left: calc(16ch + 16*0.0625em);
}
85% {
  width: calc(calc(20ch + 20*0.0625em) - (17ch + 17*0.0625em));
  left: calc(17ch + 17*0.0625em);
}
90% {
  width: calc(calc(20ch + 20*0.0625em) - (18ch + 18*0.0625em));
  left: calc(18ch + 18*0.0625em);
}
95% {
  width: calc(calc(20ch + 20*0.0625em) - (19ch + 19*0.0625em));
  left: calc(19ch + 19*0.0625em);
}
100% {
  width: calc(calc(20ch + 20*0.0625em) - (20ch + 20*0.0625em));
  left: calc(20ch + 20*0.0625em);
}
}
@keyframes blink {
  0% {
    border-left-color: #152860;
  }
  50% {
    border-left-color: #152860;
  }
  51% {
    border-left-color: #eff5ed;
  }
  100% {
    border-left-color: #eff5ed;
  }
}
</style></head><body>
<div class="hello">
  <h3>Albert Einstein</h3>
</div>

```

---

---

## Image Hover

```
<style class="cp-pen-styles">
@import url(https://fonts.googleapis.com/css?family=Slabo+27px);
@import url(https://fonts.googleapis.com/css?family=Lato);
.snip1523 {
  font-family: 'Lato', sans-serif;
  position: relative;
  float: left;
  overflow: hidden;
  margin: 10px 1%;
  min-width: 230px;
  max-width: 315px;
  width: 100%;
  color: #ffffff;
  text-align: left;
  font-size: 16px;
  background-color: #1A1A1A;
}
.snip1523 * {
  -webkit-box-sizing: border-box;
  box-sizing: border-box;
  -webkit-transition: all 0.45s ease;
  transition: all 0.45s ease;
}
.snip1523 img {
  vertical-align: top;
  max-width: 100%;
  backface-visibility: hidden;
}
.snip1523 figcaption {
  position: absolute;
  top: 0;
  bottom: 0;
  left: 0;
  right: 0;
  z-index: 1;
  padding: 30px;
  background-color: #202123;
  -webkit-transform: translateX(100%);
  transform: translateX(100%);
  -webkit-box-shadow: 0 0 50px rgba(0, 0, 0, 0.5);
  box-shadow: 0 0 50px rgba(0, 0, 0, 0.5);
}
.snip1523 h2,
.snip1523 h3,
.snip1523 p {
  margin: 0;
}
```

---

```

.snip1523 h2,
.snip1523 h3 {
  font-family: 'Slabo 27px', serif;
  line-height: 1.2em;
}

.snip1523 h2 {
  font-size: 1.9em;
  color: #35ADF9;
}

.snip1523 h3 {
  color: #E8E8E8;
  font-size: 1.3em;
  font-weight: normal;
  letter-spacing: 1px;
}

.snip1523 p {
  border-top: 1px solid rgba(255, 255, 255, 0.2);
  font-size: 0.9em;
  margin-top: 12px;
  padding: 12px 0 15px;
  line-height: 1.5em;
}

.snip1523 a {
  position: absolute;
  top: 0;
  bottom: 0;
  left: 0;
  right: 0;
  z-index: 1;
}

.snip1523:hover > img,
.snip1523.hover > img {
  -webkit-transform: translateX(100%);
  transform: translateX(100%);
}

.snip1523:hover figcaption,
.snip1523.hover figcaption {
  -webkit-transform: translateX(0%);
  transform: translateX(0%);
}

/* Demo purposes only */

body {
  background-color: #212121;
}</style></head><body>
<figure class="snip1523">
  
  <figcaption>
    <h2>Benjamin Eivalent</h2>

```

---

```

<h3>UX Design</h3>
<p>I'm learning real skills that I can apply throughout the rest of my life ...
Procrastinating and rationalizing.</p>
</figcaption>
<a href="http://www.w3schools.com/html/tryit.asp?filename=tryhtml_default"></a>
</figure>
<figure class="snip1523 hover">

<figcaption>
<h2>Sheq Bivouac</h2>
<h3>Accountant</h3>
<p>If you do the job badly enough, sometimes you don't get asked to do it again.</p>
</figcaption>
<a href="http://www.w3schools.com/html/tryit.asp?filename=tryhtml_default"></a>
</figure>
<figure class="snip1523"><img alt="sample73" data-bbox="111 348 875 360"/>
<figcaption>
<h2>Ruby Von Rails</h2>
<h3>Public Relations</h3>
<p>But Calvin is no kind and loving god! He's one of the old gods! He demands sacrifice! </p>
</figcaption>
<a href="#"></a>
</figure>

<script>$('.hover').mouseleave(function () {
    $(this).removeClass('hover');
});</script>

```

\*\*\*\*\*

## Background Big Text Crawl

```

<style>

$textSize: 6vw;
html,
body {
  margin: 0;
  padding: 0;
  font-size: 100%;
}

.container {
  background: linear-gradient(to bottom, #f4e400 0%, #ed6e00 100%);
  height: 100vh;
  width: 100vw;
  position: absolute;
  overflow: hidden;
  perspective: 500px;
}

```

```

.scrollTxt {
    position: absolute;
    bottom: 0 - $textSize * 2;
    right: 0;
    animation-name: scroll;
    animation-duration: 50s;
    animation-timing-function: linear;
    animation-iteration-count: infinite;
}

.scrollTxt p {
    color: red;
    opacity: 0.3;
    font-family: 'Oswald', sans-serif;
    font-size: $textSize;
    text-transform: uppercase;
    line-height: 0;
    text-align: center;
}

@keyframes scroll {
    from {
        transform: rotateX(20deg) rotateZ(30deg);
    }
    to {
        transform: rotateX(20deg) rotateZ(30deg) translateY($textSize * 11);
    }
}

```

</style>

```

<div class="container">
    <div class="scrollTxt">
        <p>HTML & CSS</p>
        <p>Development</p>
        <p>PHP & MySQL</p>
        <p>Web Design</p>
        <p>JavaScript</p>
        <p>Graphic Design</p>
        <p>Search Engine Optimisation</p>
        <p>Server Administration</p>
        <p>Photoshop</p>
        <p>Affinity Photo</p>
        <p>Affinity Designer</p>
        <p>HTML & CSS</p>
        <p>Development</p>
        <p>PHP & MySQL</p>
        <p>Web Design</p>
        <p>JavaScript</p>
        <p>Graphic Design</p>
        <p>Search Engine Optimisation</p>
        <p>Server Administration</p>
        <p>Photoshop</p>
        <p>Affinity Photo</p>
        <p>Affinity Designer</p>
    </div>
</div>
*****
```

---

## Try and catch method

```
public class HelloWorld {  
    public static void main(String args[]) {  
        int d, a;  
        d = 2;  
        a = 42 / d;  
        System.out.println("42 divided by d");  
    }  
}
```

Output on the screen:

```
42 divided by d
```

If `d = 2;` is replaced by `d = 0;`

i.e.,

```
public class HelloWorld {  
    public static void main(String args[]) {  
        int d, a;  
        d = 0;  
        a = 42 / d;  
        System.out.println("42 divided by zero");  
    }  
}
```

There will be no display of the output on the screen. Error:

```
"Exception in thread "main" java.lang.ArithmaticException: / by zero  
at HelloWorld.main(HelloWorld.java:5)"
```

will be thrown on the screen since `42/ d` is undefined and cannot be complied and executed by the compiler.

In this case, we need to employ try and catch method i.e.,

```
public class HelloWorld {  
    public static void main(String args[]) {  
        int d, a;  
        try {  
            d = 0;  
            a = 42 / d;  
            System.out.println("answer is undefined"); // An exception or error will be thrown by this  
            program as we are trying to divide a number 42 by zero inside try block. Thus the line "answer is  
            undefined" is never parsed by the compiler. The program control is transferred outside try block  
            to catch block and catch block handle the exception and prints the output "42 divided by zero" on  
            the screen.  
        } catch (ArithmaticException e) {  
            System.out.println("An error occurred: " + e.getMessage());  
        }  
    }  
}
```

```
}

catch(ArithmeticException e) {
    System.out.println("42 divided by zero");
}

}

Output on the screen:
```

**42 divided by zero**

\*\*\*\*\*

"I speak Spanish to God, Italian to women, French to men, and German to my horse." -- Emperor Charles V (1500—1558)

Mmmmh... What about C, C++, Javascript, Ruby and Java ?

**Did you know that:**

Abstraction → hiding implementation details from the user by providing interface

Encapsulation → hiding data

**Java is to JavaScript as ham is to hamster.**

: Jeremy Keith

Java and javascript - both are object oriented programming languages

Java → saved as class file → converted to byte codes → executed by JVM (Java Virtual Machine)

Javascript → directly executed by web browser.

\*\*\*\*\*

**Image animation + text**

```
<style class="cp-pen-styles">
@import
url(https://fonts.googleapis.com/css?family=Open+Sans+Condensed:700|Playfair+Display:400,700);
*,
*:before,
*:after {
  margin: 0;
  padding: 0;
  box-sizing: border-box;
}

html,
body {
  width: 100%;
  height: 100%;
  font-family: 'Playfair Display', serif;
}

.fullscreen {
  width: 100%;
  height: 100%;
}

.fullscreen img {
  position: absolute;
  top: 0;
  left: 0;
  width: 100%;
  height: 100%;
  -o-object-fit: cover;
  object-fit: cover;
  z-index: 1;
}

.fullscreen-caption {
  position: relative;
  top: 12.5%;
  left: 27.5%;
  width: 60%;
  height: 75%;
  z-index: 2;
  border: 5vw solid white;
  -webkit-border-image: url("http://media.boingboing.net/wp-content/uploads/2014/06/giphy-
13.gif");
  -o-border-image: url("http://media.boingboing.net/wp-content/uploads/2014/06/giphy-
13.gif");
  border-image: url("http://media.boingboing.net/wp-content/uploads/2014/06/giphy-
13.gif");
  border-image-slice: 10%;
  box-shadow: 0 0 100px rgba(0, 0, 0, 0.4), inset 0 0 100px rgba(0, 0, 0, 0.4);
}

.fullscreen-caption .inner {
  position: relative;
  display: inline-block;
  top: 100%;
  -webkit-transform: translateX(-55%) translateY(-50vh);
  transform: translateX(-55%) translateY(-50vh);
```

```

}

.fullscreen-caption h2,
.fullscreen-caption h3,
.fullscreen-caption a {
  -webkit-font-smoothing: antialiased;
  -moz-osx-font-smoothing: grayscale;
}

.fullscreen-caption h2 {
  display: inline-block;
  margin-bottom: 1rem;
  color: black;
  text-align: left;
  font-weight: 400;
  font-size: 7vw;
  line-height: 7.8vw;
}

.fullscreen-caption h3 {
  text-align: center;
  color: rgba(0, 0, 0, 0.3);
  font-weight: 700;
  font-size: 1.2rem;
  font-style: italic;
}

.fullscreen-caption .fullscreen-link {
  position: relative;
  display: inline-block;
  margin: 12vh 0 0 20px;
  padding-bottom: 10px;
  font-family: 'Open Sans Condensed', sans-serif;
  color: white;
  text-decoration: none;
  text-transform: uppercase;
  letter-spacing: 2px;
  border-bottom: 2px solid white;
}
.fullscreen-caption .fullscreen-link:before {
  content: '';
  position: absolute;
  top: 3px;
  left: -20px;
  width: 0;
  height: 0;
  border-top: 7px solid transparent;
  border-bottom: 7px solid transparent;
  border-left: 10px solid white;
}

</style></head><body>
<figure class="fullscreen">
  
  <figcaption class="fullscreen-caption">
    <div class="inner">
      <h2>Man <br/>of Century</h2>
      <h3>Albert Einstein</h3>
      <a class="fullscreen-link" href="#">Watch video</a>
    </div>
  </figcaption>
</figure>
```

```
</div>
</figcaption>
</figure>
```

```
*****
```

## HTML page

```
<style>
*,  
*:before,  
*:after {  
  box-sizing: inherit;  
}  
  
html {  
  font-family: sans-serif;  
  font-size: 16px;  
  /* background: rgba(0, 0, 0, 0.0125); */  
}  
  
html,  
body {  
  height: 100%;  
  background: #fff;  
}  
  
body {  
  margin: 0;  
  font: 100%/1.5 AvenirNext-Regular, Corbel, "Lucida Grande", "Trebuchet Ms", sans-serif;  
  color: #111;  
  min-height: 100%;  
  box-sizing: border-box;  
}  
  
article, aside, details, figcaption, figure, footer, header, hgroup, main, nav, section, summary {  
  display: block;  
}  
  
h2, h3, h4, h5, h6, p, blockquote, pre, dl, ol, form, table, figure, nav, hr {  
  margin-top: 3rem;  
}  
  
audio, canvas, progress, video, label {  
  display: inline-block;  
}  
  
label {  
  margin-top: 1rem;  
}
```

---

---

```
audio:not([controls]) {
  display: none;
  height: 0;
}

[hidden], template {
  display: none;
}

header,
footer {
  text-align: center;
}

a {
  background: transparent;
  color: #4183c4;
  text-decoration: none;
}

a:active,
a:hover {
  outline: 0;
}

a:hover,
a:focus,
a:active {
  text-decoration: underline;
}

abbr[title] {
  border-bottom: 1px dotted;
}

b, strong {
  font-weight: bold;
}

dfn {
  font-style: italic;
}

mark {
  background: #ff0;
  color: #000;
}

small {
  font-size: 80%;
```

```
}

sub, sup {
  font-size: 75%;
  line-height: 0;
  position: relative;
  vertical-align: baseline;
}

sup {
  top: -0.5em;
}

sub {
  bottom: -0.25em;
}

img, svg {
  border: 0;
  max-width: 100%;
}

svg:not(:root) {
  overflow: hidden;
}

figure {
  margin-left: 1em;
}

hr {
  height: 0;
  padding: 1px;
  border: 1px solid #ccc;
  margin-bottom: 3rem;
  box-sizing: content-box;
  background-color: #eee;
}

article,
.container {
  max-width: 60em;
  margin: 0 auto 2em;
  padding: 2.5em 5% 3em;
  overflow: auto;
}

h1, h2, h3, h4, h5, h6 {
  color: #222;
  margin-bottom: 0;
  padding: .25rem 0 0;
```

---

```
}

h1 {
    font-family: AvenirNextCondensed-Medium, "Segoe Ui", Corbel, "Lucida Grande", "Trebuchet Ms", sans-serif;
    padding-top: 0;
    margin: 0;
}

h2, h3, h4, h5, dt {
    font-family: AvenirNextCondensed-DemiBold, "Segoe Ui", Corbel, "Lucida Grande", "Trebuchet Ms", sans-serif;
}

h6, b, strong, thead th, button {
    font-family: AvenirNext-DemiBold, "Segoe Ui", Corbel, "Lucida Grande", "Trebuchet Ms", sans-serif;
}

em {
    font-family: AvenirNext-DemiBoldItalic, "Segoe Ui", Corbel, "Lucida Grande", "Trebuchet Ms", sans-serif;
}

i {
    font-family: AvenirNext-Italic, Avenir-Oblique, TrebuchetMS-Italic, "Lucida Grande", Corbel, "Trebuchet Ms", sans-serif;
    font-style: italic;
}

h1 {
    font-size: 2.5rem;
}

h2 {
    font-size: 2.25rem;
}

h3 {
    font-size: 2rem;
}

h4 {
    font-size: 1.75rem;
}

h5,
h6,
dt {
    font-size: 1.25rem;
    text-transform: uppercase;
}

h6 {
    font-family: AvenirNext-UltraLight, Avenir-Light, "Lucida Grande", "Lucida Unicode", Corbel, "Trebuchet Ms", sans-serif;
    font-weight: normal;
```

```
}

dt {
    margin-top: 1rem;
}

dd {
    margin: 0 0 .5em 2em;
}

p {
    margin: 0;
    padding: .5em 0;
}

h3 + p,
h4 + p {
    padding-top: 0;
}

header h1 {
    text-align: center;
}

strong em {
    font-family: AvenirNext-BoldItalic, Avenir-HeavyOblique, Trebuchet-BoldItalic, "Lucida Grande", Corbel, "Trebuchet Ms",
    sans-serif;
    font-weight: bold;
}

pre {
    background-color: #f8f8f8;
    border: 1px solid #ddd;
    font-size: .875rem;
    line-height: 1.5;
    overflow: auto;
    padding: 1rem 1.5rem;
    border-radius: 3px;
    word-wrap: normal;
    white-space: pre-wrap;
}

code, kbd, pre, samp {
    font-family: Consolas, Menlo, Monaco, monospace;
}

code, kbd, samp {
    font-size: 1em;
}

pre code {
```

---

```
margin: 0;
padding: 0;
background-color: transparent;
border: none;
word-wrap: normal;
max-width: initial;
display: inline;
overflow: initial;
line-height: inherit;
}

pre code:before,
pre code:after {
  content: normal;
}

p code,
ul code {
  font-family: Consolas, Menlo, Monaco, monospace;
  font-size: .875em;
  margin: 0;
  border: 1px solid #ddd;
  background-color: #f8f8f8;
  border-radius: 3px;
  padding: 2px 0 0 0;
}

p code:before,
p code:after,
ul code:before,
ul code:after {
  content: "\00a0";
  letter-spacing: -0.2em;
}

ul {
  padding: 0 .5em;
  margin: .5em 0 .5em -.45rem;
}

ol ul {
  padding-left: 1.5rem;
}

ul li {
  list-style: none;
  position: relative;
  margin-left: -.75em;
  padding-left: .75em;
}
```

---

---

```
nav ul li,
nav ul li a {
  display: inline-block;
}

nav ul li {
  position: relative;
}

nav ul li a {
  padding: .5em 1em;
}

article ul li::before,
nav ul li::after {
  content: "\B7"; /* middot in unicode -> &middot; */
  font-size: 1.25em;
  color: #3ca555;
  line-height: 0;
  display: inline-block;
  vertical-align: middle;
}

article ul li::before {
  padding-right: 3px;
}

nav ul li:last-of-type::after {
  content: "";
  display: none;
}

ul ol,
ol ol {
  margin: .5rem 0 1rem 1.45rem;
}

ul li li {
  margin-left: 0;
}

ul ol li {
  margin-left: -.75rem;
}

ul li::before,
blockquote,
hr,
pre {
  box-shadow: 1px 1px 0 rgba(0, 0, 0, 0.1);
```

```
}

blockquote {
    border-left: .5em solid #ccc;
    padding: 2em 2rem 2.5rem 3rem;
    margin-left: 1em;
    background-color: #f7f7f7;
    color: #666;
    font-family: AvenirNext-Italic, Avenir-Oblique, AvenirMedium-Oblique, Georgia, serif;
    font-style: italic;
}

button, input, optgroup, select, textarea {
    color: inherit;
    font: inherit;
    margin: 0;
}

button, select {
    text-transform: none;
}

button, html input[type="button"], input[type="reset"], input[type="submit"] {
    -webkit-appearance: button;
    cursor: pointer;
}

button,
input[type="button"],
input[type="submit"],
input[type="file"],
input[type="reset"] {
    -webkit-appearance: none;
    overflow: visible;
    border-radius: 4px;
    background-clip: padding-box;
    background-image: -webkit-linear-gradient(top, white, #ddd);
    background-image: linear-gradient(to bottom, white, #ddd);
    border: 1px solid;
    border-color: #ddd #bbb #999;
    cursor: pointer;
    color: #333;
    display: inline-block;
    outline: 0;
    overflow: visible;
    margin: 1.5rem 1rem;
    padding: 1em 2em;
    text-shadow: white 0 1px 1px;
    text-decoration: none;
    vertical-align: top;
    width: auto;
```

```
font-size: 16px;
line-height: 1.3;
}

button:invalid {
  box-shadow: none;
}

button:focus,
input[type="button"]:focus,
input[type="submit"]:focus,
input[type="file"]:focus,
input[type="reset"]:focus{
  box-shadow: #06f 0 0 5px 0;
  z-index: 1;
}

button:hover,
input[type="button"]:hover,
input[type="submit"]:hover,
input[type="file"]:hover,
input[type="reset"]:hover {
  background-image: -webkit-linear-gradient(top, white, #eee 1px, #ccc);
  background-image: linear-gradient(to bottom, white, #eee 1px, #ccc);
  text-decoration: none;
}

button:active,
input[type="button"]:active,
input[type="submit"]:active,
input[type="file"]:active,
input[type="reset"]:active {
  background-image: -webkit-linear-gradient(top, #ddd, #eee);
  background-image: linear-gradient(to bottom, #ddd, #eee);
  box-shadow: inset rgba(0, 0, 0, 0.25) 0 1px 2px 0;
  border-color: #999 #bbb #ddd;
}

button[disabled], html input[disabled] {
  cursor: default;
}

button::-moz-focus-inner, input::-moz-focus-inner, button::-webkit-focus-inner, input::-webkit-focus-inner {
  border: 0;
  padding: 0;
}

input {
  line-height: normal;
}
```

```
input[type="checkbox"], input[type="radio"] {  
    box-sizing: border-box;  
    padding: 0;  
}  
  
input[type="number"]::-webkit-inner-spin-button, input[type="number"]::-webkit-outer-spin-button {  
    height: auto;  
}  
  
input[type="search"] {  
    -webkit-appearance: textfield;  
    box-sizing: content-box;  
}  
  
input[type="search"]::-webkit-search-cancel-button, input[type="search"]::-webkit-search-decoration {  
    -webkit-appearance: none;  
}  
  
input[type="file"] {  
    color: transparent;  
}  
  
input[type="file"]::-webkit-file-upload-button {  
    visibility: hidden;  
}  
  
input[type="file"]::before {  
    content: 'Choose File';  
    color: #111;  
    display: inline-block;  
    outline: none;  
    white-space: nowrap;  
    -webkit-user-select: none;  
}  
  
input[type="file"]:hover::before {  
    border-color: black;  
}  
  
input[type="file"]:active {  
    outline: 0;  
}  
  
input[type="file"]:active::before {  
    background: -webkit-linear-gradient(top, #e3e3e3, #f9f9f9);  
}  
  
fieldset {  
    border: 1px solid #c0c0c0;  
    margin: 1rem 2px;  
    padding: 0.35em 0.625em 0.75em;
```

```
}

legend {
    border: 0;
    padding: 0;
}

textarea {
    overflow: auto;
}

optgroup {
    font-weight: bold;
}

table {
    border-collapse: collapse;
    border-spacing: 0;
    font-family: Consolas, Menlo, Monaco, monospace;
    background: #f7f7f7;
    margin-bottom: 3em;
}

thead {
    display: table-header-group;
}

thead th {
    border-bottom: 1px solid #999;
    text-align: center;
    font-size: 1.125em;
    text-transform: uppercase;
    font-weight: bold;
    background: #ddd;
}

thead th:nth-of-type(1) {
    text-align: left;
}

th, td {
    padding: .5em 1em;
}

/* zebra stripes */
tr:nth-of-type(even) {
    background: rgba(0, 0, 0, 0.125);
}

.clearfix:before,
.clearfix:after {
```

```
content: " ";
display: table;
}

.clearfix:after,
.clear {
  clear: both;
}

@media (min-width: 768px) {
  h1 {
    font-size: 2.75rem;
  }

  h2 {
    font-size: 2.5rem;
  }

  h3 {
    font-size: 2.25rem;
  }

  h4 {
    font-size: 2rem;
  }

  h5 {
    font-size: 1.75rem;
  }

  h6 {
    font-size: 1.5rem;
  }

  p {
    font-size: 1.25rem;
  }

  li {
    font-size: 1.25rem;
  }

  li li {
    font-size: 1rem;
  }
}

</style>
<style class="cp-pen-styles">html,
body {
  background-color: #000;
}
```

---



---

```

.container {
  max-width: 100em;
  padding: 0;
  background-color: #1c1c1c;
}

main {
  max-width: 60em;
  margin: -6.8em auto 0;
  background-color: #000;
  border-right: 12px solid #fff;
  overflow: auto;
}

.content,
.sidebar {
  padding-top: 6em;
}

.content {
  max-width: 45em;
  border: none;
  float: left;
  width: 70%;
  background-color: #fff;
}

.sidebar {
  float: right;
  width: 30%;
  background-color: #000;
  color: #fff;
}

@media (min-width: 1600px) {
  .sidebar {
    background-image: url("data:image/svg+xml; charset='utf8', %3Csvg xmlns='http://www.w3.org/2000/svg' width='324' height='76' viewBox='0 0 324 76'%3E%3Cpolygon fill='rgb(255,255,255)' points='324,25.5 111,76 0,52 0,0 324,0'%3E%3Cpolygon fill='rgb(216,0,50)' points='314,18 111,66 10,44 10,36 111,58 314,10'%3E%3C/svg%3E");
    background-position: -1.7em 3.25em;
    background-repeat: no-repeat;
    padding-top: 6em;
  }
}

.sidebar ul {
  padding: 2em;
  margin-top: 2em;
}

.sidebar ul li {

```

```

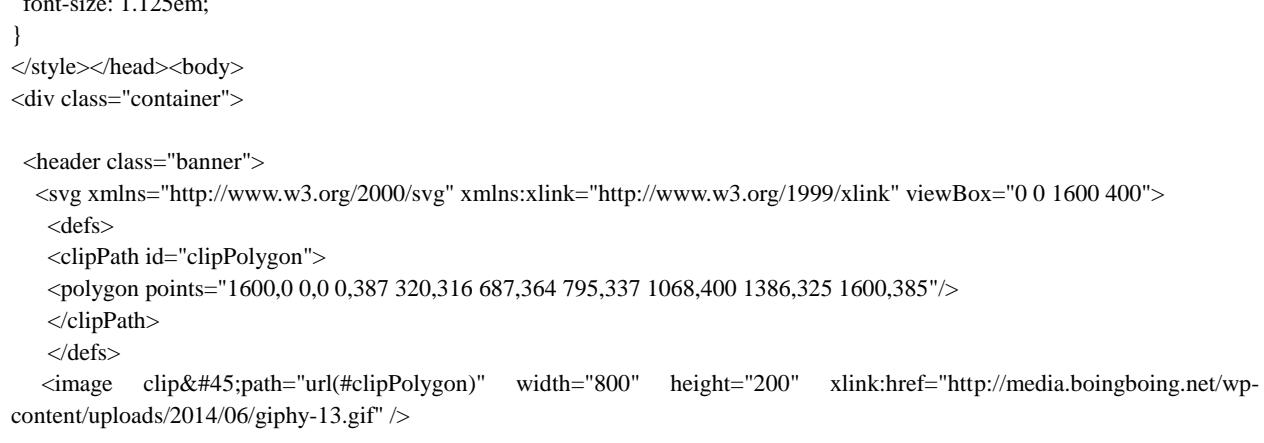
font-size: 1em;
}

.content p {
  font-size: 1.125em;
}

```

</style></head><body>

<header class="banner">



</header>

<main>

<article class="content">

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Officia veniam, eveniet quos, explicabo ab iste quibusdam aliquid molestias deserunt. Assumenda cum consectetur, dolorum dolore facere natus, nulla officiis rem deserunt!</p>

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Officia veniam, eveniet quos, explicabo ab iste quibusdam aliquid molestias deserunt. Assumenda cum consectetur, dolorum dolore facere natus, nulla officiis rem deserunt!</p>

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Officia veniam, eveniet quos, explicabo ab iste quibusdam aliquid molestias deserunt. Assumenda cum consectetur, dolorum dolore facere natus, nulla officiis rem deserunt!</p>

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Officia veniam, eveniet quos, explicabo ab iste quibusdam aliquid molestias deserunt. Assumenda cum consectetur, dolorum dolore facere natus, nulla officiis rem deserunt!</p>

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Officia veniam, eveniet quos, explicabo ab iste quibusdam aliquid molestias deserunt. Assumenda cum consectetur, dolorum dolore facere natus, nulla officiis rem deserunt!</p>

<p>Lorem ipsum dolor sit amet, consectetur adipisicing elit. Officia veniam, eveniet quos, explicabo ab iste quibusdam aliquid molestias deserunt. Assumenda cum consectetur, dolorum dolore facere natus, nulla officiis rem deserunt!</p>

</article>

<aside class="sidebar">

- <a href="http://www.w3schools.com/html/"><font size="6" face="times" color="white">list-item</a></li>
- list-item
- list-item
- list-item
- list-item

</aside>

```
</main>
```

```
</div>
```

```
*****
```

## CSS Tab

```
<style class="cp-pen-styles">
html, body {
    font-size: 20px;
}

html {
    box-sizing: border-box;
}

*, *:before, *:after {
    box-sizing: border-box;
}

body {
    padding: 40px;
    margin: 0;
    line-height: 1.5;
    background-color: #333;
    font-family: Roboto, Helvetica, Arial, sans-serif;
    color: #333;
}

h1 {
    margin-top: 0;
    line-height: 1.25;
    text-align: center;
    font-family: "Roboto Slab", Times, "Times New Roman", serif;
    color: white;
}

/* highlight colors */
::-moz-selection {
    background-color: #333;
    color: white;
}

::selection {
    background-color: #333;
    color: white;
}

/* wrapper */
.wrapper {
    max-width: 70ch;
    padding-right: 10px;
    padding-left: 10px;
    margin-right: auto;
    margin-left: auto;
```

```
}

/* tabs */
.tabs {
  border-right: 1px solid #ccc;
}
.tabs:after {
  content: "";
  display: table;
  clear: both;
}
.tabs input[type=radio] {
  display: none;
}
.tabs label {
  display: block;
  float: left;
  width: 33.33333%;
  padding: 1em;
  border: 1px solid #ccc;
  border-right: none;
  background-color: #f7f7f7;
  text-align: center;
  font-weight: 700;
  color: coral;
  cursor: pointer;
  -webkit-transition: background-color 150ms ease-in-out;
  transition: background-color 150ms ease-in-out;
}
.tabs label:hover {
  background-color: white;
}
.tabs [id^="tab"]:checked + label {
  border-bottom-color: white;
  background: white;
  color: #333;
}

.tab-content {
  display: none;
  float: left;
  width: 100%;
  padding: 1em;
  border-bottom: 1px solid #ccc;
  border-left: 1px solid #ccc;
  background-color: white;
}
#tab1:checked ~ #tab-content1,
#tab2:checked ~ #tab-content2,
#tab3:checked ~ #tab-content3 {
  display: block;
}

.other-content {
  color: white;
}
```

```

@media only screen and (max-width: 768px) {
    body, html {
        font-size: 18px;
    }
}
@media only screen and (max-width: 645px) {
    .tabs label {
        float: none;
        width: 100%;
    }
}
@media only screen and (max-width: 480px) {
    body, html {
        font-size: 16px;
    }
}
</style></head><body>
<div class="wrapper">
    <h1>Pure CSS Tabs</h1>
    <div class="tabs cf">
        <input type="radio" name="tabs" id="tab1" checked>
        <label for="tab1">
            Description
        </label>
        <input type="radio" name="tabs" id="tab2">
        <label for="tab2">
            Features
        </label>
        <input type="radio" name="tabs" id="tab3">
        <label for="tab3">
            Delivery & returns
        </label>

        <div id="tab-content1" class="tab-content">
            Lorem ipsum dolor sit amet, ne duo urbanitas eloquentiam consectetuer, vel et stet complectitur intellegebat, malorum alterum mei no. Ut alii reprehendunt cum, homero munere mentitum mei eu. At sit everti aliquid, ad nusquam voluptaria pro, ad pri quot aeterno constituto.
        </div>
        <div id="tab-content2" class="tab-content">
            Lorem ipsum dolor sit amet, ne duo urbanitas eloquentiam consectetuer, vel et stet complectitur intellegebat, malorum alterum mei no. Ut alii reprehendunt cum, homero munere mentitum mei eu. At sit everti aliquid, ad nusquam voluptaria pro, ad pri quot aeterno constituto. Phaedrum volutpat cu vix, vim cu fugit iriure iudicabit, sea dico veri ei. Detracto copiosae platonem nam id, nonumy molestie indoctum sit no. Vix paulo facete an, ne usu viris grecce legendos.
        </div>
        <div id="tab-content3" class="tab-content">
            Lorem ipsum dolor sit amet, ne duo urbanitas eloquentiam consectetuer, vel et stet complectitur intellegebat, malorum alterum mei no. Ut alii reprehendunt cum, homero munere mentitum mei eu. At sit everti aliquid, ad nusquam voluptaria pro, ad pri quot aeterno constituto. Phaedrum volutpat cu vix, vim cu fugit iriure iudicabit, sea dico veri ei. Detracto copiosae platonem nam id, nonumy molestie indoctum sit no. Vix paulo facete an, ne usu viris grecce legendos. Cum ei reque iuvaret quaerendum, no
            eum nibh omnes, ei quo doctus explicari. No mea eirmod sententiae, ornatus evertitur ex usu. Aequa accusata gubergren ad cum, vim et movet volutpat. Cum ea recteque reformidans, tantas disputando et vis, ei usu pericula facilisis. Qui meliore reprehendunt ne.
        </div>
    </div>
</div>

```

```

</div>
</div>



*****



## Image reflection



```

<style class="cp-pen-styles">
svg {
    overflow: visible;
    max-width: 640px;
}
</style></head><body>

<svg viewBox="-320 -160 640 320">
    <linearGradient id="g" gradientTransform="rotate(90)">
        <stop offset="0%" stop-color="#fff" stop-opacity=".1"></stop>
        <stop offset="100%" stop-color="#fff" stop-opacity=".8"></stop>
    </linearGradient>
    <mask id="m" maskContentUnits="objectBoundingBox">
        <rect width="1" height="1" fill="url(#g)"></rect>
    </mask>
    <image id="img" x="-25%" y="-50%" width="50%" height="50%" preserveAspectRatio="xMidYMid slice"
xlink:href="http://media.boingboing.net/wp-content/uploads/2014/06/giphy-13.gif"></image>
    <use xlink:href="#img" y="-1" transform="scale(1 -1)" mask="url(#m)"></use>
</svg>

```



*****



## Word counter



```

<style class="cp-pen-styles">
/* border box */

html {
    box-sizing: border-box;
    -webkit-user-select: none;
    /* Chrome all / Safari all */
    -moz-user-select: none;
    /* Firefox all */
    -ms-user-select: none;
    /* IE 10+ */
    user-select: none;
    /* Likely future */
}

```



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```

```
*,
*:before,
*:after {
  box-sizing: inherit;
}

b {
  font-weight: bold;
}

/* main app styles */

body {
  width: 700px;
  margin: 0 auto;
  background-color: #FAFAFA;
  font-family: 'Source Sans Pro', sans-serif;
  color: #111;
}

.container {
  margin: 2% auto;
  padding: 15px;
  background-color: #FFFFFF;
  -webkit-box-shadow: 0px 1px 4px 0px rgba(0, 0, 0, 0.2);
  box-shadow: 0px 1px 4px 0px rgba(0, 0, 0, 0.2);
}

h1 {
  font-size: 3rem;
  font-weight: 900;
  text-align: center;
  margin: 1% 0 3%;
}

textarea {
  width: 100%;
  height: 250px;
  padding: 10px;
  border: 1px solid #d9d9d9;
  outline: none;
  font-size: 1rem;
  resize: none;
  line-height: 1.5rem;
}

textarea:hover {
  border-color: #C0C0C0;
}

textarea:focus {
  border-color: #4D90FE;
}

.output.row {
  width: 100%;
  border: 1px solid #DDD;
```

```
font-size: 1.4rem;
margin: 1% 0;
background-color: #F9F9F9;
}

.output.row div {
  display: inline-block;
  width: 42%;
  padding: 10px 15px;
  margin: 1%;
}

.output.row span {
  font-weight: bold;
  font-size: 1.5rem;
}

#readability {
  width: 52%;
  font-weight: bold;
}

#readability:hover {
  background-color: #4D90FE;
  color: #FFF;
  border-radius: 2px;
  cursor: pointer;
}

#readability:active {
  background-color: #307AF3;
}

.keywords {
  display: none;
  margin: 4% 0 0;
  font-size: 2rem;
  font-weight: 900;
}

.keywords ul {
  font-weight: 400;
  border: 1px solid #DDD;
  font-size: 1.4rem;
  background-color: #F9F9F9;
  margin: 2% 0;
}

.keywords li {
  display: inline-block;
  width: 44%;
  padding: 10px;
  margin: 1%;
}

/*
** Making it responsive
```

```
*/  
  
@media (max-width: 750px) {  
    body {  
        width: 600px;  
    }  
    .output.row {  
        font-size: 1.2rem;  
    }  
    .output.row span {  
        font-size: 1.3rem;  
    }  
    .keywords ul {  
        font-size: 1.2rem;  
    }  
}  
  
@media (max-width: 600px) {  
    /* rewriting old styles */  
    body {  
        width: 95%;  
    }  
    .output.row {  
        border: none;  
        background-color: #FFF;  
    }  
    .output.row div {  
        display: block;  
        width: 100%;  
        padding: 10px 15px;  
        margin: 2% auto;  
        border: 1px solid #DDD;  
        font-size: 1.8rem;  
        background-color: #F9F9F9;  
    }  
    .output.row span {  
        font-size: 2rem;  
    }  
    #readability {  
        width: 100%;  
        font-size: 1.6rem;  
        font-weight: 400;  
    }  
    .keywords {  
        margin: 10% auto;  
    }  
    .keywords ul {  
        font-weight: 400;  
        border: none;  
        font-size: 1.8rem;  
        background-color: #F9F9F9;  
        margin: 5% 0;  
    }  
    .keywords li {  
        display: block;  
        width: 100%;  
        padding: 10px;  
        margin: 2% auto;  
    }  
}
```

```

        border: 1px solid #DDD;
    }
} </style> </head> <body>
<div class="container">
    <h1>Word Counter</h1>
    <textarea placeholder="Enter your text here..."></textarea>
    <div class="output row">
        <div>Characters: <span id="characterCount">0</span></div>
        <div>Words: <span id="wordCount">0</span></div>
    </div>
    <div class="output row">
        <div>Sentences: <span id="sentenceCount">0</span></div>
        <div>Paragraphs: <span id="paragraphCount">0</span></div>
    </div>
    <div class="output row">
        <div>Reading Time: <span id="readingTime">0</span></div>
        <div id="readability">Show readability score.</div>
    </div>
    <div class="keywords">
        Top keywords:
        <ul id="topKeywords">
        </ul>
    </div>
</div>

<script>'use strict';
var input = document.querySelectorAll('textarea')[0], characterCount =
document.querySelector('#characterCount'), wordCount = document.querySelector('#wordCount'),
sentenceCount = document.querySelector('#sentenceCount'), paragraphCount =
document.querySelector('#paragraphCount'), readingTime = document.querySelector('#readingTime'),
readability = document.querySelector('#readability'), keywordsDiv =
document.querySelectorAll('.keywords')[0], topKeywords = document.querySelector('#topKeywords');
input.addEventListener('keyup', function () {
    console.clear();
    characterCount.innerHTML = input.value.length;
    var words = input.value.match(/\b[-?(\w+)?]+\b/gi);
    if (words) {
        wordCount.innerHTML = words.length;
    } else {
        wordCount.innerHTML = 0;
    }
    if (words) {
        var sentences = input.value.split(/[\.\!\?\!]+/g);
        console.log(sentences);
        sentenceCount.innerHTML = sentences.length - 1;
    } else {
        sentenceCount.innerHTML = 0;
    }
    if (words) {
        var paragraphs = input.value.replace(/\n$/gm, '').split(/\n/);
        paragraphCount.innerHTML = paragraphs.length;
    } else {
        paragraphCount.innerHTML = 0;
    }
    if (words) {
        var seconds = Math.floor(words.length * 60 / 275);
        if (seconds > 59) {
            var minutes = Math.floor(seconds / 60);
    
```

```
seconds = seconds - minutes * 60;
readingTime.innerHTML = minutes + 'm ' + seconds + 's';
} else {
    readingTime.innerHTML = seconds + 's';
}
} else {
    readingTime.innerHTML = '0s';
}
if (words) {
    var nonStopWords = [];
    var stopWords = [
        'a',
        'able',
        'about',
        'above',
        'abst',
        'accordance',
        'according',
        'accordingly',
        'across',
        'act',
        'actually',
        'added',
        'adj',
        'affected',
        'affecting',
        'affects',
        'after',
        'afterwards',
        'again',
        'against',
        'ah',
        'all',
        'almost',
        'alone',
        'along',
        'already',
        'also',
        'although',
        'always',
        'am',
        'among',
        'amongst',
        'an',
        'and',
        'announce',
        'another',
        'any',
        'anybody',
        'anyhow',
        'anymore',
        'anyone',
        'anything',
        'anyway',
        'anyways',
        'anywhere',
        'apparently',
        'approximately',
    ];
    words.forEach(function(word) {
        if (stopWords.indexOf(word) === -1) {
            nonStopWords.push(word);
        }
    });
    readingTime.innerHTML = nonStopWords.join(' ');
}
```

---

'are',  
'aren',  
'arent',  
'arise',  
'around',  
'as',  
'aside',  
'ask',  
'asking',  
'at',  
'auth',  
'available',  
'away',  
'awfully',  
'b',  
'back',  
'be',  
'became',  
'because',  
'become',  
'becomes',  
'becoming',  
'been',  
'before',  
'beforehand',  
'begin',  
'beginning',  
'beginnings',  
'begins',  
'behind',  
'being',  
'believe',  
'below',  
'beside',  
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'c',  
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'can\t',  
'cause',  
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'co',  
'com',  
'come',  
'comes',  
'contain',

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'd',  
'date',  
'did',  
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'different',  
'do',  
'does',  
'doesn\'t',  
'doing',  
'done',  
'don\'t',  
'down',  
'downwards',  
'due',  
'during',  
'e',  
'each',  
'ed',  
'edu',  
'effect',  
'eg',  
'eight',  
'eighty',  
'either',  
'else',  
'elsewhere',  
'end',  
'ending',  
'enough',  
'especially',  
'et',  
'et-al',  
'etc',  
'even',  
'ever',  
'every',  
'everybody',  
'everyone',  
'everything',  
'everywhere',  
'ex',  
'except',  
'f',  
'far',  
'few',  
'ff',  
'fifth',  
'first',  
'five',  
'fix',  
'followed',  
'following',  
'follows',  
'for',

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'former',  
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'four',  
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'further',  
'furthermore',  
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'gave',  
'get',  
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'getting',  
'give',  
'given',  
'gives',  
'giving',  
'go',  
'goes',  
'gone',  
'got',  
'gotten',  
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'had',  
'happens',  
'hardly',  
'has',  
'hasn\t',  
'have',  
'haven\t',  
'having',  
'he',  
'hed',  
'hence',  
'her',  
'here',  
'hereafter',  
'hereby',  
'herein',  
'heres',  
'hereupon',  
'hers',  
'herself',  
'hes',  
'hi',  
'hid',  
'him',  
'himself',  
'his',  
'hither',  
'home',  
'how',  
'howbeit',  
'however',  
'hundred',  
'i',  
'id',  
'ie',

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'if',  
'i\'ll',  
'im',  
'immediate',  
'immediately',  
'importance',  
'important',  
'in',  
'inc',  
'indeed',  
'index',  
'information',  
'instead',  
'into',  
'invention',  
'inward',  
'is',  
'isn\'t',  
'it',  
'itd',  
'it\'ll',  
'its',  
'itself',  
'i\'ve',  
'j',  
'just',  
'k',  
'keep',  
'keeps',  
'kept',  
'kg',  
'km',  
'know',  
'known',  
'knows',  
'l',  
'largely',  
'last',  
'lately',  
'later',  
'latter',  
'latterly',  
'least',  
'less',  
'lest',  
'let',  
'lets',  
'like',  
'liked',  
'likely',  
'line',  
'little',  
'\ll',  
'look',  
'looking',  
'looks',  
'ltd',  
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'made',  
'mainly',  
'make',  
'makes',  
'many',  
'may',  
'maybe',  
'me',  
'mean',  
'means',  
'meantime',  
'meanwhile',  
'merely',  
'mg',  
'might',  
'million',  
'miss',  
'ml',  
'more',  
'moreover',  
'most',  
'mostly',  
'mr',  
'mrs',  
'much',  
'mug',  
'must',  
'my',  
'myself',  
'n',  
'na',  
'name',  
'namely',  
'nay',  
'nd',  
'near',  
'nearly',  
'necessarily',  
'necessary',  
'need',  
'needs',  
'neither',  
'never',  
'nevertheless',  
'new',  
'next',  
'nine',  
'ninety',  
'no',  
'nobody',  
'non',  
'none',  
'nonetheless',  
'noone',  
'nor',  
'normally',  
'nos',  
'not',

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'noted',  
'nothing',  
'now',  
'nowhere',  
'o',  
'obtain',  
'obtained',  
'obviously',  
'of',  
'off',  
'often',  
'oh',  
'ok',  
'okay',  
'old',  
'omitted',  
'on',  
'once',  
'one',  
'ones',  
'only',  
'onto',  
'or',  
'ord',  
'other',  
'others',  
'otherwise',  
'ought',  
'our',  
'ours',  
'ourselves',  
'out',  
'outside',  
'over',  
'overall',  
'owing',  
'own',  
'p',  
'page',  
'pages',  
'part',  
'particular',  
'particularly',  
'past',  
'per',  
'perhaps',  
'placed',  
'please',  
'plus',  
'poorly',  
'possible',  
'possibly',  
'potentially',  
'pp',  
'predominantly',  
'present',  
'previously',  
'primarily',

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'probably',  
'promptly',  
'proud',  
'provides',  
'put',  
'q',  
'que',  
'quickly',  
'quite',  
'qv',  
'r',  
'ran',  
'rather',  
'rd',  
're',  
'readily',  
'really',  
'recent',  
'recently',  
'ref',  
'refs',  
'regarding',  
'regardless',  
'regards',  
'related',  
'relatively',  
'research',  
'respectively',  
'resulted',  
'resulting',  
'results',  
'right',  
'run',  
's',  
'said',  
'same',  
'saw',  
'say',  
'saying',  
'says',  
'sec',  
'section',  
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'seeing',  
'seem',  
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'seen',  
'self',  
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'sent',  
'seven',  
'several',  
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'she',  
'shed',  
'she\'ll',

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'shes',  
'should',  
'shouldn\'t',  
'show',  
'showed',  
'shown',  
'shows',  
'shows',  
'significant',  
'significantly',  
'similar',  
'similarly',  
'since',  
'six',  
'slightly',  
'so',  
'some',  
'somebody',  
'somehow',  
'someone',  
'somethan',  
'something',  
'sometime',  
'sometimes',  
'somewhat',  
'somewhere',  
'soon',  
'sorry',  
'specifically',  
'specified',  
'specify',  
'specifying',  
'still',  
'stop',  
'strongly',  
'sub',  
'substantially',  
'successfully',  
'such',  
'sufficiently',  
'suggest',  
'sup',  
'sure',  
't',  
'take',  
'taken',  
'taking',  
'tell',  
'tends',  
'th',  
'than',  
'thank',  
'thanks',  
'thanx',  
'that',  
'that\'ll',  
'thats',  
'that\'ve',

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```
'the',
'their',
'theirs',
'them',
'themselves',
'then',
'thence',
'there',
'thereafter',
'thereby',
'thered',
'therefore',
'therein',
'there\'ll',
'thereof',
'therere',
'theres',
'thereto',
'thereupon',
'there\'ve',
'these',
'they',
'theyd',
'they\'ll',
'theyre',
'they\'ve',
'think',
'this',
'those',
'thou',
'though',
'toughh',
'thousand',
'throug',
'through',
'throughout',
'thrus',
'thus',
'til',
'tip',
'to',
'together',
'too',
'took',
'toward',
'towards',
'tried',
'tries',
'truly',
'try',
'trying',
'ts',
'twice',
'two',
'u',
'un',
'under',
'unfortunately',
```

---

```
'unless',
'unlike',
'unlikely',
'until',
'unto',
'up',
'upon',
'ups',
'us',
'use',
'used',
'useful',
'usefully',
'usefulness',
'uses',
'using',
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've',
'value',
'verious',
'\ve',
'very',
'veia',
'vez',
'vel',
'vels',
'ves',
've',
'want',
>wants',
'was',
'wasn\t',
'way',
've',
'wed',
'welcome',
've\ll',
'went',
'were',
'weren\t',
've\ve',
'what',
'whatever',
'what\ll',
'whats',
'when',
'whence',
'whenever',
'where',
'whereafter',
'whereas',
'whereby',
'wherein',
'wheres',
'whereupon',
'wherever',
'whether',
'which',
```

```

'while',
'whim',
'whither',
'who',
'whod',
'whoever',
'whole',
'who\ll',
'whom',
'whomever',
'whos',
'whose',
'why',
'widely',
'willing',
'wish',
'with',
'within',
'without',
'won\t',
'words',
'world',
'would',
'wouldn\t',
'www',
'x',
'Y',
'yes',
'yet',
'you',
'youd',
'you\ll',
'your',
'youre',
'yours',
'yourself',
'yourselves',
'you\ve',
'z',
'zero'
];
for (var i = 0; i < words.length; i++) {
    if (window.CP.shouldStopExecution(1)) {
        break;
    }
    if (stopWords.indexOf(words[i].toLowerCase()) === -1 && isNaN(words[i])) {
        nonStopWords.push(words[i].toLowerCase());
    }
}
window.CP.exitedLoop(1);
var keywords = {};
for (var i = 0; i < nonStopWords.length; i++) {
    if (window.CP.shouldStopExecution(2)) {
        break;
    }
    if (nonStopWords[i] in keywords) {
        keywords[nonStopWords[i]] += 1;
    } else {

```

```

        keywords[nonStopWords[i]] = 1;
    }
}
window.CP.exitedLoop(2);
var sortedKeywords = [];
for (var keyword in keywords) {
    if (window.CP.shouldStopExecution(3)) {
        break;
    }
    sortedKeywords.push([
        keyword,
        keywords[keyword]
    ]);
}
window.CP.exitedLoop(3);
sortedKeywords.sort(function (a, b) {
    return b[1] - a[1];
});
topKeywords.innerHTML = '';
for (var i = 0; i < sortedKeywords.length && i < 4; i++) {
    var li = document.createElement('li');
    li.innerHTML = '<b>' + sortedKeywords[i][0] + '</b>: ' + sortedKeywords[i][1];
    topKeywords.appendChild(li);
}
if (words) {
    keywordsDiv.style.display = 'block';
} else {
    keywordsDiv.style.display = 'none';
}
});
readability.addEventListener('click', function () {
    readability.innerHTML = 'Fetching score...';
    var requestUrl = 'https://ipeirotis-readability-
metrics.p.mashape.com/getReadabilityMetrics?text=';
    var data = input.value;
    var request = new XMLHttpRequest();
    request.open('POST', encodeURI(requestUrl + data), true);
    request.setRequestHeader('Content-Type', 'application/x-www-form-urlencoded; charset=UTF-8');
    request.setRequestHeader('X-Mashape-Authorization',
'PQ4FOFuaR6mshI6qpnQKQvkDZQXjplo6Zcqjsnug7GvNggTzUE');
    request.send();
    request.onload = function () {
        if (this.status >= 200 && this.status < 400) {
            readability.innerHTML = readingEase(JSON.parse(this.response).FLESCH_READING);
        } else {
            readability.innerHTML = 'Not available.';
        }
    };
    request.onerror = function () {
        readability.innerHTML = 'Not available.';
    };
});
function readingEase(num) {
    switch (true) {
    case num <= 30:
        return 'Readability: College graduate.';
        break;
    }
}

```

```

        case num > 30 && num <= 50:
            return 'Readability: College level.';
            break;
        case num > 50 && num <= 60:
            return 'Readability: 10th - 12th grade.';
            break;
        case num > 60 && num <= 70:
            return 'Readability: 8th - 9th grade.';
            break;
        case num > 70 && num <= 80:
            return 'Readability: 7th grade.';
            break;
        case num > 80 && num <= 90:
            return 'Readability: 6th grade.';
            break;
        case num > 90 && num <= 100:
            return 'Readability: 5th grade.';
            break;
        default:
            return 'Not available.';
            break;
    }
}

</script>

*****

```

## Page Resource

```

<style class="cp-pen-styles">*
*:before,
*:after {
    box-sizing: border-box;
    margin: 0px;
}

html,
body {
    height: 100%;
}

body {
    background: -webkit-linear-gradient(315deg, #2fa6a9, #2fa6a9 30%, #f5f5f5 30%, #f5f5f5 70%, #2fa6a9 70%) no-repeat fixed;
    background: linear-gradient(135deg, #2fa6a9, #2fa6a9 30%, #f5f5f5 30%, #f5f5f5 70%, #2fa6a9 70%) no-repeat fixed;
    width: 100%;
    padding: 100px;
}

.product-select {
    font-family: "proxima-nova", sans-serif;
    width: 1000px;
    margin: 0px auto;
    position: relative;
    height: 100%;
}

```

```
}

.product-select li {
  display: inline;
  width: 33%;
  background: #fff;
  text-align: center;
  position: absolute;
  box-shadow: 0px 0px 55px 0px rgba(0, 0, 0, 0.15);
  border-radius: 0.38em;
  padding: 35px 0;
  -webkit-transition: all 0.2s ease;
  transition: all 0.2s ease;
}
.product-select li img {
  height: 160px;
}
.product-select li .price {
  display: block;
  font-family: "sofia-pro-soft";
  font-size: 4em;
  line-height: 0.9em;
  color: #2fa6a9;
}
.product-select li .price:before {
  content: '$';
  font-size: 0.5em;
  position: relative;
  top: -0.5em;
}
.product-select li .price:after {
  content: '/mo';
  font-size: 0.5em;
}
.product-select li .featured {
  text-transform: uppercase;
  display: block;
  color: white;
  font-size: 1.3em;
  letter-spacing: 0.15em;
  background: #52c883;
  padding: 10px;
  margin: 5px 0;
}
.product-select li h1 {
  color: #5c7576;
  font-weight: 700;
  padding: 5px;
  letter-spacing: 0.05em;
}
.product-select li p {
  color: #87a9aa;
  position: relative;
  letter-spacing: 0.05em;
  padding: 10px 0 10px;
}
.product-select li a {
  display: inline-block;
  text-decoration: none;
```

```

color: #fff;
background: #52d990;
margin: 10px 0 0;
padding: 15px 50px;
border-radius: 2em;
font-weight: 700;
font-size: 1.3em;
box-shadow: #52c883 0px 0.3em 0px;
-webkit-transition: all 0.2s ease;
transition: all 0.2s ease;
}
.product-select li a:hover {
-webkit-transform: translateY(0.2em);
transform: translateY(0.2em);
box-shadow: #52c883 0px 0.1em 0px;
}
.product-select li:nth-child(2) {
z-index: 1;
left: 355px;
top: -25px;
-webkit-transform: scale(1.05);
transform: scale(1.05);
}
.product-select li:nth-child(3) {
right: 0%;
}
.product-select li:hover {
z-index: 2;
-webkit-transform: scale(1.07);
transform: scale(1.07);
}

@media screen and (max-width: 1125px) {
.product-select {
left: 50%;
-webkit-transform: scale(0.8) translateX(-65%);
transform: scale(0.8) translateX(-65%);
-webkit-transform-origin: top center;
transform-origin: top center;
}
}
@media screen and (max-width: 850px) {
.product-select {
width: 100%;
left: 0%;
-webkit-transform: scale(1) translateX(0);
transform: scale(1) translateX(0);
}
.product-select li {
display: block;
width: 100%;
position: relative;
margin: 20px 0;
}
.product-select li:nth-child(2) {
left: 0px;
top: 0px;
-webkit-transform: scale(1);

```

```

        transform: scale(1);
    }
.product-select li:nth-child(3) {
    right: 0px;
}
.product-select li:hover {
    -webkit-transform: scale(1);
    transform: scale(1);
}

```

</style></head><body>

<script src="https://use.typekit.net/jwv5czq.js"></script>

<script>

try{Typekit.load({ async: true });}catch(e){}

</script>

<div class="container">

<ul class="product-select">

<li>



<span class="price">0</span>

<h1>Free</h1>

<p>Our Branding</p>

<p>1 GB Storage</p>

<a href="#">Sign Up Now</a>

</li>

<li>



<span class="price">35</span>

<span class="featured">Most Popular</span>

<h1>Premium</h1>

<p>Fully Customizeable</p>

<p>Unlimited Storage</p>

<a href="#">Add to Cart</a>

</li>

<li>



<span class="price">99</span>

<h1>Enterprise</h1>

<p>Full License</p>

<p>Scaleable Architecture</p>

<a href="#">Add to Cart</a>

</li>

</ul>

</div>

\*\*\*\*\*

## Border image animation

```

<style class="cp-pen-styles">*,
```

- \*:before,
- \*:after {
- margin: 0;
- padding: 0;

```

}

html, body {
    width: 100%;
    height: 100%;
}

body {
    background-image: url("http://animationsa2z.com/attachments/Image/funny/funny56.gif");
    background-size: cover;
    background-repeat: no-repeat;
    background-position: 50%;
}

body:before {
    content: '';
    position: absolute;
    top: 50%;
    left: 50%;
    width: 40vw;
    height: 40vh;
    border-top: 20vh solid;
    border-right: 20vw solid;
    border-bottom: 20vh solid;
    border-left: 20vw solid;
    -webkit-border-image: url("http://animationsa2z.com/attachments/Image/funny/funny56.gif");
        -o-border-image: url("http://animationsa2z.com/attachments/Image/funny/funny56.gif");
            border-image: url("http://animationsa2z.com/attachments/Image/funny/funny56.gif");
    border-image-slice: 25%;
    -webkit-transform: translateX(-50%) translateY(-50%);
        transform: translateX(-50%) translateY(-50%);
    -webkit-animation: animateBorder 3s infinite alternate-reverse;
        animation: animateBorder 3s infinite alternate-reverse;
    -webkit-animation-delay: -1s;
        animation-delay: -1s;
}
}

@-webkit-keyframes animateBorder {
    0% {
        border-image-slice: 8%;
    }
    100% {
        border-image-slice: 35%;
    }
}

@keyframes animateBorder {
    0% {
        border-image-slice: 8%;
    }
    100% {
        border-image-slice: 35%;
    }
}

</style>
*****

```

---

## Pure CSS Link URL Preview

```
<style class="cp-pen-styles">
a {
  position: relative;
  display: inline-block;
  color: #228475;
}
a::before {
  position: absolute;
  top: 100%;
  content: attr(href);
  opacity: 0;
  display: block;
  transition: .25s all;
  height: 0;
  overflow: hidden;
  padding: .25em 1em;
  background: #fff;
  box-shadow: 0 0 3px 0 rgba(0, 0, 0, 0.3);
  font-size: .7em;
  color: #555;
}
a:hover::before {
  opacity: 1;
  display: block;
  height: auto;
}

body {
  display: flex;
  align-items: center;
  justify-content: center;
  height: 100vh;
  background: #E9C46A;
  font-size: 1.3em;
  line-height: 170%;
  font-family: 'Lora', serif;
}

article {
  padding: 1em;
  max-width: 95%;
  width: 20em;
  background: #fff;
  box-shadow: 0 0 0 15px rgba(0, 0, 0, 0.1);
}

p {
  margin: 0;
}

h1 {
  margin: 0;
  text-align: center;
}
```

---

```

h1::after {
  display: block;
  content: '';
  border-top: 2px solid #F4A261;
  width: 5em;
  margin: 1em auto;
}
</style></head><body>
<article>
  <h1>Link URL Preview</h1>
  <p>Ever wanted to know what URL a link has in store? Here's an easy way to show your users <a href="http://jondaiello.com" target="_blank">where a text link</a> will take them.</p>
</article>

```

\*\*\*\*\*

## text-align-last

```

<style class="cp-pen-styles">
body {
  margin: 20px 40px;
  font-family: 'Lato';
  max-width: 640px;
}

h2 {
  font-size: 1.5em;
  background: black;
  color: white;
  text-align: center;
  padding: 10px;
  margin-bottom: 50px;
}

p {
  line-height: 1.5;
  margin-bottom: 15px;
}

article {
  text-align: justify;
}

article p:last-of-type {
  -moz-text-align-last: right;
  text-align-last: right;
}</style></head><body>
<article>

  <h2><code>text-align-last</code> with <code>:last-of-type</code></h2>

  <p>Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. Aenean ultricies mi vitae est.

```

---

```

Mauris placerat eleifend leo. Donec libero quam egestas semper.</p>

<p>Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis
egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu
libero sit amet quam egestas semper. Aenean ultricies mi vitae est.
Mauris placerat eleifend leo. Donec eu libero sit amet quam egestas semper. Aenean ultricies
mi vitae est.</p>

<p>Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis
egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu
libero sit amet quam egestas semper. Aenean ultricies mi vitae est.
Mauris placerat eleifend leo. Donec eu libero sit amet quam egestas semper. Al ultricies
mi.</p>

</article>

```

\*\*\*\*\*

## LinkedIn Button

```

<style class="cp-pen-styles">
body {
  margin: 0;
  padding: 0;
}

* {
  box-sizing: border-box;
}

body {
  display: -webkit-box;
  display: -webkit-flex;
  display: -ms-flexbox;
  display: flex;
  -webkit-box-pack: center;
  -webkit-justify-content: center;
  -ms-flex-pack: center;
  justify-content: center;
  -webkit-box-align: center;
  -webkit-align-items: center;
  -ms-flex-align: center;
  align-items: center;
  height: 100vh;
  width: 100%;
  font-family: 'Mada', sans-serif;
  -webkit-font-smoothing: antialiased;
  font-size: 3em;
}

a {
  position: relative;
  top: 0;
  left: 0;
  margin-right: 0.25em;
}

```

---

```

padding: 0.25em;
font-weight: 900;
color: #0077b5;
text-decoration: none;
background-color: #fff;
border: 8px solid #0077b5;
-webkit-transition: all 0.15s ease-in-out;
transition: all 0.15s ease-in-out;
}
a:after {
  content: '';
  position: absolute;
  top: 0;
  left: 0;
  z-index: -1;
  display: block;
  height: calc(100% + 12px);
  width: calc(100% + 12px);
  background-color: #0077b5;
  -webkit-transition: all 0.15s ease-in-out;
  transition: all 0.15s ease-in-out;
}
a:hover {
  top: 6px;
  left: 6px;
}
a:hover:after {
  top: -6px;
  left: -6px;
}
</style></head><body>
<div>
  Would you like to <a href="https://www.linkedin.com/" target="_blank">connect</a>?
</div>
*****

```

## Flexbox Article Layout

```

<style class="cp-pen-styles">
.c-posts {
  display: flex;
  flex-wrap: wrap;
  align-items: top;
  padding: 5%;
}
.c-posts__item {
  flex-grow: 1;
  padding-bottom: 2em;
}
.c-posts__item:first-child {
  flex-grow: 2;
}
@media all and (min-width: 600px) {

```

```
.c-posts__item {
  flex-basis: 50%;
  padding-right: 5%;
}
.c-posts__item:first-child {
  flex-basis: 100%;
}
}
@media all and (min-width: 1000px) {
  .c-posts__item {
    flex-basis: 33%;
  }
  .c-posts__item:first-child {
    flex-basis: 66%;
  }
}
@media all and (min-width: 1400px) {
  .c-posts__item {
    flex-basis: 25%;
  }
  .c-posts__item:first-child {
    flex-basis: 50%;
  }
}
/* Other Non-Flexbox Related Styles */
.c-header,
.c-footer {
  background: #EDD382;
  text-align: center;
  padding: 2em;
  font-family: 'Source Sans Pro', sans-serif;
  font-size: 1.4em;
  font-weight: 300;
  line-height: 1.6em;
}
.c-header h1, .c-header h2, .c-header p,
.c-footer h1,
.c-footer h2,
.c-footer p {
  max-width: 40em;
  margin: 0 auto;
}
.c-header h1:not(:last-child), .c-header h2:not(:last-child), .c-header p:not(:last-child),
.c-footer h1:not(:last-child),
.c-footer h2:not(:last-child),
.c-footer p:not(:last-child) {
  margin-bottom: 1em;
}
.c-header h1,
.c-footer h1 {
  text-transform: uppercase;
  font-weight: 900;
}
.c-header a,
.c-footer a {
  color: #000;
}
```

```
.c-footer p {
  font-weight: 300;
}

* {
  box-sizing: border-box;
}

body {
  font-family: 'Georgia', Times, serif;
  line-height: 1.6em;
  padding: 0;
  margin: 0;
}

h1 {
  font-size: calc(130% + 1vw);
  font-weight: normal;
}

h2 {
  font-size: 1.5em;
  font-weight: normal;
  margin-bottom: 0;
  margin-top: 0;
}

a {
  color: #0F5257;
}

.c-btn {
  color: #000;
  display: inline-block;
  border-bottom: 4px solid #000;
  text-decoration: none;
  text-transform: uppercase;
  font-family: 'Source Sans Pro', sans-serif;
  font-weight: 900;
  letter-spacing: .1em;
  padding: .3em 0;
  position: relative;
  transition: .2s all;
}
.c-btn:before {
  content: '';
  position: absolute;
  bottom: 0;
  width: 100%;
  background: #FF521B;
  height: 0%;
  transition: .2s all;
  left: 0;
  z-index: -10;
}
.c-btn:hover {
  padding-left: .75em;
  padding-right: .75em;
```

```

    color: #fff;
    border-color: #FF521B;
}
.c-btn:hover:before {
    height: 100%;
}

```

</style></head><body>

<header class="c-header">

<h1>Responsive Flexbox Article Listing</h1>

<p>Flexbox is an amazingly powerful layout tool. In this example I have created a responsive grid of articles that increased the amount of visible articles on the page at larger resolutions.</p>

</header>

<section class="c-posts">

<article class="c-posts\_\_item">

<h2>Article Title Here</h2>

<p>Hydrogen stratosphere control tower capacitor Saturn Lalande 21185. Control tower x-rays Luhman 16 Banard's Star engine lunar. Horizon engine capture Pluto Brahe sun continuum ion-drive control tower Proxima Centauri space-time booster. Core horizon subspace Voyager coordinates water. Contractors Banard's Star nozzle time Orion weightless Gemini extra-vehicular explore.</p>

<p><a href="#" class="c-btn">Read More</a></p>

</article>

<article class="c-posts\_\_item">

<h2>Article Title Here</h2>

<p>Mars NASA subspace crew warp Herschel stratosphere. Saturn sky zero-g stratosphere fuel cell Venus grounded crew yaw Ptolemy Challenger. Pioneer stratosphere Cassini Lalande 21185 Earth telemetry. Galileo uranium jumpsuit warp Hawking.</p>

<p><a href="#" class="c-btn">Read More</a></p>

</article>

<article class="c-posts\_\_item">

<h2>Article Title Here</h2>

<p>Challenger Voyager Sirius capsule Pioneer Kepler hyperspace launch. Singularity extra-vehicular circumnavigate burst. Procyon fuel cell asteroid subspace uranium Proxima Centauri prototype capsule.</p>

<p><a href="#" class="c-btn">Read More</a></p>

</article>

<article class="c-posts\_\_item">

<h2>Article Title Here</h2>

<p>Capsule crew Discovery ice spacecraft Pioneer gravity Picard. Lithium contractors meteor water core saucer white hole stars planet Picard Jupiter Skunkworks. Prototype clusters Voyager cosmos zero-g Pluto Skunkworks hatch. Circumnavigate core hyperspace motion comet Ptolemy.</p>

<p><a href="#" class="c-btn">Read More</a></p>

</article>

<article class="c-posts\_\_item">

<h2>Article Title Here</h2>

<p>Orbit warp atomic Buzz Lightyear. Uranium circumnavigate Halley Neptune nebula launch north Proxima Centauri engine.</p>

<p><a href="#" class="c-btn">Read More</a></p>

</article>

<article class="c-posts\_\_item">

<h2>Article Title Here</h2>

<p>Troposphere capacitor Newton Kepler. Jupiter ionosphere saucer Gemini Neptune core Alpha Centauri Venus comet Proxima Centauri Herschel. Banard's Star inertia laser contractors ion-drive fuel cell NASA. Panel solar-flare dwarf probe Sagan Sirius jetpack time laser. Columbia nebula horizon mesosphere pulsar mission nuclear Sirius jetpack UFO.</p>

<p><a href="#" class="c-btn">Read More</a></p>

</article>

<article class="c-posts\_\_item">

---

```

<h2>Article Title Here</h2>
<p>X-rays Orion capsule re-entry Mercury tank capture Mars control tower. Fusion Challenger
physics flight Saturn . Warp countdown flare telemetry yaw rocket stars. Planet astronomy Venus
reusable continuum inertia robotic re-entry booster Pioneer.</p>
<p><a href="#" class="c-btn">Read More</a></p>
</article>
<article class="c-posts__item">
<h2>Article Title Here</h2>
<p>Solar crew hydrogen booster panel Europa array Saturn fusion Jupiter control tower
singularity. Telemetry laser Venus wave capacitor gamma ray orbit lunar Uranus. Venus supernova
Hawking ignite Mars Kirk Pluto.</p>
<p><a href="#" class="c-btn">Read More</a></p>
</article>
<article class="c-posts__item">
<h2>Article Title Here</h2>
<p>Dormant container star system subspace solar binary inverter hyperspace warp. Yaw LiDAR
hydrogen container galaxy heliosphere Houston Skunkworks gravity weightless pulsar pitch. Stars
volatile ice kryptonite extra-vehicular Cassini crew meteor Earth positron. Aurora singularity
coordinates nozzle Skunkworks valve orbit Herschel.</p>
<p><a href="#" class="c-btn">Read More</a></p>
</article>
<article class="c-posts__item">
<h2>Article Title Here</h2>
<p>Hubble nebula Europa Gemini Skunkworks subspace uranium extra-vehicular Galileo release
planet Banard's Star. Pulsar stars Tyson prototype lunar explore Pioneer ion-drive
mesosphere.</p>
<p><a href="#" class="c-btn">Read More</a></p>
</article>
<article class="c-posts__item">
<h2>Article Title Here</h2>
<p>Hydrogen stratosphere control tower capacitor Saturn Lalande 21185. Control tower x-rays
Luhman 16 Banard's Star engine lunar. Horizon engine capture Pluto Brahe sun continuum ion-drive
control tower Proxima Centauri space-time booster. Core horizon subspace Voyager coordinates
water. Contractors Banard's Star nozzle time Orion weightless Gemini extra-vehicular explore.</p>
<p><a href="#" class="c-btn">Read More</a></p>
</article>
</section>
<footer class="c-footer">
<p>Ipsum provided by <a href="http://interstellaripsum.com?ref=codepen?pen=wWWmNB"
target="_blank">InterstellarIpsum.com</a></p>
</footer>

```

\*\*\*\*\*

## Box screen video display

```

<style class="cp-pen-styles">
div {
  position: absolute;
  top: 50%;
  left: 50%;
}

.wrapper {

```

---

```

margin: -7.98em -20.02em;
width: 40.04em;
height: 15.96em;
}

.tiles {
    -webkit-animation: r 9s linear infinite;
        animation: r 9s linear infinite;
}

@-webkit-keyframes r {
    to {
        -webkit-filter: hue-rotate(360deg);
            filter: hue-rotate(360deg);
    }
}

@keyframes r {
    to {
        -webkit-filter: hue-rotate(360deg);
            filter: hue-rotate(360deg);
    }
}

video {
    width: inherit;
    height: inherit;
    -o-object-fit: cover;
        object-fit: cover;
}

.tile {
    width: 7em;
    height: 4.2em;
    opacity: .5;
    background: #59a112;
    -webkit-animation: a 0s ease-in-out infinite alternate;
        animation: a 0s ease-in-out infinite alternate;
}

.tile:nth-of-type(1) {
    margin: -7.14em -19.18em;
    -webkit-animation-duration: 3.14s;
        animation-duration: 3.14s;
    -webkit-animation-delay: -2.3864s;
        animation-delay: -2.3864s;
}

.tile:nth-of-type(2) {
    margin: -7.14em -11.34em;
    -webkit-animation-duration: 2.14s;
        animation-duration: 2.14s;
    -webkit-animation-delay: -0.0214s;
        animation-delay: -0.0214s;
}

.tile:nth-of-type(3) {
    margin: -7.14em -3.5em;
    -webkit-animation-duration: 2.87s;
        animation-duration: 2.87s;
    -webkit-animation-delay: -2.583s;
        animation-delay: -2.583s;
}

```

```
}

.tile:nth-of-type(4) {
  margin: -7.14em 4.34em;
  -webkit-animation-duration: 2.24s;
    animation-duration: 2.24s;
  -webkit-animation-delay: -0.8064s;
    animation-delay: -0.8064s;
}
.tile:nth-of-type(5) {
  margin: -7.14em 12.18em;
  -webkit-animation-duration: 3.07s;
    animation-duration: 3.07s;
  -webkit-animation-delay: -0.614s;
    animation-delay: -0.614s;
}
.tile:nth-of-type(6) {
  margin: -2.1em -19.18em;
  -webkit-animation-duration: 3.55s;
    animation-duration: 3.55s;
  -webkit-animation-delay: -1.917s;
    animation-delay: -1.917s;
}
.tile:nth-of-type(7) {
  margin: -2.1em -11.34em;
  -webkit-animation-duration: 3.3s;
    animation-duration: 3.3s;
  -webkit-animation-delay: -1.353s;
    animation-delay: -1.353s;
}
.tile:nth-of-type(8) {
  margin: -2.1em -3.5em;
  -webkit-animation-duration: 2.21s;
    animation-duration: 2.21s;
  -webkit-animation-delay: -0.7072s;
    animation-delay: -0.7072s;
}
.tile:nth-of-type(9) {
  margin: -2.1em 4.34em;
  -webkit-animation-duration: 3.16s;
    animation-duration: 3.16s;
  -webkit-animation-delay: -0.1264s;
    animation-delay: -0.1264s;
}
.tile:nth-of-type(10) {
  margin: -2.1em 12.18em;
  -webkit-animation-duration: 3.35s;
    animation-duration: 3.35s;
  -webkit-animation-delay: -1.4405s;
    animation-delay: -1.4405s;
}
.tile:nth-of-type(11) {
  margin: 2.94em -19.18em;
  -webkit-animation-duration: 2.07s;
    animation-duration: 2.07s;
  -webkit-animation-delay: -0.9936s;
    animation-delay: -0.9936s;
}
.tile:nth-of-type(12) {
```



```

<div class='tile'></div>
<div class='tile'></div>
<div class='tile'></div>
</div>
</div>

*****

```

## Video reflection

```

<style class="cp-pen-styles">
html {
  height: 100vh;
  background-color: white;
}

.reflected {
  display: inline-block;
  position: relative;
  margin-right: 1em;
  width: 16em;
  height: 10em;
  /* WebKit-only solution */
  -webkit-box-reflect: below 0.25em linear-gradient(transparent, white);
  /**
   * Firefox-only solution */
}
.reflected:after {
  position: absolute;
  top: calc(100% + 0.25em);
  left: 0;
  width: inherit;
  height: inherit;
  transform: scaleY(-1);
  /* only works in Firefox */
  mask: url(#m);
  /**
  content: '';
}

img, video {
  width: inherit;
  height: inherit;
  object-fit: cover;
}

/* only works in Firefox */
#pic:after {
  background: -moz-element(#pic);
}

#vid:after {
  background: -moz-element(#vid);
}
</style></head><body>

```

---

```

<div id="pic" class="reflected"></div>
<div id="vid" class="reflected">
  <video src="https://s3-us-west-2.amazonaws.com/s.cdpn.io/2017/video_ex_flower_640x360.mp4"
loop="loop" autoplay="autoplay" muted="muted"></video>
</div>
<svg>
  <linearGradient id="lg" gradientTransform="rotate(90)">
    <stop offset="0%" stop-color="#000"></stop>
    <stop offset="100%" stop-color="#fff"></stop>
  </linearGradient>
  <mask id="m" maskContentUnits="objectBoundingBox">
    <rect width="1" height="1" fill="url(#lg)"></rect>
  </mask>
</svg>
*****
```

## HTML page

```

<style class="cp-pen-styles"></style></head><body>
<HTML>

<HEAD>
  <META NAME="ROBOTS" CONTENT="NOINDEX, NOFOLLOW">
</HEAD>

<body>

  <style>
    @import url(http://fonts.googleapis.com/css?family=Droid+Sans);
  </style>

  <div id="Section 1">
    <table style="background: none repeat scroll 0% 0% #ffffff;" border="0" cellpadding="0"
width="100%">
      <tbody>
        <tr>
          <td>
            <div align="center">
              <table style="font-family: arial; background: #ffffff; color: #444; line-height:
22px; font-size: 12px; margin-top: 20px; border: 1px solid #CCC; width: 650px;" border="0"
cellspacing="0" cellpadding="0">
                <tbody>
                  <tr>
                    <td>
                      <div style="width: 650px;">
                        <!-- Begin Masthead -->

                          <table border="0" cellpadding="0" cellspacing="0" style="max-width:
650px; width: 100%;" width="100%">
                            <tbody>
                              <tr>
                                <td width="3%">&nbsp;</td>
```

```

<td width="47%">&nbsp;</td>

<td width="47%">&nbsp;</td>

<td width="3%">&nbsp;</td>
</tr>

<tr>
<td>&nbsp;</td>

<td>
<a href="https://en.wikipedia.org/wiki/Albert_Einstein"></a>
</td>

<td align="right">

<p style="font-family: Arial; font-size: 8px; letter-spacing: 5px; margin-top: 0px; margin-bottom: 0px; line-height: 16px;"><a href="http://alberteinsteinblog.org/" style="text-decoration: none; color: #000;">BLOG</a>
&#8226; <a href="https://www.physicsforums.com/" style="text-decoration: none; color: #000;">COMMUNITY</a>
&#8226; <a href="https://www.physicsforums.com/" style="text-decoration: none; color: #000;">HELP</a></p>
</td>

<td>&nbsp;</td>
</tr>

<tr>
<td>&nbsp;</td>

<td>&nbsp;</td>

<td>&nbsp;</td>

<td>&nbsp;</td>

<td>&nbsp;</td>
</tr>
</tbody>
</table>
<!-- End Masthead -->
<!-- Begin Body -->

<!-- Begin Content -->
<table width="100%" border="0" cellspacing="0" cellpadding="0">
<tbody>
<tr>
<td width="3%">&nbsp;</td>
<td width="6%">&nbsp;</td>
<td width="8" align="center">
<p style="font-family: Georgia, Times, 'Times New Roman', serif; font-size: 20px; line-height: 28px; margin-top: 40px; margin-bottom: 20px;"><strong>1962 The NS Savannah, the world's first nuclear-powered cargo ship, commissioned by US President Dwight D Eisenhower as part of his "Atoms for Peace" initiative, finishes its maiden voyage </strong></p>
<p style="font-family: Georgia, Times, 'Times New Roman', serif; font-size: 18px; line-height: 28px; margin-top: 40px; margin-bottom: 20px;">1647 Birth of Denis

```

---

Papin, inventor of a type of high-pressure cooker that was a forerunner of the steam engine and pressure cooker *awesome*.

--	--	--


		<p style="font-family: Georgia, Times, 'Times New Roman', serif; font-size: 18px; line-height: 28px; margin-top: 40px; margin-bottom: 20px;">A horrific nightmare scenario at CERN, surfer wins SUSY bet, and meet the father of the Super Soaker</p> <p>Aug 19, 2016</p> <p>Excerpts from the Red Folder</p> <p style="font-family: Georgia, Times, 'Times New Roman', serif; font-size: 30px; line-height: 28px; margin-top: 40px; margin-bottom: 50px;"> <a href="http://physicsworld.com/" style="color: #6fc55d;"><strong>Physics World - the member magazine of the Institute of physics</strong></a> </p>
--	--	--

```
<table border="0" cellpadding="0" cellspacing="0" width="100%">
<tbody>
<tr align="center" valign="middle">
<td height="50" width="21%">&nbsp;</td>

<td width="7%">&nbsp;</td>

<td width="7%">&nbsp;</td>

<td width="7%">&nbsp;</td>

<td width="7%">&nbsp;</td>

<td width="7%">&nbsp;</td>

<td width="21%">&nbsp;</td>
</tr>

<tr align="center" valign="middle">
<td>&nbsp;</td>

<td width="50">
<a href="http://physicsworld.com/"></a>
</td>

<td width="50">
<a href="http://physicsworld.com/">></a>
</td>

<td>&nbsp;</td>
</tr>

<tr align="center" valign="middle">
<td>&nbsp;</td>

<td>&nbsp;</td>

<td>&nbsp;</td>

<td>&nbsp;</td>

<td>&nbsp;</td>

<td>&nbsp;</td>

<td>&nbsp;</td>
</tr>
</tbody>
</table>
<!-- End Social --&gt;
<!-- Begin Footer Links --&gt;

&lt;table border="0" cellpadding="0" cellspacing="0" style="font-family:
Verdana; font-size: 10px; width: 320px; margin: 0 auto;"&gt;
&lt;tbody&gt;
&lt;tr align="center" valign="middle"&gt;
&lt;td style="border-right: thin solid #444;"&gt;
&lt;a href="http://physicsworld.com/" style="color:
#000;"&gt;www.physicsworld.com&lt;/a&gt;
&lt;/td&gt;

&lt;td style="border-right: thin solid #444; width: 95px;"&gt;
&lt;a href="http://physicsworld.com/" style="color:
#000;"&gt;Community&lt;/a&gt;
&lt;/td&gt;

&lt;td style="width: 55px;"&gt;
&lt;a href="http://physicsworld.com/" style="color: #000;"&gt;Blog&lt;/a&gt;
&lt;/td&gt;
&lt;/tr&gt;

&lt;tr&gt;
&lt;td height="50"&gt;&amp;nbsp;&lt;/td&gt;

&lt;td&gt;&amp;nbsp;&lt;/td&gt;

&lt;td&gt;&amp;nbsp;&lt;/td&gt;
&lt;/tr&gt;
&lt;/tbody&gt;
&lt;/table&gt;
<!-- End Footer Links --&gt;
</pre>

```

```

        </div>
    </td>
</tr>
<tr>
    <td>
        <table style="background: #ccc; width="650px" border="0" cellspacing="0"
cellpadding="0">
            <tr>
                <td width="325px"></td>
                <td width="325px"></td>
            </tr>
        </table>
    </td>
</tr>
</tbody>
</table>
</div>
</td>
</tr>
</tbody>
</table>
</div>

<table cellpadding="2" cellspacing="0" width="600" align="center">
<tr>
    <td>
        <font face="verdana" size="1" color="#777777">
            This email was sent to: <b>xxxxxxxxxxxx.xxx</b><br><br>
            <table cellpadding="2" cellspacing="0" width="450" ID="Table1" Border=0>
                <tr>
                    <td>
                        <font face="verdana" size="1" color="#777777">
                            This email was sent by: Republic Wireless<br> 900 Main Campus Drive, Suite 500
Raleigh, NC 27606 USA
                        </font>
                    </td>
                </tr>
            </table><br><br> We respect your right to privacy - <a href="http://physicsworld.com/">
            <style="color: #0000ff">view our policy</a>
        </font>
    </td>
</tr>
</table>

```

```
*****
```

## Title Animation

```
<style class="cp-pen-styles">
html,
body {
    width: 100%;
    height: 100%;
}
body {
    display: -webkit-box;
    display: -webkit-flex;
    display: -ms-flexbox;
    display: flex;
    -webkit-box-align: center;
    -webkit-align-items: center;
    -ms-flex-align: center;
    align-items: center;
    -webkit-box-pack: center;
    -webkit-justify-content: center;
    -ms-flex-pack: center;
    justify-content: center;
    background: #262626;
}
.title {
    position: relative;
    -webkit-perspective: 400;
    perspective: 400;
    padding-left: 17px;
    font-family: Arial;
    font-weight: bold;
    font-size: 52px;
    text-transform: uppercase;
    color: #fff;
}
.title:before {
    content: '';
    display: block;
    position: absolute;
    height: 100%;
    width: 6px;
    background: #ff1212;
    top: 0;
    left: 0;
    opacity: 0;
    -webkit-transform: translateX(-150px);
    transform: translateX(-150px);
    -webkit-animation: title-border-slide-in 0.35s ease-out forwards;
    animation: title-border-slide-in 0.35s ease-out forwards;
}
.title .title-word {
    opacity: 0;
    -webkit-transform-origin: bottom center;
    transform-origin: bottom center;
```

```

        -webkit-transform: rotateX(-90deg);
                      transform: rotateX(-90deg);
    }
    .title .title-word:nth-child(1) {
        -webkit-animation: roll-in 0.15s 0s ease-out forwards;
                           animation: roll-in 0.15s 0s ease-out forwards;
    }
    .title .title-word:nth-child(2) {
        -webkit-animation: roll-in 0.15s 0.175s ease-out forwards;
                           animation: roll-in 0.15s 0.175s ease-out forwards;
    }
    .title .title-word:nth-child(3) {
        -webkit-animation: roll-in 0.15s 0.35s ease-out forwards;
                           animation: roll-in 0.15s 0.35s ease-out forwards;
    }
    .title .title-word:nth-child(4) {
        -webkit-animation: roll-in 0.15s 0.525s ease-out forwards;
                           animation: roll-in 0.15s 0.525s ease-out forwards;
    }
    @-webkit-keyframes title-border-slide-in {
        0% {
            -webkit-transform: translateX(-150px);
                           transform: translateX(-150px);
            opacity: 0;
        }
        100% {
            -webkit-transform: translateX(0);
                           transform: translateX(0);
            opacity: 1;
        }
    }
    @keyframes title-border-slide-in {
        0% {
            -webkit-transform: translateX(-150px);
                           transform: translateX(-150px);
            opacity: 0;
        }
        100% {
            -webkit-transform: translateX(0);
                           transform: translateX(0);
            opacity: 1;
        }
    }
    @-webkit-keyframes roll-in {
        0% {
            -webkit-transform: rotateX(-90deg);
                           transform: rotateX(-90deg);
            opacity: 1;
        }
        100% {
            -webkit-transform: rotateX(0deg);
                           transform: rotateX(0deg);
            opacity: 1;
        }
    }
    @keyframes roll-in {
        0% {
            -webkit-transform: rotateX(-90deg);

```

```

        transform: rotateX(-90deg);
        opacity: 1;
    }
    100% {
        -webkit-transform: rotateX(0deg);
        transform: rotateX(0deg);
        opacity: 1;
    }
}
</style></head><body>

<div class="title">
    <div class="title-word">Stephen</div>
    <div class="title-word">William</div>
    <div class="title-word">Hawking</div>
</div>

</body>
*****

```

## Solar System

```

<style class="cp-pen-styles">
html, body {
    height: 100%;
}

body {
    display: flex;
    justify-content: center;
    align-items: center;
    background-color: #000;
    color: #fff;
    perspective: 4000px;
}
body::before {
    position: absolute;
    top: 0;
    left: 0;
    width: 2px;
    height: 2px;
    box-shadow: 69vw 11vh #fff, 52vw 86vh #fff, 27vw 75vh #fff, 15vw 60vh #fff, 79vw 28vh #fff,
34vw 10vh #fff, 44vw 100vh #fff, 2vw 19vh #fff, 72vw 77vh #fff, 9vw 25vh #fff, 30vw 99vh #fff,
39vw 75vh #fff, 67vw 55vh #fff, 11vw 1vh #fff, 98vw 40vh #fff, 95vw 34vh #fff, 89vw 8vh #fff, 3vw
79vh #fff, 48vw 8vh #fff, 23vw 48vh #fff, 12vw 93vh #fff, 1vw 34vh #fff, 20vw 30vh #fff, 33vw
82vh #fff, 43vw 68vh #fff, 88vw 62vh #fff, 8vw 74vh #fff, 98vw 62vh #fff, 28vw 88vh #fff, 38vw
59vh #fff, 23vw 90vh #fff, 93vw 81vh #fff, 85vw 17vh #fff, 25vw 17vh #fff, 75vw 65vh #fff, 27vw
14vh #fff, 75vw 93vh #fff, 6vw 7vh #fff, 45vw 47vh #fff, 69vw 59vh #fff, 53vw 6vh #fff, 47vw 86vh
#fff, 30vw 65vh #fff, 45vw 73vh #fff, 86vw 1vh #fff, 78vw 44vh #fff, 70vw 34vh #fff, 56vw 66vh
#fff, 21vw 4vh #fff, 38vw 92vh #fff, 61vw 4vh #fff, 52vw 53vh #fff, 43vw 75vh #fff, 30vw 82vh
#fff, 65vw 27vh #fff, 75vw 24vh #fff, 13vw 77vh #fff, 81vw 11vh #fff, 67vw 7vh #fff, 79vw 79vh
#fff, 23vw 87vh #fff, 57vw 20vh #fff, 68vw 61vh #fff, 24vw 52vh #fff, 19vw 16vh #fff, 51vw 27vh
#fff, 53vw 13vh #fff, 34vw 86vh #fff, 7vw 96vh #fff, 51vw 79vh #fff, 91vw 23vh #fff, 8vw 52vh
#fff, 94vw 47vh #fff, 16vw 34vh #fff, 99vw 24vh #fff, 65vw 12vh #fff, 3vw 29vh #fff, 28vw 27vh

```

```

        #ffff, 42vw 58vh #ffff, 46vw 41vh #ffff, 19vw 17vh #ffff, 3vw 60vh #ffff, 94vw 13vh #ffff, 55vw 36vh
        #ffff, 58vw 26vh #ffff, 19vw 52vh #ffff, 95vw 22vh #ffff, 28vw 38vh #ffff, 49vw 68vh #ffff, 63vw 76vh
        #ffff, 95vw 69vh #ffff, 37vw 86vh #ffff, 94vw 88vh #ffff, 33vw 49vh #ffff, 31vw 74vh #ffff, 4vw 75vh
        #ffff, 8vw 14vh #ffff, 10vw 98vh #ffff, 2vw 9vh #ffff, 53vw 85vh #ffff, 39vw 33vh #ffff, 14vw 66vh
        #ffff, 67vw 42vh #ffff, 47vw 10vh #ffff, 70vw 92vh #ffff, 58vw 1vh #ffff, 35vw 86vh #ffff, 12vw 44vh
        #ffff, 59vw 33vh #ffff, 99vw 10vh #ffff, 60vw 34vh #ffff, 62vw 44vh #ffff, 66vw 34vh #ffff, 44vw 41vh
        #ffff, 16vw 74vh #ffff, 66vw 99vh #ffff, 71vw 9vh #ffff, 3vw 47vh #ffff, 94vw 65vh #ffff, 40vw 24vh
        #ffff, 100vw 73vh #ffff, 64vw 26vh #ffff, 3vw 47vh #ffff, 70vw 23vh #ffff, 65vw 38vh #ffff, 1vw 94vh
        #ffff, 77vw 97vh #ffff, 57vw 33vh #ffff, 27vw 18vh #ffff, 96vw 95vh #ffff, 13vw 52vh #ffff, 33vw 24vh
        #ffff, 53vw 76vh #ffff, 18vw 44vh #ffff, 46vw 100vh #ffff, 78vw 3vh #ffff, 32vw 51vh #ffff, 89vw 37vh
        #ffff, 81vw 73vh #ffff, 49vw 21vh #ffff, 40vw 87vh #ffff, 95vw 6vh #ffff, 50vw 35vh #ffff, 55vw 28vh
        #ffff, 19vw 70vh #ffff, 43vw 50vh #ffff, 75vw 8vh #ffff, 48vw 1vh #ffff, 69vw 65vh #ffff, 40vw 6vh
        #ffff, 22vw 79vh #ffff, 16vw 45vh #ffff, 71vw 5vh #ffff, 30vw 66vh #ffff, 42vw 7vh #ffff, 58vw 72vh
        #ffff, 43vw 84vh #ffff, 6vw 66vh #ffff, 39vw 9vh #ffff, 19vw 9vh #ffff, 27vw 4vh #ffff, 48vw 11vh #ffff,
        66vw 94vh #ffff, 62vw 78vh #ffff, 80vw 57vh #ffff, 11vw 23vh #ffff, 22vw 72vh #ffff, 18vw 96vh #ffff,
        1vw 27vh #ffff, 28vw 75vh #ffff, 39vw 14vh #ffff, 71vw 85vh #ffff, 6vw 24vh #ffff, 69vw 10vh #ffff,
        13vw 57vh #ffff, 29vw 12vh #ffff, 70vw 40vh #ffff, 37vw 55vh #ffff, 93vw 31vh #ffff, 24vw 19vh #ffff,
        67vw 46vh #ffff, 84vw 52vh #ffff, 31vw 91vh #ffff, 17vw 49vh #ffff, 49vw 2vh #ffff, 42vw 78vh #ffff,
        80vw 10vh #ffff, 57vw 20vh #ffff, 2vw 73vh #ffff, 22vw 16vh #ffff, 74vw 40vh #ffff, 73vw 36vh #ffff,
        100vw 36vh #ffff, 100vw 18vh #ffff, 70vw 76vh #ffff, 58vw 43vh #ffff, 20vw 60vh #ffff, 65vw 2vh #ffff,
        52vw 36vh #ffff, 91vw 31vh #ffff;
    content: '';
}

.Solarsystem {
    position: relative;
    width: 40px;
    height: 40px;
    background-color: #ff0;
    border-radius: 50%;
    box-shadow: 0 0 40px #ff0;
    transform: rotateX(60deg);
}

.Planet {
    position: absolute;
    top: 50%;
    left: 50%;
    transform: translate(-50%, -50%);
    border-radius: 50%;
    box-shadow: 0 0 0 1px #fff;
    text-align: center;
}
.Planet::before {
    position: absolute;
    left: 50%;
    top: 0;
    border-radius: 50%;
    content: '';
}

.Planet--mercury {
    width: 64px;
    height: 64px;
}
.Planet--mercury::before {
    width: 16px;
    height: 16px;
}

```

```
margin: -8px;
background-color: #ffa700;
transform-origin: center 40px;
animation: rotate 0.53204s linear infinite;
}

.Planet--venus {
width: 112px;
height: 112px;
}
.Planet--venus::before {
width: 20px;
height: 20px;
margin: -10px;
background-color: #0fb;
transform-origin: center 66px;
animation: rotate 1.35899s linear infinite;
}

.Planet--earth {
width: 160px;
height: 160px;
}
.Planet--earth::before {
width: 24px;
height: 24px;
margin: -12px;
background-color: #00f;
transform-origin: center 92px;
animation: rotate 2.20903s linear infinite;
}

.Planet--mars {
width: 240px;
height: 240px;
}
.Planet--mars::before {
width: 20px;
height: 20px;
margin: -10px;
background-color: #f00;
transform-origin: center 130px;
animation: rotate 4.15475s linear infinite;
}

.Planet--jupiter {
width: 480px;
height: 480px;
}
.Planet--jupiter::before {
width: 32px;
height: 32px;
margin: -16px;
background-color: #0f7;
transform-origin: center 256px;
animation: rotate 26.2031s linear infinite;
}
```

```

.Planet--saturn {
  width: 560px;
  height: 560px;
}
.Planet--saturn::before {
  width: 30px;
  height: 30px;
  margin: -15px;
  background-color: #ff8;
  transform-origin: center 295px;
  animation: rotate 65.07168s linear infinite;
}
.Planet--saturn::after {
  position: absolute;
  left: 50%;
  top: 0;
  content: '';
  width: 33px;
  height: 33px;
  margin: -16.5px;
  border-radius: 50%;
  box-shadow: 0 0 0 4.5px #fff;
  transform-origin: center 296.5px;
  animation: rotate 65.07168s linear infinite;
}

.Planet--uranus {
  width: 720px;
  height: 720px;
}
.Planet--uranus::before {
  width: 16px;
  height: 16px;
  margin: -8px;
  background-color: #f6f;
  transform-origin: center 368px;
  animation: rotate 185.60397s linear infinite;
}

.Planet--neptun {
  width: 960px;
  height: 960px;
}
.Planet--neptun::before {
  width: 12px;
  height: 12px;
  margin: -6px;
  background-color: #06f;
  transform-origin: center 486px;
  animation: rotate 364.04847s linear infinite;
}

@keyframes rotate {
  to {
    transform: rotate(360deg);
  }
}
</style></head><body>
```

---

```

<div class="SolarSystem">
  <div class="Planet Planet--mercury">
    <!-- planet.toUpperCase() -->
  </div>
  <div class="Planet Planet--venus">
    <!-- planet.toUpperCase() -->
  </div>
  <div class="Planet Planet--earth">
    <!-- planet.toUpperCase() -->
  </div>
  <div class="Planet Planet--mars">
    <!-- planet.toUpperCase() -->
  </div>
  <div class="Planet Planet--jupiter">
    <!-- planet.toUpperCase() -->
  </div>
  <div class="Planet Planet--saturn">
    <!-- planet.toUpperCase() -->
  </div>
  <div class="Planet Planet--uranus">
    <!-- planet.toUpperCase() -->
  </div>
  <div class="Planet Planet--neptun">
    <!-- planet.toUpperCase() -->
  </div>
</div>

*****

```

## Responsive Background Image Fade on Scroll

```

<style class="cp-pen-styles">
@font-face {
  font-family: 'Calluna';
  src: url("https://s3-us-west-2.amazonaws.com/s.cdpn.io/4273/CallunaSansRegular.otf")
format("opentype");
}
* {
  box-sizing: border-box;
}

body {
  font-family: Calluna, Arial, sans-serif;
  background: -webkit-linear-gradient(rgba(255, 255, 255, 0), rgba(255, 255, 255, 0)),
url("https://s3-us-west-2.amazonaws.com/s.cdpn.io/4273/times-square-perspective.jpg");
  background: linear-gradient(rgba(255, 255, 255, 0), rgba(255, 255, 255, 0)), url("https://s3-us-west-2.amazonaws.com/s.cdpn.io/4273/times-square-perspective.jpg");
  background-repeat: no-repeat;
  background-attachment: fixed !important;
  background-size: 100% !important;
  background-position: center top !important;
  padding: 1rem;
  padding-top: 45%;
  color: #fff;
}

```

```

}

h1 {
  font-size: 4rem;
  text-shadow: 0 0 5px rgba(0, 0, 0, 0.5);
  line-height: 1;
  position: absolute;
  top: 10px;
  font-weight: 100;
}

p {
  font-size: 1.3rem;
  text-align: left;
  line-height: 1.6;
  margin-left: 8rem;
  margin-right: 8rem;
  color: #000;
}

h2 {
  text-align: center;
  text-transform: uppercase;
  margin-bottom: 0;
}

span {
  display: block;
  margin: 0;
  text-align: center;
  font-size: 3rem;
}

</style></head><body>
<h1>New York Stories</h1>
<h2>Scroll</h2>
<span id="directionality">▼</span>
<p>In my younger and more vulnerable years my father gave me some advice that I've been turning over in my mind ever since.
<p>"Whenever you feel like criticizing anyone," he told me, "just remember that all the people in this world haven't had the advantages that you've had."
<p>He didn't say any more but we've always been unusually communicative in a reserved way, and I understood that he meant a great deal more than that. In consequence I'm inclined to reserve all judgments, a habit that has opened up many curious natures to me and also made me the victim of not a few veteran bores. The abnormal mind is quick to detect and attach itself to this quality when it appears in a normal person, and so it came about that in college I was unjustly accused of being a politician, because I was privy to the secret griefs of wild, unknown men. Most of the confidences were unsought--frequently I have feigned sleep, preoccupation, or a hostile levity when I realized by some unmistakable sign that an intimate revelation was quivering on the horizon--for the intimate revelations of young men or at least the terms in which they express them are usually plagiaristic and marred by obvious suppressions. Reserving judgments is a matter of infinite hope. I am still a little afraid of missing something if I forget that, as my father snobbishly suggested, and I snobbishly repeat a sense of the fundamental decencies is parcelled out unequally at birth.
<p>And, after boasting this way of my tolerance, I come to the admission that it has a limit. Conduct may be founded on the hard rock or the wet marshes, but after a certain point I don't care what it's founded on. When I came back from the East last autumn I felt that I wanted the world to be in uniform and at a sort of moral attention forever; I wanted no more riotous excursions with privileged glimpses into the human heart. Only Gatsby, the man who gives his name

```

---

---

to this book, was exempt from my reaction – Gatsby, who represented everything for which I have an unaffected scorn. If personality is an unbroken series of successful gestures, then there was something gorgeous about him, some heightened sensitivity to the promises of life, as if he were related to one of those intricate machines that register earthquakes ten thousand miles away. This responsiveness had nothing to do with that flabby impressionability which is dignified under the name of the “creative temperament.” – it was an extraordinary gift for hope, a romantic readiness such as I have never found in any other person and which it is not likely I shall ever find again. No – Gatsby turned out all right at the end; it is what preyed on Gatsby, what foul dust floated in the wake of his dreams that temporarily closed out my interest in the abortive sorrows and short-winded elations of men.

```
<script>var nystories = document.querySelector('p').offsetTop;
window.onscroll = function () {
    if (window.pageYOffset > 0) {
        var opac = window.pageYOffset / nystories;
        console.log(opac);
        document.body.style.background = 'linear-gradient(rgba(255, 255, 255, ' + opac + '), rgba(255, 255, 255, ' + opac + ')), url(https://s3-us-west-2.amazonaws.com/s.cdpn.io/4273/times-square-perspective.jpg) no-repeat';
    }
};

</script>
*****
*****
```

## CSS Only Playground

```
<style class="cp-pen-styles">
body, html {
    margin: 0;
    font-family: arial;
    height: 100vh;
    background: #ccc;
}

*, *:before, *:after {
    box-sizing: border-box;
}

.nav-mobile {
    position: fixed;
    top: 0;
    left: 0;
    width: 100%;
    background: #446CB3;
    color: #FFF;
    padding: 0;
    margin: 0;
    cursor: auto;
    font-size: 18px;
    list-style-type: none;
    z-index: 999999;
    box-shadow: 0 5px 5px -5px #333;
}
```

```
.nav-mobile:after {
  content: "";
  display: table;
  clear: both;
}
.nav-mobile svg {
  height: 45px;
  width: 65px;
  padding: 9px;
}
.nav-mobile svg path {
  fill: #fff;
}
.nav-mobile svg.icon-close {
  display: none;
  padding: 15px;
}
.nav-mobile li {
  width: 100%;
  height: 45px;
  line-height: 46px;
  text-align: center;
  float: left;
}
.nav-mobile li a {
  display: block;
  color: #333;
  width: 100%;
  height: 100%;
  text-decoration: none;
}
.nav-mobile .menu-button {
  position: absolute;
  top: 0;
  left: 0;
  width: 100%;
  height: 100%;
  margin: 0;
  cursor: pointer;
  display: block;
}
.nav-mobile .menu-button:after {
  opacity: 0;
  top: 45px;
  content: "";
  width: 100vw;
  display: block;
  position: fixed;
  height: 100vh;
  background: rgba(0, 0, 0, 0.5);
  content: "";
  z-index: 9;
  pointer-events: none;
  transition: opacity 0.2s cubic-bezier(0, 0, 0.3, 1);
  transition-delay: 0.1s;
}
.nav-mobile #menu-toggle {
  display: none;
}
```

```

}

.nav-mobile #menu-toggle.active ~ .menu-button .icon-close, .nav-mobile #menu-toggle:checked ~
.menu-button .icon-close {
  display: block;
}
.nav-mobile #menu-toggle.active ~ .menu-button .icon-open, .nav-mobile #menu-toggle:checked ~
.menu-button .icon-open {
  display: none;
}
.nav-mobile #menu-toggle.active ~ .menu-button:after, .nav-mobile #menu-toggle:checked ~ .menu-
button:after {
  opacity: 1;
  pointer-events: auto;
  transition: opacity 0.3s cubic-bezier(0, 0, 0.3, 1);
}
.nav-mobile #menu-toggle.active ~ .menu-sidebar, .nav-mobile #menu-toggle:checked ~ .menu-sidebar
{
  transform: translateX(0);
  transition: transform 0.3s cubic-bezier(0, 0, 0.3, 1);
}
.nav-mobile .menu-container {
  width: 65px;
  float: left;
  cursor: pointer;
  position: absolute;
}
.nav-mobile .menu-container .menu-sidebar {
  box-shadow: 5px 0 5px -5px #333;
  display: block;
  width: 65vw;
  bottom: 0;
  background: white;
  color: #333;
  position: fixed;
  z-index: 9999999;
  transform: translateX(-405px);
  transition: transform 0.3s cubic-bezier(0, 0, 0.3, 1);
  top: 45px;
  list-style-type: none;
  padding: 0;
  max-width: 400px;
}
.nav-mobile .menu-container .menu-sidebar .arrow {
  position: absolute;
  line-height: 50px;
  font-size: 32px;
  color: #555;
  top: 0;
  z-index: 0;
}
.nav-mobile .menu-container .menu-sidebar .arrow.left {
  left: 25px;
}
.nav-mobile .menu-container .menu-sidebar .arrow.right {
  right: 25px;
}
.nav-mobile .menu-container .menu-sidebar li {
  height: 55px;
}

```

---

```

line-height: 55px;
font-size: 16px;
text-align: left;
position: relative;
border-bottom: 1px solid rgba(0, 0, 0, 0.1);
padding-left: 20px;
}
.nav-mobile .menu-container .menu-sidebar li:hover {
background: #eee;
}
.nav-mobile .menu-container .menu-sidebar li .menu-sub {
position: fixed;
top: 0;
right: 0;
bottom: 0;
width: 0;
overflow: hidden;
background: white;
visibility: hidden;
transition: all 0.3s cubic-bezier(0, 0, 0.3, 1);
border-left: 1px solid #ccc;
list-style-type: none;
padding: 0;
margin: 0;
z-index: 2;
max-width: 400px;
}
.nav-mobile .menu-container .menu-sidebar li .menu-sub li {
overflow: hidden;
}
.nav-mobile .menu-container .menu-sidebar li .menu-sub .menu-sub-title {
padding-left: 50px;
}
.nav-mobile .menu-container .menu-sidebar li .submenu-label {
cursor: pointer;
width: 100%;
height: 100%;
display: block;
}
.nav-mobile .menu-container .menu-sidebar li .submenu-toggle {
display: none;
}
.nav-mobile .menu-container .menu-sidebar li .submenu-toggle.active ~ .menu-sub, .nav-mobile .menu-container .menu-sidebar li .submenu-toggle:checked ~ .menu-sub {
width: 65vw;
visibility: visible;
z-index: 1;
transition: width 0.35s cubic-bezier(0, 0, 0.3, 1);
}

.carousel-container {
list-style-type: none;
padding: 0;
margin: 30px auto;
width: 550px;
height: 338px;
border-radius: 5px;
position: relative;
}

```

```
    z-index: 0;
}
.carousel-container .arrow {
  cursor: pointer;
  background: rgba(0, 0, 0, 0.5);
  color: rgba(255, 255, 255, 0.5);
  display: block;
  width: 50px;
  font-size: 62px;
  text-align: center;
  bottom: 0;
  top: 0;
  line-height: 330px;
  position: absolute;
  z-index: 9999;
  padding-bottom: 4px;
  padding-top: 2px;
  border-radius: 2px;
  -webkit-user-select: none;
  -moz-user-select: none;
  -ms-user-select: none;
  user-select: none;
}
.carousel-container .arrow.next {
  left: 0px;
  background: linear-gradient(to right, rgba(0, 0, 0, 0.5), transparent);
}
.carousel-container .arrow.back {
  right: 0px;
  background: linear-gradient(to left, rgba(0, 0, 0, 0.5), transparent);
}
.carousel-container .arrow:hover {
  color: white;
}
.carousel-container li:nth-child(1) > .dot {
  margin-left: 44.6%;
}
.carousel-container .carousel-content {
  height: 0;
  overflow: hidden;
  line-height: 22px;
  background: #000;
  position: absolute;
  top: 0px;
  border-radius: 5px;
  box-shadow: 0 5px 5px -5px #333;
  list-style-type: none;
  padding: 0;
}
.carousel-container .carousel-content img {
  opacity: 0;
  padding: 0;
  position: absolute;
  left: 0;
  top: 0;
  width: 100%;
  border-radius: 5px;
  transition: 0.2s ease-in;
```

```

}

.carousel-container .dot {
  float: left;
  cursor: pointer;
  opacity: 1;
  width: 12px;
  height: 12px;
  background: rgba(255, 255, 255, 0.5);
  position: relative;
  margin-top: 56%;
  border-radius: 50%;
  z-index: 999;
  margin-right: 8px;
  display: block;
}
.carousel-container .dot:hover {
  background: #fff;
}
.carousel-container .carousel-toggle {
  display: none;
}
.carousel-container .carousel-toggle:checked + .dot, .carousel-container .carousel-toggle.active + .dot {
  background: #fff;
}
.carousel-container .carousel-toggle:checked ~ .carousel-content, .carousel-container .carousel-toggle.active ~ .carousel-content {
  height: 100%;
  width: 100%;
}
.carousel-container .carousel-toggle:checked ~ .carousel-content img, .carousel-container .carousel-toggle.active ~ .carousel-content img {
  opacity: 1;
}

.tab-container {
  list-style-type: none;
  padding: 0;
  margin: 60px auto;
  max-width: 350px;
  position: relative;
  background: #fff;
}
.tab-container:after {
  content: "";
  display: table;
  clear: both;
}
.tab-container ul {
  list-style-type: none;
  padding: 0;
}
.tab-container .arrows {
  display: block;
  width: 60px;
  font-size: 32px;
  bottom: 10px;
  right: 0px;
}

```

```
    position: absolute;
}
.tab-container .arrows label {
    display: inline-block;
    cursor: pointer;
    color: #aaa;
    -webkit-user-select: none;
    -moz-user-select: none;
    -ms-user-select: none;
    user-select: none;
    margin-left: 5px;
}
.tab-container .arrows label:hover {
    color: #333;
}
.tab-container .tab-content-container {
    border-bottom-left-radius: 4px;
    border-bottom-right-radius: 4px;
    height: 0;
    opacity: 0;
    overflow: hidden;
    line-height: 22px;
    background: #fff;
    position: absolute;
    top: 42px;
    padding: 0px 40px 0 20px;
    border: 2px solid #446CB3;
    border-top: 0;
    box-shadow: 0 5px 5px -5px #333;
}
.tab-container .tab-content-container .tab-content {
    opacity: 0;
    padding: 15px 0;
    min-height: 185px;
    transition: opacity 0.1s ease-in;
}
.tab-container .tab {
    outline: 0;
    float: left;
    cursor: pointer;
    opacity: 1;
    width: 25%;
    line-height: 40px;
    display: block;
    margin: 0;
    position: relative;
    background: #446CB3;
    color: #fff;
    text-align: center;
    border-top: 2px solid #446CB3;
    border-right: 2px solid #446CB3;
}
.tab-container .tab.l-b {
    border-left: 2px solid #446CB3;
}
.tab-container .tab:hover {
    background: #365690;
}
```

```

.tab-container .tab-toggle {
  display: none;
}
.tab-container .tab-toggle.active + .tab, .tab-container .tab-toggle:checked + .tab {
  background: #fff;
  color: #333;
}
.tab-container .tab-toggle.active ~ .tab-content-container, .tab-container .tab-toggle:checked ~ .tab-content-container {
  height: auto;
  opacity: 1;
}
.tab-container .tab-toggle.active ~ .tab-content-container .tab-content, .tab-container .tab-toggle:checked ~ .tab-content-container .tab-content {
  opacity: 1;
}
.tab-container .tab-toggle.active ~ .tab-content-container .tab-content label, .tab-container .tab-toggle:checked ~ .tab-content-container .tab-content label {
  opacity: 1;
}

.accordion-container {
  width: 300px;
  margin: 60px auto;
  border: 2px solid #446CB3;
  border-radius: 4px;
  box-shadow: 0 5px 5px -5px #333;
  list-style-type: none;
  padding: 0;
}
.accordion-container ul {
  list-style-type: none;
  padding-left: 0;
}
.accordion-container .accordion-category {
  position: relative;
  background: #fff;
}
.accordion-container .accordion-category .accordion-title {
  padding-left: 20px;
  height: 40px;
  font-size: 18px;
  line-height: 40px;
  background: #446CB3;
  color: #fff;
  position: relative;
  display: block;
  cursor: pointer;
}
.accordion-container .accordion-category .accordion-title:hover {
  background: #365690;
}
.accordion-container .accordion-category .accordion-items {
  max-height: 0;
  height: 0;
  margin: 0;
  overflow: hidden;
  transition: 0.6s ease-in;
}

```

```

}

.accordion-container .accordion-category .accordion-items li {
  padding: 5px 20px;
}
.accordion-container .accordion-category .accordion-items li:first-child {
  padding-top: 10px;
}
.accordion-container .accordion-category .accordion-items li:last-child {
  padding-bottom: 10px;
}
.accordion-container .accordion-category input {
  display: none;
}
.accordion-container .accordion-category input.active ~ .accordion-items, .accordion-container
.accordion-category input:checked ~ .accordion-items {
  height: auto;
  max-height: 900px;
  -webkit-transform: translate3d(0, 0, 0);
}
.accordion-container .accordion-category input.active ~ .accordion-title:after, .accordion-
container .accordion-category input:checked ~ .accordion-title:after, .accordion-container
.accordion-category input:hover ~ .accordion-title:after {
  content: "\203A";
  position: absolute;
  width: 40px;
  font-size: 32px;
  right: 0;
  padding-left: 15px;
  top: 0;
  bottom: 0;
  transform: rotate(90deg);
}

.modal-container {
  margin: 60px auto;
  padding-top: 0px;
  position: relative;
  width: 160px;
}
.modal-container .modal-btn {
  display: block;
  margin: 0 auto;
  color: #fff;
  width: 160px;
  height: 50px;
  line-height: 50px;
  background: #446CB3;
  font-size: 22px;
  border: 0;
  border-radius: 3px;
  cursor: pointer;
  text-align: center;
  box-shadow: 0 5px 5px -5px #333;
  transition: background 0.3s ease-in;
}
.modal-container .modal-btn:hover {
  background: #365690;
}

```

```
.modal-container .modal-content,
.modal-container .modal-backdrop {
  height: 0;
  width: 0;
  opacity: 0;
  visibility: hidden;
  overflow: hidden;
  cursor: pointer;
  transition: opacity 0.2s ease-in;
}
.modal-container .modal-close {
  color: #aaa;
  position: absolute;
  right: 5px;
  top: 5px;
  padding-top: 3px;
  background: #fff;
  font-size: 16px;
  width: 25px;
  height: 25px;
  font-weight: bold;
  text-align: center;
  cursor: pointer;
}
.modal-container .modal-close:hover {
  color: #333;
}
.modal-container .modal-content-btn {
  position: absolute;
  text-align: center;
  cursor: pointer;
  bottom: 20px;
  right: 30px;
  background: #446CB3;
  color: #fff;
  width: 50px;
  border-radius: 2px;
  font-size: 14px;
  height: 32px;
  padding-top: 9px;
  font-weight: normal;
}
.modal-container .modal-content-btn:hover {
  color: #fff;
  background: #365690;
}
.modal-container #modal-toggle {
  display: none;
}
.modal-container #modal-toggle.active ~ .modal-backdrop, .modal-container #modal-toggle:checked ~ .modal-backdrop {
  background-color: rgba(0, 0, 0, 0.6);
  width: 100vw;
  height: 100vh;
  position: fixed;
  left: 0;
  top: 0;
  z-index: 9;
```

```

    visibility: visible;
    opacity: 1;
    transition: opacity 0.2s ease-in;
}
.modal-container #modal-toggle.active ~ .modal-content, .modal-container #modal-toggle:checked ~
.modal-content {
    opacity: 1;
    background-color: #fff;
    max-width: 400px;
    width: 400px;
    height: 280px;
    padding: 10px 30px;
    position: fixed;
    left: calc(50% - 200px);
    top: 12%;
    border-radius: 4px;
    z-index: 999;
    pointer-events: auto;
    cursor: auto;
    visibility: visible;
    box-shadow: 0 3px 7px rgba(0, 0, 0, 0.6);
}
@media (max-width: 400px) {
    .modal-container #modal-toggle.active ~ .modal-content, .modal-container #modal-toggle:checked ~
    .modal-content {
        left: 0;
    }
}

.tooltip-container {
    margin: 60px auto;
    padding-top: 0px;
    position: relative;
    width: 160px;
}
.tooltip-container .tooltip-btn {
    display: block;
    margin: 0 auto;
    color: #fff;
    width: 160px;
    height: 50px;
    line-height: 50px;
    background: #446CB3;
    font-size: 22px;
    border: 0;
    border-radius: 3px;
    cursor: pointer;
    text-align: center;
    box-shadow: 0 5px 5px -5px #333;
    transition: background 0.3s ease-in;
}
.tooltip-container .tooltip-btn:hover {
    background: #365690;
}
.tooltip-container .tooltip-btn.tooltip-toggle:hover ~ .tooltip-content {
    opacity: 1;
    background-color: #fff;
    max-width: 400px;
}

```

```
width: 200px;
min-height: 70px;
padding: 0px 20px;
position: absolute;
left: calc(50% - 100px);
top: 145%;
border-radius: 4px;
z-index: 999;
pointer-events: auto;
cursor: auto;
visibility: visible;
overflow: visible;
box-shadow: 0 3px 7px rgba(0, 0, 0, 0.6);
}
@media (max-width: 400px) {
    .tooltip-container .tooltip-btn.tooltip-toggle:hover ~ .tooltip-content {
        left: 0;
    }
}
.tooltip-container .tooltip-btn.tooltip-toggle:hover ~ .tooltip-content:before {
    content: "";
    width: 0;
    height: 0;
    border-style: solid;
    border-width: 0 10px 10px 10px;
    border-color: transparent transparent #ffffff transparent;
    position: absolute;
    top: -10px;
    left: 30px;
}
.tooltip-container .tooltip-content,
.tooltip-container .tooltip-backdrop {
    height: 0;
    width: 0;
    opacity: 0;
    visibility: hidden;
    overflow: hidden;
    transition: opacity 0.2s ease-in;
}
.tooltip-container #tooltip-toggle {
    display: none;
}
.tooltip-container #tooltip-toggle.active ~ .tooltip-backdrop, .tooltip-container #tooltip-toggle:checked ~ .tooltip-backdrop {
    background-color: transparent;
    width: 100vw;
    height: 100vh;
    position: fixed;
    left: 0;
    top: 0;
    z-index: 9;
    visibility: visible;
    opacity: 1;
    transition: opacity 0.2s ease-in;
}
.tooltip-container #tooltip-toggle.active ~ .tooltip-content, .tooltip-container #tooltip-toggle:checked ~ .tooltip-content {
    opacity: 1;
```

```

background-color: #fff;
max-width: 400px;
width: 200px;
min-height: 70px;
padding: 0px 20px;
position: absolute;
left: calc(50% - 100px);
top: 145%;
border-radius: 4px;
z-index: 999;
pointer-events: auto;
visibility: visible;
overflow: visible;
box-shadow: 0 3px 7px rgba(0, 0, 0, 0.6);
}
@media (max-width: 400px) {
    .tooltip-container #tooltip-toggle.active ~ .tooltip-content, .tooltip-container #tooltip-
toggle:checked ~ .tooltip-content {
        left: 0;
    }
}
.tooltip-container #tooltip-toggle.active ~ .tooltip-content:before, .tooltip-container #tooltip-
toggle:checked ~ .tooltip-content:before {
    content: "";
    width: 0;
    height: 0;
    border-style: solid;
    border-width: 0 10px 10px 10px;
    border-color: transparent transparent #ffffff transparent;
    position: absolute;
    top: -10px;
    left: 30px;
}

.star-container {
    text-align: center;
    font-size: 0;
}
.star-container label {
    display: inline-block;
    cursor: pointer;
}
.star-container label:after {
    content: "\2605";
    font-size: 46px;
    color: #999;
    text-shadow: 1px 1px 1px rgba(0, 0, 0, 0.3);
}
.star-container label:hover:after {
    color: #F89406;
}
.star-container input {
    display: none;
}
.star-container #one:checked ~ label[for=one]:after,
.star-container #two:checked ~ label[for=two]:after,
.star-container #three:checked ~ label[for=three]:after,
.star-container #four:checked ~ label[for=four]:after,

```

```
.star-container #five:checked ~ label[for=five]:after {
  color: #F89406;
}
.star-container #two:checked ~ label[for=one]:after {
  color: #F89406;
}
.star-container #three:checked ~ label[for=one]:after, .star-container #three:checked ~
label[for=two]:after {
  color: #F89406;
}
.star-container #four:checked ~ label[for=one]:after, .star-container #four:checked ~
label[for=two]:after, .star-container #four:checked ~ label[for=three]:after {
  color: #F89406;
}
.star-container #five:checked ~ label[for=one]:after, .star-container #five:checked ~
label[for=two]:after, .star-container #five:checked ~ label[for=three]:after, .star-container
#five:checked ~ label[for=four]:after {
  color: #F89406;
}

.readmo {
  width: 400px;
  border: 2px solid #446CB3;
  margin: 30px auto;
  padding: 0px 0 30px;
  background: white;
  position: relative;
}
.readmo p {
  padding: 0px 10px 0px;
  margin-bottom: 10px;
  max-height: 50px;
  overflow: hidden;
  transition: max-height 0.1s ease-in;
}
.readmo label {
  display: block;
  cursor: pointer;
  text-align: center;
  padding: 0px 0 0px;
  margin: 0px 0 0 0;
  position: absolute;
  width: 100%;
  bottom: 0px;
  background: linear-gradient(180deg, rgba(255, 255, 255, 0) 0%, rgba(255, 255, 255, 0) 5%,
  rgba(255, 255, 255, 0.94) 95%, white 100%);
  /* w3c */
}
.readmo label:after {
  content: "\203A";
  color: #999;
  position: relative;
  width: 100%;
  font-size: 32px;
  padding: 0;
  display: block;
  transform: rotate(90deg);
}
```

```
.readmo label:hover:after {
  color: #333;
}
.readmo input[type=checkbox] {
  display: none;
}
.readmo input[type=checkbox]:checked + label:after {
  transform: rotate(270deg);
}
.readmo input[type=checkbox]:checked ~ p {
  max-height: 200px;
  transition: max-height 0.1s ease-in;
}

.step-container {
  width: 400px;
  margin: 30px auto;
  min-height: 200px;
  position: relative;
}
.step-container:after {
  content: "";
  display: table;
  clear: both;
}
.step-container .step-content {
  display: none;
  border: 2px solid #446CB3;
  border-radius: 2px;
  background: #fff;
  min-height: 150px;
  position: absolute;
  top: 70px;
}
.step-container .step-content .text {
  padding: 15px;
}
.step-container .step-dot {
  float: left;
  width: 33.333%;
  text-align: center;
  padding-top: 40px;
  position: relative;
}
.step-container .step-dot:after {
  content: "";
  width: 30px;
  height: 30px;
  background: #fff;
  color: #666;
  display: block;
  border-radius: 50%;
  border: 2px solid #219150;
  padding-top: 5px;
  position: absolute;
  top: 0px;
  left: 41%;
  z-index: 99;
```

---

```

    box-shadow: 0px 1px 1px 0 rgba(0, 0, 0, 0.3);
    transition: 0.1s ease-in;
}
.step-container .step-dot.one:after {
    content: "1";
}
.step-container .step-dot.two:after {
    content: "2";
}
.step-container .step-dot.three:after {
    content: "3";
}
.step-container .step-dot.one:before {
    display: none;
}
.step-container .step-dot:before {
    content: "";
    width: 100%;
    height: 4px;
    background: #999;
    display: block;
    position: absolute;
    top: 12px;
    left: -41px;
    box-shadow: 0px 1px 1px 0 rgba(0, 0, 0, 0.3);
    transition: 0.1s ease-in;
}
.step-container label {
    cursor: pointer;
    padding: 10px 0;
    display: block;
    width: 100px;
    float: right;
    user-select: none;
    -webkit-user-select: none;
    text-align: center;
    background: #446CB3;
    color: #fff;
    margin-left: 15px;
    border-bottom-left-radius: 2px;
}
.step-container label:hover {
    background: #365690;
}
.step-container input[name='toggler'] {
    display: none;
}
.step-container input[name='toggler']:checked + .step-dot + .step-content {
    display: block;
}
.step-container input[name='toggler']:checked + .step-dot:after {
    background: #219150;
    color: #fff;
}
.step-container input[name='toggler']:checked ~ input:checked + .step-dot:before {
    background: #219150;
}
.step-container input[name='toggler']:checked ~ input:not(:checked) + .step-dot {

```

```

    color: #888;
}
.step-container input[name='toggler']:checked ~ input:not(:checked) + .step-dot:after {
  border-color: #888;
  color: #888;
}
</style></head><body>
<ul class="nav-mobile check">
  <li>CSS-only Playground</li>
  <li class="menu-container">
    <input id="menu-toggle" type="checkbox">
    <label for="menu-toggle" class="menu-button">
      <svg class="icon-open" viewBox="0 0 24 24"><path d="M3 18h18v-2H3v2zm0-5h18v-2H3v2zm0-7v2h18V6H3z"></path></svg>
      <svg class="icon-close" viewBox="0 0 100 100">
        <path d="M83.288 88.13c-2.114 2.112-5.575 2.112-7.69 0L53.66 66.188c-2.113-2.112-5.572-2.112-7.686 0l-21.72 21.72c-2.114 2.113-5.572 2.113-7.687 0L4.693-4.692c-2.114-2.114-5.573 0-7.688l21.72-21.72c2.112-2.115 2.112-5.574 0-7.687L11.87 24.4c-2.114-2.113-2.114-5.57 0-7.686l4.842-4.842c2.113-2.114 5.57-2.114 7.686 0l21.72 21.72c2.114 2.113 5.572 2.113 7.688 0l21.72-21.72c2.115-2.114 5.574-2.114 7.688 0l4.695 4.695c2.112 2.113 2.112 5.57-.002 7.686l-21.72 21.72c-2.112 2.114-2.112 5.573 0 7.686L88.13 75.6c2.112 2.11 2.112 5.572 0 7.687l-4.842 4.84z"/>
      </svg>
    </label>
    <ul class="menu-sidebar">
      <li><a href="#">Item</a></li>
      <li><a href="#">Item</a></li>
      <li><a href="#">Item</a></li>
      <li>
        <input type="checkbox" id="sub-one" class="submenu-toggle">
        <label class="submenu-label" for="sub-one">Category</label>
        <div class="arrow right">&#8250;</div>
        <ul class="menu-sub">
          <li class="menu-sub-title">
            <label class="submenu-label" for="sub-one">Back</label>
            <div class="arrow left">&#8249;</div>
          </li>
          <li><a href="#">Sub-item</a></li>
          <li><a href="#">Sub-item</a></li>
          <li><a href="#">Sub-item</a></li>
          <li><a href="#">Sub-item</a></li>
        </ul>
      </li>
      <li>
        <input type="checkbox" id="sub-two" class="submenu-toggle">
        <label class="submenu-label" for="sub-two">Category</label>
        <div class="arrow right">&#8250;</div>
        <ul class="menu-sub">
          <li class="menu-sub-title">
            <label class="submenu-label" for="sub-two">Back</label>
            <div class="arrow left">&#8249;</div>
          </li>
          <li><a href="#">Sub-item</a></li>
          <li><a href="#">Sub-item</a></li>
          <li><a href="#">Sub-item</a></li>
          <li><a href="#">Sub-item</a></li>
        </ul>
      </li>
    </ul>
  </li>
</ul>

```

```

        </ul>
    </li>
</ul>
<br /><br /><br />
<ul class="carousel-container radio">
    <li>
        <input class="carousel-toggle" id="slide-1" type="radio" name="c-toggle" checked/>
        <label class="dot" for="slide-1"></label>
        <ul class="carousel-content">
            <li>
                
                <label class="arrow back" for="slide-2">&#8250; </label>
                <label class="arrow next" for="slide-4">&#8249;</label>
            </li>
        </ul>
    </li>
    <li>
        <input class="carousel-toggle" id="slide-2" type="radio" name="c-toggle" />
        <label class="dot" for="slide-2"></label>
        <ul class="carousel-content">
            <li>
                
                <label class="arrow back" for="slide-3">&#8250; </label>
                <label class="arrow next" for="slide-1">&#8249;</label>
            </li>
        </ul>
    </li>
    <li>
        <input class="carousel-toggle" id="slide-3" type="radio" name="c-toggle" />
        <label class="dot" for="slide-3"></label>
        <ul class="carousel-content">
            <li>
                
                <label class="arrow back" for="slide-4">&#8250; </label>
                <label class="arrow next" for="slide-2">&#8249;</label>
            </li>
        </ul>
    </li>
    <li>
        <input class="carousel-toggle" id="slide-4" type="radio" name="c-toggle" />
        <label class="dot" for="slide-4"></label>
        <ul class="carousel-content">
            <li>
                
                <label class="arrow back" for="slide-1">&#8250; </label>
                <label class="arrow next" for="slide-3">&#8249;</label>
            </li>
        </ul>
    </li>
</ul>
<hr />
<ul class="tab-container radio">
    <li>
        <input class="tab-toggle" id="tab-1" type="radio" name="toggle" checked />
        <label data-title="Tab 1" class="tab 1-b" for="tab-1">Tabs</label>
        <ul class="tab-content-container">
            <li class="tab-content">
                This is a testing text to test the tab content container. Lorem Ipsum dolor sit amet!
                Consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.
                This is a testing text to test the tab content container. Lorem Ipsum dolor sit amet!
            </li>
        </ul>
    </li>

```

```

<div class="arrows">
    <label class="back" for="tab-4">&#8249;</label>
    <label class="next" for="tab-2">&#8250;</label>
</div>
</li>
</ul>
</li>
<li>
    <input class="tab-toggle" id="tab-2" type="radio" name="toggle" />
    <label class="tab" for="tab-2">Are</label>
    <ul class="tab-content-container">
        <li class="tab-content">
            Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
            Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.
            <div class="arrows">
                <label class="back" for="tab-1">&#8249;</label>
                <label class="next" for="tab-3">&#8250;</label>
            </div>
        </li>
    </ul>
</li>
<li>
    <input class="tab-toggle" id="tab-3" type="radio" name="toggle"/>
    <label class="tab" for="tab-3">Pretty</label>
    <ul class="tab-content-container">
        <li class="tab-content">
            Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.
            Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur.
            <div class="arrows">
                <label class="back" for="tab-2">&#8249;</label>
                <label class="next" for="tab-4">&#8250;</label>
            </div>
        </li>
    </ul>
</li>
<li>
    <input class="tab-toggle" id="tab-4" type="radio" name="toggle"/>
    <label class="tab" for="tab-4">Cool</label>
    <ul class="tab-content-container">
        <li class="tab-content">
            This is the final content for the tab example.
            <div class="arrows">
                <label class="back" for="tab-3">&#8249;</label>
                <label class="next" for="tab-1">&#8250;</label>
            </div>
        </li>
    </ul>
</li>
<br /><br /><br /><br /><br /><br /><br /><br />
<hr />
<ul class="accordion-container radio">
    <li class="accordion-category">
        <input type="radio" name="a-toggle" id="one" checked>

```

```

<label for="one" class="accordion-title">Accordions</label>
<ul class="accordion-items">
  <li>Item One</li>
  <li>Item Two</li>
  <li>Item Three</li>
</ul>
</li>
<li class="accordion-category">
  <input id="two" type="radio" name="a-toggle">
  <label for="two" class="accordion-title">Condense</label>
  <ul class="accordion-items">
    <li>Item A</li>
    <li>Item B</li>
  </ul>
</li>
<li class="accordion-category">
  <input id="tre" type="radio" name="a-toggle">
  <label for="tre" class="accordion-title">Stuff</label>
  <ul class="accordion-items">
    <li>Item 1</li>
    <li>Item 2</li>
    <li>Item 3</li>
    <li>Item 4</li>
  </ul>
</ul>
</div>
<hr />
<div class="modal-container check">
  <input id="modal-toggle" type="checkbox">
  <label class="modal-btn" for="modal-toggle">Modal</label>
  <label class="modal-backdrop" for="modal-toggle"></label>
  <div class="modal-content">
    <label class="modal-close" for="modal-toggle">✖</label>
    <h2>Modal title</h2><hr />
    <p>Hello from inside the modal!</p>
    <label class="modal-content-btn" for="modal-toggle">OK</label>
  </div>
</div>
<hr />
<div class="tooltip-container check">
  <input id="tooltip-toggle" type="checkbox">
  <label class="tooltip-btn" for="tooltip-toggle">Tooltip click</label>
  <label class="tooltip-backdrop" for="tooltip-toggle"></label>
  <div class="tooltip-content">
    <p>Hello from inside the CSS tooltip!</p>
  </div>
</div>
<div class="tooltip-container">
  <div class="tooltip-btn tooltip-toggle">Tooltip hover</div>
  <div class="tooltip-content">
    <p>Hello from inside the CSS tooltip!</p>
  </div>
</div>
<hr />
<br />
<div class="star-container">
  <input type="radio" name="starred" id="five"/>
  <input type="radio" name="starred" id="four"/>

```

---

```

<input type="radio" name="starred" id="three"/>
<input type="radio" name="starred" id="two"/>
<input type="radio" name="starred" id="one"/>
<label for="one"></label>
<label for="two"></label>
<label for="three"></label>
<label for="four"></label>
<label for="five"></label>
</div>
<br />
<hr />
<div class="step-container">
  <input type="checkbox" id="step-1" name="toggler" checked/>
  <div class="step-dot one">Ready</div>
  <div class="step-content">
    <label for="step-2">Next</label>
    <div class="text">Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo. </div>
  </div>
  <input type="checkbox" id="step-2" name="toggler" />
  <div class="step-dot two">Set</div>
  <div class="step-content">
    <label for="step-3">Next</label>
    <div class="text">Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.</div>
  </div>
  <input type="checkbox" id="step-3" name="toggler" />
  <div class="step-dot three">Go!</div>
  <div class="step-content">
    <div class="text">Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo.</div>
  </div>
</div>
<br />
<hr />
<div class="readmo">
  <input type="checkbox" id="toggler" />
  <label for="toggler"></label>
  <p>This is a filler text filler text lorem ipsum dolor sit ametThis is a filler text filler text filler text lorem ipsum dolor sit amet. filler text filler text filler text lorem ipsum dolor sit ametThis is a filler text filler text lorem ipsum dolor sit amet. filler text filler text filler text lorem ipsum dolor sit ametThis is a filler text filler text filler text lorem ipsum dolor sit amet</p>
</div>

```

\*\*\*\*\*

## List view

```

<style class="cp-pen-styles">
@keyframes shake {

```

```

0%, 100% {
  transform: translateX(0);
}
10%, 30%, 50%, 70% {
  transform: translateX(-5px);
}
20%, 40%, 60%, 80% {
  transform: translateX(5px);
}
}
* {
  box-sizing: border-box;
}

body {
  background: #f8f9fa;
  font-family: sans-serif;
  color: #333;
  -webkit-font-smoothing: antialiased;
  -moz-osx-font-smoothing: grayscale;
}

.container {
  position: absolute;
  top: 0;
  left: 0;
  right: 0;
  bottom: 0;
  margin: auto;
  width: 300px;
  height: 300px;
  background: #f2f3f6;
  padding: 1em;
  border: 1px solid #d4d7e1;
  box-shadow: 0 1px 2px rgba(0, 0, 0, 0.05), 0 5px 10px rgba(0, 0, 0, 0.05);
  border-radius: 3px;
  overflow: hidden;
}

.input-query {
  width: 100%;
  padding: 0.5em;
  border: 1px solid #d4d7e1;
  border-radius: 3px;
  font-size: 1em;
}
.input-query:focus ~ .counter {
  opacity: 0.1;
  transition: opacity 1s ease-in;
}

.list-wrap {
  margin-top: 0.4em;
  overflow-y: auto;
  overflow-x: hidden;
}

.list {

```

```

    max-height: 220px;
}

.list-item {
    font-size: 0.9em;
    padding: 0.5em 0.8em;
    border-bottom: 1px solid #d4d7e1;
    border-top: 1px solid white;
    overflow: hidden;
    text-overflow: ellipsis;
    white-space: nowrap;
    word-wrap: normal;
    max-width: 100%;
}
.list-item:first-child {
    border-top: none;
}
.list-item:last-child {
    border-bottom: none;
}

.list-item-link {
    color: #444;
    text-decoration: none;
}

.item-list-subtext {
    font-size: 85%;
    color: grey;
}
.item-list-subtext:before {
    content: '(';
}
.item-list-subtext:after {
    content: ')';
}

.list-item--disable {
    text-align: center;
    border-bottom: none;
    animation: shake 0.6s;
    color: #9dalb1;
}

.counter {
    position: absolute;
    bottom: -15px;
    right: 10px;
    z-index: 0;
    font-size: 3.5em;
    color: black;
    transform: translateY(0);
    opacity: 0;
}
</style></head><body>

<div class="container" data-behaviour="search-on-list">

```

```
<span class="counter" data-search-on-list="counter"></span>
<div class="list-wrap">
<ul class="list" data-search-on-list="list">
    <li class="list-item" data-search-on-list="list-item">
        <a href="http://codepen.io/davilious/pen/YqdoyP" class="list-item-link">Ali <span
class="item-list-subtext">Smith</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Alia <span class="item-list-subtext">Johnson</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Amira<span class="item-list-subtext">Johnson</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Omar<span class="item-list-subtext">Davis</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Aaron<span class="item-list-subtext">Davis</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Bailey <span class="item-list-subtext">Moore</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Noah<span class="item-list-subtext">Thomas</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Liam<span class="item-list-subtext">Garcia</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Dakota<span class="item-list-subtext">Garcia</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Olivia<span class="item-list-subtext">Taylor</span></a>
    </li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">Mason<span class="item-list-subtext">Garcia</span></a>
    </li>
        <li class="list-item" data-search-on-list="list-item">
            <a href="" class="list-item-link">Abigail<span class="item-list-subtext">Martin</span></a>
        </li>
        <li class="list-item" data-search-on-list="list-item">
            <a href="" class="list-item-link">Emily<span class="item-list-subtext">Robinson</span></a>
        </li>
        <li class="list-item" data-search-on-list="list-item">
            <a href="" class="list-item-link">Emily<span class="item-list-subtext">García</span></a>
        </li>
        <li class="list-item" data-search-on-list="list-item">
            <a href="" class="list-item-link">John<span class="item-list-subtext">Robinson</span></a>
        </li>
            <li class="list-item" data-search-on-list="list-item">
                <a href="" class="list-item-link">Emily<span class="item-list-subtext">Clark</span></a>
            </li>
            <li class="list-item" data-search-on-list="list-item">
                <a href="" class="list-item-link">Aurora<span class="item-list-subtext">Lewis</span></a>
            </li>
                <li class="list-item" data-search-on-list="list-item">
                    <a href="" class="list-item-link">Adeline<span class="item-list-
subtext">Robinson</span></a>
```

---

```

</li>
    <li class="list-item" data-search-on-list="list-item">
        <a href="" class="list-item-link">John<span class="item-list-subtext">García</span></a>
    </li>
        <li class="list-item" data-search-on-list="list-item">
            <a href="" class="list-item-link">Isla<span class="item-list-subtext">Lewis</span></a>
        </li>
    </ul>
</div>
</div>

```

\*\*\*\*\*

## HTML PAGE WITH COLOURED BACKGROUND IMAGE

```

<style class="cp-pen-styles">
@import url("https://fonts.googleapis.com/css?family=Montserrat:400,700");
html {
    box-sizing: border-box;
    -webkit-font-smoothing: antialiased;
}

*, *:before, *:after {
    box-sizing: inherit;
}

body {
    height: 100vh;
    overflow: hidden;
    background-image: -webkit-linear-gradient(bottom left, rgba(0, 0, 255, 0.5), rgba(255, 0, 0, 0.75)), -webkit-linear-gradient(rgba(0, 0, 255, 0.25) 100%, transparent), url("http://media.boingboing.net/wp-content/uploads/2014/06/giphy-13.gif");
    background-image: linear-gradient(to top right, rgba(0, 0, 255, 0.5), rgba(255, 0, 0, 0.75)), linear-gradient(rgba(0, 0, 255, 0.25) 100%, transparent), url("http://media.boingboing.net/wp-content/uploads/2014/06/giphy-13.gif");
    background-size: cover;
    background-position: center;
    color: white;
    font-family: "Montserrat", sans-serif;
    font-size: 20px;
    line-height: 30px;
}

h1 {
    font-size: 45px;
    line-height: 45px;
    letter-spacing: 15px;
    text-transform: uppercase;
}
h1:after {
    content: "";
    display: block;
    width: 120px;
    height: 4px;
}

```

---

```

margin: 28px auto -2px;
background-color: currentcolor;
}

h1, p {
margin: 30px 0;
}

.content {
position: absolute;
top: 50%;
left: 50%;
width: 100%;
max-width: 660px;
padding: 0 30px;
text-align: center;
-webkit-transform: translate(-50%, 50vh);
transform: translate(-50%, 50vh);
opacity: 0;
-webkit-animation: 0.75s 0.75s forwards slide_in;
animation: 0.75s 0.75s forwards slide_in;
}
@-webkit-keyframes slide_in {
100% {
-webkit-transform: translate(-50%, -50%);
transform: translate(-50%, -50%);
opacity: 1;
}
}
@keyframes slide_in {
100% {
-webkit-transform: translate(-50%, -50%);
transform: translate(-50%, -50%);
opacity: 1;
}
}

```

</style></head><body>

# Hello World!

Ipsum dolor sit amet, consectetur adipisicing elit. Obcaecati incidunt non nam quasi mollitia recusandae harum deleniti hic.

[Click Me](http://www.w3schools.com/html/tryit.asp?filename=tryhtml_default)

\*\*\*\*\*

## Fancy button

```

<style class="cp-pen-styles"> /* Mixins */
/* bg shortcodes */
.bg-gradient1 span,
.bg-gradient1:before {
background: #52A0FD;
background: -webkit-linear-gradient(left, #52A0FD 0%, #00e2fa 80%, #00e2fa 100%);
background: linear-gradient(to right, #52A0FD 0%, #00e2fa 80%, #00e2fa 100%);

```

```

}

.bg-gradient2 span,
.bg-gradient2:before {
  background: #44ea76;
  background: -webkit-linear-gradient(left, #44ea76 0%, #39fad7 80%, #39fad7 100%);
  background: linear-gradient(to right, #44ea76 0%, #39fad7 80%, #39fad7 100%);
}

.bg-gradient3 span,
.bg-gradient3:before {
  background: #fa6c9f;
  background: -webkit-linear-gradient(left, #fa6c9f 0%, #ffe140 80%, #ffe140 100%);
  background: linear-gradient(to right, #fa6c9f 0%, #ffe140 80%, #ffe140 100%);
}

/* General */
.wrapper {
  margin: 5% auto;
  text-align: center;
}

a {
  text-decoration: none;
}
a:hover, a:focus, a:active {
  text-decoration: none;
}

/* fancy Button */
.fancy-button {
  display: inline-block;
  margin: 30px;
  font-family: 'Montserrat', Helvetica, Arial, sans-serif;
  font-size: 17px;
  letter-spacing: 0.03em;
  text-transform: uppercase;
  color: #ffffff;
  position: relative;
}
.fancy-button:before {
  content: '';
  display: inline-block;
  height: 40px;
  position: absolute;
  bottom: -5px;
  left: 30px;
  right: 30px;
  z-index: -1;
  border-radius: 30em;
  -webkit-filter: blur(20px) brightness(0.95);
  filter: blur(20px) brightness(0.95);
  -webkit-transform-style: preserve-3d;
  transform-style: preserve-3d;
  -webkit-transition: all 0.3s ease-out;
  transition: all 0.3s ease-out;
}
.fancy-button i {

```

```
margin-top: -1px;
margin-right: 20px;
font-size: 1.265em;
vertical-align: middle;
}
.fancy-button span {
  display: inline-block;
  padding: 18px 60px;
  border-radius: 50em;
  position: relative;
  z-index: 2;
  will-change: transform, filter;
  -webkit-transform-style: preserve-3d;
      transform-style: preserve-3d;
  -webkit-transition: all 0.3s ease-out;
  transition: all 0.3s ease-out;
}
.fancy-button:focus, .fancy-button:active {
  color: #ffffff;
}
.fancy-button:hover {
  color: #ffffff;
}
.fancy-button:hover span {
  -webkit-filter: brightness(1.05) contrast(1.05);
      filter: brightness(1.05) contrast(1.05);
  -webkit-transform: scale(0.95);
      transform: scale(0.95);
}
.fancy-button:hover:before {
  bottom: 0;
  -webkit-filter: blur(10px) brightness(0.95);
      filter: blur(10px) brightness(0.95);
}
.fancy-button.pop-onhover:before {
  opacity: 0;
  bottom: 10px;
}
.fancy-button.pop-onhover:hover:before {
  bottom: -7px;
  opacity: 1;
  -webkit-filter: blur(20px);
      filter: blur(20px);
}
.fancy-button.pop-onhover:hover span {
  -webkit-transform: scale(1.04);
      transform: scale(1.04);
}
.fancy-button.pop-onhover:hover:active span {
  -webkit-filter: brightness(1) contrast(1);
      filter: brightness(1) contrast(1);
  -webkit-transform: scale(1);
      transform: scale(1);
  -webkit-transition: all 0.15s ease-out;
  transition: all 0.15s ease-out;
}
.fancy-button.pop-onhover:hover:active:before {
  bottom: 0;
```

---

```

        -webkit-filter: blur(10px) brightness(0.95);
           filter: blur(10px) brightness(0.95);
        -webkit-transition: all 0.2s ease-out;
           transition: all 0.2s ease-out;
    }

```

```

</style></head><body>
<div class="wrapper">
  <a href="#" class="fancy-button bg-gradient1"><span><i class="fa fa-wheelchair-alt"></i>Follow
Me</span></a>
  <a href="#" class="fancy-button bg-gradient2"><span><i class="fa fa-
envelope"></i>Messages</span></a>
</div><!-- /.wrapper -->

<div class="wrapper">
  <a href="#" class="fancy-button pop-onhover bg-gradient1"><span>Post A Comment</span></a>
  <a href="#" class="fancy-button pop-onhover bg-gradient3"><span>Share Channel</span></a>
</div>

*****

```

## CSS Sphere

```

<style class="cp-pen-styles">
body {
  margin: 0;
  display: flex;
  height: 100vh;
  overflow: hidden;
  justify-content: center;
  align-items: center;
  background: black;
}

.mommy {
  width: 500px;
  height: 500px;
  position: relative;
  perspective: 800px;
}

.daddy {
  width: 500px;
  height: 500px;
  transform-style: preserve-3d;
  animation: rotate 25s infinite linear;
}

span {
  display: inline-block;
  position: absolute;
  top: 50%;
  left: 50%;
  perspective: 800px;
  transform-style: preserve-3d;
  width: 0;
}

```

```
    height: 0;
}
span:before {
  content: "";
  width: 4px;
  height: 4px;
  display: inline-block;
  position: absolute;
  top: calc(50% - 2px);
  left: calc(50% - 2px);
  background:currentColor;
  color: inherit;
  border-radius: 50%;
  animation: invertRotate 25s infinite linear, scale 2s infinite linear;
  box-shadow: 0 0 10px currentColor;
}

.mommy span:nth-child(1) {
  transform: translate3d(2.41129px, 1.01948px, 249.98629px);
  color: #ff0500;
}
.mommy span:nth-child(1):before {
  animation-delay: 0s, -0.00667s;
}

.mommy span:nth-child(2) {
  transform: translate3d(3.64768px, 3.75579px, 249.94517px);
  color: #ff0a00;
}
.mommy span:nth-child(2):before {
  animation-delay: 0s, -0.01333s;
}

.mommy span:nth-child(3) {
  transform: translate3d(2.84548px, 7.31901px, 249.87664px);
  color: #ff0f00;
}
.mommy span:nth-child(3):before {
  animation-delay: 0s, -0.02s;
}

.mommy span:nth-child(4) {
  transform: translate3d(-0.30569px, 10.46445px, 249.78071px);
  color: #ff1400;
}
.mommy span:nth-child(4):before {
  animation-delay: 0s, -0.02667s;
}

.mommy span:nth-child(5) {
  transform: translate3d(-5.44486px, 11.89724px, 249.65738px);
  color: #ff1a00;
}
.mommy span:nth-child(5):before {
  animation-delay: 0s, -0.03333s;
}

.mommy span:nth-child(6) {
```

```
    transform: translate3d(-11.57533px, 10.60317px, 249.50668px);
    color: #ff1f00;
}
.mommy span:nth-child(6):before {
    animation-delay: 0s, -0.04s;
}

.mommy span:nth-child(7) {
    transform: translate3d(-17.25167px, 6.13348px, 249.32862px);
    color: #ff2400;
}
.mommy span:nth-child(7):before {
    animation-delay: 0s, -0.04667s;
}

.mommy span:nth-child(8) {
    transform: translate3d(-20.88379px, -1.22116px, 249.12321px);
    color: #ff2900;
}
.mommy span:nth-child(8):before {
    animation-delay: 0s, -0.05333s;
}

.mommy span:nth-child(9) {
    transform: translate3d(-21.09811px, -10.41121px, 248.89049px);
    color: #ff2e00;
}
.mommy span:nth-child(9):before {
    animation-delay: 0s, -0.06s;
}

.mommy span:nth-child(10) {
    transform: translate3d(-17.08109px, -19.77685px, 248.63047px);
    color: #ff3300;
}
.mommy span:nth-child(10):before {
    animation-delay: 0s, -0.06667s;
}

.mommy span:nth-child(11) {
    transform: translate3d(-8.83099px, -27.34361px, 248.34319px);
    color: #ff3800;
}
.mommy span:nth-child(11):before {
    animation-delay: 0s, -0.07333s;
}

.mommy span:nth-child(12) {
    transform: translate3d(2.74163px, -31.21313px, 248.02868px);
    color: #ff3d00;
}
.mommy span:nth-child(12):before {
    animation-delay: 0s, -0.08s;
}

.mommy span:nth-child(13) {
    transform: translate3d(15.89625px, -29.97464px, 247.68696px);
    color: #ff4200;
```

```
}

.mommy span:nth-child(13):before {
  animation-delay: 0s, -0.08667s;
}

.mommy span:nth-child(14) {
  transform: translate3d(28.32425px, -23.05434px, 247.31808px);
  color: #ff4700;
}
.mommy span:nth-child(14):before {
  animation-delay: 0s, -0.09333s;
}

.mommy span:nth-child(15) {
  transform: translate3d(37.55093px, -10.92755px, 246.92209px);
  color: #ff4d00;
}
.mommy span:nth-child(15):before {
  animation-delay: 0s, -0.1s;
}

.mommy span:nth-child(16) {
  transform: translate3d(41.40805px, 4.85919px, 246.49901px);
  color: #ff5200;
}
.mommy span:nth-child(16):before {
  animation-delay: 0s, -0.10667s;
}

.mommy span:nth-child(17) {
  transform: translate3d(38.48926px, 21.87498px, 246.0489px);
  color: #ff5700;
}
.mommy span:nth-child(17):before {
  animation-delay: 0s, -0.11333s;
}

.mommy span:nth-child(18) {
  transform: translate3d(28.49842px, 37.17963px, 245.57181px);
  color: #ff5c00;
}
.mommy span:nth-child(18):before {
  animation-delay: 0s, -0.12s;
}

.mommy span:nth-child(19) {
  transform: translate3d(12.41584px, 47.82911px, 245.06779px);
  color: #ff6100;
}
.mommy span:nth-child(19):before {
  animation-delay: 0s, -0.12667s;
}

.mommy span:nth-child(20) {
  transform: translate3d(-7.56279px, 51.42479px, 244.5369px);
  color: #ff6600;
}
.mommy span:nth-child(20):before {
```

```
    animation-delay: 0s, -0.13333s;
}

.mommy span:nth-child(21) {
    transform: translate3d(-28.31983px, 46.60624px, 243.97919px);
    color: #ff6b00;
}
.mommy span:nth-child(21):before {
    animation-delay: 0s, -0.14s;
}

.mommy span:nth-child(22) {
    transform: translate3d(-46.30345px, 33.39159px, 243.39473px);
    color: #ff7000;
}
.mommy span:nth-child(22):before {
    animation-delay: 0s, -0.14667s;
}

.mommy span:nth-child(23) {
    transform: translate3d(-58.1332px, 13.29168px, 242.78357px);
    color: #ff7500;
}
.mommy span:nth-child(23):before {
    animation-delay: 0s, -0.15333s;
}

.mommy span:nth-child(24) {
    transform: translate3d(-61.22048px, -10.83833px, 242.14579px);
    color: #ff7a00;
}
.mommy span:nth-child(24):before {
    animation-delay: 0s, -0.16s;
}

.mommy span:nth-child(25) {
    transform: translate3d(-54.29192px, -35.20076px, 241.48146px);
    color: #ff8000;
}
.mommy span:nth-child(25):before {
    animation-delay: 0s, -0.16667s;
}

.mommy span:nth-child(26) {
    transform: translate3d(-37.71495px, -55.65474px, 240.79064px);
    color: #ff8500;
}
.mommy span:nth-child(26):before {
    animation-delay: 0s, -0.17333s;
}

.mommy span:nth-child(27) {
    transform: translate3d(-13.55408px, -68.41812px, 240.07342px);
    color: #ff8a00;
}
.mommy span:nth-child(27):before {
    animation-delay: 0s, -0.18s;
}
```

```
.mommy span:nth-child(28) {
    transform: translate3d(14.66872px, -70.75337px, 239.32987px);
    color: #ff8f00;
}
.mommy span:nth-child(28):before {
    animation-delay: 0s, -0.18667s;
}

.mommy span:nth-child(29) {
    transform: translate3d(42.48545px, -61.51483px, 238.56008px);
    color: #ff9400;
}
.mommy span:nth-child(29):before {
    animation-delay: 0s, -0.19333s;
}

.mommy span:nth-child(30) {
    transform: translate3d(65.1913px, -41.45254px, 237.76413px);
    color: #ff9900;
}
.mommy span:nth-child(30):before {
    animation-delay: 0s, -0.2s;
}

.mommy span:nth-child(31) {
    transform: translate3d(78.6388px, -13.20525px, 236.9421px);
    color: #ff9e00;
}
.mommy span:nth-child(31):before {
    animation-delay: 0s, -0.20667s;
}

.mommy span:nth-child(32) {
    transform: translate3d(79.98305px, 19.03396px, 236.09409px);
    color: #ffa300;
}
.mommy span:nth-child(32):before {
    animation-delay: 0s, -0.21333s;
}

.mommy span:nth-child(33) {
    transform: translate3d(68.24586px, 50.13944px, 235.22019px);
    color: #ffa800;
}
.mommy span:nth-child(33):before {
    animation-delay: 0s, -0.22s;
}

.mommy span:nth-child(34) {
    transform: translate3d(44.59143px, 74.86995px, 234.3205px);
    color: #ffad00;
}
.mommy span:nth-child(34):before {
    animation-delay: 0s, -0.22667s;
}

.mommy span:nth-child(35) {
```

```
    transform: translate3d(12.25056px, 88.75048px, 233.39511px);
    color: #ffb300;
}
.mommy span:nth-child(35):before {
    animation-delay: 0s, -0.23333s;
}

.mommy span:nth-child(36) {
    transform: translate3d(-23.91129px, 88.87058px, 232.44412px);
    color: #ffb800;
}
.mommy span:nth-child(36):before {
    animation-delay: 0s, -0.24s;
}

.mommy span:nth-child(37) {
    transform: translate3d(-58.12632px, 74.45845px, 231.46765px);
    color: #ffbd00;
}
.mommy span:nth-child(37):before {
    animation-delay: 0s, -0.24667s;
}

.mommy span:nth-child(38) {
    transform: translate3d(-84.64667px, 47.12177px, 230.46579px);
    color: #ffc200;
}
.mommy span:nth-child(38):before {
    animation-delay: 0s, -0.25333s;
}

.mommy span:nth-child(39) {
    transform: translate3d(-98.70889px, 10.69853px, 229.43866px);
    color: #ffc700;
}
.mommy span:nth-child(39):before {
    animation-delay: 0s, -0.26s;
}

.mommy span:nth-child(40) {
    transform: translate3d(-97.3788px, -29.27521px, 228.38636px);
    color: #ffcc00;
}
.mommy span:nth-child(40):before {
    animation-delay: 0s, -0.26667s;
}

.mommy span:nth-child(41) {
    transform: translate3d(-80.12864px, -66.40789px, 227.30903px);
    color: #ffd100;
}
.mommy span:nth-child(41):before {
    animation-delay: 0s, -0.27333s;
}

.mommy span:nth-child(42) {
    transform: translate3d(-49.03685px, -94.47692px, 226.20676px);
    color: #ffd600;
```

```
}

.mommy span:nth-child(42):before {
  animation-delay: 0s, -0.28s;
}

.mommy span:nth-child(43) {
  transform: translate3d(-8.5608px, -108.47048px, 225.07969px);
  color: #ffdb00;
}
.mommy span:nth-child(43):before {
  animation-delay: 0s, -0.28667s;
}

.mommy span:nth-child(44) {
  transform: translate3d(35.0977px, -105.47241px, 223.92794px);
  color: #ffe000;
}
.mommy span:nth-child(44):before {
  animation-delay: 0s, -0.29333s;
}

.mommy span:nth-child(45) {
  transform: translate3d(74.94438px, -85.23527px, 222.75163px);
  color: #ffe600;
}
.mommy span:nth-child(45):before {
  animation-delay: 0s, -0.3s;
}

.mommy span:nth-child(46) {
  transform: translate3d(104.31576px, -50.33313px, 221.55089px);
  color: #ffeb00;
}
.mommy span:nth-child(46):before {
  animation-delay: 0s, -0.30667s;
}

.mommy span:nth-child(47) {
  transform: translate3d(117.99266px, -5.85203px, 220.32586px);
  color: #fff000;
}
.mommy span:nth-child(47):before {
  animation-delay: 0s, -0.31333s;
}

.mommy span:nth-child(48) {
  transform: translate3d(113.11821px, 41.34831px, 219.07667px);
  color: #fff500;
}
.mommy span:nth-child(48):before {
  animation-delay: 0s, -0.32s;
}

.mommy span:nth-child(49) {
  transform: translate3d(89.76004px, 83.69463px, 217.80345px);
  color: #fffa00;
}
.mommy span:nth-child(49):before {
```

```
    animation-delay: 0s, -0.32667s;
}

.mommy span:nth-child(50) {
    transform: translate3d(51.01026px, 114.11816px, 216.50635px);
    color: yellow;
}
.mommy span:nth-child(50):before {
    animation-delay: 0s, -0.33333s;
}

.mommy span:nth-child(51) {
    transform: translate3d(2.58986px, 127.234px, 215.18551px);
    color: #faff00;
}
.mommy span:nth-child(51):before {
    animation-delay: 0s, -0.34s;
}

.mommy span:nth-child(52) {
    transform: translate3d(-47.99434px, 120.28525px, 213.84107px);
    color: #f5ff00;
}
.mommy span:nth-child(52):before {
    animation-delay: 0s, -0.34667s;
}

.mommy span:nth-child(53) {
    transform: translate3d(-92.6163px, 93.68763px, 212.47317px);
    color: #f0ff00;
}
.mommy span:nth-child(53):before {
    animation-delay: 0s, -0.35333s;
}

.mommy span:nth-child(54) {
    transform: translate3d(-123.83919px, 51.07106px, 211.08198px);
    color: #ebff00;
}
.mommy span:nth-child(54):before {
    animation-delay: 0s, -0.36s;
}

.mommy span:nth-child(55) {
    transform: translate3d(-136.15442px, -1.20519px, 209.66764px);
    color: #e6ff00;
}
.mommy span:nth-child(55):before {
    animation-delay: 0s, -0.36667s;
}

.mommy span:nth-child(56) {
    transform: translate3d(-126.94498px, -55.00099px, 208.23031px);
    color: #e0ff00;
}
.mommy span:nth-child(56):before {
    animation-delay: 0s, -0.37333s;
}
```

```
.mommy span:nth-child(57) {
    transform: translate3d(-97.00574px, -101.66609px, 206.77014px);
    color: #dbff00;
}
.mommy span:nth-child(57):before {
    animation-delay: 0s, -0.38s;
}

.mommy span:nth-child(58) {
    transform: translate3d(-50.52153px, -133.43425px, 205.2873px);
    color: #d6ff00;
}
.mommy span:nth-child(58):before {
    animation-delay: 0s, -0.38667s;
}

.mommy span:nth-child(59) {
    transform: translate3d(5.50982px, -144.71544px, 203.78195px);
    color: #d1ff00;
}
.mommy span:nth-child(59):before {
    animation-delay: 0s, -0.39333s;
}

.mommy span:nth-child(60) {
    transform: translate3d(62.33154px, -133.0714px, 202.25425px);
    color: #ccff00;
}
.mommy span:nth-child(60):before {
    animation-delay: 0s, -0.4s;
}

.mommy span:nth-child(61) {
    transform: translate3d(110.79998px, -99.70517px, 200.70437px);
    color: #c7ff00;
}
.mommy span:nth-child(61):before {
    animation-delay: 0s, -0.40667s;
}

.mommy span:nth-child(62) {
    transform: translate3d(142.85929px, -49.37083px, 199.13248px);
    color: #c2ff00;
}
.mommy span:nth-child(62):before {
    animation-delay: 0s, -0.41333s;
}

.mommy span:nth-child(63) {
    transform: translate3d(152.88031px, 10.29808px, 197.53875px);
    color: #bdff00;
}
.mommy span:nth-child(63):before {
    animation-delay: 0s, -0.42s;
}

.mommy span:nth-child(64) {
```

```
    transform: translate3d(138.64118px, 69.94754px, 195.92336px);
    color: #b8ff00;
}
.mommy span:nth-child(64):before {
    animation-delay: 0s, -0.42667s;
}

.mommy span:nth-child(65) {
    transform: translate3d(101.77988px, 119.9734px, 194.28649px);
    color: #b3ff00;
}
.mommy span:nth-child(65):before {
    animation-delay: 0s, -0.43333s;
}

.mommy span:nth-child(66) {
    transform: translate3d(47.63117px, 152.07105px, 192.62831px);
    color: #adff00;
}
.mommy span:nth-child(66):before {
    animation-delay: 0s, -0.44s;
}

.mommy span:nth-child(67) {
    transform: translate3d(-15.54148px, 160.61426px, 190.94901px);
    color: #a8ff00;
}
.mommy span:nth-child(67):before {
    animation-delay: 0s, -0.44667s;
}

.mommy span:nth-child(68) {
    transform: translate3d(-77.80901px, 143.63378px, 189.24876px);
    color: #a3ff00;
}
.mommy span:nth-child(68):before {
    animation-delay: 0s, -0.45333s;
}

.mommy span:nth-child(69) {
    transform: translate3d(-129.14148px, 103.227px, 187.52777px);
    color: #9eff00;
}
.mommy span:nth-child(69):before {
    animation-delay: 0s, -0.46s;
}

.mommy span:nth-child(70) {
    transform: translate3d(-161.02726px, 45.31784px, 185.78621px);
    color: #99ff00;
}
.mommy span:nth-child(70):before {
    animation-delay: 0s, -0.46667s;
}

.mommy span:nth-child(71) {
    transform: translate3d(-167.8846px, -21.20917px, 184.02427px);
    color: #94ff00;
```

```
}

.mommy span:nth-child(71):before {
    animation-delay: 0s, -0.47333s;
}

.mommy span:nth-child(72) {
    transform: translate3d(-148.03158px, -85.8746px, 182.24216px);
    color: #8fff00;
}
.mommy span:nth-child(72):before {
    animation-delay: 0s, -0.48s;
}

.mommy span:nth-child(73) {
    transform: translate3d(-104.04685px, -138.25932px, 180.44006px);
    color: #8aff00;
}
.mommy span:nth-child(73):before {
    animation-delay: 0s, -0.48667s;
}

.mommy span:nth-child(74) {
    transform: translate3d(-42.44904px, -169.68685px, 178.61817px);
    color: #85ff00;
}
.mommy span:nth-child(74):before {
    animation-delay: 0s, -0.49333s;
}

.mommy span:nth-child(75) {
    transform: translate3d(27.26806px, -174.66097px, 176.7767px);
    color: #80ff00;
}
.mommy span:nth-child(75):before {
    animation-delay: 0s, -0.5s;
}

.mommy span:nth-child(76) {
    transform: translate3d(94.10188px, -151.81992px, 174.91584px);
    color: #7aff00;
}
.mommy span:nth-child(76):before {
    animation-delay: 0s, -0.50667s;
}

.mommy span:nth-child(77) {
    transform: translate3d(147.28213px, -104.24294px, 173.03579px);
    color: #75ff00;
}
.mommy span:nth-child(77):before {
    animation-delay: 0s, -0.51333s;
}

.mommy span:nth-child(78) {
    transform: translate3d(178.01018px, -39.04585px, 171.13678px);
    color: #70ff00;
}
.mommy span:nth-child(78):before {
```

```
    animation-delay: 0s, -0.52s;
}

.mommy span:nth-child(79) {
    transform: translate3d(180.91541px, 33.68302px, 169.21899px);
    color: #6bff00;
}
.mommy span:nth-child(79):before {
    animation-delay: 0s, -0.52667s;
}

.mommy span:nth-child(80) {
    transform: translate3d(154.98719px, 102.44747px, 167.28265px);
    color: #66ff00;
}
.mommy span:nth-child(80):before {
    animation-delay: 0s, -0.53333s;
}

.mommy span:nth-child(81) {
    transform: translate3d(103.82192px, 156.16553px, 165.32797px);
    color: #61ff00;
}
.mommy span:nth-child(81):before {
    animation-delay: 0s, -0.54s;
}

.mommy span:nth-child(82) {
    transform: translate3d(35.13209px, 185.95922px, 163.35515px);
    color: #5cff00;
}
.mommy span:nth-child(82):before {
    animation-delay: 0s, -0.54667s;
}

.mommy span:nth-child(83) {
    transform: translate3d(-40.41701px, 186.62258px, 161.36442px);
    color: #57ff00;
}
.mommy span:nth-child(83):before {
    animation-delay: 0s, -0.55333s;
}

.mommy span:nth-child(84) {
    transform: translate3d(-110.86732px, 157.52493px, 159.356px);
    color: #52ff00;
}
.mommy span:nth-child(84):before {
    animation-delay: 0s, -0.56s;
}

.mommy span:nth-child(85) {
    transform: translate3d(-164.86574px, 102.79362px, 157.3301px);
    color: #4dff00;
}
.mommy span:nth-child(85):before {
    animation-delay: 0s, -0.56667s;
}
```

```
.mommy span:nth-child(86) {
    transform: translate3d(-193.49773px, 30.73422px, 155.28695px);
    color: #47ff00;
}
.mommy span:nth-child(86):before {
    animation-delay: 0s, -0.57333s;
}

.mommy span:nth-child(87) {
    transform: translate3d(-191.75981px, -47.43135px, 153.22676px);
    color: #42ff00;
}
.mommy span:nth-child(87):before {
    animation-delay: 0s, -0.58s;
}

.mommy span:nth-child(88) {
    transform: translate3d(-159.42781px, -119.31689px, 151.14978px);
    color: #3dff00;
}
.mommy span:nth-child(88):before {
    animation-delay: 0s, -0.58667s;
}

.mommy span:nth-child(89) {
    transform: translate3d(-101.17091px, -173.33982px, 149.05622px);
    color: #38ff00;
}
.mommy span:nth-child(89):before {
    animation-delay: 0s, -0.59333s;
}

.mommy span:nth-child(90) {
    transform: translate3d(-25.8812px, -200.59149px, 146.94631px);
    color: #33ff00;
}
.mommy span:nth-child(90):before {
    animation-delay: 0s, -0.6s;
}

.mommy span:nth-child(91) {
    transform: translate3d(54.68581px, -196.30727px, 144.82029px);
    color: #2eff00;
}
.mommy span:nth-child(91):before {
    animation-delay: 0s, -0.60667s;
}

.mommy span:nth-child(92) {
    transform: translate3d(127.75141px, -160.69367px, 142.67839px);
    color: #29ff00;
}
.mommy span:nth-child(92):before {
    animation-delay: 0s, -0.61333s;
}

.mommy span:nth-child(93) {
```

```
    transform: translate3d(181.54584px, -98.96969px, 140.52084px);
    color: #24ff00;
}
.mommy span:nth-child(93):before {
    animation-delay: 0s, -0.62s;
}

.mommy span:nth-child(94) {
    transform: translate3d(207.20841px, -20.60432px, 138.34789px);
    color: #1fff00;
}
.mommy span:nth-child(94):before {
    animation-delay: 0s, -0.62667s;
}

.mommy span:nth-child(95) {
    transform: translate3d(200.24804px, 62.1389px, 136.15976px);
    color: #1aff00;
}
.mommy span:nth-child(95):before {
    animation-delay: 0s, -0.63333s;
}

.mommy span:nth-child(96) {
    transform: translate3d(161.32357px, 136.12608px, 133.9567px);
    color: #14ff00;
}
.mommy span:nth-child(96):before {
    animation-delay: 0s, -0.64s;
}

.mommy span:nth-child(97) {
    transform: translate3d(96.20879px, 189.44318px, 131.73895px);
    color: #0fff00;
}
.mommy span:nth-child(97):before {
    animation-delay: 0s, -0.64667s;
}

.mommy span:nth-child(98) {
    transform: translate3d(14.93706px, 213.31874px, 129.50675px);
    color: #0aff00;
}
.mommy span:nth-child(98):before {
    animation-delay: 0s, -0.65333s;
}

.mommy span:nth-child(99) {
    transform: translate3d(-69.74806px, 203.5682px, 127.26035px);
    color: #05ff00;
}
.mommy span:nth-child(99):before {
    animation-delay: 0s, -0.66s;
}

.mommy span:nth-child(100) {
    transform: translate3d(-144.39633px, 161.32173px, 125px);
    color: lime;
```

```

}

.mommy span:nth-child(100):before {
  animation-delay: 0s, -0.66667s;
}

.mommy span:nth-child(101) {
  transform: translate3d(-196.99263px, 92.90989px, 122.72594px);
  color: #00ff05;
}
.mommy span:nth-child(101):before {
  animation-delay: 0s, -0.67333s;
}

.mommy span:nth-child(102) {
  transform: translate3d(-218.89521px, 8.91494px, 120.43842px);
  color: #00ff0a;
}
.mommy span:nth-child(102):before {
  animation-delay: 0s, -0.68s;
}

.mommy span:nth-child(103) {
  transform: translate3d(-206.2569px, -77.46984px, 118.13769px);
  color: #00ff0f;
}
.mommy span:nth-child(103):before {
  animation-delay: 0s, -0.68667s;
}

.mommy span:nth-child(104) {
  transform: translate3d(-160.69556px, -152.51799px, 115.82401px);
  color: #00ff14;
}
.mommy span:nth-child(104):before {
  animation-delay: 0s, -0.69333s;
}

.mommy span:nth-child(105) {
  transform: translate3d(-89.09738px, -204.15667px, 113.49762px);
  color: #00ff1a;
}
.mommy span:nth-child(105):before {
  animation-delay: 0s, -0.7s;
}

.mommy span:nth-child(106) {
  transform: translate3d(-2.5753px, -223.91313px, 111.15879px);
  color: #00ff1f;
}
.mommy span:nth-child(106):before {
  animation-delay: 0s, -0.70667s;
}

.mommy span:nth-child(107) {
  transform: translate3d(85.26016px, -208.30644px, 108.80777px);
  color: #00ff24;
}
.mommy span:nth-child(107):before {

```

```
    animation-delay: 0s, -0.71333s;
}

.mommy span:nth-child(108) {
  transform: translate3d(160.44758px, -159.45555px, 106.44482px);
  color: #00ff29;
}
.mommy span:nth-child(108):before {
  animation-delay: 0s, -0.72s;
}

.mommy span:nth-child(109) {
  transform: translate3d(210.89962px, -84.79826px, 104.0702px);
  color: #00ff2e;
}
.mommy span:nth-child(109):before {
  animation-delay: 0s, -0.72667s;
}

.mommy span:nth-child(110) {
  transform: translate3d(228.35058px, 4.04288px, 101.68416px);
  color: #00ff33;
}
.mommy span:nth-child(110):before {
  animation-delay: 0s, -0.73333s;
}

.mommy span:nth-child(111) {
  transform: translate3d(209.71226px, 93.07452px, 99.28697px);
  color: #00ff38;
}
.mommy span:nth-child(111):before {
  animation-delay: 0s, -0.74s;
}

.mommy span:nth-child(112) {
  transform: translate3d(157.61531px, 168.14248px, 96.8789px);
  color: #00ff3d;
}
.mommy span:nth-child(112):before {
  animation-delay: 0s, -0.74667s;
}

.mommy span:nth-child(113) {
  transform: translate3d(80.042px, 217.18782px, 94.4602px);
  color: #00ff42;
}
.mommy span:nth-child(113):before {
  animation-delay: 0s, -0.75333s;
}

.mommy span:nth-child(114) {
  transform: translate3d(-10.89915px, 232.18845px, 92.03114px);
  color: #00ff47;
}
.mommy span:nth-child(114):before {
  animation-delay: 0s, -0.76s;
}
```

```
.mommy span:nth-child(115) {
    transform: translate3d(-100.86822px, 210.47299px, 89.59199px);
    color: #00ff4d;
}
.mommy span:nth-child(115):before {
    animation-delay: 0s, -0.76667s;
}

.mommy span:nth-child(116) {
    transform: translate3d(-175.56116px, 155.19142px, 87.14301px);
    color: #00ff52;
}
.mommy span:nth-child(116):before {
    animation-delay: 0s, -0.77333s;
}

.mommy span:nth-child(117) {
    transform: translate3d(-222.98983px, 74.86036px, 84.68448px);
    color: #00ff57;
}
.mommy span:nth-child(117):before {
    animation-delay: 0s, -0.78s;
}

.mommy span:nth-child(118) {
    transform: translate3d(-235.4106px, -17.95182px, 82.21666px);
    color: #00ff5c;
}
.mommy span:nth-child(118):before {
    animation-delay: 0s, -0.78667s;
}

.mommy span:nth-child(119) {
    transform: translate3d(-210.59045px, -108.5966px, 79.73983px);
    color: #00ff61;
}
.mommy span:nth-child(119):before {
    animation-delay: 0s, -0.79333s;
}

.mommy span:nth-child(120) {
    transform: translate3d(-152.20336px, -182.6634px, 77.25425px);
    color: #00ff66;
}
.mommy span:nth-child(120):before {
    animation-delay: 0s, -0.8s;
}

.mommy span:nth-child(121) {
    transform: translate3d(-69.28728px, -228.27656px, 74.7602px);
    color: #00ff6b;
}
.mommy span:nth-child(121):before {
    animation-delay: 0s, -0.80667s;
}

.mommy span:nth-child(122) {
```

```
    transform: translate3d(25.15819px, -238.0039px, 72.25795px);
    color: #00ff70;
}
.mommy span:nth-child(122):before {
    animation-delay: 0s, -0.81333s;
}

.mommy span:nth-child(123) {
    transform: translate3d(116.21525px, -210.06966px, 69.74778px);
    color: #00ff75;
}
.mommy span:nth-child(123):before {
    animation-delay: 0s, -0.82s;
}

.mommy span:nth-child(124) {
    transform: translate3d(189.41049px, -148.67346px, 67.22996px);
    color: #00ff7a;
}
.mommy span:nth-child(124):before {
    animation-delay: 0s, -0.82667s;
}

.mommy span:nth-child(125) {
    transform: translate3d(233.0214px, -63.35866px, 64.70476px);
    color: #00ff80;
}
.mommy span:nth-child(125):before {
    animation-delay: 0s, -0.83333s;
}

.mommy span:nth-child(126) {
    transform: translate3d(239.95828px, 32.47471px, 62.17247px);
    color: #00ff85;
}
.mommy span:nth-child(126):before {
    animation-delay: 0s, -0.84s;
}

.mommy span:nth-child(127) {
    transform: translate3d(208.91878px, 123.68025px, 59.63336px);
    color: #00ff8a;
}
.mommy span:nth-child(127):before {
    animation-delay: 0s, -0.84667s;
}

.mommy span:nth-child(128) {
    transform: translate3d(144.62674px, 195.76542px, 57.08772px);
    color: #00ff8f;
}
.mommy span:nth-child(128):before {
    animation-delay: 0s, -0.85333s;
}

.mommy span:nth-child(129) {
    transform: translate3d(57.11222px, 237.20042px, 54.53581px);
    color: #00ff94;
```

```
}

.mommy span:nth-child(129):before {
  animation-delay: 0s, -0.86s;
}

.mommy span:nth-child(130) {
  transform: translate3d(-39.85726px, 241.26685px, 51.97792px);
  color: #00ff99;
}
.mommy span:nth-child(130):before {
  animation-delay: 0s, -0.86667s;
}

.mommy span:nth-child(131) {
  transform: translate3d(-130.94838px, 207.14909px, 49.41434px);
  color: #00ff9e;
}
.mommy span:nth-child(131):before {
  animation-delay: 0s, -0.87333s;
}

.mommy span:nth-child(132) {
  transform: translate3d(-201.69306px, 140.09077px, 46.84533px);
  color: #00ffa3;
}
.mommy span:nth-child(132):before {
  animation-delay: 0s, -0.88s;
}

.mommy span:nth-child(133) {
  transform: translate3d(-240.79242px, 50.58726px, 44.27119px);
  color: #00ffa8;
}
.mommy span:nth-child(133):before {
  animation-delay: 0s, -0.88667s;
}

.mommy span:nth-child(134) {
  transform: translate3d(-241.92587px, -47.26134px, 41.69219px);
  color: #00ffad;
}
.mommy span:nth-child(134):before {
  animation-delay: 0s, -0.89333s;
}

.mommy span:nth-child(135) {
  transform: translate3d(-204.77491px, -137.97736px, 39.10862px);
  color: #00ffb3;
}
.mommy span:nth-child(135):before {
  animation-delay: 0s, -0.9s;
}

.mommy span:nth-child(136) {
  transform: translate3d(-135.09558px, -207.16037px, 36.52076px);
  color: #00ffb8;
}
.mommy span:nth-child(136):before {
```

```
    animation-delay: 0s, -0.90667s;
}

.mommy span:nth-child(137) {
  transform: translate3d(-43.82449px, -243.77909px, 33.92889px);
  color: #00ffbd;
}
.mommy span:nth-child(137):before {
  animation-delay: 0s, -0.91333s;
}

.mommy span:nth-child(138) {
  transform: translate3d(54.6423px, -241.93479px, 31.33331px);
  color: #00ffc2;
}
.mommy span:nth-child(138):before {
  animation-delay: 0s, -0.92s;
}

.mommy span:nth-child(139) {
  transform: translate3d(144.72603px, -201.81357px, 28.73429px);
  color: #00ffc7;
}
.mommy span:nth-child(139):before {
  animation-delay: 0s, -0.92667s;
}

.mommy span:nth-child(140) {
  transform: translate3d(212.13652px, -129.67347px, 26.13212px);
  color: #00ffcc;
}
.mommy span:nth-child(140):before {
  animation-delay: 0s, -0.93333s;
}

.mommy span:nth-child(141) {
  transform: translate3d(246.14505px, -36.86584px, 23.52708px);
  color: #00ffd1;
}
.mommy span:nth-child(141):before {
  animation-delay: 0s, -0.94s;
}

.mommy span:nth-child(142) {
  transform: translate3d(241.29625px, 61.95559px, 20.91946px);
  color: #00ffd6;
}
.mommy span:nth-child(142):before {
  animation-delay: 0s, -0.94667s;
}

.mommy span:nth-child(143) {
  transform: translate3d(198.28528px, 151.15459px, 18.30955px);
  color: #00ffdb;
}
.mommy span:nth-child(143):before {
  animation-delay: 0s, -0.95333s;
}
```

```
.mommy span:nth-child(144) {
    transform: translate3d(123.85886px, 216.59309px, 15.69763px);
    color: #00ffe0;
}
.mommy span:nth-child(144):before {
    animation-delay: 0s, -0.96s;
}

.mommy span:nth-child(145) {
    transform: translate3d(29.7542px, 247.87799px, 13.08399px);
    color: #00ffe6;
}
.mommy span:nth-child(145):before {
    animation-delay: 0s, -0.96667s;
}

.mommy span:nth-child(146) {
    transform: translate3d(-69.15695px, 240.01608px, 10.46891px);
    color: #00ffeb;
}
.mommy span:nth-child(146):before {
    animation-delay: 0s, -0.97333s;
}

.mommy span:nth-child(147) {
    transform: translate3d(-157.22479px, 194.21303px, 7.85269px);
    color: #00fff0;
}
.mommy span:nth-child(147):before {
    animation-delay: 0s, -0.98s;
}

.mommy span:nth-child(148) {
    transform: translate3d(-220.5042px, 117.6881px, 5.2356px);
    color: #00fff5;
}
.mommy span:nth-child(148):before {
    animation-delay: 0s, -0.98667s;
}

.mommy span:nth-child(149) {
    transform: translate3d(-248.96867px, 22.53324px, 2.61795px);
    color: #00ffff;
}
.mommy span:nth-child(149):before {
    animation-delay: 0s, -0.99333s;
}

.mommy span:nth-child(150) {
    transform: translate3d(-238.10325px, -76.20266px, 0px);
    color: cyan;
}
.mommy span:nth-child(150):before {
    animation-delay: 0s, -1s;
}

.mommy span:nth-child(151) {
```

```
    transform: translate3d(-189.6225px, -162.90013px, -2.61795px);
    color: #00faaff;
}
.mommy span:nth-child(151):before {
    animation-delay: 0s, -1.00667s;
}

.mommy span:nth-child(152) {
    transform: translate3d(-111.1993px, -223.84661px, -5.2356px);
    color: #00f5ff;
}
.mommy span:nth-child(152):before {
    animation-delay: 0s, -1.01333s;
}

.mommy span:nth-child(153) {
    transform: translate3d(-15.24718px, -249.41102px, -7.85269px);
    color: #00f0ff;
}
.mommy span:nth-child(153):before {
    animation-delay: 0s, -1.02s;
}

.mommy span:nth-child(154) {
    transform: translate3d(83.04975px, -235.56982px, -10.46891px);
    color: #00ebff;
}
.mommy span:nth-child(154):before {
    animation-delay: 0s, -1.02667s;
}

.mommy span:nth-child(155) {
    transform: translate3d(168.14604px, -184.54192px, -13.08399px);
    color: #00e6ff;
}
.mommy span:nth-child(155):before {
    animation-delay: 0s, -1.03333s;
}

.mommy span:nth-child(156) {
    transform: translate3d(226.5999px, -104.43214px, -15.69763px);
    color: #00e0ff;
}
.mommy span:nth-child(156):before {
    animation-delay: 0s, -1.04s;
}

.mommy span:nth-child(157) {
    transform: translate3d(249.20214px, -7.94054px, -18.30955px);
    color: #00dbff;
}
.mommy span:nth-child(157):before {
    animation-delay: 0s, -1.04667s;
}

.mommy span:nth-child(158) {
    transform: translate3d(232.43092px, 89.65624px, -20.91946px);
    color: #00d6ff;
```

```
}

.mommy span:nth-child(158):before {
  animation-delay: 0s, -1.05333s;
}

.mommy span:nth-child(159) {
  transform: translate3d(179.0019px, 172.93004px, -23.52708px);
  color: #00d1ff;
}
.mommy span:nth-child(159):before {
  animation-delay: 0s, -1.06s;
}

.mommy span:nth-child(160) {
  transform: translate3d(97.42765px, 228.74651px, -26.13212px);
  color: #00ccff;
}
.mommy span:nth-child(160):before {
  animation-delay: 0s, -1.06667s;
}

.mommy span:nth-child(161) {
  transform: translate3d(0.65796px, 248.34232px, -28.73429px);
  color: #00c7ff;
}
.mommy span:nth-child(161):before {
  animation-delay: 0s, -1.07333s;
}

.mommy span:nth-child(162) {
  transform: translate3d(-95.98132px, 228.70463px, -31.33331px);
  color: #00c2ff;
}
.mommy span:nth-child(162):before {
  animation-delay: 0s, -1.08s;
}

.mommy span:nth-child(163) {
  transform: translate3d(-177.22193px, 173.03531px, -33.92889px);
  color: #00bdff;
}
.mommy span:nth-child(163):before {
  animation-delay: 0s, -1.08667s;
}

.mommy span:nth-child(164) {
  transform: translate3d(-230.27188px, 90.22802px, -36.52076px);
  color: #00b8ff;
}
.mommy span:nth-child(164):before {
  animation-delay: 0s, -1.09333s;
}

.mommy span:nth-child(165) {
  transform: translate3d(-246.83503px, -6.55607px, -39.10862px);
  color: #00b3ff;
}
.mommy span:nth-child(165):before {
```

```
    animation-delay: 0s, -1.1s;
}

.mommy span:nth-child(166) {
  transform: translate3d(-224.4119px, -101.98558px, -41.69219px);
  color: #00adff;
}
.mommy span:nth-child(166):before {
  animation-delay: 0s, -1.10667s;
}

.mommy span:nth-child(167) {
  transform: translate3d(-166.67708px, -180.99396px, -44.27119px);
  color: #00a8ff;
}
.mommy span:nth-child(167):before {
  animation-delay: 0s, -1.11333s;
}

.mommy span:nth-child(168) {
  transform: translate3d(-82.87638px, -231.16449px, -46.84533px);
  color: #00a3ff;
}
.mommy span:nth-child(168):before {
  animation-delay: 0s, -1.12s;
}

.mommy span:nth-child(169) {
  transform: translate3d(13.6574px, -244.68694px, -49.41434px);
  color: #009eff;
}
.mommy span:nth-child(169):before {
  animation-delay: 0s, -1.12667s;
}

.mommy span:nth-child(170) {
  transform: translate3d(107.63121px, -219.57645px, -51.97792px);
  color: #0099ff;
}
.mommy span:nth-child(170):before {
  animation-delay: 0s, -1.13333s;
}

.mommy span:nth-child(171) {
  transform: translate3d(184.2209px, -159.96408px, -54.53581px);
  color: #0094ff;
}
.mommy span:nth-child(171):before {
  animation-delay: 0s, -1.14s;
}

.mommy span:nth-child(172) {
  transform: translate3d(231.41593px, -75.41658px, -57.08772px);
  color: #008fff;
}
.mommy span:nth-child(172):before {
  animation-delay: 0s, -1.14667s;
}
```

```
.mommy span:nth-child(173) {
    transform: translate3d(241.90783px, 20.60248px, -59.63336px);
    color: #008aff;
}
.mommy span:nth-child(173):before {
    animation-delay: 0s, -1.15333s;
}

.mommy span:nth-child(174) {
    transform: translate3d(214.22465px, 112.88217px, -62.17247px);
    color: #0085ff;
}
.mommy span:nth-child(174):before {
    animation-delay: 0s, -1.16s;
}

.mommy span:nth-child(175) {
    transform: translate3d(152.93484px, 186.88025px, -64.70476px);
    color: #0080ff;
}
.mommy span:nth-child(175):before {
    animation-delay: 0s, -1.16667s;
}

.mommy span:nth-child(176) {
    transform: translate3d(67.89294px, 231.02096px, -67.22996px);
    color: #007aff;
}
.mommy span:nth-child(176):before {
    animation-delay: 0s, -1.17333s;
}

.mommy span:nth-child(177) {
    transform: translate3d(-27.34855px, 238.5106px, -69.74778px);
    color: #0075ff;
}
.mommy span:nth-child(177):before {
    animation-delay: 0s, -1.18s;
}

.mommy span:nth-child(178) {
    transform: translate3d(-117.7044px, 208.38537px, -72.25795px);
    color: #0070ff;
}
.mommy span:nth-child(178):before {
    animation-delay: 0s, -1.18667s;
}

.mommy span:nth-child(179) {
    transform: translate3d(-188.9523px, 145.62946px, -74.7602px);
    color: #006bff;
}
.mommy span:nth-child(179):before {
    animation-delay: 0s, -1.19333s;
}

.mommy span:nth-child(180) {
```

```
    transform: translate3d(-229.97749px, 60.35009px, -77.25425px);
    color: #0066ff;
}
.mommy span:nth-child(180):before {
    animation-delay: 0s, -1.2s;
}

.mommy span:nth-child(181) {
    transform: translate3d(-234.51114px, -33.85389px, -79.73983px);
    color: #0061ff;
}
.mommy span:nth-child(181):before {
    animation-delay: 0s, -1.20667s;
}

.mommy span:nth-child(182) {
    transform: translate3d(-202.08986px, -122.066px, -82.21666px);
    color: #005cff;
}
.mommy span:nth-child(182):before {
    animation-delay: 0s, -1.21333s;
}

.mommy span:nth-child(183) {
    transform: translate3d(-138.08932px, -190.42027px, -84.68448px);
    color: #0057ff;
}
.mommy span:nth-child(183):before {
    animation-delay: 0s, -1.22s;
}

.mommy span:nth-child(184) {
    transform: translate3d(-52.83268px, -228.28667px, -87.14301px);
    color: #0052ff;
}
.mommy span:nth-child(184):before {
    animation-delay: 0s, -1.22667s;
}

.mommy span:nth-child(185) {
    transform: translate3d(40.07799px, -229.92832px, -89.59199px);
    color: #004dff;
}
.mommy span:nth-child(185):before {
    animation-delay: 0s, -1.23333s;
}

.mommy span:nth-child(186) {
    transform: translate3d(125.93733px, -195.37159px, -92.03114px);
    color: #0047ff;
}
.mommy span:nth-child(186):before {
    animation-delay: 0s, -1.24s;
}

.mommy span:nth-child(187) {
    transform: translate3d(191.27035px, -130.35691px, -94.4602px);
    color: #0042ff;
```

```
}

.mommy span:nth-child(187):before {
  animation-delay: 0s, -1.24667s;
}

.mommy span:nth-child(188) {
  transform: translate3d(225.95279px, -45.38519px, -96.8789px);
  color: #003dff;
}
.mommy span:nth-child(188):before {
  animation-delay: 0s, -1.25333s;
}

.mommy span:nth-child(189) {
  transform: translate3d(224.78384px, 45.98178px, -99.28697px);
  color: #0038ff;
}
.mommy span:nth-child(189):before {
  animation-delay: 0s, -1.26s;
}

.mommy span:nth-child(190) {
  transform: translate3d(188.26604px, 129.29127px, -101.68416px);
  color: #0033ff;
}
.mommy span:nth-child(190):before {
  animation-delay: 0s, -1.26667s;
}

.mommy span:nth-child(191) {
  transform: translate3d(122.47564px, 191.49181px, -104.0702px);
  color: #002eff;
}
.mommy span:nth-child(191):before {
  animation-delay: 0s, -1.27333s;
}

.mommy span:nth-child(192) {
  transform: translate3d(38.05169px, 222.98334px, -106.44482px);
  color: #0029ff;
}
.mommy span:nth-child(192):before {
  animation-delay: 0s, -1.28s;
}

.mommy span:nth-child(193) {
  transform: translate3d(-51.52785px, 219.10214px, -108.80777px);
  color: #0024ff;
}
.mommy span:nth-child(193):before {
  animation-delay: 0s, -1.28667s;
}

.mommy span:nth-child(194) {
  transform: translate3d(-132.10323px, 180.81056px, -111.15879px);
  color: #001fff;
}
.mommy span:nth-child(194):before {
```

```
    animation-delay: 0s, -1.29333s;
}

.mommy span:nth-child(195) {
    transform: translate3d(-191.07704px, 114.48954px, -113.49762px);
    color: #001aff;
}
.mommy span:nth-child(195):before {
    animation-delay: 0s, -1.3s;
}

.mommy span:nth-child(196) {
    transform: translate3d(-219.38891px, 30.87561px, -115.82401px);
    color: #0014ff;
}
.mommy span:nth-child(196):before {
    animation-delay: 0s, -1.30667s;
}

.mommy span:nth-child(197) {
    transform: translate3d(-212.9103px, -56.6806px, -118.13769px);
    color: #000fff;
}
.mommy span:nth-child(197):before {
    animation-delay: 0s, -1.31333s;
}

.mommy span:nth-child(198) {
    transform: translate3d(-173.0442px, -134.35138px, -120.43842px);
    color: #000aff;
}
.mommy span:nth-child(198):before {
    animation-delay: 0s, -1.32s;
}

.mommy span:nth-child(199) {
    transform: translate3d(-106.44313px, -190.02159px, -122.72594px);
    color: #0005ff;
}
.mommy span:nth-child(199):before {
    animation-delay: 0s, -1.32667s;
}

.mommy span:nth-child(200) {
    transform: translate3d(-23.89954px, -215.18321px, -125px);
    color: blue;
}
.mommy span:nth-child(200):before {
    animation-delay: 0s, -1.33333s;
}

.mommy span:nth-child(201) {
    transform: translate3d(61.40643px, -206.23785px, -127.26035px);
    color: #0500ff;
}
.mommy span:nth-child(201):before {
    animation-delay: 0s, -1.34s;
}
```

```
.mommy span:nth-child(202) {
    transform: translate3d(136.01672px, -165.00743px, -129.50675px);
    color: #0a00ff;
}
.mommy span:nth-child(202):before {
    animation-delay: 0s, -1.34667s;
}

.mommy span:nth-child(203) {
    transform: translate3d(188.32419px, -98.38113px, -131.73895px);
    color: #0f00ff;
}
.mommy span:nth-child(203):before {
    animation-delay: 0s, -1.35333s;
}

.mommy span:nth-child(204) {
    transform: translate3d(210.3829px, -17.165px, -133.9567px);
    color: #1400ff;
}
.mommy span:nth-child(204):before {
    animation-delay: 0s, -1.36s;
}

.mommy span:nth-child(205) {
    transform: translate3d(199.11668px, 65.67394px, -136.15976px);
    color: #1a00ff;
}
.mommy span:nth-child(205):before {
    animation-delay: 0s, -1.36667s;
}

.mommy span:nth-child(206) {
    transform: translate3d(156.74204px, 137.08316px, -138.34789px);
    color: #1f00ff;
}
.mommy span:nth-child(206):before {
    animation-delay: 0s, -1.37333s;
}

.mommy span:nth-child(207) {
    transform: translate3d(90.34827px, 185.98678px, -140.52084px);
    color: #2400ff;
}
.mommy span:nth-child(207):before {
    animation-delay: 0s, -1.38s;
}

.mommy span:nth-child(208) {
    transform: translate3d(10.71222px, 205.00762px, -142.67839px);
    color: #2900ff;
}
.mommy span:nth-child(208):before {
    animation-delay: 0s, -1.38667s;
}

.mommy span:nth-child(209) {
```

```
    transform: translate3d(-69.45406px, 191.58084px, -144.82029px);
    color: #2e00ff;
}
.mommy span:nth-child(209):before {
    animation-delay: 0s, -1.3933s;
}

.mommy span:nth-child(210) {
    transform: translate3d(-137.53764px, 148.29086px, -146.94631px);
    color: #3300ff;
}
.mommy span:nth-child(210):before {
    animation-delay: 0s, -1.4s;
}

.mommy span:nth-child(211) {
    transform: translate3d(-183.01446px, 82.38902px, -149.05622px);
    color: #3800ff;
}
.mommy span:nth-child(211):before {
    animation-delay: 0s, -1.40667s;
}

.mommy span:nth-child(212) {
    transform: translate3d(-199.0798px, 4.57997px, -151.14978px);
    color: #3d00ff;
}
.mommy span:nth-child(212):before {
    animation-delay: 0s, -1.41333s;
}

.mommy span:nth-child(213) {
    transform: translate3d(-183.66636px, -72.72019px, -153.22676px);
    color: #4200ff;
}
.mommy span:nth-child(213):before {
    animation-delay: 0s, -1.42s;
}

.mommy span:nth-child(214) {
    transform: translate3d(-139.69754px, -137.37017px, -155.28695px);
    color: #4700ff;
}
.mommy span:nth-child(214):before {
    animation-delay: 0s, -1.42667s;
}

.mommy span:nth-child(215) {
    transform: translate3d(-74.54742px, -179.4155px, -157.3301px);
    color: #4d00ff;
}
.mommy span:nth-child(215):before {
    animation-delay: 0s, -1.43333s;
}

.mommy span:nth-child(216) {
    transform: translate3d(1.19468px, -192.62461px, -159.356px);
    color: #5200ff;
```

```
}

.mommy span:nth-child(216):before {
  animation-delay: 0s, -1.44s;
}

.mommy span:nth-child(217) {
  transform: translate3d(75.44839px, -175.41113px, -161.36442px);
  color: #5700ff;
}
.mommy span:nth-child(217):before {
  animation-delay: 0s, -1.44667s;
}

.mommy span:nth-child(218) {
  transform: translate3d(136.57388px, -131.00637px, -163.35515px);
  color: #5c00ff;
}
.mommy span:nth-child(218):before {
  animation-delay: 0s, -1.45333s;
}

.mommy span:nth-child(219) {
  transform: translate3d(175.20129px, -66.86683px, -165.32797px);
  color: #6100ff;
}
.mommy span:nth-child(219):before {
  animation-delay: 0s, -1.46s;
}

.mommy span:nth-child(220) {
  transform: translate3d(185.66977px, 6.57652px, -167.28265px);
  color: #6600ff;
}
.mommy span:nth-child(220):before {
  animation-delay: 0s, -1.46667s;
}

.mommy span:nth-child(221) {
  transform: translate3d(166.85462px, 77.61744px, -169.21899px);
  color: #6b00ff;
}
.mommy span:nth-child(221):before {
  animation-delay: 0s, -1.47333s;
}

.mommy span:nth-child(222) {
  transform: translate3d(122.26205px, 135.14509px, -171.13678px);
  color: #7000ff;
}
.mommy span:nth-child(222):before {
  animation-delay: 0s, -1.48s;
}

.mommy span:nth-child(223) {
  transform: translate3d(59.38969px, 170.38626px, -173.03579px);
  color: #7500ff;
}
.mommy span:nth-child(223):before {
```

```
    animation-delay: 0s, -1.48667s;
}

.mommy span:nth-child(224) {
    transform: translate3d(-11.53238px, 178.24549px, -174.91584px);
    color: #7a00ff;
}
.mommy span:nth-child(224):before {
    animation-delay: 0s, -1.49333s;
}

.mommy span:nth-child(225) {
    transform: translate3d(-79.20897px, 158.03778px, -176.7767px);
    color: #8000ff;
}
.mommy span:nth-child(225):before {
    animation-delay: 0s, -1.5s;
}

.mommy span:nth-child(226) {
    transform: translate3d(-133.08328px, 113.50942px, -178.61817px);
    color: #8500ff;
}
.mommy span:nth-child(226):before {
    animation-delay: 0s, -1.50667s;
}

.mommy span:nth-child(227) {
    transform: translate3d(-164.98787px, 52.15734px, -180.44006px);
    color: #8a00ff;
}
.mommy span:nth-child(227):before {
    animation-delay: 0s, -1.51333s;
}

.mommy span:nth-child(228) {
    transform: translate3d(-170.38425px, -16.03132px, -182.24216px);
    color: #8f00ff;
}
.mommy span:nth-child(228):before {
    animation-delay: 0s, -1.52s;
}

.mommy span:nth-child(229) {
    transform: translate3d(-149.00273px, -80.20757px, -184.02427px);
    color: #9400ff;
}
.mommy span:nth-child(229):before {
    animation-delay: 0s, -1.52667s;
}

.mommy span:nth-child(230) {
    transform: translate3d(-104.79329px, -130.39115px, -185.78621px);
    color: #9900ff;
}
.mommy span:nth-child(230):before {
    animation-delay: 0s, -1.53333s;
}
```

```
.mommy span:nth-child(231) {
    transform: translate3d(-45.20979px, -159.02645px, -187.52777px);
    color: #9e00ff;
}
.mommy span:nth-child(231):before {
    animation-delay: 0s, -1.54s;
}

.mommy span:nth-child(232) {
    transform: translate3d(20.04477px, -162.12067px, -189.24876px);
    color: #a300ff;
}
.mommy span:nth-child(232):before {
    animation-delay: 0s, -1.54667s;
}

.mommy span:nth-child(233) {
    transform: translate3d(80.60086px, -139.79263px, -190.94901px);
    color: #a800ff;
}
.mommy span:nth-child(233):before {
    animation-delay: 0s, -1.55333s;
}

.mommy span:nth-child(234) {
    transform: translate3d(127.07455px, -96.15817px, -192.62831px);
    color: #ad00ff;
}
.mommy span:nth-child(234):before {
    animation-delay: 0s, -1.56s;
}

.mommy span:nth-child(235) {
    transform: translate3d(152.52514px, -38.58552px, -194.28649px);
    color: #b300ff;
}
.mommy span:nth-child(235):before {
    animation-delay: 0s, -1.56667s;
}

.mommy span:nth-child(236) {
    transform: translate3d(153.49134px, 23.54666px, -195.92336px);
    color: #b800ff;
}
.mommy span:nth-child(236):before {
    animation-delay: 0s, -1.57333s;
}

.mommy span:nth-child(237) {
    transform: translate3d(130.45142px, 80.37952px, -197.53875px);
    color: #bd00ff;
}
.mommy span:nth-child(237):before {
    animation-delay: 0s, -1.58s;
}

.mommy span:nth-child(238) {
```

```
    transform: translate3d(87.64806px, 123.14249px, -199.13248px);
    color: #c200ff;
}
.mommy span:nth-child(238):before {
    animation-delay: 0s, -1.58667s;
}

.mommy span:nth-child(239) {
    transform: translate3d(32.3213px, 145.50976px, -200.70437px);
    color: #c700ff;
}
.mommy span:nth-child(239):before {
    animation-delay: 0s, -1.59333s;
}

.mommy span:nth-child(240) {
    transform: translate3d(-26.51359px, 144.53459px, -202.25425px);
    color: #cc00ff;
}
.mommy span:nth-child(240):before {
    animation-delay: 0s, -1.6s;
}

.mommy span:nth-child(241) {
    transform: translate3d(-79.53741px, 121.02362px, -203.78195px);
    color: #d100ff;
}
.mommy span:nth-child(241):before {
    animation-delay: 0s, -1.60667s;
}

.mommy span:nth-child(242) {
    transform: translate3d(-118.60709px, 79.30626px, -205.2873px);
    color: #d600ff;
}
.mommy span:nth-child(242):before {
    animation-delay: 0s, -1.61333s;
}

.mommy span:nth-child(243) {
    transform: translate3d(-138.0087px, 26.45198px, -206.77014px);
    color: #db00ff;
}
.mommy span:nth-child(243):before {
    animation-delay: 0s, -1.62s;
}

.mommy span:nth-child(244) {
    transform: translate3d(-135.29038px, -28.92492px, -208.23031px);
    color: #e000ff;
}
.mommy span:nth-child(244):before {
    animation-delay: 0s, -1.62667s;
}

.mommy span:nth-child(245) {
    transform: translate3d(-111.55409px, -78.07154px, -209.66764px);
    color: #e600ff;
```

```

}

.mommy span:nth-child(245):before {
  animation-delay: 0s, -1.63333s;
}

.mommy span:nth-child(246) {
  transform: translate3d(-71.17508px, -113.4835px, -211.08198px);
  color: #eb00ff;
}
.mommy span:nth-child(246):before {
  animation-delay: 0s, -1.64s;
}

.mommy span:nth-child(247) {
  transform: translate3d(-21.01034px, -130.05274px, -212.47317px);
  color: #f000ff;
}
.mommy span:nth-child(247):before {
  animation-delay: 0s, -1.64667s;
}

.mommy span:nth-child(248) {
  transform: translate3d(30.76289px, -125.80001px, -213.84107px);
  color: #f500ff;
}
.mommy span:nth-child(248):before {
  animation-delay: 0s, -1.65333s;
}

.mommy span:nth-child(249) {
  transform: translate3d(75.98209px, -102.0878px, -215.18551px);
  color: #fa00ff;
}
.mommy span:nth-child(249):before {
  animation-delay: 0s, -1.66s;
}

.mommy span:nth-child(250) {
  transform: translate3d(107.78986px, -63.29571px, -216.50635px);
  color: magenta;
}
.mommy span:nth-child(250):before {
  animation-delay: 0s, -1.66667s;
}

.mommy span:nth-child(251) {
  transform: translate3d(121.67496px, -16.02689px, -217.80345px);
  color: #ff00fa;
}
.mommy span:nth-child(251):before {
  animation-delay: 0s, -1.67333s;
}

.mommy span:nth-child(252) {
  transform: translate3d(116.10599px, 32.01269px, -219.07667px);
  color: #ff00f5;
}
.mommy span:nth-child(252):before {

```

```
    animation-delay: 0s, -1.68s;
}

.mommy span:nth-child(253) {
  transform: translate3d(92.66963px, 73.27247px, -220.32586px);
  color: #ff00f0;
}
.mommy span:nth-child(253):before {
  animation-delay: 0s, -1.68667s;
}

.mommy span:nth-child(254) {
  transform: translate3d(55.70792px, 101.54717px, -221.55089px);
  color: #ff00eb;
}
.mommy span:nth-child(254):before {
  animation-delay: 0s, -1.69333s;
}

.mommy span:nth-child(255) {
  transform: translate3d(11.52974px, 112.91048px, -222.75163px);
  color: #ff00e6;
}
.mommy span:nth-child(255):before {
  animation-delay: 0s, -1.7s;
}

.mommy span:nth-child(256) {
  transform: translate3d(-32.66259px, 106.25174px, -223.92794px);
  color: #ff00e0;
}
.mommy span:nth-child(256):before {
  animation-delay: 0s, -1.70667s;
}

.mommy span:nth-child(257) {
  transform: translate3d(-69.94921px, 83.3441px, -225.07969px);
  color: #ff00db;
}
.mommy span:nth-child(257):before {
  animation-delay: 0s, -1.71333s;
}

.mommy span:nth-child(258) {
  transform: translate3d(-94.77922px, 48.44996px, -226.20676px);
  color: #ff00d6;
}
.mommy span:nth-child(258):before {
  animation-delay: 0s, -1.72s;
}

.mommy span:nth-child(259) {
  transform: translate3d(-103.79637px, 7.54446px, -227.30903px);
  color: #ff00d1;
}
.mommy span:nth-child(259):before {
  animation-delay: 0s, -1.72667s;
}
```

```
.mommy span:nth-child(260) {
    transform: translate3d(-96.28148px, -32.7039px, -228.38636px);
    color: #ff00cc;
}
.mommy span:nth-child(260):before {
    animation-delay: 0s, -1.73333s;
}

.mommy span:nth-child(261) {
    transform: translate3d(-74.15521px, -66.02203px, -229.43866px);
    color: #ff00c7;
}
.mommy span:nth-child(261):before {
    animation-delay: 0s, -1.74s;
}

.mommy span:nth-child(262) {
    transform: translate3d(-41.55829px, -87.51245px, -230.46579px);
    color: #ff00c2;
}
.mommy span:nth-child(262):before {
    animation-delay: 0s, -1.74667s;
}

.mommy span:nth-child(263) {
    transform: translate3d(-4.09393px, -94.37144px, -231.46765px);
    color: #ff00bd;
}
.mommy span:nth-child(263):before {
    animation-delay: 0s, -1.75333s;
}

.mommy span:nth-child(264) {
    transform: translate3d(32.13114px, -86.2399px, -232.44412px);
    color: #ff00b8;
}
.mommy span:nth-child(264):before {
    animation-delay: 0s, -1.76s;
}

.mommy span:nth-child(265) {
    transform: translate3d(61.50369px, -65.14614px, -233.39511px);
    color: #ff00b3;
}
.mommy span:nth-child(265):before {
    animation-delay: 0s, -1.76667s;
}

.mommy span:nth-child(266) {
    transform: translate3d(79.77582px, -35.06741px, -234.3205px);
    color: #ff00ad;
}
.mommy span:nth-child(266):before {
    animation-delay: 0s, -1.77333s;
}

.mommy span:nth-child(267) {
```

```
    transform: translate3d(84.676px, -1.19826px, -235.22019px);
    color: #ff00a8;
}
.mommy span:nth-child(267):before {
    animation-delay: 0s, -1.78s;
}

.mommy span:nth-child(268) {
    transform: translate3d(76.17201px, 30.94196px, -236.09409px);
    color: #ff00a3;
}
.mommy span:nth-child(268):before {
    animation-delay: 0s, -1.78667s;
}

.mommy span:nth-child(269) {
    transform: translate3d(56.3591px, 56.41003px, -236.9421px);
    color: #ff009e;
}
.mommy span:nth-child(269):before {
    animation-delay: 0s, -1.79333s;
}

.mommy span:nth-child(270) {
    transform: translate3d(29.00971px, 71.60067px, -237.76413px);
    color: #ff0099;
}
.mommy span:nth-child(270):before {
    animation-delay: 0s, -1.8s;
}

.mommy span:nth-child(271) {
    transform: translate3d(-1.12536px, 74.75173px, -238.56008px);
    color: #ff0094;
}
.mommy span:nth-child(271):before {
    animation-delay: 0s, -1.80667s;
}

.mommy span:nth-child(272) {
    transform: translate3d(-29.13721px, 66.12287px, -239.32987px);
    color: #ff008f;
}
.mommy span:nth-child(272):before {
    animation-delay: 0s, -1.81333s;
}

.mommy span:nth-child(273) {
    transform: translate3d(-50.7598px, 47.83508px, -240.07342px);
    color: #ff008a;
}
.mommy span:nth-child(273):before {
    animation-delay: 0s, -1.82s;
}

.mommy span:nth-child(274) {
    transform: translate3d(-63.02055px, 23.41531px, -240.79064px);
    color: #ff0085;
```

```
}

.mommy span:nth-child(274):before {
    animation-delay: 0s, -1.82667s;
}

.mommy span:nth-child(275) {
    transform: translate3d(-64.6414px, -2.86271px, -241.48146px);
    color: #ff0080;
}
.mommy span:nth-child(275):before {
    animation-delay: 0s, -1.83333s;
}

.mommy span:nth-child(276) {
    transform: translate3d(-56.1374px, -26.72093px, -242.14579px);
    color: #ff007a;
}
.mommy span:nth-child(276):before {
    animation-delay: 0s, -1.84s;
}

.mommy span:nth-child(277) {
    transform: translate3d(-39.61365px, -44.57462px, -242.78357px);
    color: #ff0075;
}
.mommy span:nth-child(277):before {
    animation-delay: 0s, -1.84667s;
}

.mommy span:nth-child(278) {
    transform: translate3d(-18.31186px, -54.0711px, -243.39473px);
    color: #ff0070;
}
.mommy span:nth-child(278):before {
    animation-delay: 0s, -1.85333s;
}

.mommy span:nth-child(279) {
    transform: translate3d(4.00264px, -54.38873px, -243.97919px);
    color: #ff006b;
}
.mommy span:nth-child(279):before {
    animation-delay: 0s, -1.86s;
}

.mommy span:nth-child(280) {
    transform: translate3d(23.70033px, -46.26012px, -244.5369px);
    color: #ff0066;
}
.mommy span:nth-child(280):before {
    animation-delay: 0s, -1.86667s;
}

.mommy span:nth-child(281) {
    transform: translate3d(37.87885px, -31.73277px, -245.06779px);
    color: #ff0061;
}
.mommy span:nth-child(281):before {
```

```
    animation-delay: 0s, -1.87333s;
}

.mommy span:nth-child(282) {
    transform: translate3d(44.78978px, -13.72445px, -245.57181px);
    color: #ff005c;
}
.mommy span:nth-child(282):before {
    animation-delay: 0s, -1.88s;
}

.mommy span:nth-child(283) {
    transform: translate3d(44.03808px, 4.5371px, -246.0489px);
    color: #ff0057;
}
.mommy span:nth-child(283):before {
    animation-delay: 0s, -1.88667s;
}

.mommy span:nth-child(284) {
    transform: translate3d(36.53495px, 20.08572px, -246.49901px);
    color: #ff0052;
}
.mommy span:nth-child(284):before {
    animation-delay: 0s, -1.89333s;
}

.mommy span:nth-child(285) {
    transform: translate3d(24.22859px, 30.6995px, -246.92209px);
    color: #ff004d;
}
.mommy span:nth-child(285):before {
    animation-delay: 0s, -1.9s;
}

.mommy span:nth-child(286) {
    transform: translate3d(9.67546px, 35.21578px, -247.31808px);
    color: #ff0047;
}
.mommy span:nth-child(286):before {
    animation-delay: 0s, -1.90667s;
}

.mommy span:nth-child(287) {
    transform: translate3d(-4.46118px, 33.63432px, -247.68696px);
    color: #ff0042;
}
.mommy span:nth-child(287):before {
    animation-delay: 0s, -1.91333s;
}

.mommy span:nth-child(288) {
    transform: translate3d(-15.89051px, 27.00496px, -248.02868px);
    color: #ff003d;
}
.mommy span:nth-child(288):before {
    animation-delay: 0s, -1.92s;
}
```

```
.mommy span:nth-child(289) {
    transform: translate3d(-23.06603px, 17.13527px, -248.34319px);
    color: #ff0038;
}
.mommy span:nth-child(289):before {
    animation-delay: 0s, -1.92667s;
}

.mommy span:nth-child(290) {
    transform: translate3d(-25.38976px, 6.18446px, -248.63047px);
    color: #ff0033;
}
.mommy span:nth-child(290):before {
    animation-delay: 0s, -1.93333s;
}

.mommy span:nth-child(291) {
    transform: translate3d(-23.22254px, -3.77318px, -248.89049px);
    color: #ff002e;
}
.mommy span:nth-child(291):before {
    animation-delay: 0s, -1.94s;
}

.mommy span:nth-child(292) {
    transform: translate3d(-17.7122px, -11.13112px, -249.12321px);
    color: #ff0029;
}
.mommy span:nth-child(292):before {
    animation-delay: 0s, -1.94667s;
}

.mommy span:nth-child(293) {
    transform: translate3d(-10.48481px, -15.01027px, -249.32862px);
    color: #ff0024;
}
.mommy span:nth-child(293):before {
    animation-delay: 0s, -1.95333s;
}

.mommy span:nth-child(294) {
    transform: translate3d(-3.2681px, -15.35367px, -249.50668px);
    color: #ff001f;
}
.mommy span:nth-child(294):before {
    animation-delay: 0s, -1.96s;
}

.mommy span:nth-child(295) {
    transform: translate3d(2.47457px, -12.84785px, -249.65738px);
    color: #ff001a;
}
.mommy span:nth-child(295):before {
    animation-delay: 0s, -1.96667s;
}

.mommy span:nth-child(296) {
```

```

        transform: translate3d(5.82689px, -8.69744px, -249.78071px);
        color: #ff0014;
    }
.mommy span:nth-child(296):before {
    animation-delay: 0s, -1.97333s;
}

.mommy span:nth-child(297) {
    transform: translate3d(6.56624px, -4.30688px, -249.87664px);
    color: #ff000f;
}
.mommy span:nth-child(297):before {
    animation-delay: 0s, -1.98s;
}

.mommy span:nth-child(298) {
    transform: translate3d(5.15053px, -0.94001px, -249.94517px);
    color: #ff000a;
}
.mommy span:nth-child(298):before {
    animation-delay: 0s, -1.98667s;
}

.mommy span:nth-child(299) {
    transform: translate3d(2.55514px, 0.56998px, -249.98629px);
    color: #ff0005;
}
.mommy span:nth-child(299):before {
    animation-delay: 0s, -1.99333s;
}

.mommy span:nth-child(300) {
    transform: translate3d(0px, 0px, -250px);
    color: red;
}
.mommy span:nth-child(300):before {
    animation-delay: 0s, -2s;
}

@keyframes rotate {
    to {
        transform: rotateY(360deg);
    }
}
@keyframes invertRotate {
    to {
        transform: rotateY(-360deg);
    }
}
@keyframes scale {
    0%, 45%, 55% {
        box-shadow: 0 0 10px 0px currentColor;
    }
    50% {
        box-shadow: 0 0 10px 5px currentColor;
    }
}
</style></head><body>
```

CSS only: Colour change text on content overlap  
(split colour)

```
<style class="cp-pen-styles">
body {
  background: #1A181B;
  overflow-x: hidden;
}

img {
  width: 50%;
  height: auto;
}

hr {
  width: 80%;
  height: 3px;
  border: 0;
  background: #00cdb2;
}

h1 {
  font-size: calc(30px + 4vw);
  position: relative;
  font-weight: 900;
  margin: 0 0 0 50%;
  -webkit-transform: translate(-45%, -100%);
      transform: translate(-45%, -100%);
  outline: none;
  text-decoration: none;
  color: #552480;
  width: 100%;
  overflow: hidden;
  -webkit-font-smoothing: antialiased;
  -moz-osx-font-smoothing: grayscale;
}

.single-line {
  width: 100%;
  font-family: 'Roboto', sans-serif;
  max-width: 960px;
  margin: 0 auto;
}
.single-line h1:before {
  content: attr(data-letters);
  position: absolute;
  z-index: 2;
  overflow: hidden;
  white-space: nowrap;
  width: 45%;
  color: #00cdb2;
}
.single-line h1 span {
  display: block;
}
.single-line h1 span:before {
  content: "";
  width: 25%;
  border-bottom: 8px solid #4d2174;
  position: absolute;
  display: block;
}
```

```
    bottom: 0;
}

.the-long-way h1 {
  -webkit-transform: translate(-50%, -100%);
     transform: translate(-50%, -100%);
}
.the-long-way h1:before {
  content: attr(data-letters);
  position: absolute;
  z-index: 2;
  overflow: hidden;
  white-space: nowrap;
  width: 50%;
  color: #00cdb2;
}
.the-long-way h1 .wrap {
  width: 50%;
  position: absolute;
  top: 0;
  display: block;
  height: 200px;
  overflow: hidden;
}
.the-long-way h1 .split {
  width: 200%;
  position: absolute;
  color: #00cdb2;
}
.the-long-way h1 .split:after {
  content: attr(data-letters);
  position: absolute;
  z-index: 10;
  overflow: hidden;
  width: 100%;
  display: block;
  color: #00cdb2;
  top: 0;
}

.clip-it h1:before {
  content: attr(data-letters);
  position: absolute;
  z-index: 2;
  overflow: hidden;
  width: 100%;
  -webkit-clip-path: polygon(0 0, 45% 0, 45% 100%, 0% 100%);
      clip-path: polygon(0 0, 45% 0, 45% 100%, 0% 100%);
  color: #00cdb2;
}
.clip-it h1 span {
  display: block;
}
.clip-it h1 span:before {
  content: "";
  width: 25%;
  border-bottom: 8px solid #4d2174;
  position: absolute;
```

```

display: block;
bottom: 0;
}

p {
text-align: center;
color: #fff;
padding: 2em;
letter-spacing: 0.0525em;
font-weight: 300;
}

strong {
font-weight: 900;
}
</style></head><body>
<div class="single-line">
<p><strong>Single Line:</strong>
<br> Works like a charm!<br/> Scale the viewport to see the text overlap shift ☺</p>

<h1 data-letters="The final frontier"><span>The final frontier</span></h1>
</div>

<hr>

<div class="clip-it">
<p><strong>The Long Words:</strong>
<br>Pros: All the pros! Cons: Browser support for Clip-path</p>


<h1 data-letters="The final frontier is outer space">
The final frontier is outer space
</h1>
</div>

<hr>

<div class="the-long-way">
<p><strong>The Long Words:</strong> Pros: more browser support. Cons: Duplicate Content, fixed height</p>

<h1 data-letters="The final frontier is outer space">
The final frontier is outer space
<span class="wrap" aria-hidden="true">
<span class="split" data-letters="The final frontier is outer space">The final frontier is outer space</span>
</span>
</h1>
</div>
*****
```

Debugging is twice as hard as writing the code in the first place. Therefore, if you write the code as cleverly as possible, you are, by definition, not smart enough to debug it.

---

---

### Brian Kernighan and P.J. Plauger, The Elements of Programming Style

Yuan-Ma had written a small program that used many global variables and shoddy shortcuts. Reading it, a student asked, ‘You warned us against these techniques, yet I find them in your program. How can this be?’ The master said, ‘There is no need to fetch a water hose when the house is not on fire.’

### Master Yuan-Ma, The Book of Programming

---

**What will be the output of the following program:**

```
<script>
var a, d;

try {
var a = 0;
var d = 45/0;

adddlert("Welcome guest!");
}
catch(err) {
alert("There was an error on this page.\n\n")
}

</script>
```

\*\*\*\*\*

### A Short Note on Python

Python is a very powerful high-level language (like C, C++, Perl, and Java), object-oriented programming scripting language designed by Dutch programmer “Guido van Rossum” in the early 1990s (often referred to as a “glue” language, meaning that it is capable to work in mixed-language environment) which is easy to understand, easy to use, write, modify and debug and quick to learn and run on open source operating systems like Linux, Windows, Macintosh, Solaris, FreeBSD, OS/2, Amiga, AROS, AS/400 and is employed to perform automated testing of applications (i.e., to execute tests of applications, report outcomes and compare results with earlier test runs) and to increase the effectiveness and speed of software testing.

A simple python program to print the word “Hello World!” on screen:

```
# Hello World program in Python
```

---

---

```
print "Hello World!\n"
```

Output on the screen:

```
Hello World!
```

print "Hello World!\n" → implies the statement that make provision to print

```
Hello World!
```

on the screen.

# Hello World program in Python → implies comment

What will be the output on the screen:

(a)

```
print "Hello World!\n"
print "Hello World!\n"
```

(b)

```
print "Hello World!"
print "Hello World!"
```

(c)

What is the mistake in the following program:

```
Hello World program in Python
print "Hello World!\n"
```

Program 1.2

Python program to add two numbers:

```
number1=2
number2=3
print "The sum of {0} and {1} is {2}".format(number1, number2, float (number1) + float (number2))
```

Output on the screen:

```
The sum of 2 and 3 is 5.0
```

print "The sum of {0} and {1} is {2}".format(number1, number2, float (number1) + float (number2)) → implies the statement that make provision to print

---

---

The sum of 2 and 3 is 5.0  
on the screen.

**Note:**

If you replace the statement

```
print "The sum of {0} and {1} is {2}".format(number1, number2, float (number1) + float (number2))  
by the statement
```

```
print "The sum of {1} and {2} is {3}".format(number1, number2, float (number1) + float (number2))
```

Then

Runtime error or IndexError: tuple index out of range

will be displayed on the screen.

If you want to enter the values for number1 and number2 through keyboard, then you need to replace the statements

```
number1 = 2  
number2 = 3
```

by the statements

```
number1=input(" Please Enter the First Number: ")  
number2=input(" Please Enter the Second Number: ")
```

i.e., the above program should be rewritten as:

```
number1=input(" Please Enter the First Number: ")  
number2=input(" Please Enter the Second Number: ")  
print "The sum of {0} and {1} is {2}".format(number1, number2, float (number1) + float (number2))
```

Output on the screen:

Please Enter the First Number:

If you enter 1

Please Enter the Second Number:

If you enter 2

The sum of 1 and 2 is 3.0 will be displayed on the screen.

**Program 1.3**

Python program to subtract two numbers:

```
number1=input(" Please Enter the First Number: ")  
number2=input(" Please Enter the Second Number: ")  
print "The difference of {0} and {1} is {2}".format(number1, number2, float (number1) - float (number2))
```

Output on the screen:

Please Enter the First Number:

If you enter 6

Please Enter the Second Number:

---

---

If you enter 4  
The difference of 6 and 4 is 2.0 will be displayed on the screen.

Program 1.4  
Python program to divide two numbers:

```
number1=input(" Please Enter the First Number: ")  
number2=input(" Please Enter the Second Number: ")  
print "The division of {0} by {1} yields {2}".format(number1, number2, float (number1) / float (number2))
```

Output on the screen:  
Please Enter the First Number:  
If you enter 6  
Please Enter the Second Number:  
If you enter 2  
The division of 6 by 2 is 3.0 will be displayed on the screen.

Program 1.5  
Python program to multiply two numbers:

```
number1=input(" Please Enter the First Number: ")  
number2=input(" Please Enter the Second Number: ")  
print "The product of {0} and {1} is {2}".format(number1, number2, float (number1) * float (number2))
```

Output on the screen:  
Please Enter the First Number:  
If you enter 6  
Please Enter the Second Number:  
If you enter 2  
The product of 6 and 2 is 12.0 will be displayed on the screen.

Program 1.6  
Python program to find the area of a circle:

```
number1=input(" Please Enter the radius: ")  
print "The area of the circle is {0}".format(4*3.14* number1* number1)
```

Output on the screen:  
Please Enter the radius:  
If you enter 2  
The area of the circle is 50.24 will be displayed on the screen.

Program 1.7  
Python program to find the square root of a number:

```
number1=input(" Please Enter the number: ")
```

---

```
print "The square root of the entered number is {0}".format(number1 ** 0.5)
```

Output on the screen:

Please Enter the number:

If you enter 4

The square root of the entered number is 2.0 will be displayed on the screen.

$\sqrt{2}=0.5$

$** \rightarrow$  implies: exponent operator

$number1 ** 0.5 \rightarrow$  implies:

$number1 ** \frac{1}{2}$  (which implies number1 to the power of  $\frac{1}{2}$ )

### Program 1.8

Python program to find the square of a number

```
number1=input(" Please Enter the number: ")  
print "The square of the entered number is {0}".format(number1 * number1)
```

Output on the screen:

Please Enter the number:

If you enter 4

The square of the entered number is 16.0 will be displayed on the screen.

### What is the mistake in the following program:

```
number1=1  
print (" {0}".format(number1 ** 1.633))
```

### Program 1.9

Python program to find the incremented and decremented values of the entered number:

```
number1=input(" Please Enter the number: ")  
print "The increment of the entered number is {0}".format(number1 +1)  
print "The decrement of the entered number is {0}".format(number1 - 1)
```

Output on the screen:

Please Enter the number:

If you enter 6

The increment of the entered number is 7

The decrement of the entered number is 5

will be displayed on the screen

### What will be the output of the following programs:

(a)

x = 13

if x < 10:

---

---

```
print ("Good morning")

elif x<12:
    print ("Soon time for lunch")

elif x<18:
    print ("Good day")

elif x<22:
    print ("Good evening")

else:
    print ("Good night")
```

(b)

```
n1 = [0 for i in range(15)]
print (n1)
```

(c)

```
for k in range(1,10):
    print(k)
```

(d)

```
for day in ["Sunday","Monday","Tuesday","Wednesday","Thursday", "Friday","Saturday"]:
    print(day)
```

(e)

```
n = 10
sum = 0
for i in range(1,n):
    sum = sum + i
    print (sum)
```

(f)

```
for k in range(1,11):
    print("5 x {0} = {1}".format(k, 5*k))
```

\*\*\*\*\*END\*\*\*\*\*



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