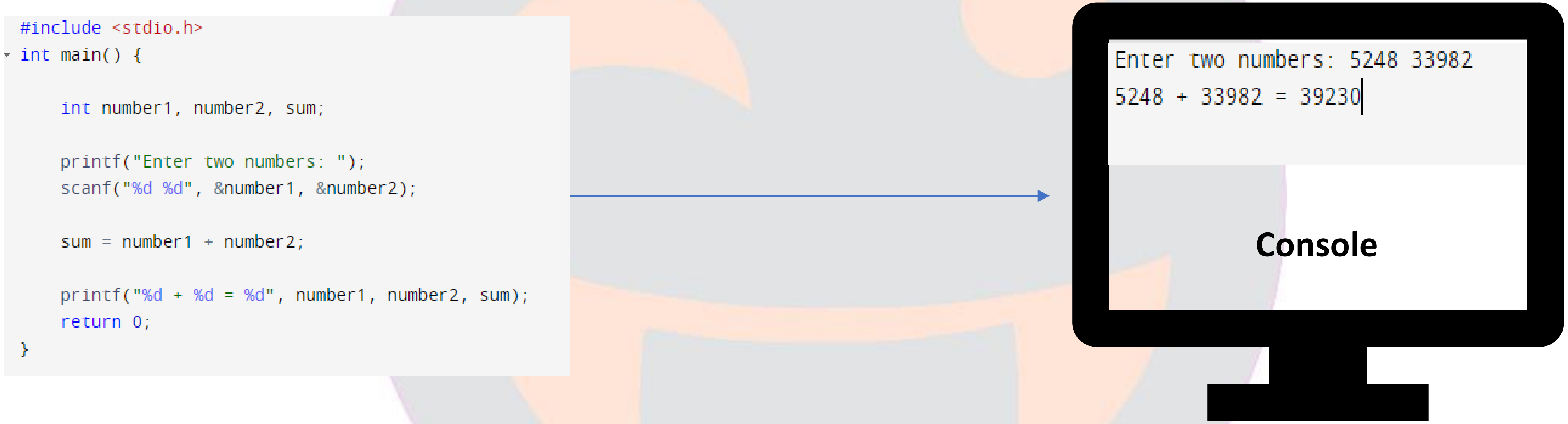
Our First C Program

CHAPTER 6

SURESH TECHS

C PROGRAMMING COURSE

Console?



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

    int number1, number2, sum;

    printf("Enter two numbers: ");
    scanf("%d %d", &number1, &number2);

    sum = number1 + number2;

    printf("%d + %d = %d", number1, number2, sum);
    return 0;
}
```

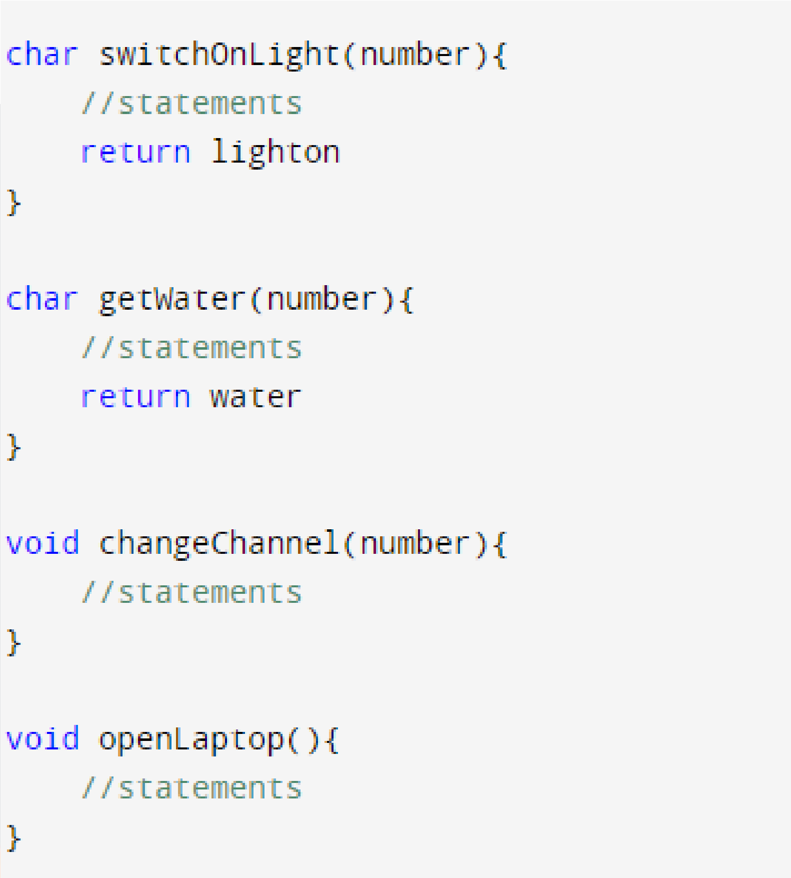
```
Enter two numbers: 5248 33982
5248 + 33982 = 39230
```

Program

Output

Console is an application in which we can give text as an input from the keyboard and get the text as an output from the computer end

Dennis Ritchie



```
char switchOnLight(number){
    //statements
    return lighton
}

char getWater(number){
    //statements
    return water
}

void changeChannel(number){
    //statements
}

void openLaptop(){
    //statements
}
```

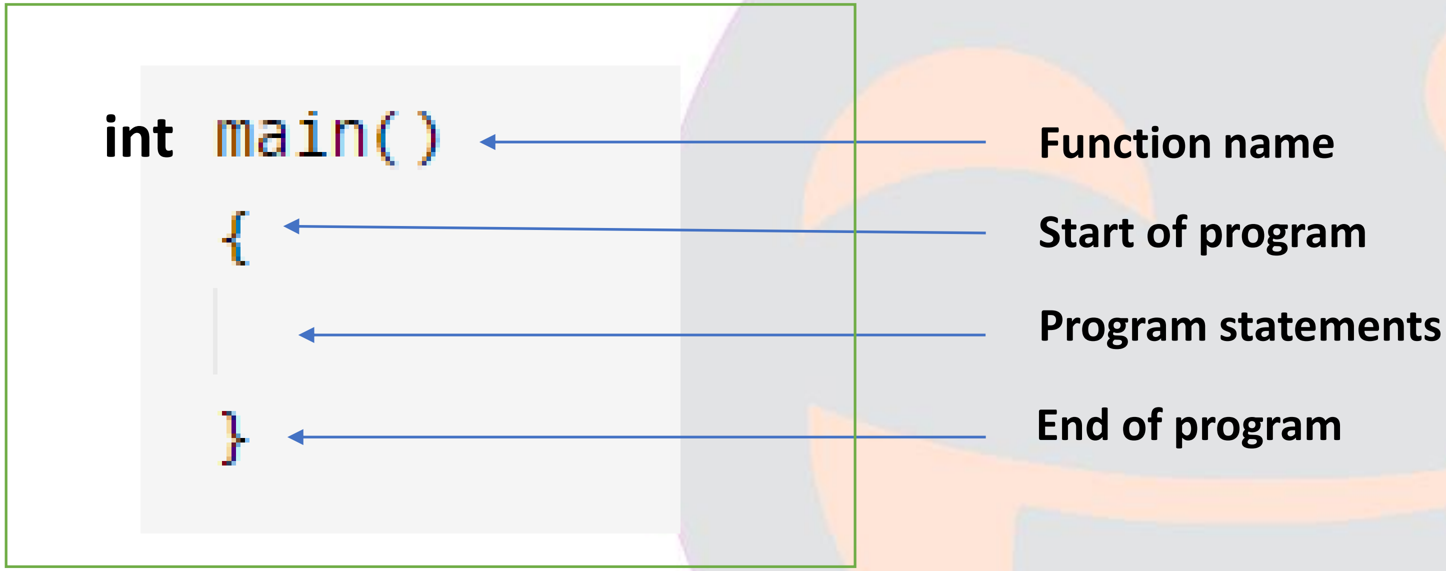
Entry point for a program?

Dennis Ritchie

Let each program have a function With the name **main()** As an entry point

main gate

main function



```
int main()
    {

    }
```

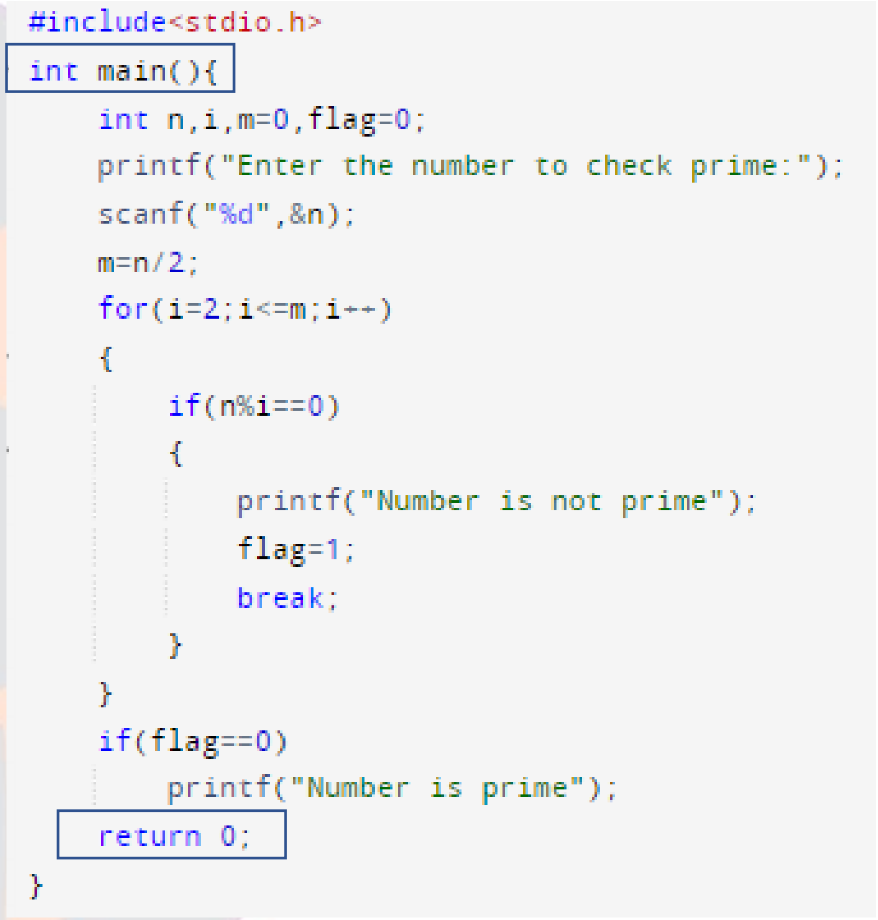
Function name

Start of program

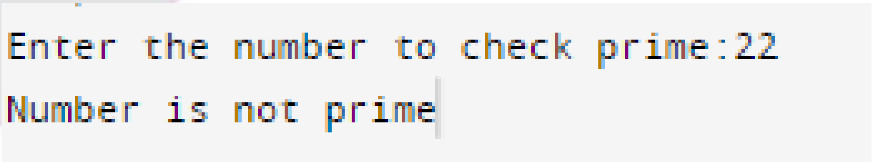
Program statements

End of program

primeprogram.c



```
#include<stdio.h>
int main(){
    int n,i,m=0,flag=0;
    printf("Enter the number to check prime:");
    scanf("%d",&n);
    m=n/2;
    for(i=2;i<=m;i++)
    {
        if(n%i==0)
        {
            printf("Number is not prime");
            flag=1;
            break;
        }
    }
    if(flag==0)
        printf("Number is prime");
    return 0;
}
```



```
Enter the number to check prime:22
Number is not prime
```

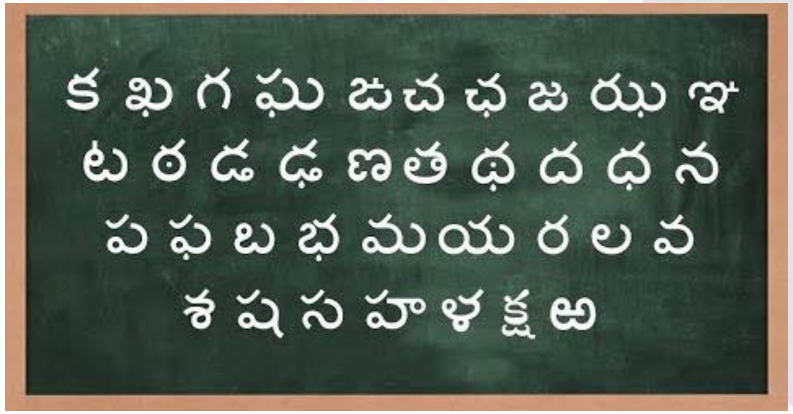
SUCCESS 0

FAIL **Any value other than 0(non-zero value)**

Note: Default return value of main function is 0

How do we learn our Telugu language?

అ ఆ ఇ ఈ ఉ ఊ
ఋ ౠ ఎ ఏ ఐ
ఒ ఓ ఔ అం అః


క ఖ గ ఘ ఙ చ ఛ జ ఝ ఞ
ట ఠ డ ఢ ణ త థ ద ధ న
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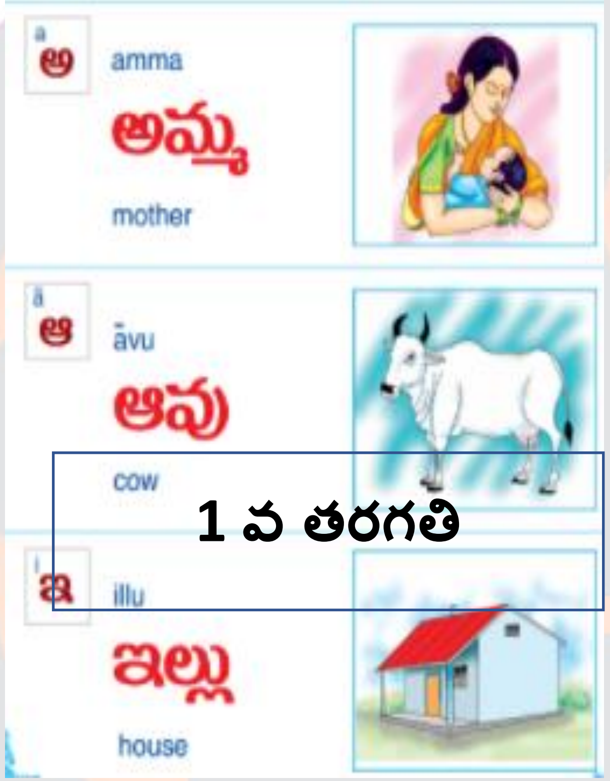
శ ష స హ ళ క్ష ఱ



1 వ తరగతి

జఫ్ఫా
ఫసక్

C Language

Inbuilt C Functions

abort
abs
acos
pow
printf
putc
puts
qsort
y0
y1
yn

Variables,
data types,
Constants,
Operators,
Expressions,
Arrays,
Functions

- **inbuilt**
- **user-defined**

Etc…

changeChannel()
openLaptop()

Inbuilt functions files

- These functions are **very important** to write/develop a program
- What is **very important** in our body?

https://www.gnu.org/software/m68hc11/examples/stdio_8h-source.html

Head

Named the files as header files with extension .h

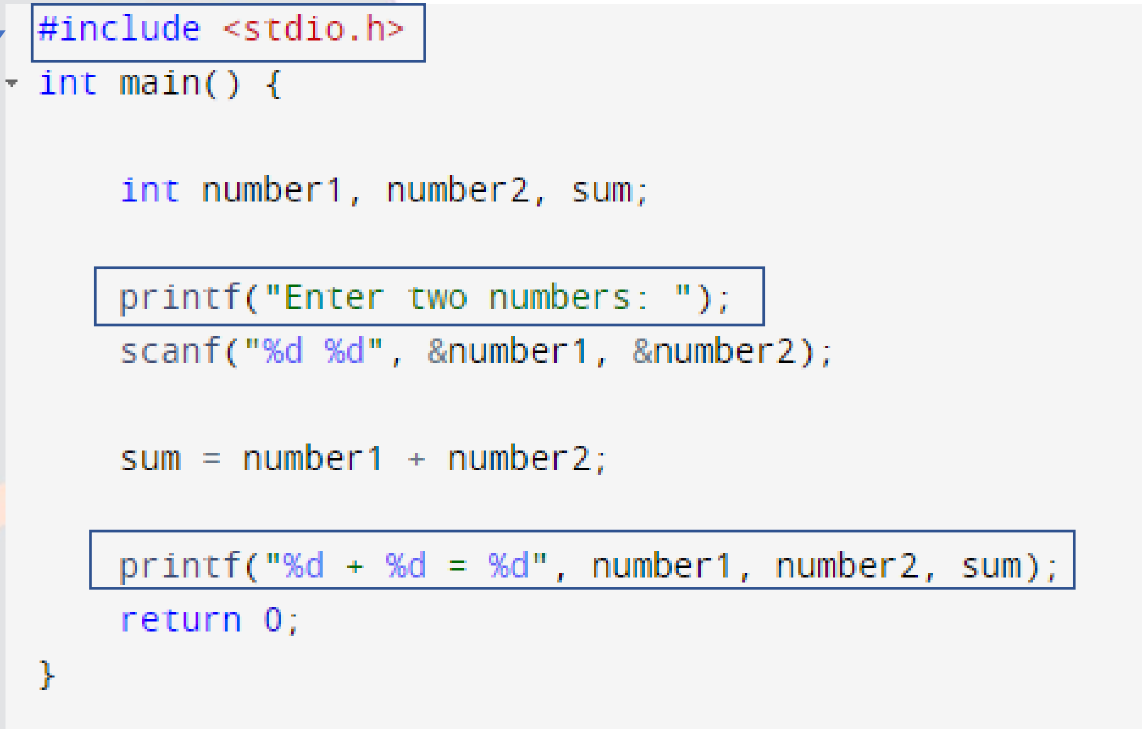
printf() is in which header file?

stdio.h

Note: If you want to use these built in functions, you have to specify the header file name using #include directive

#include<filename>

- In which file is our **printf()** function located in?
- #include<**stdio.h**>
- These are called **preprocessor directives** and are placed at the beginning of a program



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

    int number1, number2, sum;

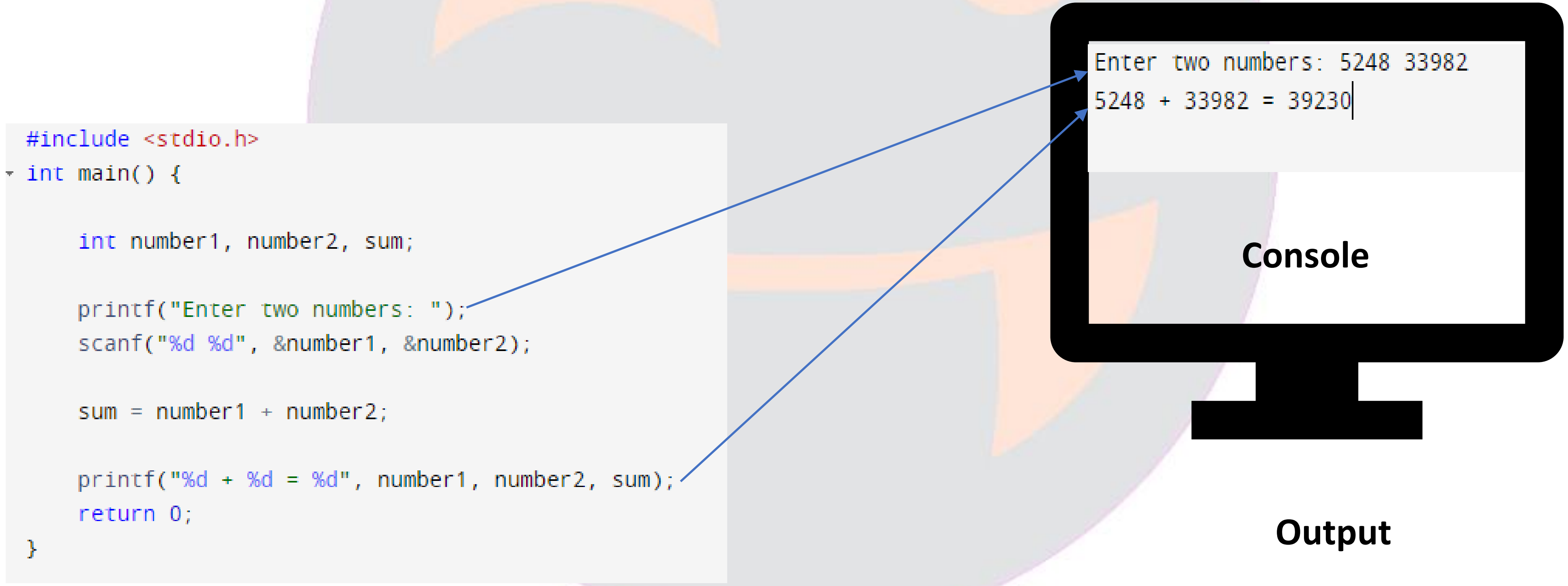
    printf("Enter two numbers: ");
    scanf("%d %d", &number1, &number2);

    sum = number1 + number2;

    printf("%d + %d = %d", number1, number2, sum);
    return 0;
}
```

printf() – inbuilt/library function – stdio.h

- The printf() function is used for output. It prints the given statement to the console.



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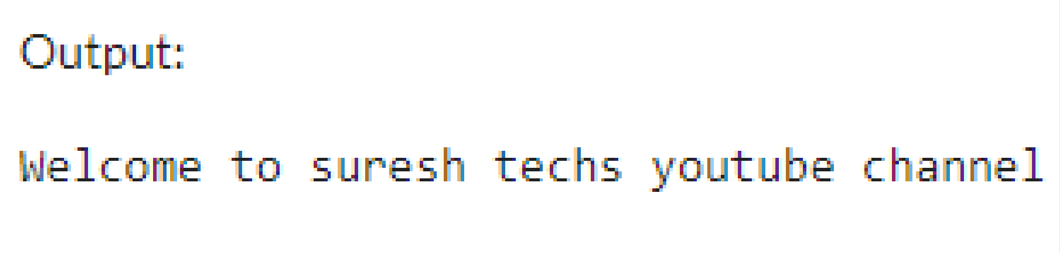
    return 0;
}
```

```
Enter two numbers: 5248 33982
5248 + 33982 = 39230
```

Output

Our first program

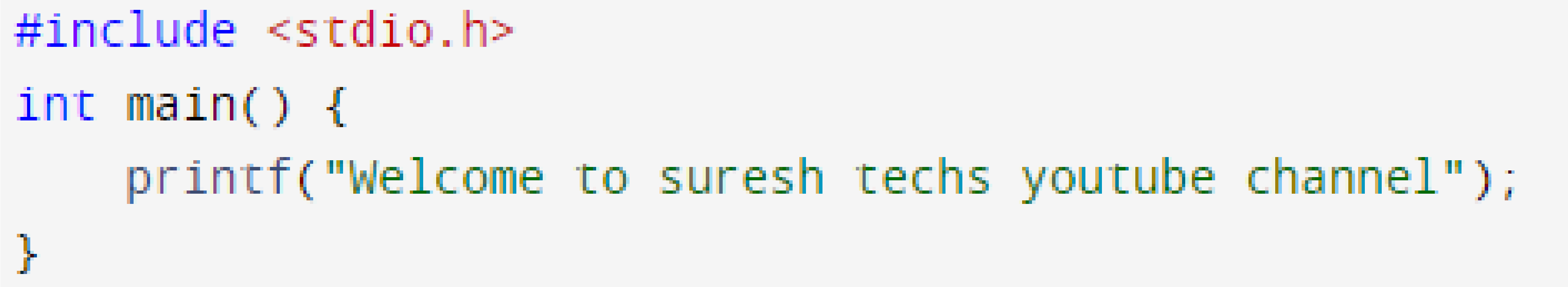
- Let us write our first program in online
  - https://onecompiler.com/c
- Don’t worry if you don’t have internet now
- Just watch our first program, later we will install **gcc compiler, code blocks IDE** etc.



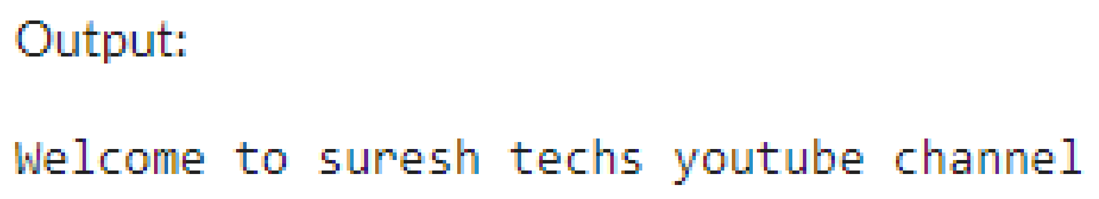
Output:

```
Welcome to suresh techs youtube channel
```

Our first program



```c
#include <stdio.h>
int main() {
    printf("Welcome to suresh techs youtube channel");
}
```



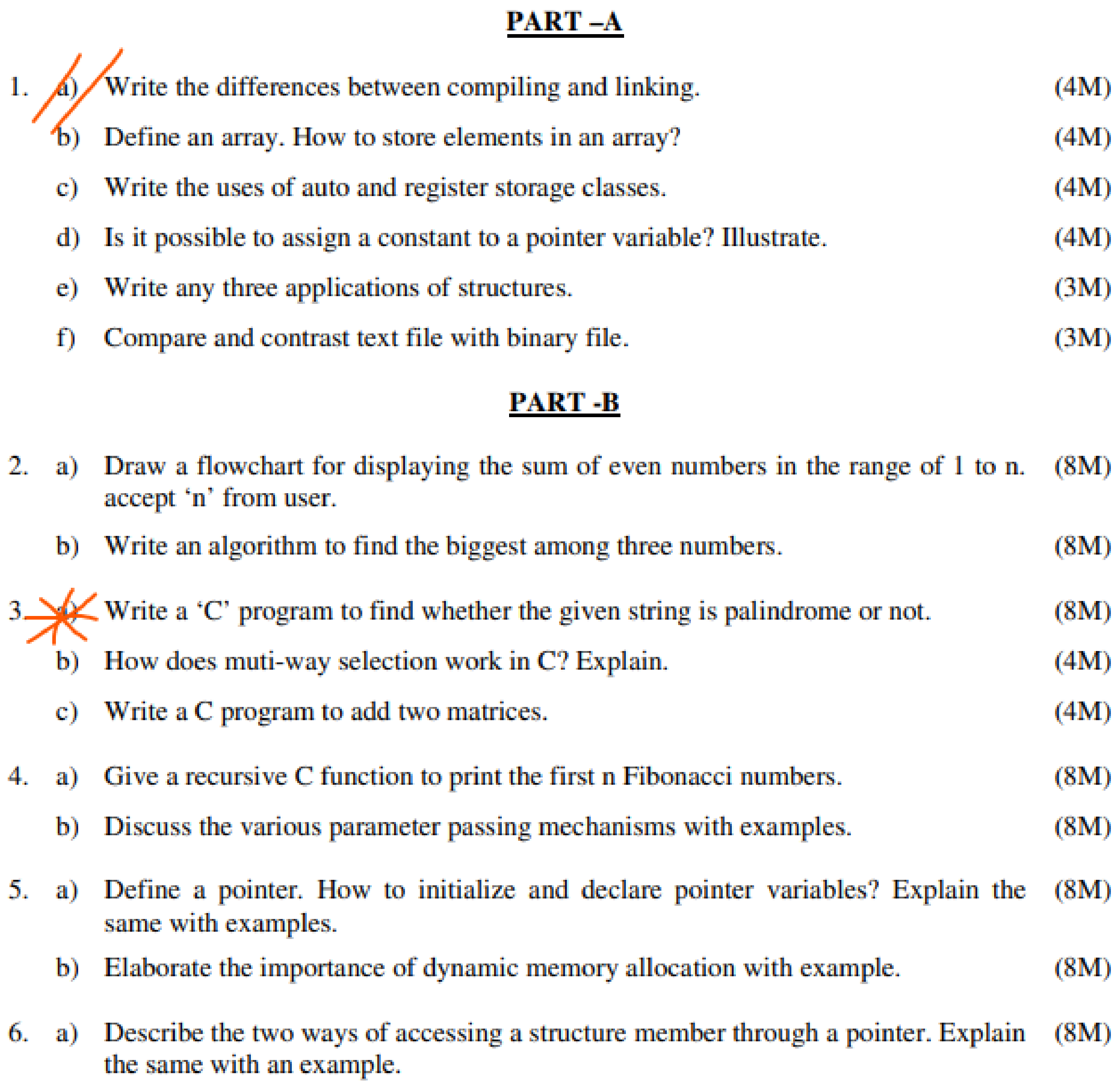
Output:

```
Welcome to suresh techs youtube channel
```

How to describe a program?🤔

- We should keep some text about the program but **it shouldn’t be executed**
- **Dennis Ritchie started thinking** 🤔

School days – Exam papers



PART –A

1. a) Write the differences between compiling and linking. (4M)

b) Define an array. How to store elements in an array? (4M)

c) Write the uses of auto and register storage classes. (4M)

d) Is it possible to assign a constant to a pointer variable? Illustrate. (4M)

e) Write any three applications of structures. (3M)

f) Compare and contrast text file with binary file. (3M)

PART -B

2. a) Draw a flowchart for displaying the sum of even numbers in the range of 1 to n. accept 'n' from user. (8M)

b) Write an algorithm to find the biggest among three numbers. (8M)

3. a) Write a 'C' program to find whether the given string is palindrome or not. (8M)

b) How does muti-way selection work in C? Explain. (4M)

c) Write a C program to add two matrices. (4M)

4. a) Give a recursive C function to print the first n Fibonacci numbers. (8M)

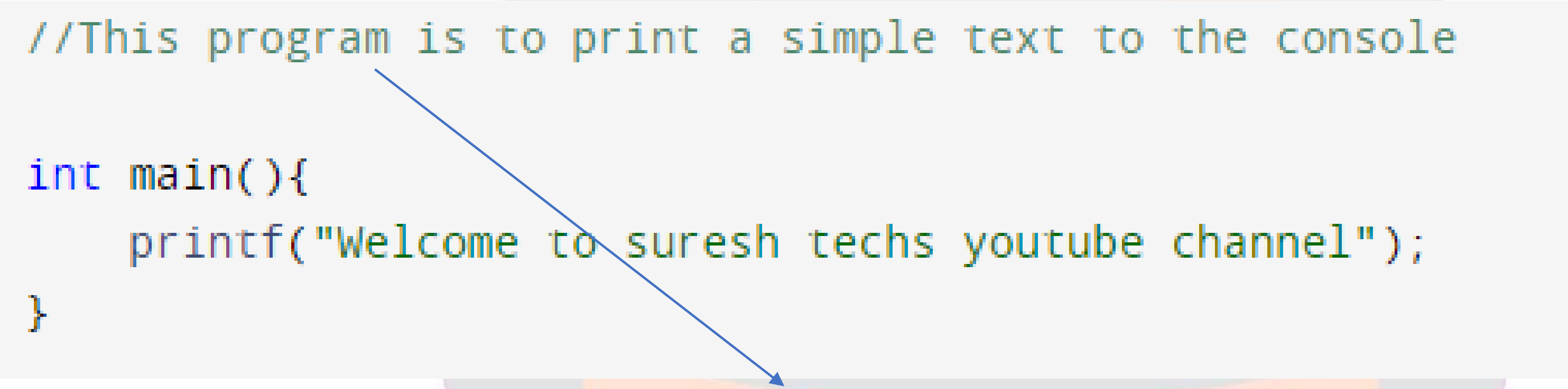
b) Discuss the various parameter passing mechanisms with examples. (8M)

5. a) Define a pointer. How to initialize and declare pointer variables? Explain the same with examples. (8M)

b) Elaborate the importance of dynamic memory allocation with example. (8M)

6. a) Describe the two ways of accessing a structure member through a pointer. Explain the same with an example. (8M)

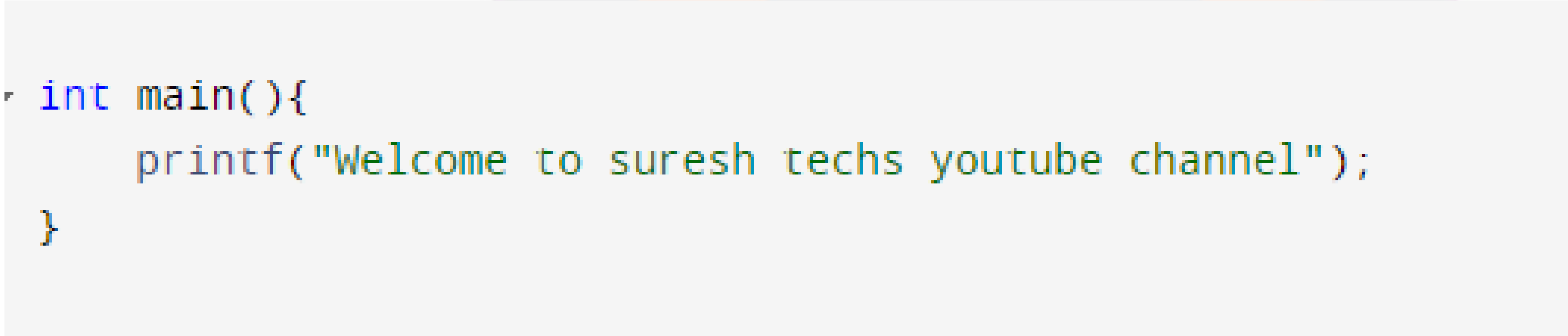
Tell me the difference between these two programs?



```
//This program is to print a simple text to the console

int main(){
    printf("Welcome to suresh techs youtube channel");
}
```

Comments



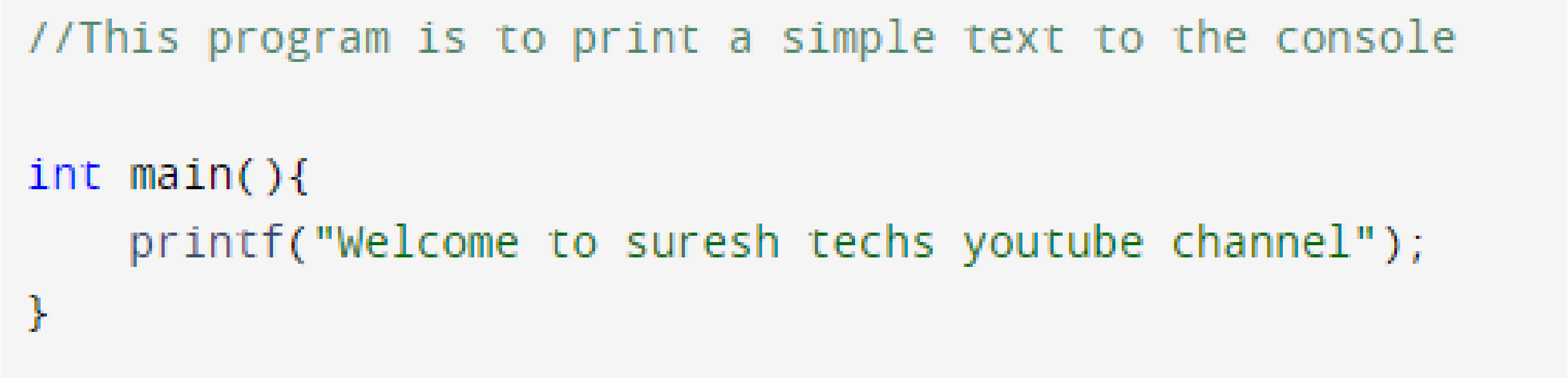
```
int main(){
    printf("Welcome to suresh techs youtube channel");
}
```

C program comments

- Used to provide information about the code
- Used to document the code
- A good developer will always write comments
- We can place comments at any place
- Types of comments:
  - Single line comments(end-of-line comment)
  - Multiline comments

Single line comments

- Starts with //

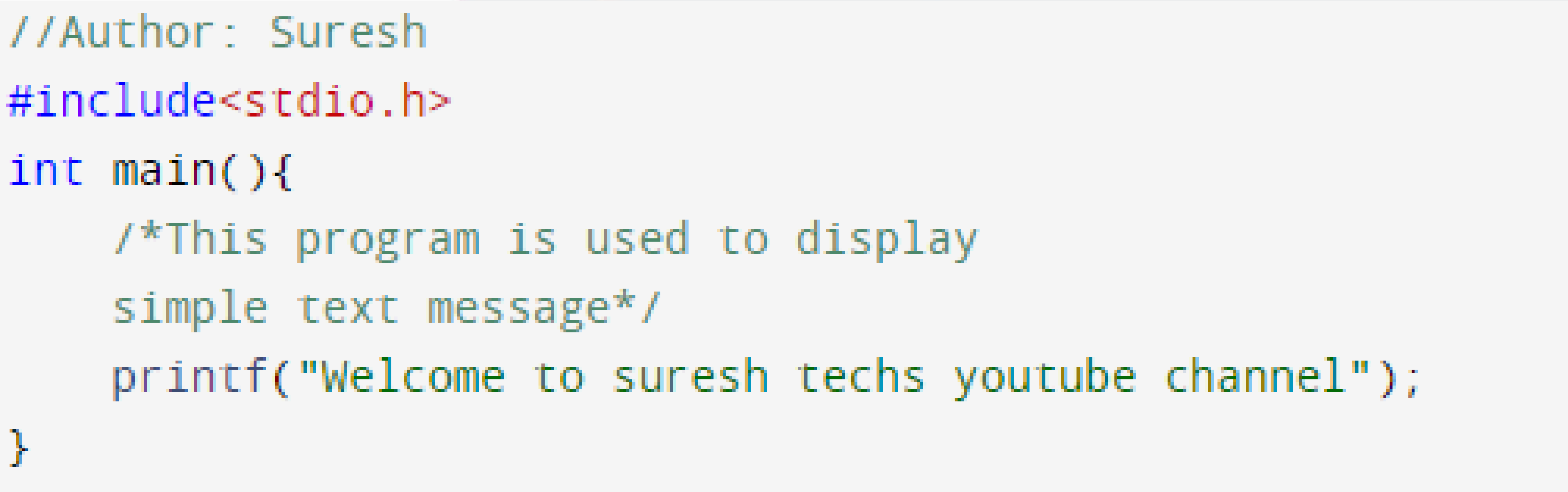


```
//This program is to print a simple text to the console

int main(){
    printf("Welcome to suresh techs youtube channel");
}
```

Multiline comments

- Enclosed within /* */



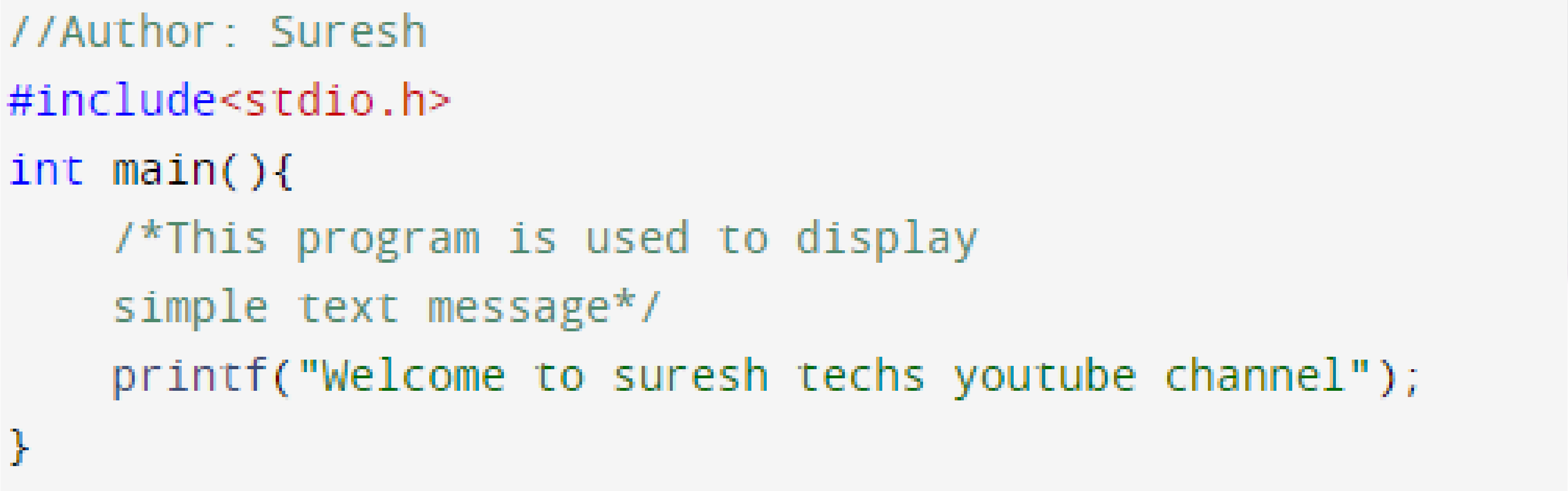
```
//Author: Suresh
#include<stdio.h>
int main(){
    /*This program is used to display
    simple text message*/
    printf("Welcome to suresh techs youtube channel");
}
```

Comments - Note

- Comments are **NOT executable statements** and are ignored by the compiler. But they provide useful **explanation and documentation**.

All good

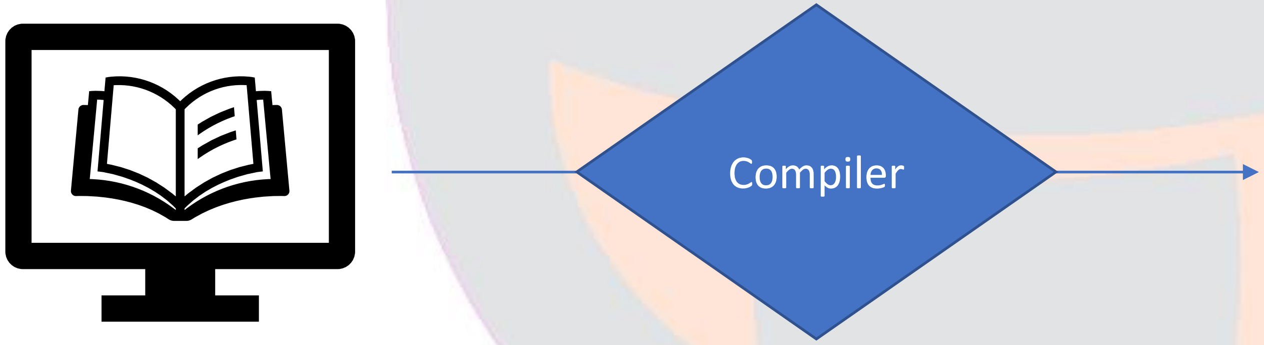
- Now you are slowly becoming a good developer/programmer



```
//Author: Suresh
#include<stdio.h>
int main(){
    /*This program is used to display
    simple text message*/
    printf("Welcome to suresh techs youtube channel");
}
```

How does your program run/execute?

- What happens when you give this program to computer?
- Who will run/execute our program?



High level code (language)

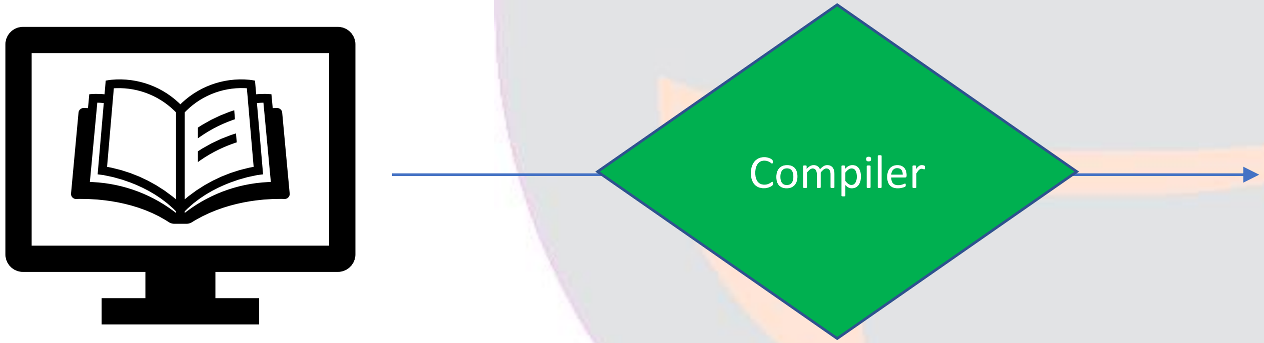
```
01000010101010001001001000010010
10010100101010000101001000010010
10010101010100010010001000010010
00001010101010001011001000010010
01010100010010010001001000010010
10101010111111010000001000010010
00001010101010101000001000010010
01000100101101010101010101011
11111111100100010010000000101001
00010101010100010010010100010100
01000010100100010010101000010010
10010100100100010010101000001010
10010101010100010010010001000100
00001010100100010010101000010110
01010100010100010010001001000010
10101010110100010010111101000000
00001010100100010010101010100000
11010101010100010010010101010111
11111111100100010010000000101001
00010101010100010010010100010100
```

Machine code

What next?

- Compiling, Linking, Loading (Executing a C Program)

C భాష



High level code (language)

```
01000010101010001001001000010010
10010100101010000101001000010010
10010101010100010010001000010010
00001010101010001011001000010010
01010100010010010001001000010010
10101010111111010000000100010010
00001010101010101000000100010010
01000100101101010101010101011011
11111111100100010010000000101001
00010101010100010010010100101000
01000010100100010010101000010010
10010100100100010010101000001010
10010101010100010010010001001000
00001010100100010010101000101100
01010100010100010010001001000100
10101010110100010010111101000000
00001010100100010010101010100000
11010101010100010010010101010111
11111111100100010010000000101001
00010101010100010010010100101000
```

Machine code

Variables,
Data types,
Constants,
Operators,
Expressions,
Arrays,
Functions

- **inbuilt**
- **user-defined**

Pointers
Structures
Etc…