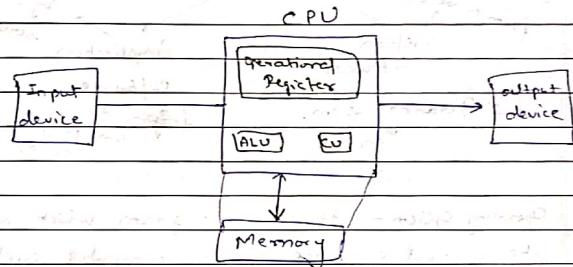


Computer — It processes data

PARAM — a super computer  
made by India

Types of Computer - ~~Real life~~ ~~two~~ ~~Computer~~

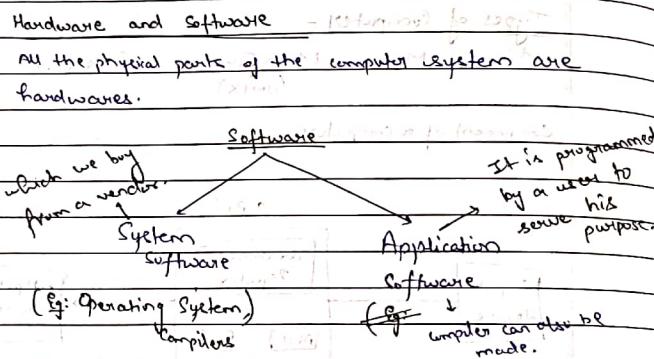
## Component of a Computer -



## Schematic diagram of a computer.

Input devices like keyboard, mouse, etc. transmits information to the CPU (Central Processing Unit). This information is stored in the Auxiliary Memory, permanently and transferred to Primary memory (which stores information temporarily) when needed for execution. CPU consists of Operational Registers which is used for solving specific problems of the provided information. ALU (Arithmetic-Logic Unit) for solving arithmetical and logical problems and also consists of CU (Control Unit). Now, the result of the provided information is reflected by output-devices like printer, monitor, etc.

Compiler - Its job is to translate HLL into Machine Language.



Operating System - It is a program which manages the internal resources of the computer system.

### Generation of Computers

- 1945-55 → 1<sup>st</sup> generation of Computer (Vacuum Tube)
- 1955-65 → 2<sup>nd</sup> generation of Computer (Transistor)
- 1965-75 → 3<sup>rd</sup> generation of Computer (Integrated Circuits IC)
- 1975 onwards → 4<sup>th</sup> generation of Computer (VLSI)

Computer understands only Machine Language

Assembly (Level) Language → ADD, SUB, MPY

High Level Language → English Like Language

First HLL was FORTRAN (Formula Translation)

Then was Common Business Oriented Language - COBOL

BASIC → Beginner's All purpose Symbolic Instruction Code.

C/C++, JAVA, perl.

0 → 1 bit

00 → 2 bits

000 → 3 bits

0-7 Octal

0-9 Decimal

0-9, A, B, C, D, E, F Hexadecimal

456

$$= 4 \times 10^2 + 5 \times 10^1 + 6 \times 10^0 \quad \left. \begin{array}{l} \text{Positional Number} \\ \text{System} \end{array} \right\}$$

$$= 400 + 50 + 6 = 456$$

(5) Change to Binary -

$$(5) (25) \rightarrow (?)$$

$$\begin{array}{r}
 2 | 25 \\
 2 | 12 \\
 2 | 6 \\
 2 | 3 \\
 2 | 1 \\
 \hline
 0
 \end{array}
 \quad
 \begin{array}{r}
 2^4 \\
 2^3 \\
 2^2 \\
 2^1 \\
 2^0
 \end{array}
 \quad
 \begin{array}{r}
 1 \\
 0 \\
 1 \\
 1 \\
 1 \\
 \hline
 0
 \end{array}
 \quad
 (11001)_2$$

Remainder (Least Significant Bit)

LSB (Least Significant Bit)

MSB (Most Significant Bit)

$$\begin{aligned}
 & (1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (0 \times 2^1) \\
 & + (1 \times 2^0) \\
 & = 16 + 8 + 0 + 0 + 1 \\
 & = 25
 \end{aligned}$$

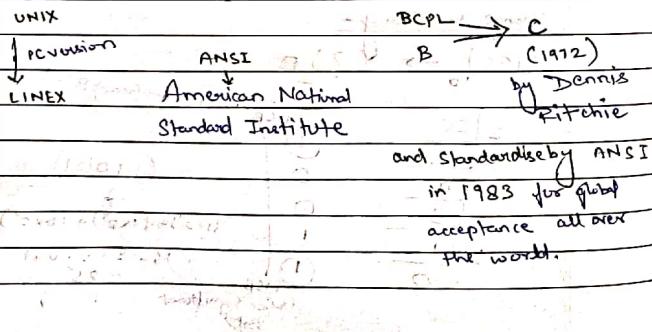
25.625

$$\begin{array}{r}
 0.625 \times 2 = 1.25 \\
 \text{Integral Part} \quad \text{Fractional Part} \\
 0.25 \times 2 = 0.5 \quad 1 \quad 0.25 \\
 0.5 \times 2 = 1.0 \quad 0 \quad 0.5 \\
 1.0 \times 2 = 2.0 \quad 0 \quad 0
 \end{array}$$

$(\cdot 101)_2$

$$\begin{aligned}
 & 1 \times 2^{-1} + 0 \times 2^{-2} + 1 \times 2^{-3} \\
 & = \frac{1}{2} + 0 + \frac{1}{8} \\
 & = 0.5 + 0.125 \\
 & = 0.625
 \end{aligned}$$

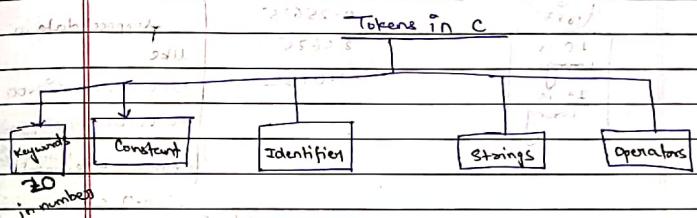
C



Characters in C / Alphabets in C

- Letters  $\rightarrow$  A to Z, a to z
- Digits  $\rightarrow$  0 to 9
- Special characters  $\rightarrow$  + - \* /, # ( ) { } [ ] % blank symbol (Space bar)

Tokens in C  $\rightarrow$  The smallest individual unit of C is known as token.



Keywords - auto, break, while, switch, for, ....

Constant  $\rightarrow$  Numeric Constant -

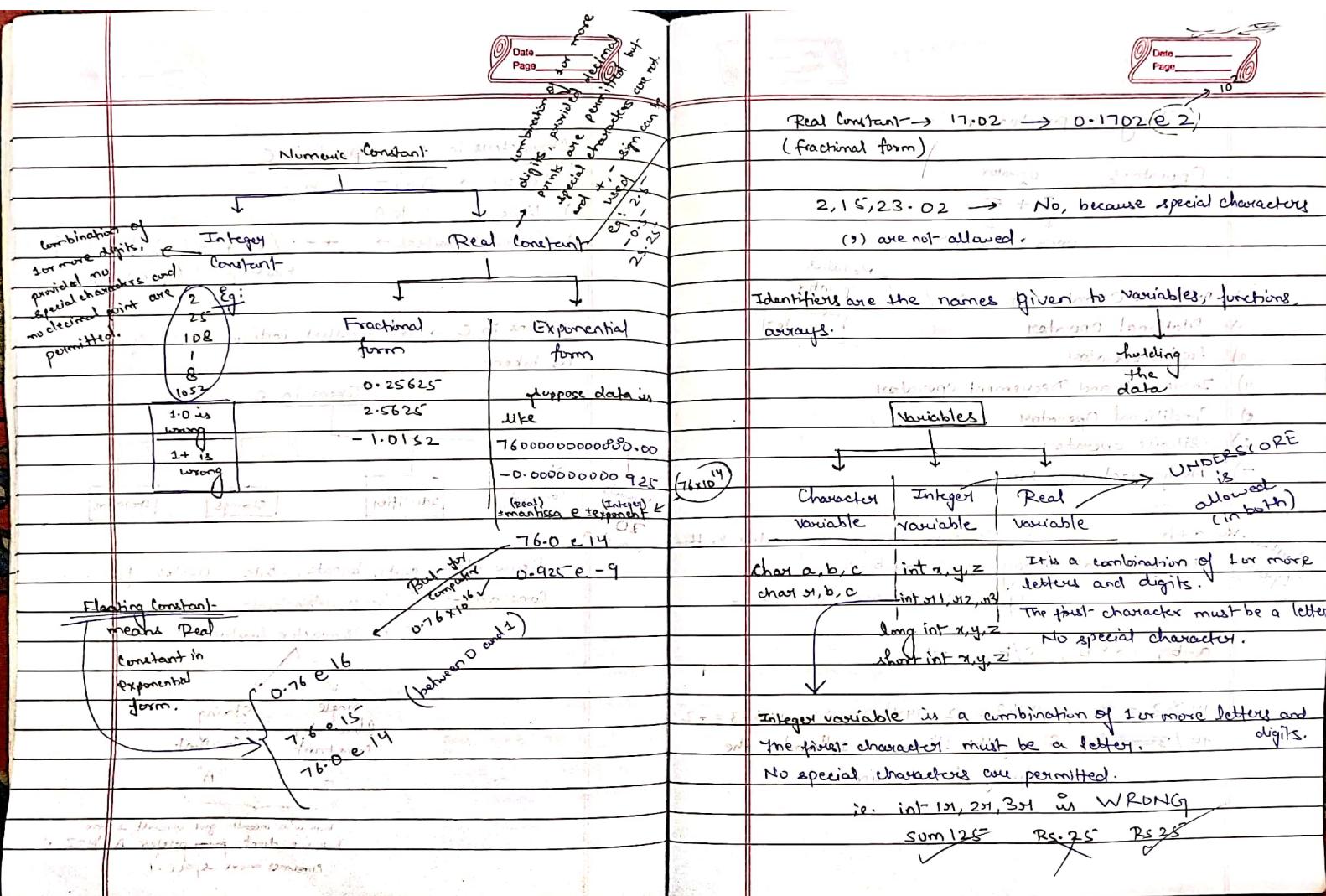
Character Constant -

String Constant -

Single Character Constant -

"A" / "A"

both will result give result same but we don't prefer "A" bcoz it consumes more space.



String or punctuation

Operators  
operator  
 $3 + 5$   
↓ ↓  
operator operand

- 1) Arithmetic Operator  $+$   $-$   $*$   $/$
- 2) Relational Operator
- 3) Logical Operator
- 4) Increment and Decrement Operator
- 5) Conditional Operator
- 6) Bitwise operators
- 7) Assignment operator

Arithmetic operators  $a+b$  } fine You can assign any value to them  
say,  $a=5$  and  $b=10$   
say,  $a=15$  and  $b=2$

$a-b$ ,  $a*b$ ,  $a/b$ ,  $a \% b$

$$14 \% 3 = 2, -14 \% 3 = -2, 14 \% -3 = 2, -14 \% -3 = -2$$

~~Sign of the 1st operand will be the sign of the remainder.~~

→ 0.333 Integer part is 0

Integer / Integer = Integer

$$1/3 = 0$$

$$1/3 + 1/3 + 1/3$$

$$= 0 + 0 + 0$$

$$= 0$$

Relational Operator -

< less than

> greater than

$\leq$  less than equal to

$\geq$  greater than equal to

$\neq$  not equal to

$=$  equal to

Solution:- True or false

$a < b$  (Yes or No)

$a > b$

$a \leq b$

$a \geq b$

$a \neq b$

$a = b$

Logical Operator

Combining the AND  $(a > b) \& (c > d)$

OR  $(a > b) \mid\mid (c > d)$

selectional NOT  $\neg (a < b)$

operators to get a certain outcome.

Increment & Decrement Operator

$a++$ ,  $++a$

$a--$ ,  $--a$

1. Data flow

Date \_\_\_\_\_  
Page \_\_\_\_\_

$$a+b = (a \oplus b) + (a \wedge b)$$

### Conditional Operator

$$\gamma = (a > b) ? a : b$$

If true then a  
If false then b

### Bitwise Operator

#	AND	bitwise AND
!	OR	bitwise OR
^	XOR (exclusive OR)	bitwise XOR
~	one's complement	bitwise NOT
<<	left-shift	multiplication
>>	right-shift	division

0 1 0 1	0 0 1 1	0 1 0 1
0 0 1 1	0 1 0 1	0 0 1 1
AND	OR	NOT
0 0 0 1	0 1 1 1	1 0 0 0
0 1 0 1	0 0 1 1	0 1 0 1
0 0 1 1	(same bit zero)	rest 1
^ 0 1 1 0		

2

$$0101 \rightarrow 5$$

maintaining privacy.

one's complement - every digit should be subtracted from 9.

$$0101 \text{ (addend)}$$

$$\begin{array}{r} 1 \\ 0101 \\ \hline \end{array}$$

one's complement - (subtracted from 1)

Date \_\_\_\_\_  
Page \_\_\_\_\_

a's complement

$$\begin{array}{r} 1 \\ 0101 \\ \hline 1010 \end{array}$$

10's complement

$$a's one's complement = 547$$

$$5225_{\text{binary}} \rightarrow 000101000000101000110$$

$$000101000110$$

① If  $a = 64$

$$a = 64 = 0000000001000000$$

$$y = a < 1 \rightarrow 0000000001000000 = 128$$

$$0000000010000000 = 256$$

Similarly

$$If a = 64 (= 0000000001000000)$$

$$y = a > 1 \rightarrow 0000000000100000 = 32$$

$$0000000000100000 = 16$$

3

### Assignment Operator

variable = expression

(value  
Assigned)

$t = x + 5$  should be

single variable

$$\text{sum} = a + b + c$$

$$\text{total} = x + y + z + t$$

$$t = x$$

$$m = y + 45 - z$$

$$\text{sum} + \text{sum}_2 = x \quad (\text{WRONG})$$

### Library / Intrinsic function

$$e^x \rightarrow \exp(x)$$

$$\log x \rightarrow \log(x), \log 10(x)$$

$$\sqrt{x} \rightarrow \sqrt{\exp(x)}$$

$$\text{max}(x_1, x_2) \rightarrow \max(x_1, x_2)$$

$$\sin x \rightarrow \sin(x)$$

$$\cos x \rightarrow \cos(x)$$

$$x^3 \rightarrow \text{pow}(x, 3)$$

4

write the following expressions in 'C' language -

$$\frac{a \cdot b}{c} = (a * b) / c \quad ; \quad i = m \quad (1)$$

$$\frac{a}{b+c} = a / (b + c) \quad ; \quad (i-2) * -$$

$$ax^2 + bx + c = a * \text{pow}(x, 2) + b * x + c \quad ; \quad a = \text{pow}(x, 2)$$

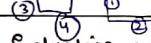
$$a - b\sqrt{c} = a - b * \sqrt{c}$$

$$e^x + b \sin(b - c) = \exp(x) + b * \sin(b - c)$$

$$\frac{a+b}{a-b} = (a+b) / (a-b) \quad ; \quad a = b$$

$$\frac{a \cdot b}{c} = a * (b / c)$$

$$a + b + c * d / e$$



Evaluation order

Ques: evaluate the following expressions -

$$(1) m = j * (k - i) / (q + l) \quad ; \quad \text{Here } j = 2$$

$$(2) m = j * ((k - i) / (q + l)) \quad ; \quad \text{Here } k = 2$$

$$(3) m = (j * (k - i)) / (q + l) \quad ; \quad \text{Here } i = 3, q = 1, l = -3$$

$$(4) m = (j * (k - i)) / (q + l)$$

Ques  
1) Paranthesis  
Multiplication  
Division  
Addition  
Subtraction

PM - Date

Date \_\_\_\_\_  
Page \_\_\_\_\_

$$(1) m = j * (k-i) / (q+l)$$

$$= 2 * (2-7) / (9-3) \quad (2-7) = -5 \quad (9-3) = 6 \quad (1)$$

$$= 2 * (-5) / 6$$

$$= -10 / 6 = -1 \frac{2}{3} = -1 \frac{1}{3}$$

~~cancel 2~~

$$(2) m = j * ((k-i) / (q+l))$$

$$= 2 * ((2-7) / (9-3)) = (2-7) / 6 = -5/6 \quad (1)$$

$$= \cancel{2} \cancel{-5} / \cancel{6}$$

$$= -5/6 \quad (2-7) = -5 \quad 6 = 6 \quad (1)$$

~~cancel 2~~

$$(3) m = (j * (k-i) / q + l)$$

$$= (2 * (2-7) / 9-3) \quad (2-7) = -5 \quad 9-3 = 6 \quad (1)$$

$$= (2 * -5) / 6$$

$$= -10 / 6 = -1 \frac{2}{3} = -1 \frac{1}{3}$$

$$= -1 - 3 = -4$$

$$(4) m = (j * (k-i) / (q+l))$$

$$= (2 * (2-7) / (9-3)) * (2-7) * \cancel{j} = m \quad (1)$$

$$= (2 * -5) / 6 \quad ((2-7) * (2-7)) * \cancel{j} = m \quad (1)$$

$$= -10 / 6 = -1 \quad ((2-7) * (2-7)) * \cancel{j} = m \quad (1)$$

$$= -1 * ((2-7) * (2-7)) * \cancel{j} = m \quad (1)$$

$$= -1 * ((2-7) * (2-7)) * \cancel{j} = m \quad (1)$$

Ans.  $\rightarrow$  Step by step execution of a program which takes place.

Algorithm = Algorithm + Data.

write an algorithm to add 2 nos (say a and b).

start

- 1) declare the variable a, b, sum
- 2) Read the value of a, b
- 3) Add the value of a and b. Store the result in sum.
- 4) Display sum
- 5) Stop.

Ans. write an algorithm to find the largest no. out of 2 given nos.

- 1) start
- 2) declare the variable a, b, large
- 3) Read the value of a, b.
- 4) if  $a > b$  then  $large = a$  else  $large = b$
- else  $large = b$
- Display the result  $large$
- Stop.

Ques- Write an algorithm to find the area of circle.

- 1) Start
- 2) Declare the variable radius, area
- 3) Read the value of radius
- 4)  $\pi = 22.0$
- 5)  $area = \pi * \text{radius}^2$
- 6) Display the result- area
- 7) Stop.

Ques- Write an algorithm to test whether a given integer no. is even or odd.

- 1) Start
- 2) Declare the variable a, quotient, remainder
- 3) Read the value a.
- 4)  $quotient = \text{number} / 2$
- 5)  $remainder = \text{number} - \text{quotient} * 2$
- 6) if remainder = 0  
display the given no. is even  
else  
display the given no. is odd
- 7) Stop.

Ques- Write an algorithm to find the largest no. among the given 3 nos.

- 1) Start
- 2) Declare the variable a, b, c, largest
- 3) Read the value of a, b, c
- 4) if ( $(b > c) \& (a > b)$ )  
then a = largest  
else if  $b > c \& c > a$   
then b = largest  
else if  $c > b \& b > a$   
then c = largest
- 5) display the result- largest
- 6) Stop.

Flow Chart-

(Start or Stop)

Declaration or execution statement-

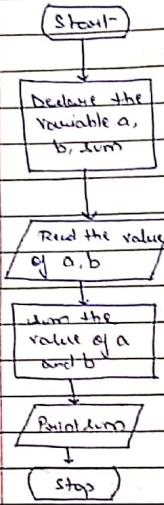
Input / output-

Connecting or connector

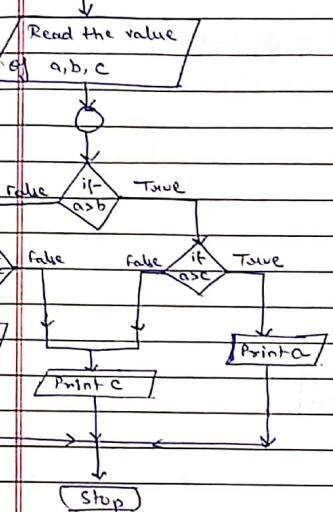
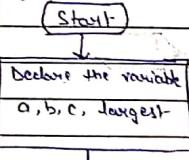
Loop

Decision

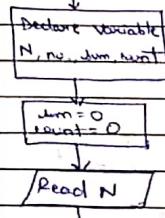
Ques. Draw a flow chart - to add two nos. entered by the user.

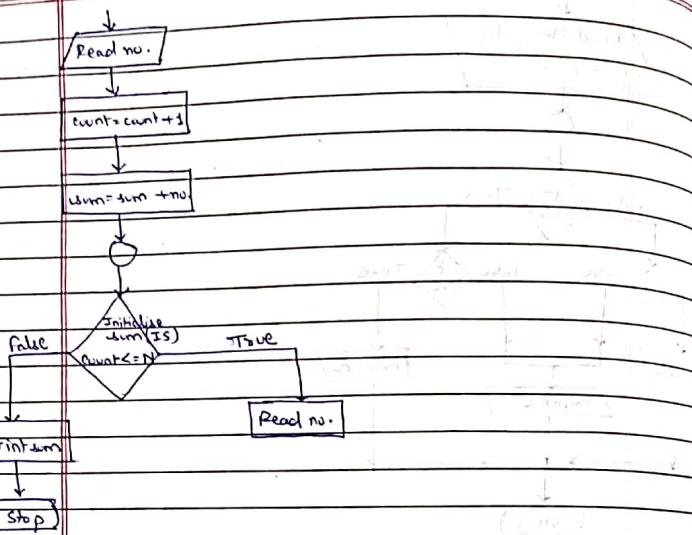


Ques. Draw a flow chart - to find the largest no. among the given 3 nos.

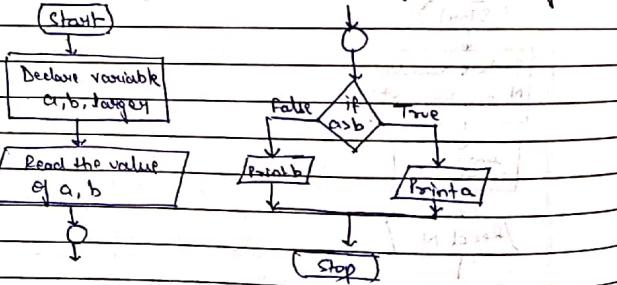


Ques. Draw a flow chart - to sum 'N' given nos.

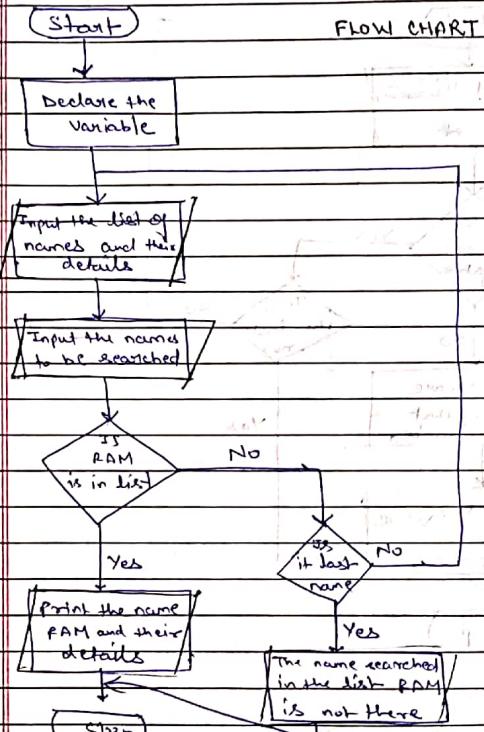




Ques- Draw a flow chart - to find the largest no. out of 2 nos.

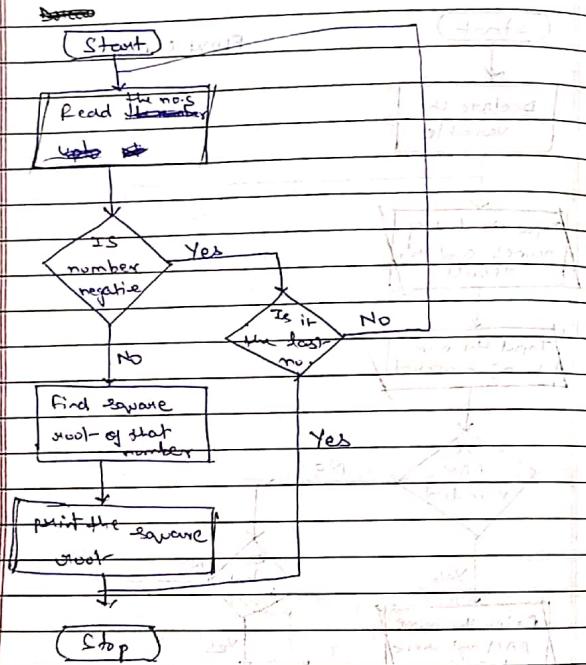


Ques- Searching a list of names to pick up a particular name and write down the details.

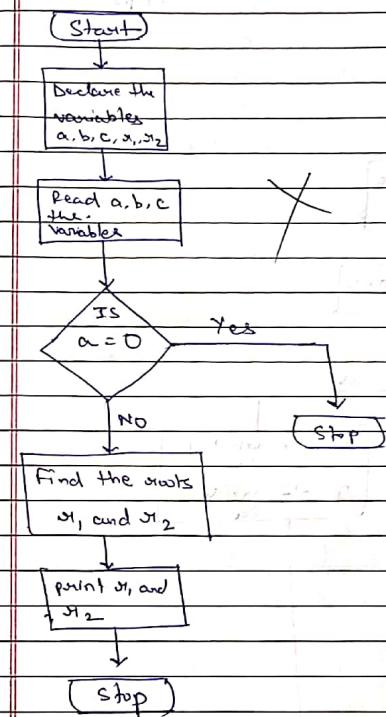


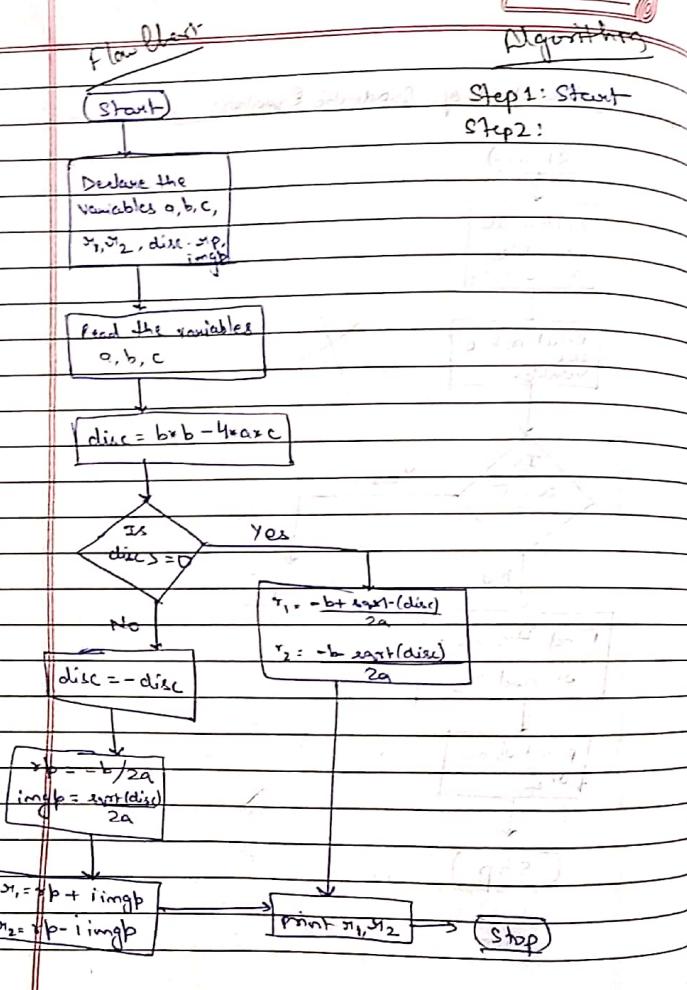
Ques - draw a flow chart to

find a square root of a set of 'N' numbers which contains a few negative numbers.



Ques - Flow chart of Quadratic Equation





### Algorithm

Step 1: Start  
Step 2:

need for Input/Reading

scanf ("%d %d %d", &x, &y, &z)

%d — integer

%f — real

%c — character

%s — string

Suppose ("%d %f %c", &x, &y, &z) Then

x is integer

y is real

z is character

newline character (for changing the line)

printf ("%d %d %c\n", x, y, z)

↓  
x, y, z will be integers and will be printed on SAME LINE.

printf ("Enter the value of x,y,z\n")

scanf ("%d %d %d", &x, &y, &z)

Enter the value of x,y,z

(P-1) WAP in C to add 2 integer numbers and print the result.

```
printf("Enter the two integers \n");
/* This program is written by */ Comment (Optional)
```

```
/* This program is for addition of two numbers */
```

```
#include <stdio.h> /* preprocessor directives */
#include <math.h> /* Assumptions */
#include <conio.h> /* purpose */
void main() /* Consideration */
{
```

```
    int a, b, sum;
    printf("Enter the value of a and b\n");
    scanf("%d %d", &a, &b);
    sum = a + b;
    printf("sum=%d", sum);
    getch();
```

Closing braces

great in inner block  
integers in form int [ ]  
character in form char [ ]

to hold the  
result on the  
screen

getchar  
(used for conio)

Data  
Page

what we write program in 'C' is a source code.  
object code?

(P-2) WAP in C to write "I have learned the program in C".

```
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
    printf("I have learned the program in C\n");
    getch();
}
```

Note: If we skip #include <conio.h> and getch(), program is OK but the result will be in the background and will not be visible to us.

```
printf("My name is, Mr. X\n");
printf("I am a student of MME\n");
```

-----  
-----  
-----  
-- --  
-- --

(P.3)

WAP in C to evaluate the distance

$$\text{distance} = \sqrt{x^2 + y^2 + z^2}$$

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

void main()
{
    float x, y, z, distance;
    printf("Enter the value of x, y, z\n");
    scanf("%f %f %f", &x, &y, &z);
    distance = sqrt(x*x + y*y + z*z);
    printf("distance = %f", distance);
    getch();
}
```

(P.4)

WAP in C to find the area and perimeter of a triangle, given its 3 sides as a, b, c

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

$$\text{perimeter} = a+b+c$$

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

void main()
{
}
```

Date \_\_\_\_\_  
Page \_\_\_\_\_

$$dc = a - b$$

Date \_\_\_\_\_  
Page \_\_\_\_\_

$$b = a - dc$$

float a, b, c, s, area, perimeter;

printf("Enter the value of a, b, c\n");

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

$$s = (a+b+c)/2;$$

$$\text{area} = \sqrt{s(s-a)(s-b)(s-c)};$$

$$\text{perimeter} = a+b+c;$$

$$\text{printf ("area = %f", area);}$$

$$\text{printf ("perimeter = %f", perimeter);}$$

getch();

(P.5) Given  $d = \frac{a-b}{c}$  WAP in C to find b

#include <stdio.h>

#include <math.h>

#include <conio.h>

```
void main()
{
}
```

float a, b, c, d;

printf("Enter the value of a, d, c\n");

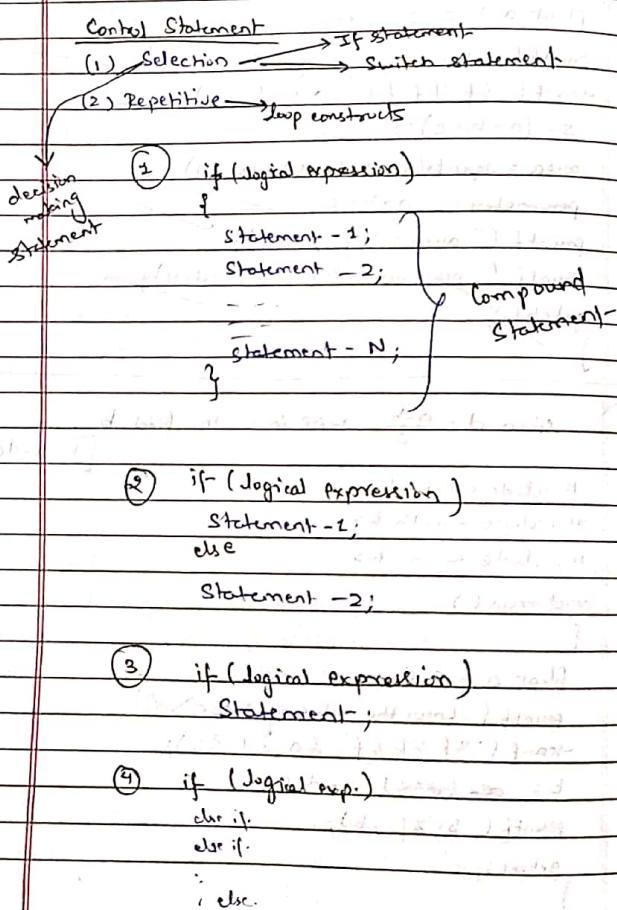
scanf ("%f %f %f", &a, &d, &c);

$$b = \frac{a-d}{c};$$

$$\text{printf ("b = %f", b);}$$

getch();

Program - a set of instructions to carry out a particular task.



(P. 6) WAP in C to find convert  $^{\circ}\text{C}$  into  $^{\circ}\text{F}$  and  $^{\circ}\text{F}$  into  $^{\circ}\text{C}$ .

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

void main()
{
    int choice;
    float C, F, temperature;
    printf("Enter the choice");
    scanf("%d", &choice);
    if (choice == 1)
        printf("Enter the value of temp");
    scanf("%f", &temp);
    if (choice == 1)
        {
            C = (temp - 32) / 1.8;
            printf("C = %f\n", C);
        }
    else (choice == 2)
        {
            F = 1.8 * temp + 32;
            printf("F = %f\n", F);
        }
    getch();
}
```

(Q7) WAP in 'C' to check whether the given no. is zero or non-zero.

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

void main()
{
    float x;
    clrscr();
    cout << "Enter the value of x" << endl;
    cin >> x;
    if (x == 0)
        cout << "The entered number is zero";
    else
        cout << "The entered number is non-zero";
    getch();
}
```

(Q8) WAP in C to check whether given no. is 'zero, positive or negative'.

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

void main()
{
    float x;
    clrscr();
    cout << "Enter the value of x" << endl;
    cin >> x;
    if (x > 0)
        cout << "The given number is positive";
    else if (x < 0)
        cout << "The given number is negative";
    else
        cout << "The given number is zero";
    getch();
}
```

Heat x;

```
printf ("Enter the value of x");
scanf ("%f", &x);
if (x == 0)
    printf ("The entered number is zero");
else if (x > 0)
    printf ("The entered number is positive");
else
    printf ("The entered number is negative");
getch();
```

OP  
if ( $x > 0$ )  
printf ("The given number is positive");  
else if ( $x < 0$ )  
printf ("The given number is negative");  
else  
printf ("The given number is zero");

(Q9) WAP in 'C' to find the bigger no. out of the 2 nos.

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

void main()
{
    float a, b;
    clrscr();
    cout << "Enter 2 nos." << endl;
    cin >> a >> b;
    if (a > b)
        cout << "a is greater than b";
    else
        cout << "b is greater than a";
    getch();
}
```

```

{
    float a, b;
    printf("Enter the value of a and b\n");
    scanf("%f %f", &a, &b);
    if (a > b)
        printf("The bigger no. is a");
    else
        printf("The bigger no. is b");
    getch();
}

```

(P-10) What is C + if the largest.

Given two numbers.

#include < stdio.h >

#include < math.h >

#include < conio.h >

void main()
{

float a, b, c;

printf("Enter the value of a, b, c\n");

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

if (a > b & b > c)

printf("The largest no. is a");

else if (a < b & b < c)

### More Logical

(1) if (a == b)
 printf("The given nos. are equal");
 else if (a > b)
 printf("a is the bigger");
 else
 printf("b is the bigger");

### (2) C = a - b

printf("The largest no. is c");
else
 printf("The largest no. is b");
getch();
}

if (a > b) if ((a>b)&&(a>c))
 if (a > c) large = a;
 printf("a is the largest");
else
 large = c;
 printf("c is the largest");
else if ((b>a)&&(b>c))
 if ((b>c)) large = b;
 printf("b is the largest");
else
 large = c;
 printf("c is the largest");
getch();
}

(P-11) bonus of the  
 An employee will get a Rs. 2000 if he has served  
 organization for more than 3 yrs. otherwise the  
 bonus ~~amt.~~ will be zero.

```

y = year of service
#include < stdio.h>
#include < math.h>
#include <conio.h>
void main()
{
    float y;
    printf("Enter the value of y\n");
    scanf("%f", &y);
    if (y > 3)
        printf("Bonus amount is Rs25000");
    else
        printf("Bonus amount is zero");
    getch();
}

```

P-12 Suppose a 'C' code has to be written that will calculate the earnings by workers who are paid an hourly wage, with weekly hours greater than 40 being paid "time and a half". Suppose weekly hours and hourly rate are given. Write in C to evaluate the wage.

```

#include < stdio.h>
#include < math.h>
#include <conio.h>
void main()
{
    float weeklyhours, hourlyrate, earnings, extrahour;
    printf("Enter the value of weeklyhours, hourlyrate\n");
    scanf("%f %f", &weeklyhours, &hourlyrate);
    if (weeklyhours <= 40)
        earnings = weeklyhours * hourlyrate;
    else
        extrahour = weeklyhours - 40;
        earnings = 40 * hourlyrate + extrahour * hourlyrate * 1.5;
    printf("earnings = %f", earnings);
    getch();
}

```

leap year condition

(divisibility by 4) and (divisible by 400 or not  
divisible by 100)

(B-3) write a C program to check whether a particular year is leap year or not.

variables < definition >

↳ include <math.h>

↳ include <conio.h>

void main()

{

int year, quotient, remainder;

printf ("Enter the value of year");

scanf ("%d", &year);

quotient = year / 4;

remainder = year % 4;

quotient2 = year / 400;

remainder2 = year - 400 \* quotient2;

quotient3 = year / 100;

remainder3 = year - 100 \* quotient3;

if (quotient > 0 && remainder == 0)

    if (quotient2 > 0 && remainder2 == 0)

        if (quotient3 > 0 && remainder3 != 0)

            printf ("It is a leap year");

        else

            printf ("It is not a leap year");

    else

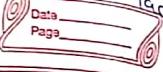
```

#include < stdio.h >
#include < math.h >
#include < conio.h >

main()
{
    int year, y1, y2, y3, y4, y5, y6, y7, y8;
    printf("Enter the value of year");
    scanf("%d", &year);
    if (year % 400 == 0)
        y1 = year / 400;
    else if (year % 100 == 0)
        y2 = year / 100;
    else if (year % 4 == 0)
        y3 = year / 4;
    else
        y4 = year - 1;
    if ((y1 == 0) || (y2 == 0) || (y3 == 0))
        printf("It is a leap year");
    else
        printf("It is not a leap year");
    getch();
}

```

$$x = \frac{-b \pm \sqrt{D}}{2a}$$



P4u WAP in C to find the roots of a quadratic equation

```

#include <stdio.h>
#include <math.h>
#include <conio.h>

void main()
{
    float a, b, c, m1, m2, D, r1p, img;
    printf("Enter the value of a, b, c\n");
    scanf("%f %f %f", &a, &b, &c);
    D = b*b - 4*a*c;
    if (D >= 0)
    {
        m1 = (-b + sqrt(D)) / (2*a);
        m2 = (-b - sqrt(D)) / (2*a);
        printf("m1 = %f\n", m1);
        printf("m2 = %f\n", m2);
    }
    else if (D == 0)
    {
        m1 = -b / (2*a);
        m2 = -b / (2*a);
        printf("m1 = %f\n", m1);
        printf("m2 = %f\n", m2);
    }
    else
    {
        printf("Roots are imaginary");
        D = -D;
        r1p = -b / (2*a);
        img = (sqrt(-D)) / (2*a);
        printf("x = %f + %fi", r1p, img);
        printf("x = %f - %fi", r1p, img);
    }
}

```

```

#include <stdio.h>
#include <math.h>
#include <conio.h>

void main()
{
    float a, b, c, m1, m2, D, r1p, img;
    printf("Enter the value of a, b, c\n");
    scanf("%f %f %f", &a, &b, &c);
    D = b*b - 4*a*c;
    if (D > 0)
    {
        m1 = (-b + sqrt(D)) / (2*a);
        m2 = (-b - sqrt(D)) / (2*a);
        printf("m1 = %f\n", m1);
        printf("m2 = %f\n", m2);
    }
    if (D == 0)
    {
        m1 = -b / (2*a);
        m2 = -b / (2*a);
        printf("m1 = %f\n", m1);
        printf("m2 = %f\n", m2);
    }
    if (D == -D)
    {
        r1p = -b / (2*a);
        img = (sqrt(D)) / (2*a);
        printf("Enter the value of i");
        r1p = r1p + i * img;
        m2 = r1p - i * img;
        printf("m1 = %f", r1p);
        printf("m2 = %f", m2);
    }
    getch();
}

```

(P-15) WAP in C to convert number of days in years, months, weeks and days.

```
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
    int totaldays, years, months, weeks, days, num1, num2;
    printf("Enter the total number of days");
    scanf("%d", &totaldays);
    years = totaldays / 365;
    num1 = totaldays - years * 365;
    months = num1 / 30;
    num2 = num1 - months * 30;
    weeks = num2 / 7;
    days = num2 - weeks * 7;
    printf("years = %d", years);
    printf("months = %d", months);
    printf("weeks = %d", weeks);
    printf("days = %d", days);
    getch();
}
```

(P-16)  $1 + 2 + 3 + \dots + N$

```
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
    int N, count, sum;
    printf("Enter the value of N");
    scanf("%d", &N);
    count = 0;
    sum = 0;
    a:
    count = count + 1;
    sum = sum + count;
    if (count <= N)
        sum = sum + count;
    goto a;
    printf("sum = %d", sum);
    getch();
}
```

(P-17) WAP in 'c' to evaluate the following

$$y = 2^x$$

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

```

P-11 void main()
{
    int n, count;
    float x, y;
    printf("Enter the value of n");
    scanf("%d", &n);
    scanf("%f %f", &x, &y);
    printf("Enter n");
    count = 0;
    if (count <= n)
    {
        y = y * x;
        goto a;
    }
    printf("y = %f", y);
    getch();
}

```

(P-12) WAP in C to compute the commission for the salesman. The commission is calculated according to the following rates:

Sales	Commission Rate
30,0001 onwards	18%
22,0001 - 30,0000	15%
12,0001 - 22,0000	10%
5,0001 - 12,0000	7%
0 - 5,0000	0%

The program accepts the sales made by the salesman and displays the calculated commission.

```

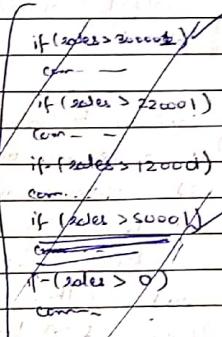
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{

```

```

int sales;
float commission;
printf("Enter the sales");
scanf("%d", &sales);
if (sales > 300000)
    commission = sales * 0.18;
else if (sales > 200000)
    commission = sales * 0.15;
else if (sales > 120000)
    commission = sales * 0.10;
else if (sales > 50000)
    commission = sales * 0.07;

```



```

else
    commission = 0;
    printf("commission = %f", commission);
    getch();
}

if (sales >= 0)
    commission = 0;
if (sales >= 50001)
    commission = sales * 0.07;
if (sales >= 120001)
    commission = sales * 0.10;
if (sales >= 220001)
    commission = sales * 0.15;
if (sales >= 300001)
    commission = sales * 0.18;
    printf("commission = %f", commission);
    getch();
}

```

- WAP in C to evaluate the following total tax;
- P19 (1) Income upto 500000 only, then no tax should be paid.
- (2) If income is more than 500000, then
- upto 2.5 lakh, no tax ; 2.5 to 5 Lakh  $\rightarrow$  5% tax.
  - from 5 Lakh to 10 Lakh  $\rightarrow$  20% tax.
  - more than 10 Lakh  $\rightarrow$  30% tax.
- (iv) cess on tax is 4%.

```

#include <iostream.h>
#include <math.h>
#include <conio.h>

void main()
{
    int income;
    float net-tax, tot-tax1, cess1, tot-tax2, cess2;
    printf("Enter the income");
    scanf("%d", &income);
    if (income <= 500000)
        tot-tax1 = 0, net-tax = 0.0;
    if ((income > 500000) && (income <= 1000000))
        tot-tax1 = 250000 * 0.05 + (income - 500000) * 0.20;
        cess1 = tot-tax1 * 0.04;
        net-tax = tot-tax1 + cess1;
    if (income > 1000000)
        tot-tax2 = 250000 * 0.05 + 500000 * 0.20 + (income - 1000000) * 0.30;
        cess2 = tot-tax2 * 0.04;
        net-tax = tot-tax2 + cess2;
    printf("net-tax = %f", net-tax);
    getch();
}

```

```

#include <stdio.h>
#include <math.h>
#include <conio.h>

void main()
{
    int income;
    float net-tax, total-tax1, cess1, total-tax2, cess2;
    printf("Enter the income");
    scanf("%d", &income);
    if (income <= 500000)
        net-tax = 0.0;
    if (income > 500000)
        total-tax1 = 250000 * 0.05 + (income - 500000) * 0.20;
    cess1 = total-tax1 * 0.04;
    net-tax = total-tax1 + cess1;
    if (income > 1000000)
        total-tax2 = 250000 * 0.05 + 500000 * 0.20 + (income - 1000000) * 0.30;
    cess2 = total-tax2 * 0.04;
    net-tax = total-tax2 + cess2;
    printf("net-tax = %f", net-tax);
    getch();
}

```

(P-20) An organization wants to know how many of its employees are getting a basic pay of less than Rs. 20,000. WAP in C to find the total no of employees whose basic pay is less than Rs. 20,000.

```

#include <stdio.h>
#include <math.h>
#include <conio.h>

void main()
{
    int n, bpay, i, count;
    printf("Enter the value of total number of employees");
    scanf("%d", &n);
    i = 0;
    count = 0;
    label:
    printf("Enter the basic pay\n");
    scanf("%d", &bpay);
    if (bpay < 20000)
        count = count + 1;
    i = i + 1;
    if (i <= n)
        goto label;
    printf("count = %d", count);
    getch();
}

```

P.S.I	An electricity company charged its bill rates as follows
	Per unit charge
Scrambling units	Rs 0.50 per unit
6-200	Rs 100 + Rs 0.65 per unit
201-400	in excess of <del>Rs 100</del> 230
401-600	Rs <del>100</del> + <del>Rs 0.65</del> per unit in excess of <del>Rs 230</del> 400
601 and above	Rs 390 + Rs 1 per unit in excess of 600

was in c to find the amount to be paid by customer.

```
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
```

~~heat consumption-unit~~, amount-paid;  
~~heat consumption-unit~~, amount-paid;  
 quantity ("Enter the value of consumption-unit");  
 amount ("~~if~~", consumption-unit).  
 if (consumption-unit >= 0)  
 amount-paid = consumption-unit \* 0.00;  
 if (consumption-unit >= 200)  
 amount-paid = ~~consumption-unit~~ \* 100 + (consumption-unit - 200) \* 0.65;

```

if (consumption-unit >= 401)
    amount-paid = 230 + (consumption-unit - 400) * 0.80;
else if (consumption-unit >= 601)
    amount-paid = 390 + (consumption-unit - 600) * 1.00;
printf ("amount paid = %.f", amount-paid);
getch();

```

## switch statement

WAP in C to implement the use of arithmetic operations like addition, subtraction, multiplication, division and modulus.

```
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
}
```

~~int x,y  
char c;~~

```

    printf("Enter the value of x,y\n");
    scanf("%d%d", &x, &y);
    printf ("Enter the character\n");
    scanf ("%c", &c);
    uswitch(c)
    {
        Case '+':
            z = x+y;
            printf("z=%d", z);
            break;
        Case '-':
            z = x-y;
            printf("z=%d", z);
            break;
        Case '*':
            z = x*y;
            printf("z=%d", z);
            break;
        Case '/':
            z = x/y;
            printf("z=%d", z);
            break;
        Case '%':
    }

```

P.22

```

    ✓
    #include <stdio.h>
    #include <math.h>
    #include <conio.h>
    void main()
    {
        int k, a, b, x;
        printf("Enter the value of a,b\n");
        scanf("%d%d", &a, &b);
        printf("Enter the value of k");
        scanf("%d", &k);
        switch(k)
        {
            Case 1:
                x = a+b;
                printf("x=%d", x);
                break;
            Case 2:
                x = a-b;
                printf("x=%d", x);
                break;
            Case 3:
                x = a*b;
                printf("x=%d", x);
                break;
            Case 4:
                x = a/b;
                printf("x=%d", x);
                break;
            Case 5:
                x = a%b;
                printf("x=%d", x);
                break;
            default:
                printf("Wrong Choice");
        }
        getch();
    }

```

P23

WAP in C to print grades of students according to their marks as given below:

Marks	Grade
90-100	A
80-90	
70-79	B
60-69	C
40-59	D
below 40	F

```
#include <csbio.h>
#include <math.h>
#include <conio.h>

void main()
{
    int marks, k;
    printf("Enter the marks");
    scanf("%d", &marks);
    printf("Enter the value of k");
    scanf("%d", &k);

    if (marks < 40)
        k=1;
    if (marks >= 40)
        k=2;
    if (marks >= 60)
        k=3;
    if (marks >= 70)
        k=4;
    if (marks >= 80)
        k=5;
}
```

switch(k)

{

case 1:

```
printf("Grade is F");
break;
```

case 2:

```
printf("Grade is D");
break;
```

case 3:

```
printf("Grade is C");
break;
```

case 4:

```
printf("Grade is B");
break;
```

case 5:

```
printf("Grade is A");
break;
```

default:

```
printf("Wrong choice");
getch();
```



~~Q-1~~

```

y = 1; i = 1;
printf("x = %d\n", x);
scanf("%d", &n);
{
    printf("Enter the value of x\n");
    scanf("%d", &x);
}
while (i <= n)
{
    y = y * x;
    i = i + 1;
}
printf("y = %d", y);
getch();

```

~~Q-2~~ WAP in C to evaluate the following:

```

1 + 2 + 3 + ... + n
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
    int i, n, sum;
    sum = 0; i = 1;
    printf("Enter the value of n");
    scanf("%d", &n);
}

```

~~Q-1~~

```

while (i <= n)
{
    sum = sum + i;
    i = i + 1;
}
printf("sum = %d", sum);
getch();

```

~~Q-2~~ WAP in C to find the factorial of a given no. say 'n' (using while loop).

```

#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
    int n, i, y;
    y = n;
    i = 1;
    printf("Enter the value of n");
    scanf("%d", &n);
    while (i <= n)
    {
        y = y * i;
        i = i + 1;
    }
}

```

```
printf("y=%d", y);
getch();
```

(P-28) WAP in C to find the reverse of a given number.

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

```
int number, digit, reverse;
reverse = 0;
printf("Enter the value of number\n");
scanf("%d", &number);
while (number > 0)
{
    digit = number % 10;
    reverse = reverse * 10 + digit;
    number = number / 10;
}
printf("Reverse = %d", reverse);
getch();
}
```

(P-29)

WAP in C to test whether given no. is a palindrome number or not-

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

```
int number, digit, reverse, num;
reverse = 0;
printf("Enter the value of number\n");
scanf("%d", &number);
num = number;
while (number > 0)
{
```

```
    digit = number % 10;
    reverse = reverse * 10 + digit;
    number = number / 10;
}
```

```
if (num == reverse)
    printf("Given number is a palindrome number");
else
    printf("Given number is not a palindrome number");
getch();
}
```

(P-29) WAP in C to find the sum of individual digits of a given number.

#include <stdio.h>

#include <math.h>

#include <conio.h>

void main()

{  
    int number, digit, sum;  
    sum = 0;  
    digit = 0;

    printf("Enter the number\n");

    scanf("%d", &number);

    while (number > 0)

    {  
        digit = number % 10;

        sum = sum + digit;

        number = number / 10;

    }

    printf("sum=%d", sum);

    getch();

}

/\* Author : Arun Kumar Date : 10/10/2011 Page No. : 101

1 2 3 4 5 6 7 8 9 0 .

(P-30) WAP in C to find the sum of individual digits of a given number.

#include <stdio.h>

#include <math.h>

#include <conio.h>

void main()

{

int ~~number~~, digit, number, sum;

~~sum=0;~~ sum = 0; // sum is initialized to 0

printf("Enter the value of number\n");

scanf("%d", &number);

~~number~~ = number;

while (~~number~~ > 0)

{  
    digit = ~~number~~ % 10;

    sum = sum + digit;

    number = ~~number~~ / 10;

}

printf("sum=%d", sum);

getch();

}

(P-31) WAP in 'C' to find the first 10 fibonaci nos.

```

+ 1 2 3 5 8 13 21 34 55
#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
    int first, second, third, n, i;
    printf("Enter the value of n");
    scanf("%d", &n);
    first = 0;
    second = 1;
    third = first + second;
    printf("%d %d", second, third);
    while (i < n)
    {
        first = second;
        second = third;
        third = first + second;
        printf("%d %d", second, third);
        i++;
    }
    getch();
}

```

(P-32) WAP in C to test whether a given no. is a prime number.

```

# include <stdio.h>
# include <math.h>
# include <conio.h>
void main()
{
    int number, i;
    printf("Enter the number");
    scanf("%d", &number);
    if (number == 1)
        printf("The given number is not a prime number");
    else
        for (i = 2; i < number; i++)
            if (number % i == 0)
                {
                    i = i + 1;
                    break;
                }
        if (i >= number)
            printf("The given number is a prime number");
        else
            printf("The given number is not a prime number");
    getch();
}

```

R-29) write a C program to find the sum of the following series till one term becomes less than  $10^{-4}$  in absolute value.  

$$\text{sum} = \frac{1+x}{2} + \frac{x^2}{3} + \dots$$
 (for  $0 < x < 1$ )

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

void main()
{
    float x, term, sum, denom;
    printf("Enter the value of x less than 1\n");
    scanf("%f", &x);
    sum = 1;
    term = 1;
    denom = 1;
    while (term > 0.0001)
    {
        term = term * x / denom;
        sum = sum + term;
        denom = denom + 1;
    }
    printf("sum = %f", sum);
    getch();
}
```

(P-33)  $\text{sum} = 1 - x + \frac{x^2}{2} - \frac{x^3}{3} + \dots$

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

void main()
{
    float x, term, sum, denom;
    printf("Enter the value of x less than 1\n");
    scanf("%f", &x);
    sum = 1;
    term = 1;
    denom = 1;
    while (abs(term) > 0.0001)
    {
        term = term * x / denom;
        sum = sum - term;
        denom = denom + 1;
    }
    printf("sum = %f", sum);
    getch();
}
```

~~sum = sum - term;~~

~~term = term \* x / denom;~~

~~denom = denom + 1;~~

~~printf("sum = %f", sum);~~

~~getch();~~

$$x - \frac{x^2}{12} + \frac{x^3}{13} - \frac{x^4}{14} + \dots = \sum_{n=0}^{\infty} (-1)^n \frac{x^{n+1}}{n+1}$$

#include < stdio.h >  
# include < math.h >  
# include < conio.h >

void main()

{

float x, term, sum, denom;  
printf("Enter the value of x less than 1^n");  
scanf("%f", &x);

sum = 0;

term = 1;

denom = 2;

while (abs(term) > 0.0001)

{

term = -term \* x / denom;

sum = sum + term;

denom = denom + 2;

}

printf("sum=%f", sum);

getch();

}

$$\sum_{n=0}^{\infty} (-1)^n \frac{x^{n+1}}{n+1} \dots \text{ till you find}$$

P-36 sum =  $x - \frac{x^3}{12} + \frac{x^5}{13} - \frac{x^7}{14} \dots$

one term less than or equal to  $10^{-4}$  in absolute value.

#include < stdio.h >

#include < math.h >

#include < conio.h >

void main()

{

int i;

float x, sum, term, denom;

printf("Enter the value of x less than 1^n");

scanf("%f", &x);

i = 4;

sum = x;

term = x;

denom = 6;

while (abs(term) > 0.0001)

{

term = -term \* x \* x / denom;

sum = sum + term;

denom = i \* (i+1);

i = i + 2;

printf("sum=%f", sum);

getch();

sum = x;

term = x;

denom = 2;

while (abs(term) > 0.0001)

{

term = -term \* x \* x /

(denom \* denom);

sum = sum + term;

denom = denom + 2;

~~P-37.~~ WAP in C to print the following sum-

$$\text{sum} = \frac{1}{12} + \frac{1}{14} + \dots + \frac{1}{m-n}$$

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

void main()
{
    int i, n, factorial;
    float sum;
    printf("Enter the value of n\n");
    scanf("%d", &n);
    sum = 0;
    factorial = 1;
    i = 1;
    while (i <= n)
    {
        factorial = factorial * i;
        if (i % 2 == 0)
            sum = sum + 1 / factorial;
        i = i + 1;
    }
    printf("sum = %f", sum);
    getch();
}
```

~~P-38.~~ WAP in C to find the LCM and GCD of 2 integers numbers.

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

void main()
{
    int num1, num2, m, n, lcm, gcd, prod, rem;
    printf("Enter the value of num1 and num2\n");
    scanf("%d%d", &num1, &num2);
    m = num1;
    n = num2;
    prod = num1 * num2;
    while (n != 0)
    {
        if (m % n == 0)
            break;
        else
        {
            rem = m % n;
            m = n;
            n = rem;
        }
    }
    gcd = m;
    lcm = prod / gcd;
}
```

(P.38)

```

gcd = n;
lcm = prod/gcd;
printf("gcd=%d", gcd);
printf("lcm=%d", lcm);
getch();
}

```

(P.39) wap in C to find the sum of negative numbers, sum of positive even numbers, sum of positive odd numbers from a list of numbers entered by the user.

```

#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
    int lmpo, sumpe, sumne, num;
    sumpo=0;
    sumpe=0;
    sumne=0;
    printf("Enter the number");
    scanf("%d", &num);
    do
    {
        if(num<0)
            sumne+=num;
        else if(num%2==0)
            sumpo+=num;
        else
            sumpe+=num;
        getch();
    }
}

```

if-(num>0)

```

{
    if-(num%2==0)
        sumpe = sumpe + num;
    else
        sumpo = sumpo + num;
}
else

```

sumne = sumne + num;

```

scanf("%d", &num);
}

```

while (num>0);

printf("sumne=%d", sumne);

printf("sumpo=%d", sumpo);

printf("sumpe=%d", sumpe);

getch();

'for' loop

① for(initialization; test-condition; update)

{ ② }

    ③ statements

}

The diagram illustrates the components of a 'for' loop. It shows a sequence of four numbered circles: 1 (initialization), 2 (test-condition), 3 (update), and 4 (statements). Arrows indicate the flow from 1 to 2, 2 to 3, and 3 back to 1. Circle 4 is positioned below the loop structure.

Date \_\_\_\_\_  
Page \_\_\_\_\_

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

Date \_\_\_\_\_  
Page \_\_\_\_\_

(P-40) \*\*\* \* \* ... upto 50 times . WAP

for( i=1; i<=50; i++ )  
printf('\*');

#include <stdio.h>  
#include <math.h>  
#include <conio.h>  
void main()  
{  
int i;  
for( i=1; i<=50; i++ )

Q for( i=1; i<=10; i++ )  
printf(" %d", i);

(P-41) WAP in C to calculate the sum of first n natural nos.

#include <stdio.h>  
#include <math.h>  
#include <conio.h>  
void main()

{  
int n, sum, i;

printf(" Enter the value of n");

scanf(" %d", &n);

sum = 0;  
for( i=1; i<=n; i++ )

sum = sum + i;

printf(" Sum = %d", sum);

(P-42) 1  
2 2  
3 3 3

4 4 4 4

#include <stdio.h>  
#include <math.h>  
#include <conio.h>  
void main()

{  
int i, row, column;

printf(" "); scanf(" %d", &i);  
i=0;

for (row=1; row <= 4; row++)

{  
i=i+1;

for (column = 1; column <= row, column++)

{  
printf(" %d", i);

}  
printf(" \n");

}  
getch();

(P-43) WAP to print - 1 2 3  
4 5 6  
7 8 9

```

#include < stdio.h >
#include < math.h >
#include < conio.h >
void main()
{
    int i, row, column;
    printf("i");
    scanf("%d", &i);
    i = 0;
    for (row = 1; row <= 3; row++)
    {
        for (column = 1; column <= row; column++)
        {
            if ((row - 1) * (row - 1) + (column - 1) * (column - 1) == i)
            {
                printf("%d", i);
            }
            else
                printf(" ");
        }
        printf("\n");
    }
    getch();
}

```

P-44

$$y = \frac{e^{x^2} \ln(1+x)}{\sqrt{1+x^2+x^4}} \text{ for } x = 1.0, 1.05, 1.10, \dots, 1.0$$

```

#include < stdio.h >
#include < math.h >
#include < conio.h >

```

```

void main()
{
    float x, y;
    for (x = 1.0; x <= 10; x = x + 0.05)
    {
        y = exp(x * x) + log(1 + abs(x)) / sqrt(1 + x * x + pow(x, 4));
        printf("%f", y);
    }
    getch();
}

```

WAP in C to print a table of the function

x	y = $e^{-x}$
0.0	1.0
1.0	0.37
2.0	0.13
3.0	0.05
4.0	0.02
5.0	0.01
6.0	0.005
7.0	0.002
8.0	0.001
9.0	0.0005

```

#include < stdio.h>
#include < math.h>
#include < conio.h>
void main()
{
    float x,y;
    printf("Enter x:");
    scanf("%f",&x);
    x=0;
    for(i=1; i<=100; i++)
    {
        y = exp(-x);
        printf("y=%f\n", y);
        x=x+0.1;
        if(i%10==0)
            printf("\n");
    }
    getch();
}

```

P.46 WAP in C to evaluate using for loop:

```

#include < stdio.h>
#include < math.h>
#include < conio.h>
void main()
{
    int i,j,n,sum,sum1;
    printf("Enter n:");
    scanf("%d",&n);
    sum=0;
    for (i=1; i<=n; i++)
    {
        sum1=0
        for (j=1; j<=i; j++)
        {
            sum1 = sum1+j;
        }
        sum = sum + sum1;
    }
    printf("%d",sum);
    getch();
}

```

Find the largest out of  
30 numbers.

### Arrays / subscripted variables.

(Homogeneous collection of a similar type of elements, represented by a common name).

WAP in C to find the average of  $n^{int}$  numbers using arrays.

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

void main()
{
    int i, sum, avg, n, a[100];
    sum = 0;
    printf("Enter the value of n\n");
    scanf("%d", &n);
    for (i=0; i<n; i++)
        scanf("%d", &a[i]);
    for (i=0; i<n; i++)
        sum = sum + a[i];
    avg = sum/n;
    printf("avg = %d", avg);
    getch();
}
```

P-48

WAP in C to find the largest number among the ~~n-14~~ ~~n integers~~ numbers.

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

void main()
{
    int largest, n, i, a[100];
    printf("Enter the value of n\n");
    scanf("%d", &n);
    for (i=0; i<n; i++)
        scanf("%d", &a[i]);
    largest = a[0];
    for (i=1; i<n; i++)
        if (a[i] > largest)
            largest = a[i];
    printf("Largest = %d", largest);
    getch();
}
```

WAP in C to find the following

$$y = f(x) = \frac{(x^2 + 1.5x + 5)}{(x - 3)}$$

for  $x = -10$  to  $10$ ,  $x$  should take the values like  $-10, -8, -6, \dots, 6, 8, 10$ .

#include <stdio.h>

#include <math.h>

#include <conio.h>

void main()

{

int x;

float y;

for (x=-10; x<=10; x=x+2)

{

y =  $\frac{(x^2 + 1.5x + 5)}{(x - 3)}$ ;

printf("y = %f", y);

}

getch();

given

WAP in C to arrange ' $n$ ' numbers in ascending order of magnitude.

#include <stdio.h>

#include <math.h>

#include <conio.h>

void main()

{

```

int n, i, j, a[100], temp;
printf ("Enter the value of n\n");
scanf ("%d", &n);
printf ("Enter the values of a\n");
for (i=0; i<n; i++)
    scanf ("%d", &a[i]);
for (i=0; i<n; i++)
    for (j=i+1; j<n; j++)
        if (a[i]>a[j])
            {
                temp=a[i];
                a[i]=a[j];
                a[j]=temp;
            }
for (i=0; i<n; i++)
    printf ("%d", a[i]);
getch();

```

(P.S.)

WAP in C to find the addition of 2 matrices.

```

#include <stdio.h>
#include <math.h>
#include <conio.h>
void main()
{
    int m, n, i, j, a[10][10], b[10][10], c[10][10];
    printf ("Enter the value of m and n\n");
    scanf ("%d %d", &m, &n);
    printf ("Enter the value of a\n");
    for (i=0; i<m; i++)
        for (j=0; j<n; j++)
            scanf ("%d", &a[i][j]);
    printf ("Enter the value of b\n");
    for (i=0; i<m; i++)
        for (j=0; j<n; j++)
            scanf ("%d", &b[i][j]);
    for (i=0; i<m; i++)
        for (j=0; j<n; j++)
            c[i][j] = a[i][j] + b[i][j];
    printf ("The value of matrix c\n");
    for (i=0; i<m; i++)
        for (j=0; j<n; j++)
            printf ("%d", c[i][j]);
}

```

```

        printf("%d", c[i][j]);
    }
}

printf("\n");
}
getch();
}

```