Index

BCA C Language Assignment Solutions- MasterProgramming.in

```
       *
     *  *
      *  *  *


d).
1
1 1
1 2 1
1 3 3 1
    1 4 6 4 1
```

14.	Write a program to input from user (5 subjects) sum,average.	
15.	Write a program to print student marksheet.	
16.	Write a program to calculate simple interest.	
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Q.1   Write a program in c to find the division of student.

Ans.

Algorithm:-

- Start
- input percentage
- If per >100 invalid percentage
- If Per >=60 Ist division
- If per 50-60 2nd division
- If Per less than 40 fail
- stop

Flowchart:-
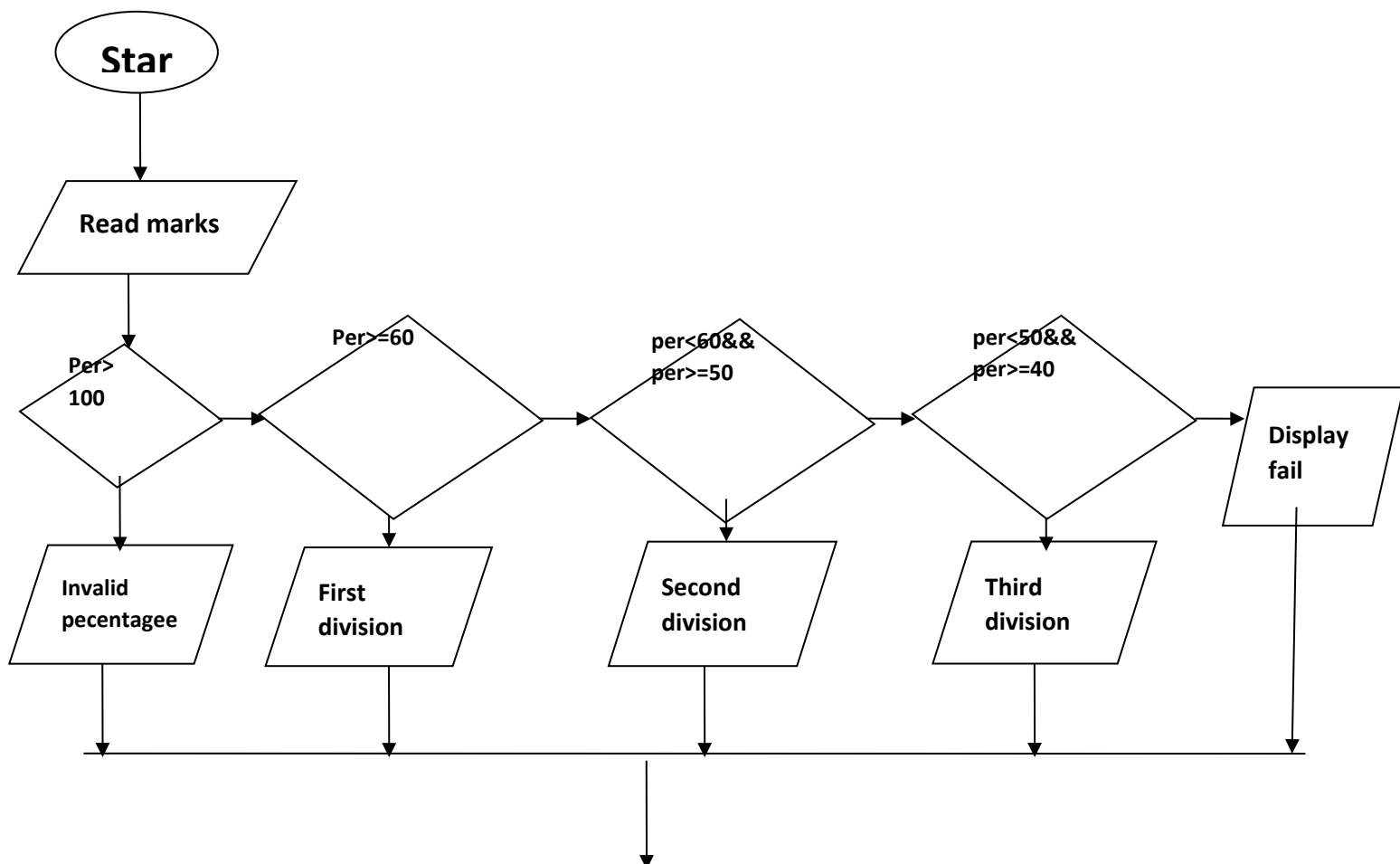
```c
#include<stdio.h>

#include<conio.h>

Void main()

{

Int per;

Clrscr();

Printf("Enter percentage of student");

Scanf("%d",&per);

If(per>100)

{

Printf("\n invalid percent");

}

else if(per>=60)

{

Printf("\n first division");

}

else if(per<60&&per>=50) {

printf("second division");

}

else if(per<50&&per>=40) {

printf("\m third division");

}

else

{
```

```
Printf("\n fail");
}
getchI();
}
```

Output:-

Q.2 Write a program in c to find prime number or not.

Ans.

Flowchart:-

```
                    ┌─────────┐
                   (   start   )
                    └────┬────┘
                         │
                    ╱──────────╲
                   ╱   Read n    ╲
                   ╲            ╱
                    ╲──────────╱
                         │
                    ┌─────────┐
                    │   i=2   │
                    └────┬────┘
                         │
      False         ◇ While(i ◇
   ◄─────────────── ◇   <n)   ◇
                    ◇         ◇
                         │
                       True
                         │
                    ◇ If(n%i==0) ◇
                    ◇            ◇
                         │
                       True
                         │
                    ┌─────────┐
                    │   F=1   │
                    └────┬────┘
                         │
                    ◇ If(f==1) ◇  Else
   ◄──────────────── ◇         ◇ ─────────┐
                         │                │
      True               │                │
                    ┌──────────────┐  ┌──────────────┐
                    │Not prime number│  │ Prime number │
                    └──────┬───────┘  └──────┬───────┘
                           │                 │
                           └────────┬────────┘
                                    │
                                    ▼
```
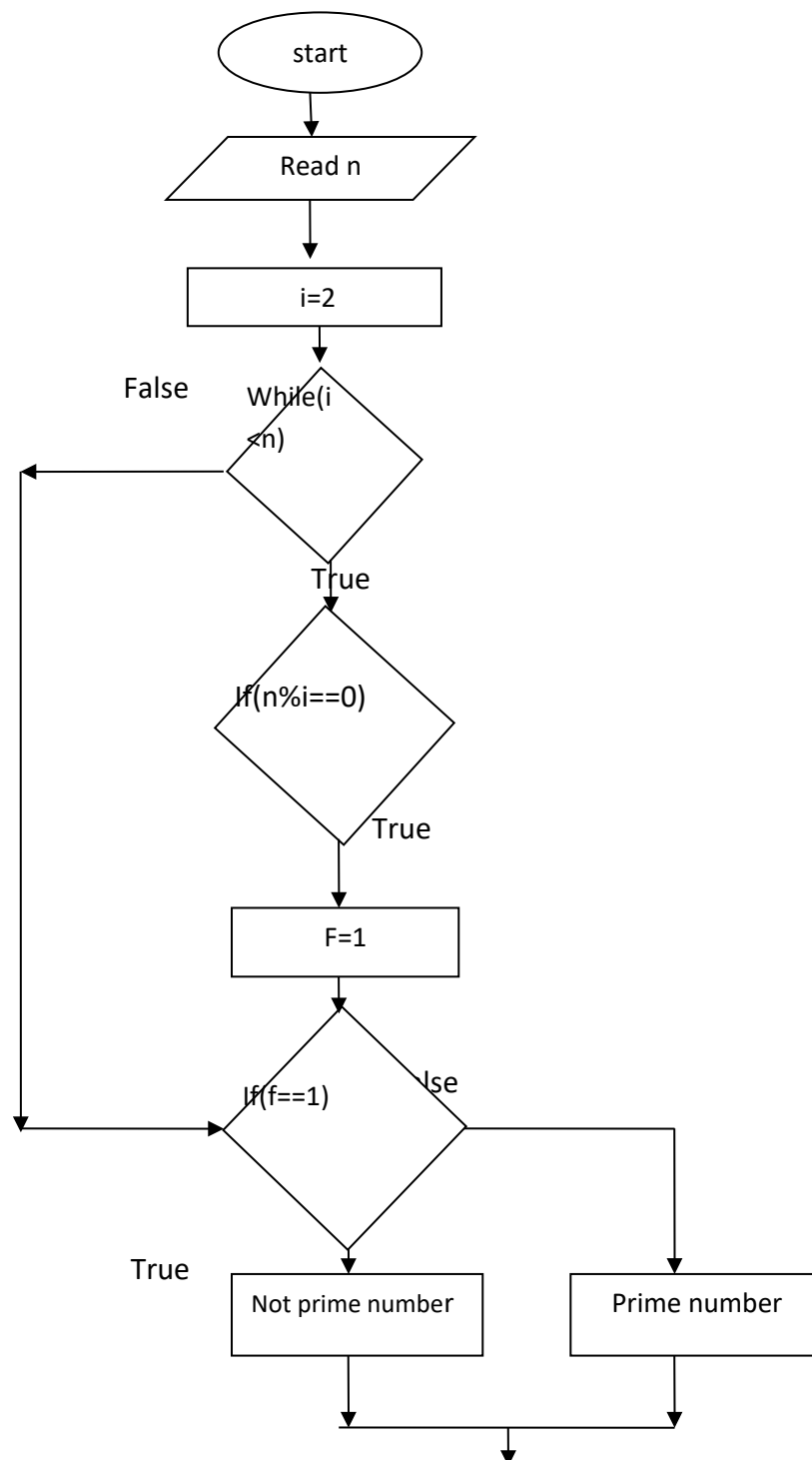
Algorithm:-

- Start
- Read number
- i=2
- while(i<n)
- if(n%i==0)
- f=1
- if(f==1) then print not prime
- else print prime
- end

Code:-

```c
#include<stdio.h>

#include<conio.h>

void main()

{

int n,i,f;

f=0;

printf("Enter a number");

scanf("%d",&n);

i=2;

while(i<n)

{

if(n%i==0)

{

f=1;

break;

}
```

```
i++;

}

if(f==1)

printf("\n not a prime number");

else

printf("\n prime number");

}
```

Output:-

```
Enter a number 7

 prime number
Enter a number 8

 not a prime number
```

Q.3 Write a program in c to find the leap year.

Ans.

Algorithm:-

- start
- year
- if(year%4==0) then leap year
- else not leap year
- stop

flowchart:-

```
                    ┌──────────┐
                    │  start   │
                    └────┬─────┘
                         │
                    ┌────▼─────┐
                    │  Year    │
                    └────┬─────┘
                         │
                      ◇─────◇            false
                   If(year ──────────────►
                    %4==0)
                      ◇─────◇
                         │
        True             │
            ┌────────────▼──┐   ┌──────────────────┐
            │Print leap year│   │Print not leap year│
            └───────┬───────┘   └────────┬─────────┘
                    │                    │
                    └────────┬───────────┘
                        ┌────▼─────┐
                        │   stop   │
                        └──────────┘
```
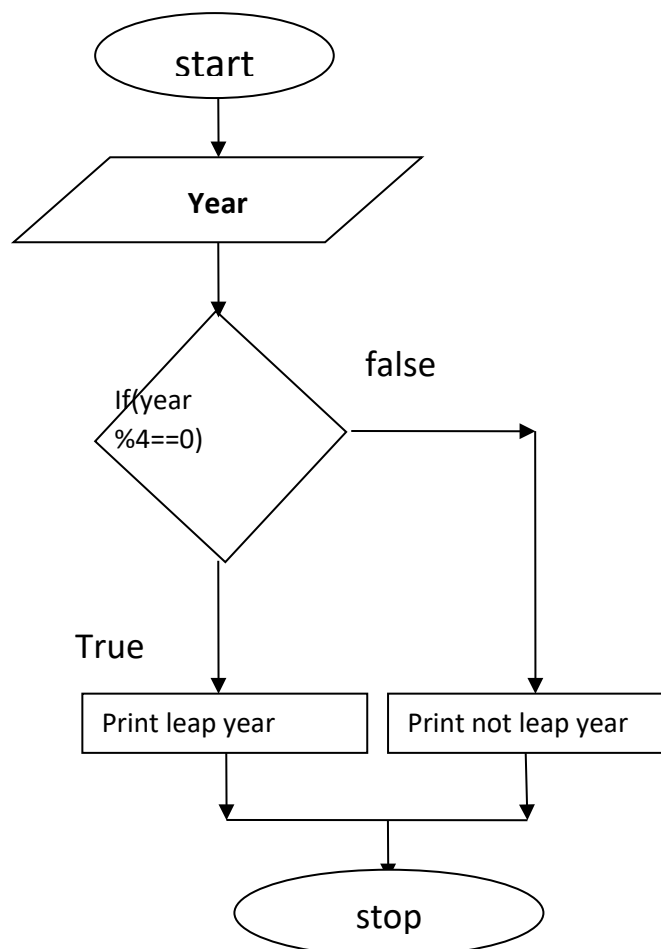
Code:-

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int year;
clrscr();
printf("enter the year :");
scanf("%d",&year);

if(year%4==0)
{
printf("the year %d is leap year",year);
}
else
{
printf("the year %d is not leap year",year);
}

return 0;

}
```
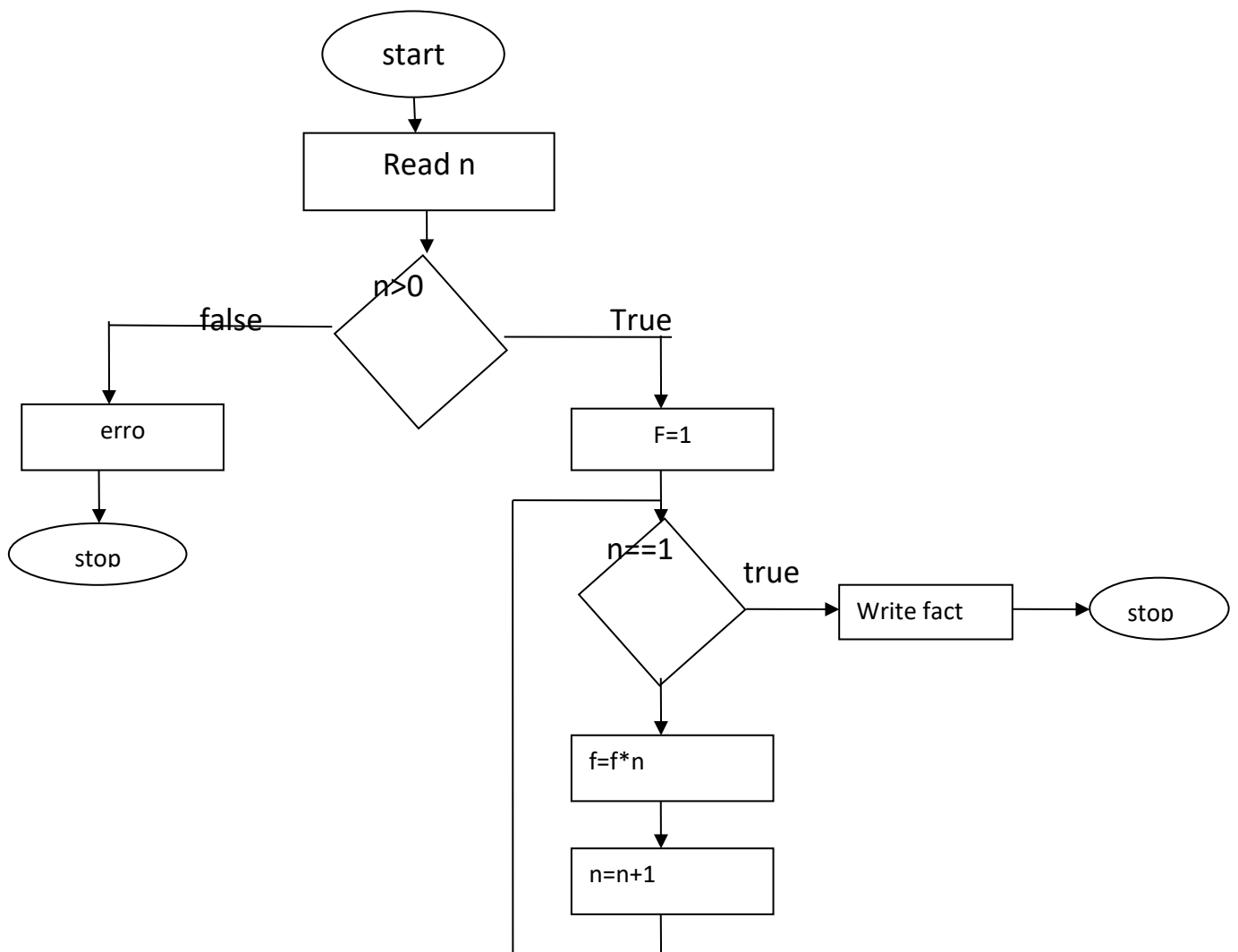
Output:-

```
Enter the year:2022
The year 2022 is not leap
```

Q.4 Write a progran to calculate factorial of a number.

Ans.

Flowchart:-

Algorithm:-

- start
- read n
- if(n>0) then f=1
- if(n==1) then f=f*n and n=n+1

- write fact -stop
- else error
- stop

Code:-

```c
#include<stdio.h>
#include<conio.h>
long int facto(int n)
{
if(n==1)
{
return 1;
}
else return n*facto(n-1);
}
void main()
{
long  int f;
int num;
printf("Enter any number :");
scanf("%d",&num);
if(num>0)
{
f=facto(num);
printf("factorial is %d",f);
}
else
```
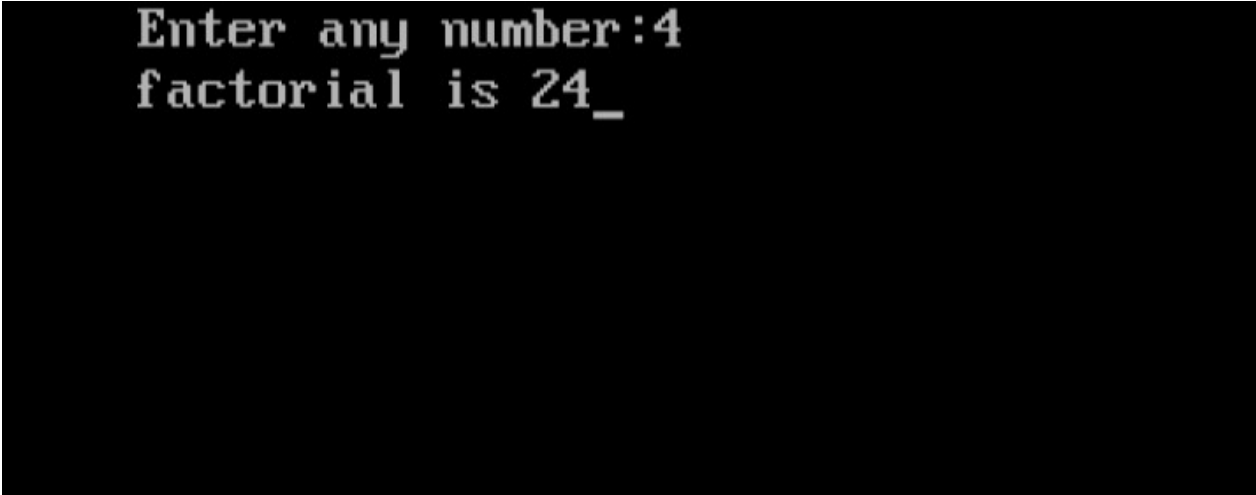
```
{

    printf("\n error:given number is  %d negative",num);

}

}
```

Output:-

```
Enter any number:4
factorial is 24_
```

Q. 5 Write a program in c to calculate power using recursion.

Ans.

```
#include<stdio.h>

#include<conio.h>

long int power(int a,int b)

{

Long int s=1;

Int I;

If(b==0)

{

return 0;

}

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

{

s=s*a;

}

return s;

}

Void main()

{

long int p;

int c,d;

printf("Enter any two number\n");
```
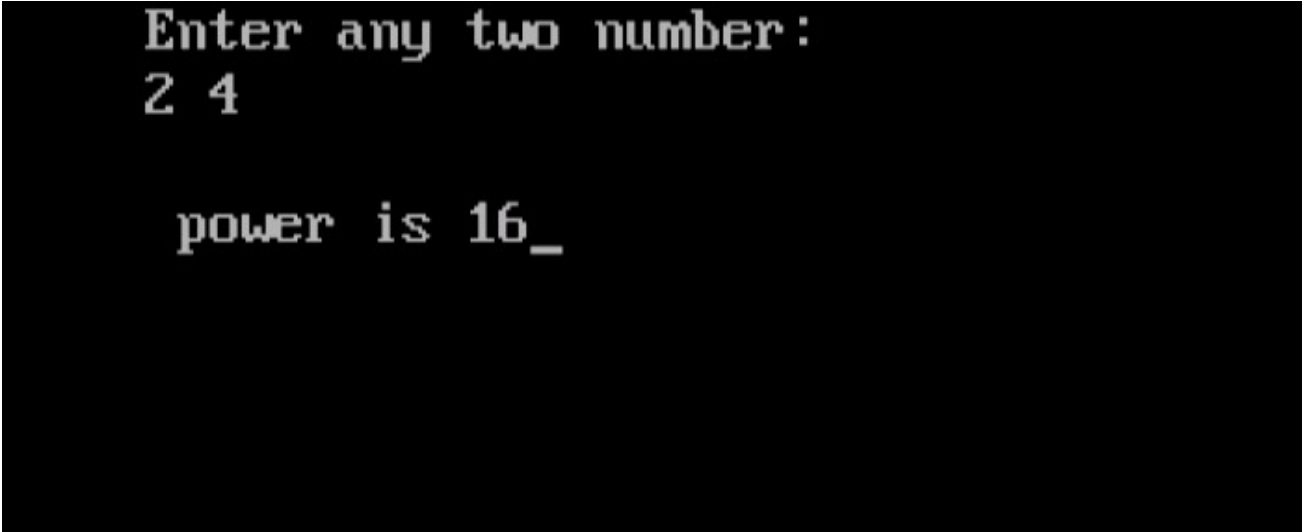
```
scanf("%d%d",&c,&d);

p=power(c,d);

printf("\n power is %d",p);

getch();

}
```
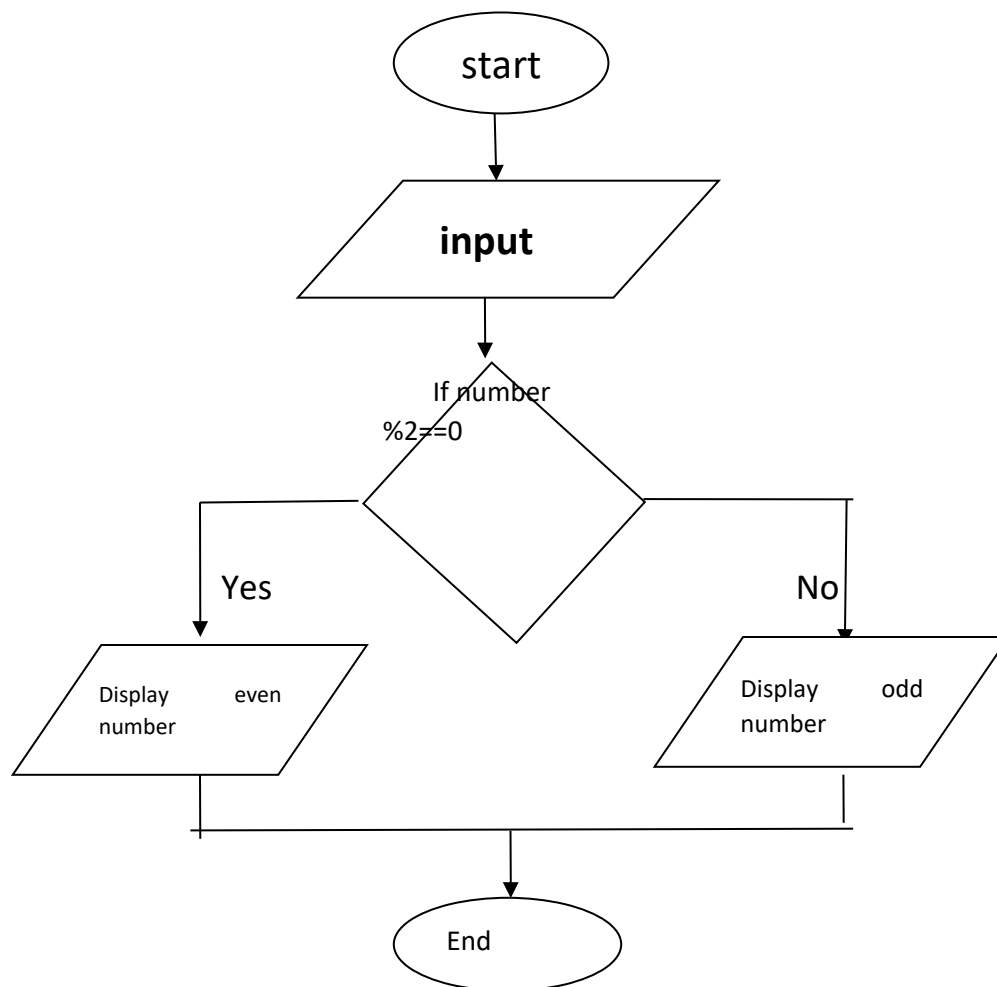
Output:-

```
Enter any two number:
2 4

  power is 16_
```

Q.6. Write a program in c to find even or odd numbers.

Ans.

Flowchart:-

```
                        ┌──────────┐
                        │   start   │
                        └──────────┘
                             │
                             ▼
                        ╱──────────╲
                       ╱    input    ╲
                       ╲             ╱
                        ╲──────────╱
                             │
                             ▼
                        If number
                         %2==0
                      ╱◇◇◇◇◇◇◇◇◇╲
            Yes      ◇◇◇◇◇◇◇◇◇◇◇◇◇      No
                      ╲◇◇◇◇◇◇◇◇◇╱
         ╱──────────╲              ╱──────────╲
        ╱ Display even ╲          ╱ Display  odd ╲
        ╲ number       ╱          ╲ number       ╱
         ╲──────────╱              ╲──────────╱
                      ╲            ╱
                       ┌──────────┐
                       │   End     │
                       └──────────┘
```

Algorithm:-

- start
- input number
- if(number%2==0) then it is even number
- else odd number
- end

```c
#include<stdio.h>

#include<conio.h>

Void main()

{

Int n,r;

Clrscr();

Printf("Enter a number:");

Scanf("%d",&n);

r=n%2;

if(r==0)

{

Printf("Even number");

}

else

{

Printf("odd number");

}

getch();

}
```
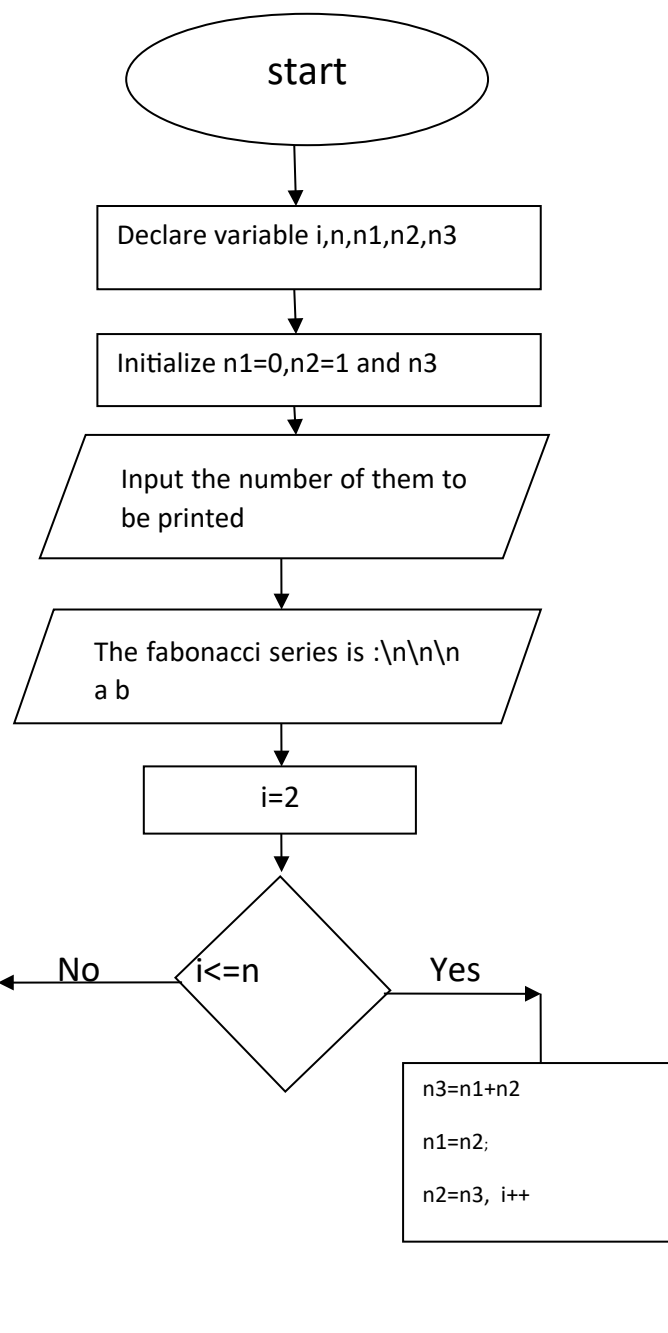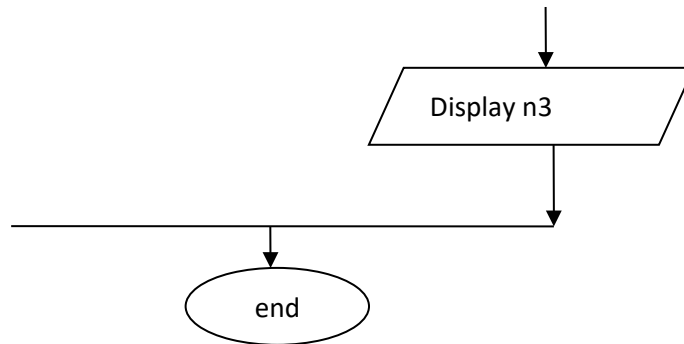
Output:-

```
Enter a number:4
Even number

Enter a number:5
odd number_
```

Q.7 Write a program in c to print fabonnaci series.

Ans.

Flowchart:-

```
                        ┌──────────────┐
                        │    start     │
                        └──────┬───────┘
                               │
                               ▼
              ┌────────────────────────────────┐
              │ Declare variable i,n,n1,n2,n3   │
              └────────────────┬───────────────┘
                               │
                               ▼
              ┌────────────────────────────────┐
              │ Initialize n1=0,n2=1 and n3     │
              └────────────────┬───────────────┘
                               │
                               ▼
             ╱────────────────────────────────╱
            ╱ Input the number of them to     ╱
           ╱  be printed                     ╱
          ╱────────────────────────────────╱
                               │
                               ▼
             ╱────────────────────────────────╱
            ╱ The fabonacci series is :\n\n\n ╱
           ╱  a b                            ╱
          ╱────────────────────────────────╱
                               │
                               ▼
                        ┌──────────────┐
                        │    i=2       │
                        └──────┬───────┘
                               │
                               ▼
                             ◇
         No              ◇ i<=n ◇            Yes
        ◄──────────────◇        ◇──────────────►
                             ◇
                               │
                               ▼
                        ┌──────────────┐
                        │ n3=n1+n2     │
                        │              │
                        │ n1=n2;       │
                        │              │
                        │ n2=n3,  i++  │
                        └──────────────┘
```

Algorithm:-

- start
- declare variable i,n,n1,n2,n3
- intialize n1=0,n2=1 and n3=0
- input number
- i=2
- check i<=n then n3=n1+n2,n1=n2,n2=n3
- display n3
- stop

code:-

```
#include<stdio.h>

#include<conio.h>

Void main()

{

int i,n,n1=0,n2=1,n3;

Clrscr()

Printf("Enter the number:");

Scanf("%d",&n);
```

```
Printf("The fibonnaci series :\n");

Printf("%d \n",n2);

for(i=3;i<=n;i++)

{

n3=n1+n2;

printf("%d \n",n3);

n1=n2;

n2=n3;

}

getch();

}
```
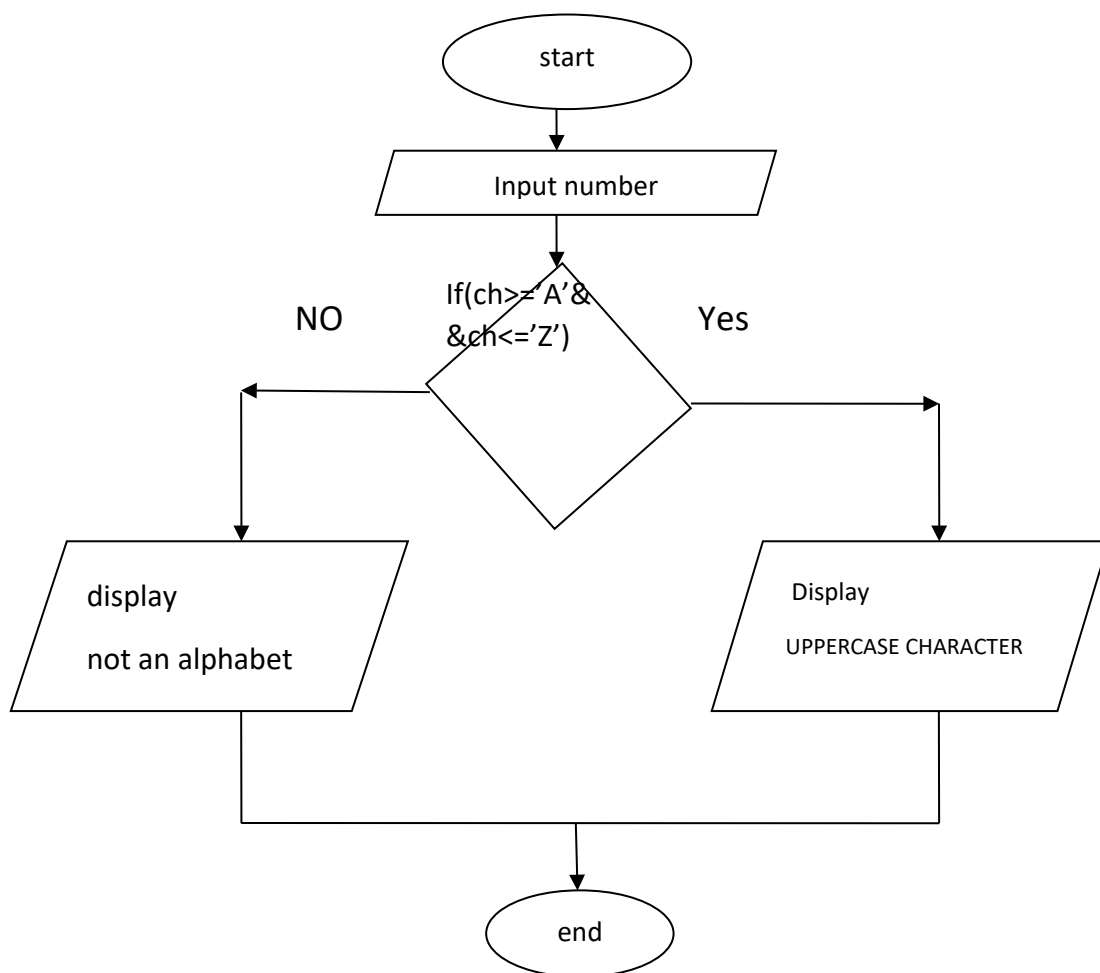
Output:-

```
Enter the number:10
The Fibonnaci series:
1
1
2
3
5
8
13
21
34
```

Q.8 Write a Function to check uppercase letter.

Ans.

 Flowchart :-

start

Input number

If(ch>='A'&
&ch<='Z')

NO

Yes

display

not an alphabet

Display

UPPERCASE CHARACTER

end

Algorithm:-
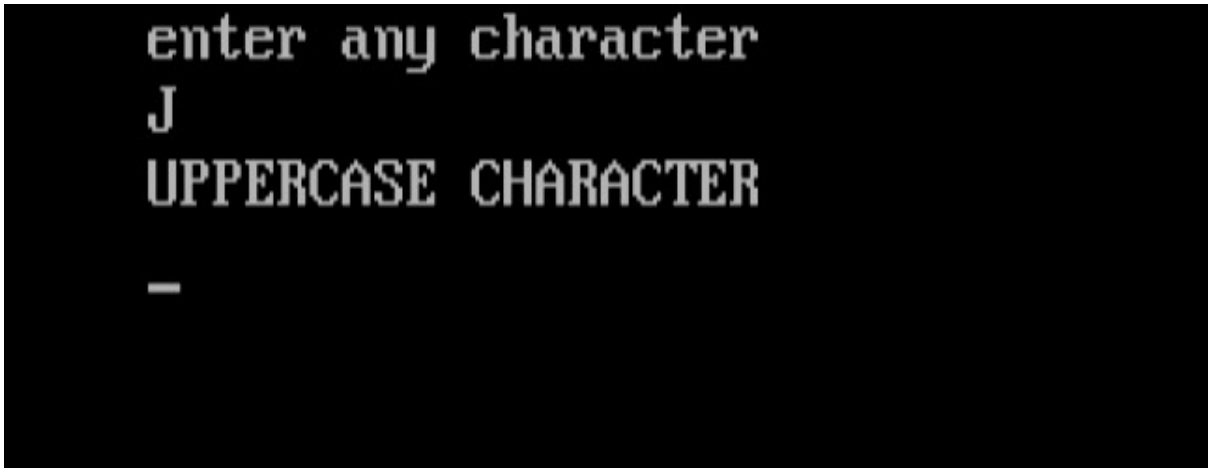
- start
- input number
- if(ch>='A'&&ch<='Z') it is true then display UPPERCASE CHARACTER
- else not an alphabet
- end

Code:-

```c
#include<stdio.h>

#include<conio.h>

Void characcheck(char ch)

{

If(ch>='A'&&ch<='Z')

{

Printf("UPPERCASE CHARACTER\n");

}

Else

Printf("is not an alphabet\n");

}

Int main()

{

char c;

printf("Enter any character\n");

scanf("%c",&c);

characcheck(c);

getch();

return 0;
```

}

Output:-

Q.9 Write a program in c to function to check lowercase letter.

Ans.

Algorithm:-

- start
- input number
- if(ch>='a'&&ch<='z') it is true then display LOWERCASE CHARACTER.
- else not an alphabet
- end

Flowchart:-
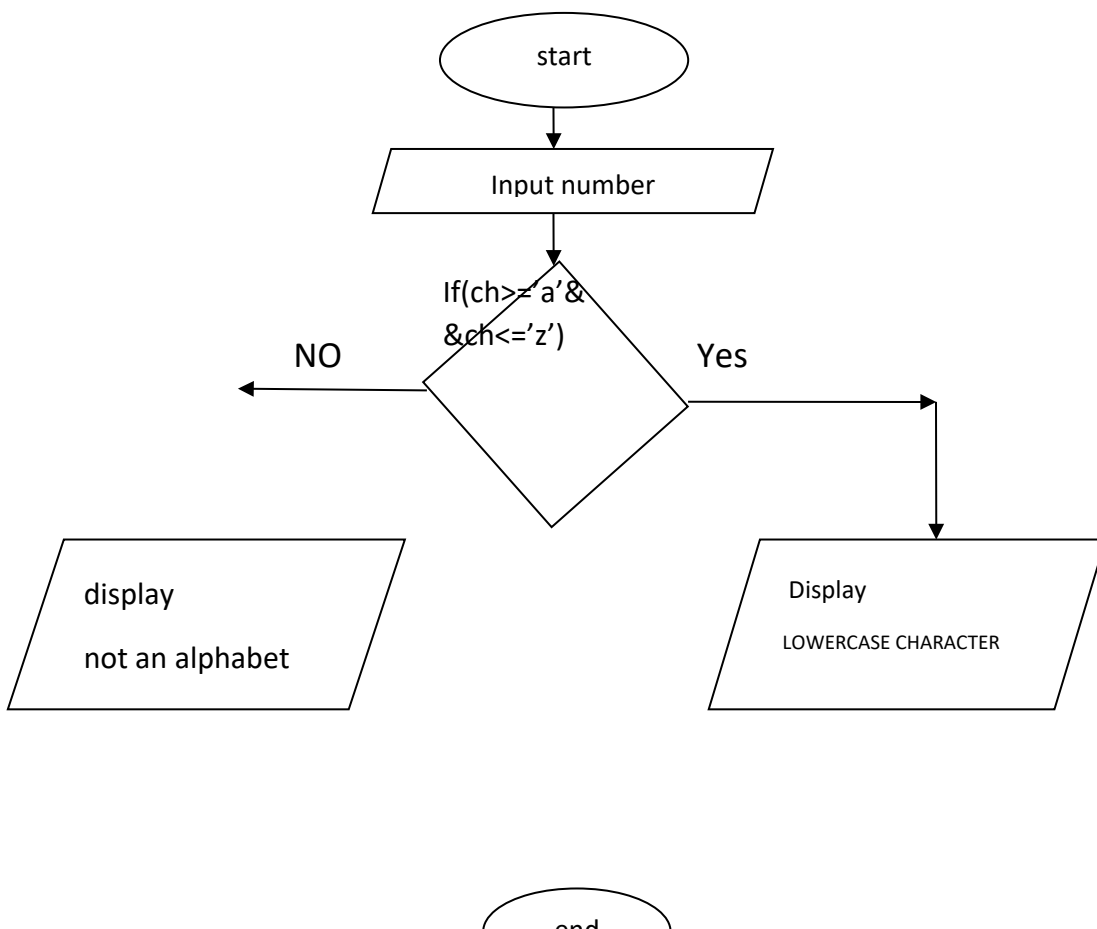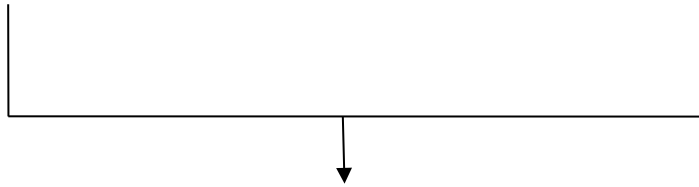
Code:-

```c
#include<stdio.h>
#include<conio.h>
Void characcheck(char ch)
{
If(ch>='a'&&ch<='z')
Printf("LOWERCASE CHARACTER\n");
Else
Printf("is not an alphabet\n");
}
Int main()
{
char c;
printf("Enter any character\n");
scanf("%c",&c);
characcheck(c);
getch();
return 0;
}
```

Output:-

```
enter any character
j
LOWERCASE CHARACTER

_
```

Q,10 Find the greater of the three numbers

Ans.

Flowchart:-

```
                        ┌─────────────┐
                        │    start     │
                        └──────┬──────┘
                               │
                               ▼
                    ┌──────────────────┐
                    │   Input number    │
                    └─────────┬────────┘
                               │
                               ▼
                           If(n1>=n2&&n1
              Yes            >n3)              No
       ┌───────────◄─────────◇─────────►───────────┐
       │                                            │
       ▼                                            ▼
┌──────────────────┐                      Yes    If(n2>=n3)    No
│ Display n1 largest│                  ┌─────────◇─────────┐
└──────────────────┘                  │                    │
       │                               ▼                    ▼
       │                    ┌──────────────────┐   ┌──────────────────┐
       │                    │ Display n2 largest│   │ Display n3 largest│
       │                    └──────────────────┘   └──────────────────┘
```

stop
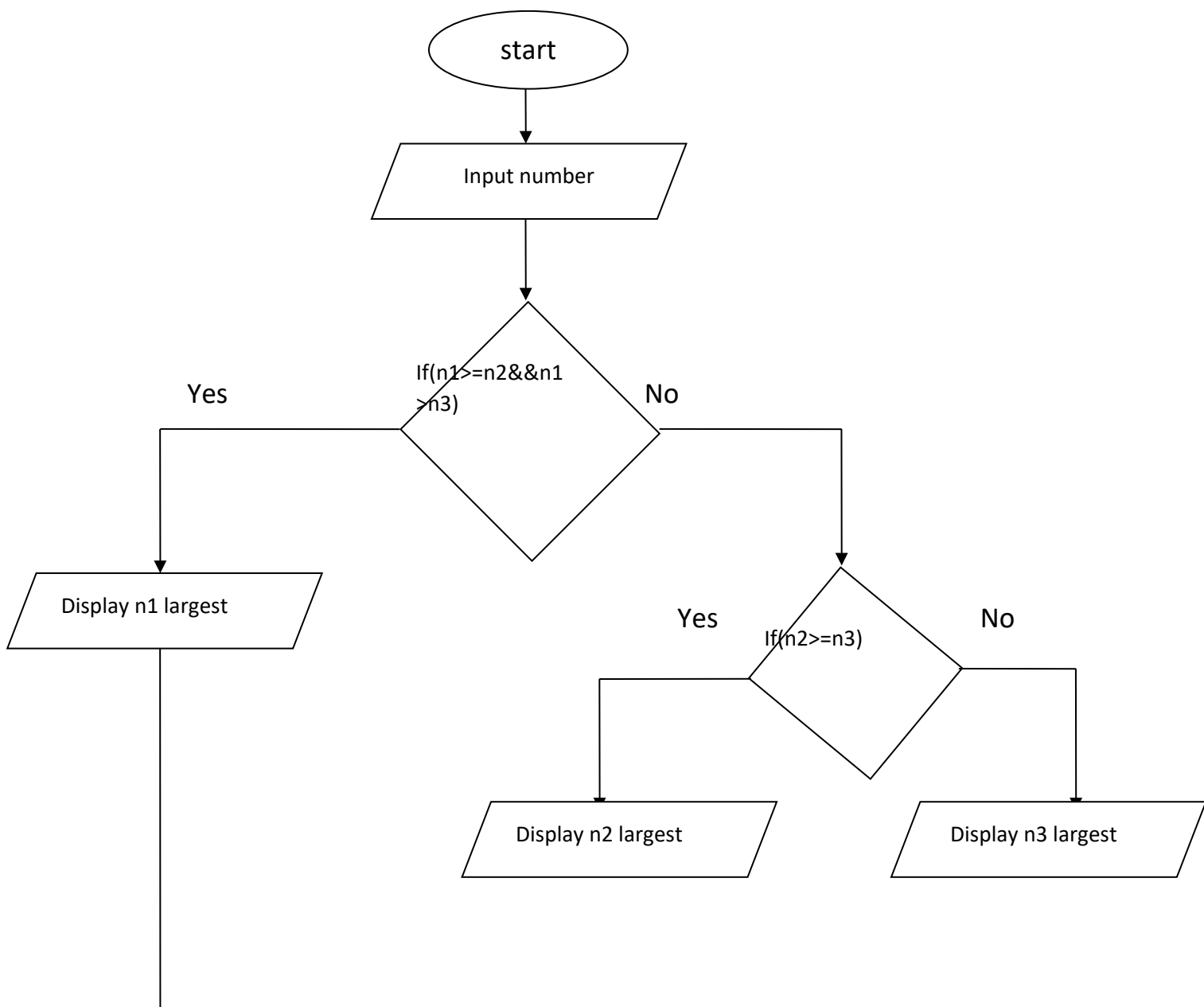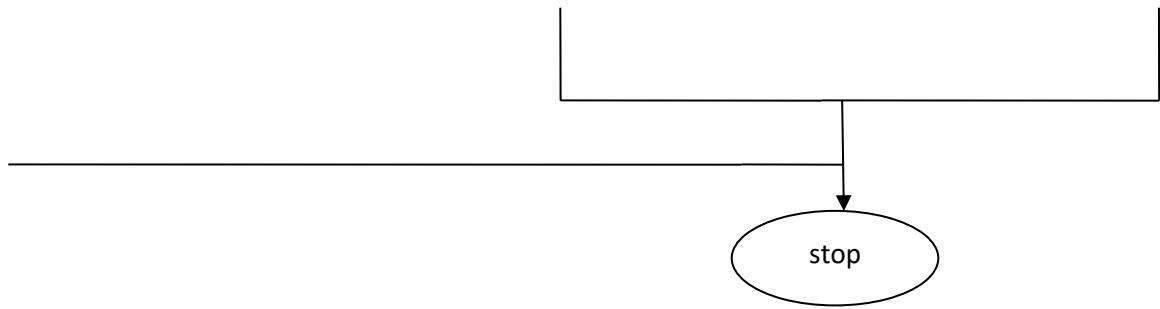
Algorithm:-

- **start**
- **input numbers**
- **check condition if(n1>=n2&&n1>=n3) it is true then display n1 largest**
- **if(**

Code:-
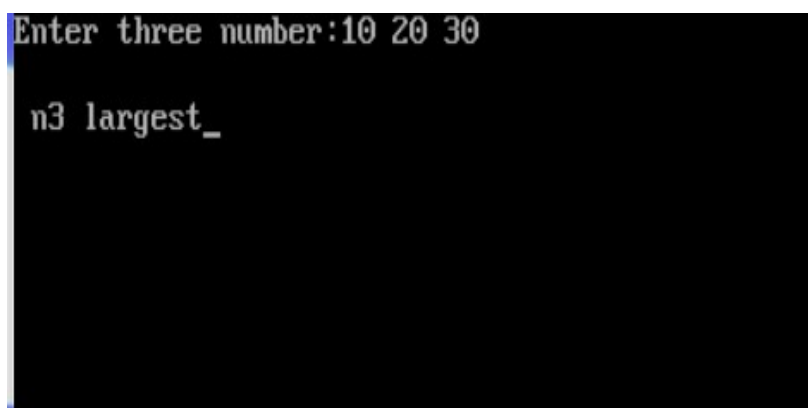
```
#include<stdio.h>

#include<conio.h>

Int main()

{

Int n1,n2,n3;

Printf("Enter three numbers:");

Scanf("%d%d%d",&n1,&n2,&n3);

If(n1>=n2)

{

If(n1>=n3)

Printf("\n n1 largest");

else

printf("\n n3 largest");

}

else
```

```
{
If(n2>=n3)

Printf("\n n2 largest",n2);

else

{

Printf("\n n3 largest",n3);

}

return 0;

}
```

Output:-

Q.11 Write a program in c to type casting implicit explicit.

Ans.

```c
#include<stdio.h>
#include<conio.h>
Void main()
{
Int x=10;
Float y=10.4;
Int z;
Float w;
z=x+y;//implicit
w=(float)x+y;// explicit
printf("%d\n",z);
printf("%f",w);
getch();
}
```

Output:-

```
20
20.400000
```

Q.12 Write program to display number 1 to 10 in octal, decimal and hexadecimal system.

Ans.

#include<stdio.h>

#include<conio.h>

void main()

{

Int I;

Clrscr();

Printf("\n This program is to print 1 to 10 numbers in different number system.\n\n");

Printf("\n |--------------------------------|------------------------- |-------------------------------------|");

Printf("\n | Decimal number system|octal number system|hexadecimal number system|");

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

{

Printf("\n| %d | %o | %x |",i,I,i);

}

Printf("\n|----------------------|--------------------------|-----------------------|");

Getch();

}

Output:-

```
This program is to print 1 to 10 numbers in different number system.

+----------------+----------------------+-------------------------------+
|Decimal system  |Octal number system   | Hexadecimal number system     |
+----------------+----------------------+-------------------------------+
|      1         |        1             |           1                   |
|      2         |        2             |           2                   |
|      3         |        3             |           3                   |
|      4         |        4             |           4                   |
|      5         |        5             |           5                   |
|      6         |        6             |           6                   |
|      7         |        7             |           7                   |
|      8         |       10             |           8                   |
|      9         |       11             |           9                   |
|     10         |       12             |           a                   |
+----------------+----------------------+-------------------------------+
```

Q.13 write program to generate following pattern

a)

ABCDEFG

ABC EFG

AB   FG

A   G

Ans.

#include<stdio.h>

#include<conio.h>

Void main()

{

Char c;

Clrscr();

for(c='A';c<='G';c++)

{

printf(" %c ",c);

}

printf("\n");

for(c='A';c<='G';c++)

{

If(c=='D')

```c
{
printf("   ",c);continue;}
printf(" %c ",c);
}
printf("\n");
for(c='A';c<='G';c++)
{
If(c>='C'&&c<='E')
{
printf("   ",c);continue;}
printf(" %c ",c);
}
Printf("\n");
For(c='A';c<='G';c++)
{
If(c>='B'&&c<='F')
{
printf("   ",c);continue;}
printf(" %c ",c);
}
printf("\n\n");
getch();
}
```
Output

```
A  B  C  D  E  F  G
A  B  C     E  F  G
A  B           F  G
A                 G
```

b).

1

1 2

1 2 3

1 2 3 4

Ans.

```c
#include<stdio.h>
#include<conio.h>
Void main()
{
Int I,j;
Clrscr();
for(i=1;i<=4;i++)
{
```
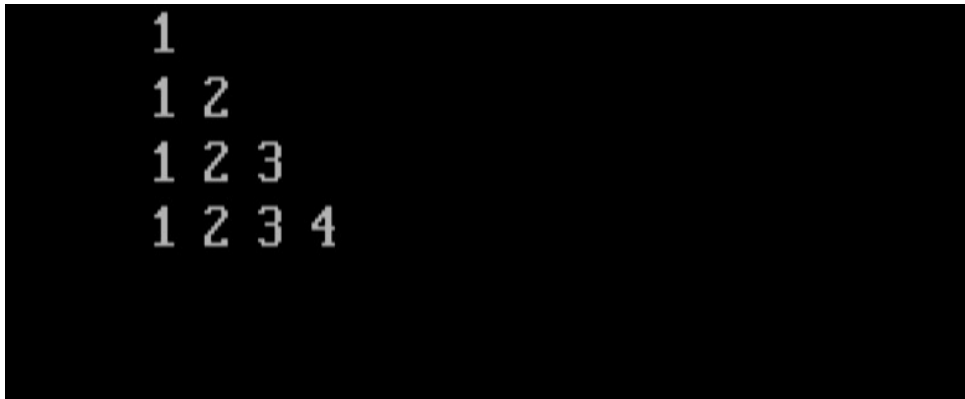
```c
for(j=1;j<=i;j++)
{
printf(" %d",j);
}
printf("\n");
}
getch();
}
```

Output :-

c).

```
    *

  *  *

 *  *  *
```

Ans.
```c
# include<stdio.h>
# include<conio.h>
Void main( )
{
Int n;
Int r,j,k;
Clrscr ( );
Printf("Enter the number of rows\n");
Scanf("%d",&n);
for(r=1;r<=n;r++){
```

```
for(j=n-r;j>=1;j--){
printf("  ")
}
for(k=1;k<=r;k++){
printf("* ");
}
Printf("\n");
}
getch( );
}
```

Output:-

d).
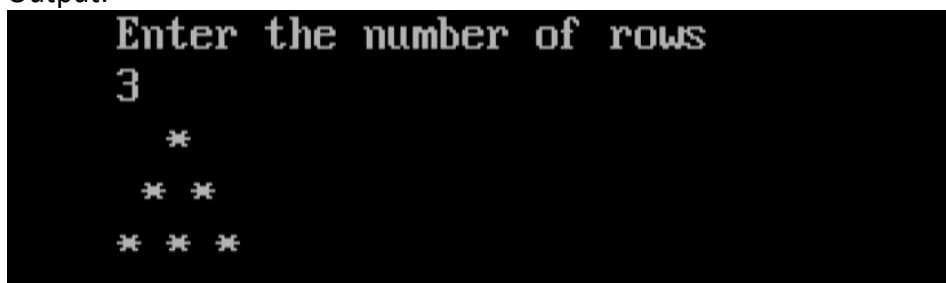
1

1 1

1 2 1

1 3 3 1

1 4 6 4 1

```
#include<stdio.h>
#include<conio.h>
void main()
{
Clrscr();
Int row,col,space,n,no;
 Printf("enter any number:")
Scanf("%d",&no)
```
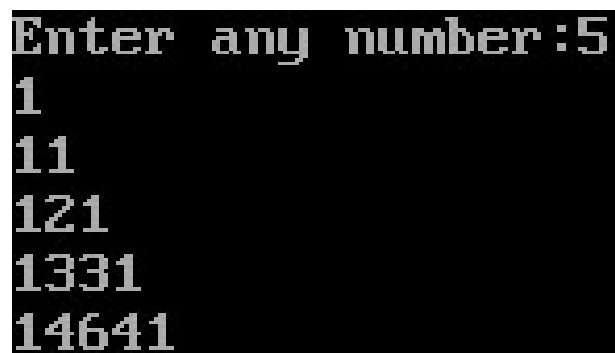
```c
for(row=0;row<no;row++)
{
{
printf("");
}
 n=1; for(col=0;col<=row;col++) {
printf("%d",n);
n=n*(row-col)/(col+1);
}
printf("\n");
}
getch();
}
```

Output:-

Q.14   Write a program to input from user (5 subjects) sum,average.

Ans.

```c
#include<stdio.h>
#include<conio.h>
Void main()
{
Int marks,sub,count,sum=0;
Float avg=0.0;
```
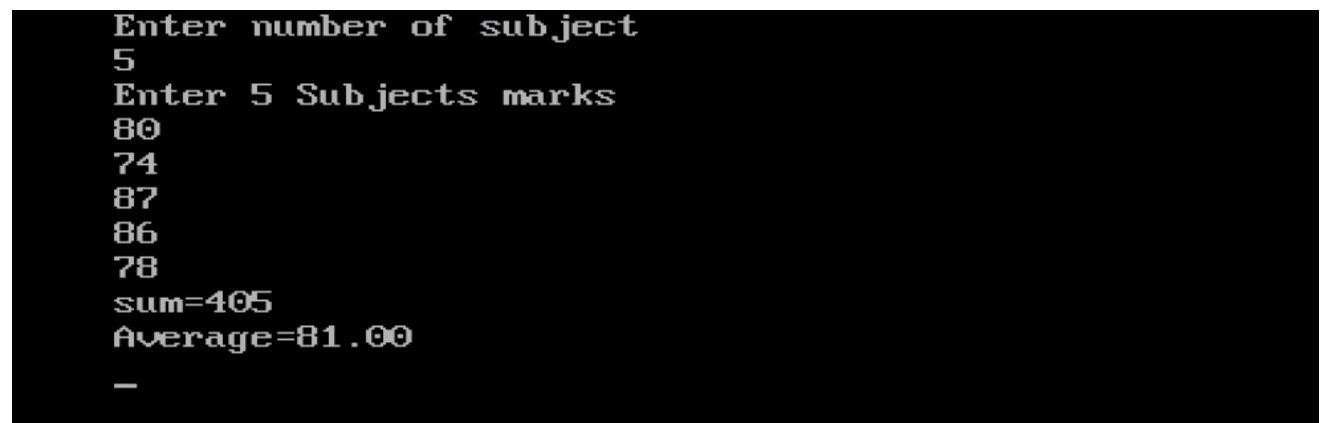
```
Printf("Enter number of subjets\n");

Scanf("%d",&sub);

Printf("Enter %d Subjects marks\n",sub);

For(count=1;count<=sub;count++)

{

Scanf("%d"&marks);

Sum=sum+marks;

}

Avg=sum/sub;

Printf("sum=%d\nAverage =%0.2f\n",sum,avg);

getch();

}
```

Output:-

Q.15 Write a program to print student marksheet.

Ans.

```
 #include<stdio.h>

#include<conio.h>

Sturct student

{

Char name[50];

Int marks[5];
```

```
Long int rollno;
};
Int main()
{
Clrscr();
Struct student a;
Int i,sum=0,per;
Printf("Enter student name:");
Gets(a.name);
Printf("\nEnter student roll no.:");
Scanf("%d",&a.rollno);
Printf("\n Enter student marks\n");
For(i=0;i<5;i++)
{
Printf("\n Enter %d subject marks:"i+1);
Scanf("%d",&a.marks[i]);
}
For(i=0;i<5;i++)
Sum=sum+a.marks[i];
Per=sum/5;
Clrscr();
Printf("\n STUDENT NAME           :%s",a.name);
Printf("\n STUDENT ROLL NO.       :%ld",a.rollno);
Printf("\n OBTAINED MARKS         :500");
Printf("\n TOTAL MARKS            :%d",sum);
Printf("\n PERCENTAGE             :%d",per);
```

```c
Printf("\n DIVISION                        :  ");
if(per>100)
{
Printf("\n invalid percent");
}
else if(per>=60)
{
Printf("\n first division");
}
else if(per<60&&per>=50) {
printf("second division");
}
else if(per<50&&per>=40) {
printf("\m third division");
}
else
{
Printf("\n You are fail");
}
getch();
return 0;
}
```
Output:-

```
Enter student name:Aryan Dewangan

   Enter roll number  :2201800453

Enter student marks:

Enter 1 subject marks:80

Enter 2 subject marks:74

Enter 3 subject marks:87

Enter 4 subject marks:86

Enter 5 subject marks:78_
```

```
STUDENT NAME          :Aryan Dewangan
STUDENT ROLL NO.      :839110405
OBTAINED MARKS        :500
TOTAL MARKS           :405
PERCENTAGE            :81
DIVISION              :First division_
```

Q16. Write a program to calculate simple interest.
Ans.

```c
#include<stdio.h>
#include<conio.h>
Void main()
{
float amt,rate,time,si;
clrscr();
printf("Enter the amount:");
scanf("%f",&amt);
printf("Enter the rate:");
scanf("%f",&rate);
printf("Enter the time:");
scanf("%f",&time);
si=(amt*rate*time/100);
printf("\nSimple interest= %f",si);
getch();
}
```

Output:-

```
      Enter the amount:10
      Enter the rate:4
      Enter the time:7
      print simple interest=2.800000
```

Q.17 Write a program in which you declare variable of all data types supported by C language. Get input from user and print the value of each variable with alignment left, right and column width 10. For real numbers print their values with two digits right to the decimal.
Ans.
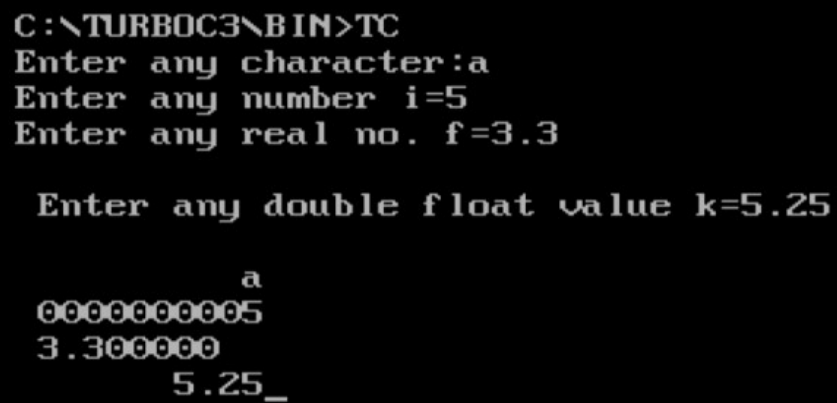
```c
#include<stdio.h>
#include<conio.h>

void main() {

char c;

int i;

float f;

double k;

printf("Enter any character:");

scanf("%c",&c);

printf("\n Enter any number i=");

scanf("%d",&i);

printf("\n Enter any real no. f=");

scanf("%f",&f);

printf("\n Enter any double float value k=");

scanf("%lf",&k);

printf("\n %10c",c);
```

```
printf("\n %010d",i);

printf("\n %.2f",f);

printf("\n %10.2lf",k);

getch();

}
```

Output:-

```
C:\TURBOC3\BIN>TC
Enter any character:a
Enter any number i=5
Enter any real no. f=3.3

 Enter any double float value k=5.25


           a
0000000005
3.300000
       5.25_
```

Q.18. Write a program to demonstrate multiplication table input from user till 10.

Ans.

```
#include<stdio.h>
#include<conio.h>
Void main()
{
Int n,I;
Clrscr();
Printf("Enter any no:");
Scanf("%d",&n);
Printf("Multiplication table of %d\n",n);
For(i=1;i<=10;i++)
{
Printf("%d*%d=%d\n",n,I,(n*i));
}
getch();
}
```

Output:-

```
Enter any no:8
multiplication table of 8
8*1=8
8*2=16
8*3=24
8*4=32
8*5=40
8*6=48
8*7=56
8*8=64
8*9=72
8*10=80

_
```

Q. 19. Write a program to demonstrate addition of two matrix.
Ans.
#include<stdio.h>
#include<conio.h>
Void main()
{
Int a[3][3],b[3][3],c[3][3],I,j;
Clrscr();
Printf("enter the element of the first matrix\n");
For(i=0;i<3;i++)
{
For(j=0;j<3;j++)
{
Scanf("%d",&a[i][j]);
}
}
Printf("enter the element of second matrix\n");
For(i=0;i<3;i++)

```c
{
For(j=0;j<3;j++)
{
Scanf("%d",&a[i][j]);
}
}
Printf("The first matrix is\n");
For(i=0;i<3;i++)
{
For(j=0;j<3;j++)
{
printf("%d\t",&a[i][j]);
}
Printf("\n");
}

Printf("The second matrix is\n");
For(i=0;i<3;i++)
{
For(j=0;j<3;j++)
{
printf("%d\t",&b[i][j]);
}
Printf("\n");
}
For(i=0;i<3;i++)
{
For(j=0;j<3;j++)
{
C[i][j]=a[i][j]+b[i][j];
}
}
Printf("The addition of two matrix\n");
For(i=0;i<3;i++)
{
For(j=0;j<3;j++)
{
```

```
printf("%d\t",c[i][j]);
}
Printf("\n");
}
getch();
}
```
Output:-

Q.20. Write a program to multiplication of two matrix.

Ans.

```
#include<stdio.h>
#include<conio.h>
Void main()
{
 Int a[3][3],b[3][3],c[3][3],I,j,k;
 Clrscr();
 Printf("enter the element of the first matrix\n");
For(i=0;i<3;i++)
  For(j=0;j<3;j++)
    Scanf("%d",&a[i][j]);
Printf("enter the element of second matrix\n");
For(i=0;i<3;i++)
   For(j=0;j<3;j++)
     Scanf("%d",&a[i][j]);
Printf("The first matrix is\n");
For(i=0;i<3;i++)
{
```

```
For(j=0;j<3;j++)
{
printf("%d\t",&a[i][j]);
}
Printf("\n");
}
Printf("The second matrix is\n");
For(i=0;i<3;i++)
{
    For(j=0;j<3;j++)
     {
       printf("%d\t",&b[i][j]);
      }
     Printf("\n");
}
For(i=0;i<3;i++)
  {
     For(j=0;j<3;j++)
      {
        C[i][j]=0;
         For(k=0;k<3;k++)
          {
            C[i][j]=c[i][j]+a[i][k]*b[k][j];
          }
       }
    }
printf("Multiplication of two matrix\n");
for(i=0;i<3;i++)
{
    for(j=0;j<3;j++)
    printf("%d\t",c[i][j]);
    Printf("\n");
}
getch();
}
```
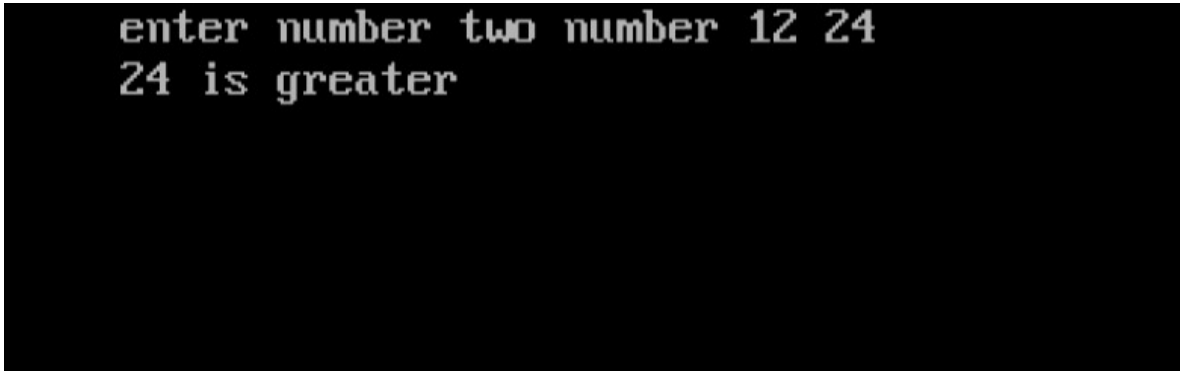
Output:-

```
Enter the element of 1st matrix
1 1 1 1 1 1 1 1 1
Enter the element of 2nd matrix
1 1 1 1 1 1 1 1 1
The first matrix is
1        1        1
1        1        1
1        1        1
The second matrix is
1        1        1
1        1        1
1        1        1
Multiplication of two matrix
3        3        3
3        3        3
3        3        3
```

Q.21 Write a program to get input from user and check matrix then matrix multiplication or print not matrix.

Ans.

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
Void main()
{
Int a[2][2],b[2][2],c[2][2];
Int r1,c1,r2, c2,i,j,k,;
Printf("Enter the row and column of 1st matrix\n");
Scanf("%d%d",&r1,&c1);
Printf("Enter the row and column of 2nd matrix\n");
Scanf("%d%d"&r2,&c2);
If(c1!=r2)
{
Printf("\n Matrices are not multiplicable");
Exit(0);
```

```c
}
Printf("\n Enter the  element of first matrix\n");
for(i=0;i<r1;r++)
{
for(j=0;j<c1;j++)
{
Scanf("%d",a[i][j]);
}
}
printf("\n enter the element of second matrix\n");
for(i=0;r<r2;i++)
{
for(j=0;j<c2;j++)
{
Scanf("%d",&b[i][j]);
}
}
printf("The first matrix is\n");
for(i=0;i<r1;i++)
{
for(j=0;j<c1;j++)
{
printf("%d\t",a[i][j]);
}
printf("\n");
}
printf("The second matrix is\n");
for(i=0;i<r2;i++)
{
for(j=0;j<c2;j++)
{
printf("%d\t",b[i][j]);
}
printf("\n");
}
for(i=0;i<r1;i++)
{
```

```c
for(j=0;j<c2;j++)
{
S=0;
for(k=0;k<c1;k++)
{
s=s+a[i][k]*b[k][j];
c[i][j]=s;
}
}
}
printf("Multiplication of two matrix\n");
for(i=0;i<r1;i++)
{
for(j=0;j<c2;j++)
printf("%d\t",c[i][j]);
printf("\n");
}
getch();
}
```

Output:-

```
Enter the row and column of 1st matrix
2 2
Enter the row and column of 2nd matrix
2 2

 enter elements of first matrix:
1 2 3 4

 enter elements of second matrix:
1 2 3 4
THe first matrix is
1        2
3        4
The second matrix is
1        2
3        4
Multiplication of two matrix
7        10
15       22

_
```

Q. 22 Write a program to print compare two numbers using ternary operators.
Ans.

```c
#include<stdio.h>
#include<conio.h>
void main()
{
Int a,b,c;
printf("enter two number");
scanf("%d",&a,&b);
c=((a>b)?a:b);
printf("%d is greater",c);
getch();
}
```
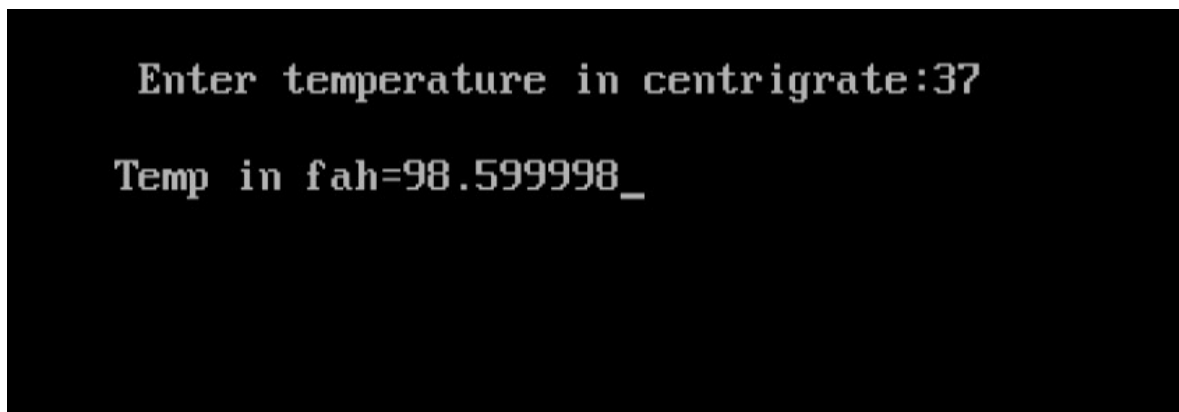
```
enter number two number 12 24
24 is greater
```

Q.23. Write a program to convert temperature from centigrate to farenhiet.
Ans.

```c
#include<stdio.h>
#include<conio.h>
void main()
{
float c,f;
printf("\n Enter temperature in centigrate:");
scanf("%d",&c);
f=(c*9/5)+32;
printf("\n Temp in fah=%f",f);
getch();
}
```
Output:-

```
    Enter temperature in centrigrate:37

    Temp in fah=98.599998_
```

Q.24 Write a program to demonstrate betwise operator left shift and right shift operator.

Ans.

```
#include<stdio.h>
#include<conio.h>
void main()
{
Int a=4,c;
c=a<<1;
printf("%d",c);
c=a>>1;
printf("%d",c);
getch();
}
```

Output:-
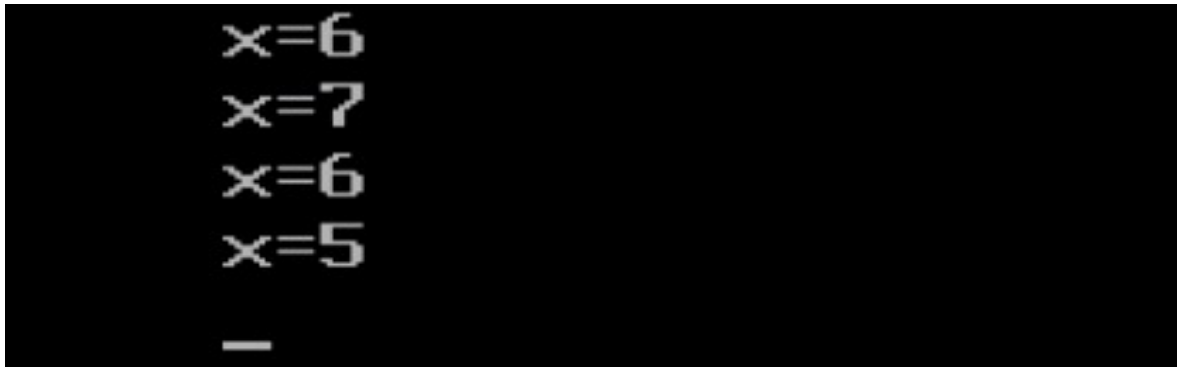
Q.25 Write a program to demonstrate print to increament and decreament operator.

Ans.

```c
#include<stdio.h>
#include<conio.h>
Void main()
{
int x=5;
clrscr();
x++; //post increment operator
printf("x=%d",x);
++x; //pre increment operator
printf("x=%d",x);
x--; //post decrement operator
printf("x=%d",x);
--x; //pre decrement operator
printf("x=%d",x);
getch();
}
```

Output:-
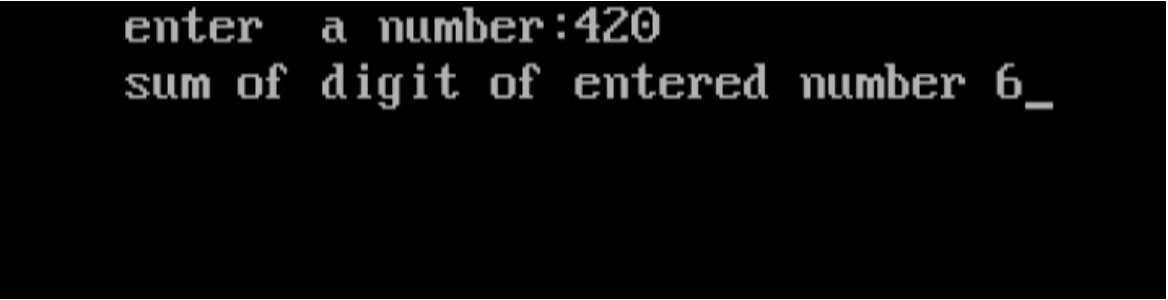
Q. 26. Write a program to calculation of sum of the digit.

Ans.
```c
#include<stdio.h>
#include<conio.h>
Void main()
{
int n,r,sum=0;
printf("enter a number\n");
scanf("%d",&n);
while(n>0)
{
r=n%10;
sum=sum+r;
n=n/10;
}
printf("sum of digit of entered number %d",sum);
getch();
}
```
Output:
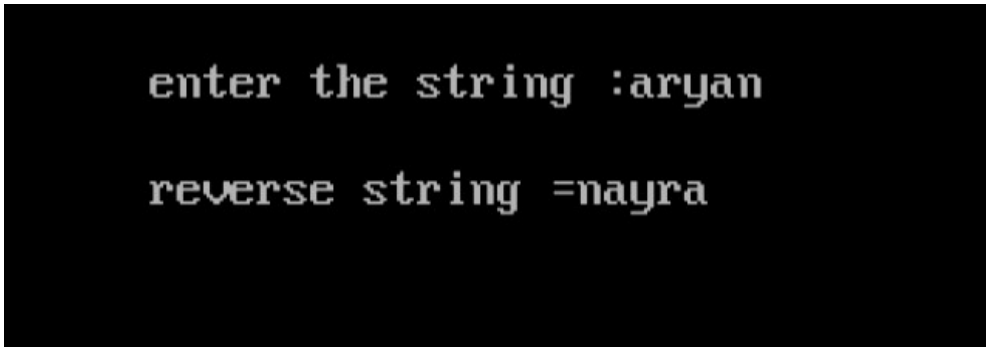
```
    enter   a number:420
    sum of digit of entered number 6_
```

Q.27   Write a program to reverse a string without using library function.

Ans.
```
#include<stdio.h>
#include<conio.h>
Void main()
{
char a[15],temp;
int I,j,l=o;
clrscr();
printf("enter the string :");
scanf("%s",a);
for(i=0;a[i]!='\0';i++)
l++;
i=0;
j=l-1;
while(i<j)
{
temp=a[i];
a[i]=a[j];
a[j]=temp;
i++;
j++;
}
printf("reverse string =%s",a);
getch();
}
```
Output:-
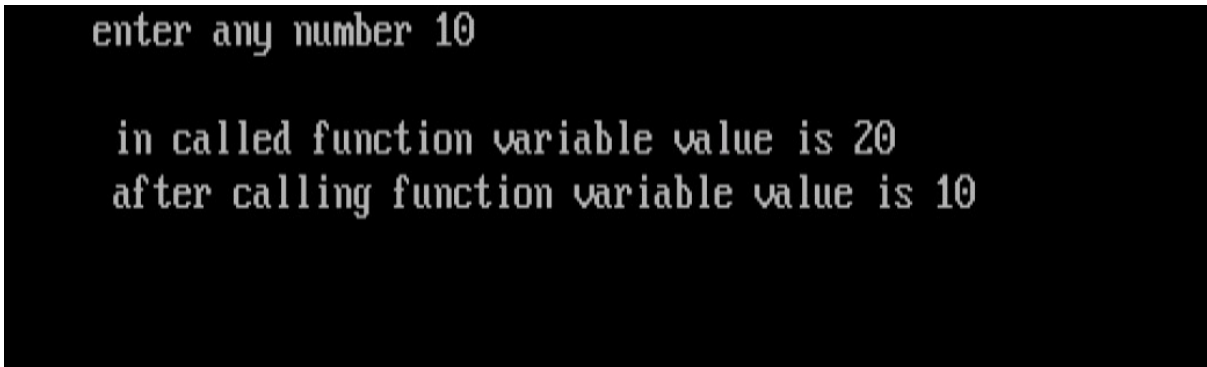
```
    enter the string :aryan

    reverse string =nayra
```

Q.28 Write a program to demonstrate Call by value.

Ans.

```c
#include<stdio.h>
#include<conio.h>
void add(int a);
void main()
{
int x;
printf("enter any number");
scanf("%d",&x);
add(x);
printf("\n after calling function variable value is %d",x);
getch();
}
Void add(int a)
{
a=a+10;
printf("\n in Called function variable value is %d",a);
}
```

Output:-


```
    enter any number 10

    in called function variable value is 20
    after calling function variable value is 10
```

Q.29 write a program demonstrate to call by reference.

Ans.
```c
#include<stdio.h>
#include<conio.h>
void add(int *a);
void main()
{
int x;
printf("enter any number");
scanf("%d",&x);
add(&x);
printf("\n after calling function variable value is %d",x);
getch();
}
Void add(int *a)
{
*a=*a+10;
printf("\n in Called function variable value is %d",*a);
}
```

Output:-

```
    enter any number10

    in called function variable value is 20
    after calling function variable value is 20_
```

Q.30 Write a program using switch case to calculate the area of circle,square and rectangle.

```c
Ans.
#include<stdio.h>
#include<conio.h>
int main()
{
    int n;
    float rad,area,nsq,length,breadth;
    printf("enter any number\n");
    scanf("%d",&n);
    switch(n)
    {
        case 1:
                printf("\nplease enter the radius of the circle\n");
                scanf("%f",&rad);
                area=3.14*rad*rad;
                printf("\nArea of circle: %f",area);
        break;

        case 2:
            printf("please enter the lenght of side of the square:");
                scanf("%f",&nsq);
                area=nsq*nsq;
                printf("\nArea of rectangle: %f",area);


        break;

        case 3:
                printf("please enter the lenght  of the rectangle:");
                scanf("%f",&length);
                printf("enter the breadth of the rectangle:");
                scanf("%f",&breadth);
                area=length*breadth;
                printf("\nArea of rectangle: %f",area);
        break;

        default:
            printf("invalid choice");
```

}

}
Output:-

```
enter any number
3
please enter the lenght  of the rectangle:4
enter the breadth of the rectangle:3

Area of rectangle: 12.000000
```

Q.31 write program in c to calculate volume using function.
Ans.
#include<stdio.h>

```c
#include<conio.h>
float pi=3.14;
int cube(int a);
int cuboid(int l,int w,int h);
int sphere(int r);
void main()
{
        int i,j,k,l,d,V;
        printf("Find volume of some shapes\n");
        printf("\n CUBE\n");
        cube(i);
        printf("\n CUBOID\n");
        cuboid(j,k,l);
        printf("\n SPHERE\n");
        sphere(d);
}
  int cube(int a)
  {
        printf("Enter side of the cube\n");
        scanf("%d",&a);
        printf("Volume of cube is: %d\n",a*a*a);
    return 0;
  }
  int cuboid(int l,int w,int h)
  {
        printf("Enter length of cuboid\n");
        scanf("%d%d%d",&l,&w,&h);
        printf("Volume is cuboid: %d\n",l*w*h);
        return 0;

        }
        int sphere(int r)
        {
                printf("Enter radius of sphere\n");
                scanf("%d",&r);
                printf("Volum of sphere is:%f",4/3*pi*r*r*r);
                return 0;
```

}

Output:-

```
Find volume of some shapes

 CUBE
Enter side of the cube
2
Volume of cube is: 8

 CUBOID
Enter length of cuboid
2 3 4
Volume is cuboid: 24

 SPHERE
Enter radius of sphere
2
Volum of sphere is:25.120001
```

Q.32 Write a program in c to search an element form array by linear serach method.

Ans.

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

```c
void main()
{
        int i,n,search,count=0;
        printf("\n\t Enter number of element in array");
        scanf("%d",&n);
        int arr[n];
        printf("\n\t Enter %d number",n);
        for(i=0;i<n;i++)
        {
                scanf("%d",&arr[i]);
        }
        printf("\n\t Enter a number to search");
        scanf("%d",&search);
        for(i=0;i<n;i++)
        {
                if(arr[i]==search)
                {
                        printf("\n\t  %d present at location %d",search,(i+1));
                        count++;
                }
        }
        if(count==0)
        {
                printf("\n\t %d is  not present in array ",search);
        }
        else
        {
                printf("\n\t %d is present %d times in array",search,count);

        }
}
```

Output:-

```
Enter number of element in array7

Enter 7 number10 12 15 76 59 45 57

Enter a number to search 10

 10 present at location 1
10 is present 1 times in array
```

Q.33 Write a program to find transpose of matrix.
Ans.

```c
#include<stdio.h>
#include<conio.h>
void main()
{
int a[2][2],i,j,m,n;
printf("number of rows\n");
scanf("%d",&m);
printf("number of columns\n");
scanf("%d",&n);
printf("Enter element of matrix\n");
for(i=0;i<m;i++)
{
for(j=0;j<n;j++)
{
scanf("%d",&a[i][j]);
}
}
printf("Matrix is \n");
for(i=0;i<m;i++)
{
for(j=0;j<n;j++)
{

printf("%d\t",a[i][j]);
}
printf("\n");

}
printf("Transpose of matrix\n");
for(i=0;i<m;i++)
{
for(j=0;j<n;j++)
{
printf("%d\t",a[j][i]);
}
printf("\n");
}
```

}
Output:-
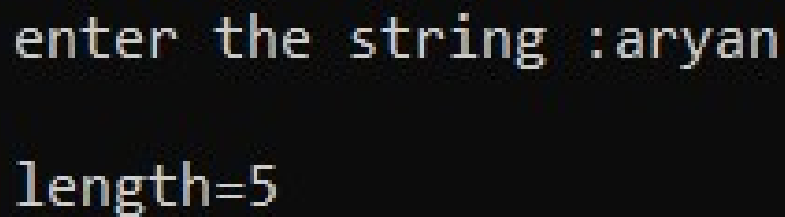
```
number of rows
2
number of columns
2
Enter element of matrix
1 2 4 5
Matrix is
1       2
4       5
Transpose of matrix
1       4
2       5
```

Q.34   Write a program to input a string and find it's length without using library function.

Ans.
```c
#include<stdio.h>
#include<conio.h>
void main()
{
        char a[15];
        int i,l=0;
        printf("\n enter the string :");
        scanf("%s",a);
        for(i=0;a[i]!='\0';i++)
        l++;
        printf("\n length=%d",l);
getch ();
}
```
Output:-

```
enter the string :aryan

length=5
```

Q.35 write program to check whether the enter string palindrome or not.
Ans.

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
int main()
{
char str[50];
int i,len,flag=0;
printf("\n Enter the string to check for palindrome");
scanf("%s",str);
len=strlen(str);
for(i=0;i<len;i++)
{
if(str[i]!=str[len-i-1])
{
flag=1;
break;
}
}
if (flag==0)
printf("string is palindrome");
else
printf("string is not a palindrome");
getch();
return 0;
}
```
Output:-

```
 Enter the string to check for palindrome mom
string is palindrome

 Enter the string to check for palindrome aryan
string is not a palindrome
```
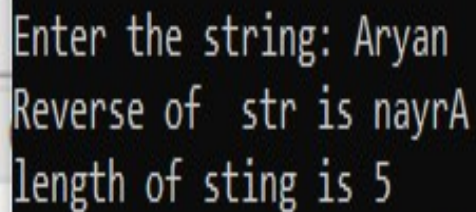
Q.36 Write a program to calculate reverse string and length string help with library function.

Ans.

```c
#include<stdio.h>
#include<conio.h>
#include<string.h>
void main()
{
char str[100];
int i;
printf("Enter the string: ");
scanf("%s",str);
printf("Reverse of  str is %s\n",strrev(str));
printf("length of sting is %d",strlen(str));
getch();
}
```
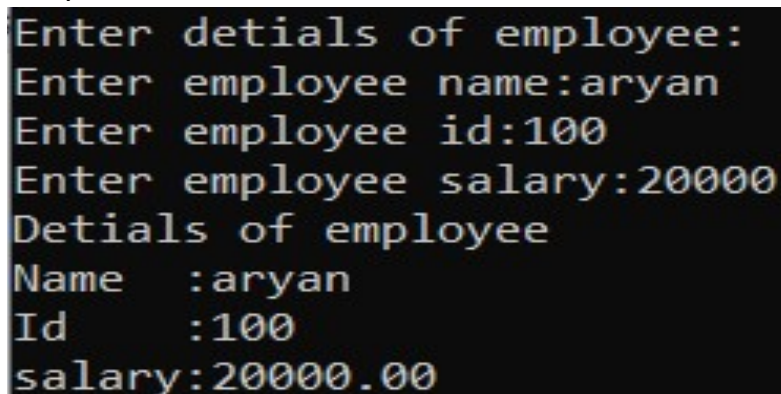
Output:-

```
Enter the string: Aryan
Reverse of  str is nayrA
length of sting is 5
```

Q.37 Write a program in c to input and print details of an employee the id,name,salary using structure.
Ans.

```c
#include<stdio.h>
#include<conio.h>
struct employee
{
char name[100];
int id;
float salary;
};
void main()
{
struct employee emp;
printf("Enter detials of employee:\n");
printf("Enter employee name:");
scanf("%s",&emp.name);
printf("Enter employee id:");
scanf("%d",&emp.id);
printf("Enter employee salary:");
scanf("%f",&emp.salary);
printf("Detials of employee\n");
printf("Name  :%s\n",emp.name);
printf("Id    :%d\n",emp.id);
printf("salary:%f\n",emp.salary);
getch();
}
```

Output:-

```
Enter detials of employee:
Enter employee name:aryan
Enter employee id:100
Enter employee salary:20000
Detials of employee
Name   :aryan
Id     :100
salary:20000.00
```

Q.38 Write a program to demonstrate array of structure.

Ans.

```c
#include<stdio.h>
#include<conio.h>
#define MAX 2
struct student
{
char name[20];
int rollno;
float marks;
};
int main()
{
struct student arr_student[MAX];
int i,j;
float sum=0;
for(i=0;i<MAX;i++)
{
printf("\n Enter detials of student %d\n\n",i+1);
printf("Enter name:");
scanf("%s",arr_student[i].name);

printf("Enter roll no.:");
scanf("%d",&arr_student[i].rollno);

printf("Enter marks:");
scanf("%f",&arr_student[i].marks);

}
printf("\n");
printf("Name\t Rollno.\tmarks\n\n");

for(i=0;i<MAX;i++)
{
printf("%s\t%d\t%.2f\
n",arr_student[i].name,arr_student[i].rollno,arr_student[i].marks);
}
```
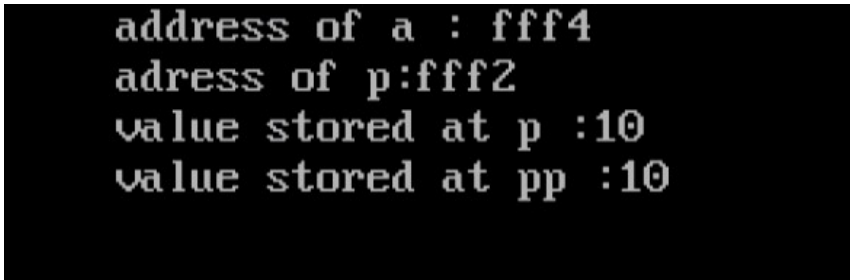
```
return 0;
}
```

Output:-

```
 Enter detials of student 1

Enter name:Tushar
Enter roll no.:14
Enter marks:68

 Enter detials of student 2

Enter name:Nandini
Enter roll no.:34
Enter marks:89

Name        Rollno.          marks

Tushar  14          68.00
Nandini 34          89.00
```

Q.39 Write a program in c to demonstrate pointer to a pointer(double pointer).
Ans.

```c
#include<stdio.h>
#include<conio.h>
int main()
{
int a=10;
int *p;
int **pp;
p=&a; // pointer is pointing to the address of a
pp=&p; // pointer pp is a double pointer pointing to the adress of pointing p
printf("address of a: %x\n"); // adress of a will be printed
printf("address of p: %x\n",pp); // adress of p will be printed
printf("value stored at p: %d\n",*p);
printf("value stord at pp: %d\n",**pp);
getch();
}
```

Output:-

```
address of a : fff4
adress of p:fff2
value stored at p :10
value stored at pp :10
```

Q.40 Write a program to demonstrate the use of malloc and realloc in.

Ans.

Code:-

```
#include<stdio.h>
#include<stdlib.h>
struct course
{
 char subjects[100];
 int marks;
};
int main()
{
  struct course*ptr;
  int i,n;
  printf("\nenter the records:");
  scanf("%d",&n);
ptr=(struct course*)malloc(n* sizeof(struct course));
for(i=0;i<n;++i)
{
  printf("\nenter the %d no of records:",i+1);
  printf("\nenter the subjects:");
  scanf("%s",&(ptr+i)->subjects);
  printf("\nenter the marks:");
  scanf("%d",&(ptr+i)->marks);
}
printf("\ndisplayed course record:");
for(i=0;i<n;i++)
{
printf("\nsubjects= %s",(ptr+i)->subjects);
printf("\nmarks= %d",(ptr+i)->marks);
}
printf("\n----------------------------------------------------");
printf("\nenter the new records you want to create:");
  scanf("%d",&n);
ptr=(struct course*)realloc(ptr,n* sizeof(struct course));
for(i=0;i<n;i++)
{
```

```c
printf("\nenter the %d no of records:",i+1);

printf("\nenter the subjects:");
scanf("%s",&(ptr+i)->subjects);
printf("\nenter the marks:");
scanf("%d",&(ptr+i)->marks);
}
printf("\ndisplayed course record:");
for(i=0;i<n;i++)
{
printf("\nsubjects=%s",(ptr+i)->subjects);
printf("\nmarks=%d",(ptr+i)->marks);
}
return 0;
}
```

Output:-

```
enter the records:2

enter the 1 no of records:
enter the subjects:maths

enter the marks:78

enter the 2 no of records:
enter the subjects:english

enter the marks:74

displayed course record:
subjects= maths
marks= 78
subjects= english
marks= 74
-------------------------------------------------
enter the new records you want to create:2

enter the 1 no of records:
enter the subjects:programming

enter the marks:67

enter the 2 no of records:
enter the subjects:pcsoftware

enter the marks:79

displayed course record:
subjects=programming
marks=67
subjects=pcsoftware
marks=79
------------------------------
Process exited after 58.1 seconds with return value 0
Press any key to continue . . .
```