ASSIGNMENT-4

SOURAV BERA

Q.1 Find the sum of first 10 natural numbers.

```c
#include <stdio.h>
int main()
{
    int i,n=10,sum;
    printf("Sum of 1st 10 natural naumber is:");
    for(i=1;i<=n;i++)
    {
        sum=sum+i;
    }
    printf("%d\n",sum);
    return 0;
```

```
Sum of 1st 10 natural naumber is:55
```

Q.2 Display the multiplication table of a given integer.

```c
#include <stdio.h>
int main(){
    int n,i=1;
    printf("Enter the value of n:");
    scanf("%d",&n);
    while(i<=10){
        printf("%d x %d=%d\n",n,i,n*i);
        i++;
```

```
    }
    return 0;
}
```

```
Enter  the  value  of  n:2

2  x  1=2

2  x  2=4

2  x  3=6

2  x  4=8

2  x  5=10
2  x  6=12

2  x  7=14

2  x  8=16

2  x  9=18

2  x  10=20
```

Q.3 Display the n terms of odd natural number and their sum.

```c
#include <stdio.h>
int main(){
    int n,i=1,sum;
    printf("Enter the value for n:");
    scanf("%d",&n);
```

```c
    do {

        if(i%2!=0){

            sum=sum+i;

        }

        i++;

    }

    while(i<=n);

    printf("The sum of n terms odd number is:%d\n",sum);

    return 0;

}
```

```
Enter  the  value  for  n:10



The  sum  of  n  terms  odd  number  is:25
```

Q.4 Display the pattern like right angle triangle

*

**

***

****

```c
include <stdio.h>

int main()

{

    int i,j,n;

    printf("Enter the value for n:");

    scanf("%d",&n);

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

    {
```

```c
    for(j=1;j<=i;j++)

    {

        printf("*");

    }

    printf("\n");

    }

    return 0;

}
```

```
Enter  the  value  for  n:4


*


**


***


****
```

Q.5 Display the pattern like right angle triangles.

1

2 3

4 5 6

7 8 9 10

```c
#include <stdio.h>

int main(){

int n,i=1,j,k=1;

    printf("Please Enter the Number of Rows:");

    scanf("%d", &n);

    while ( i <= n){
```

```c
        j = 1;
    while ( j <= i ) {
    printf(" %d ",k++);
        j++;
    }
    i++;
    printf("\n");
    }
    return 0;
}
```

```
Please  Enter  the  Number  of  Rows:4


 1

 2   3

 4   5   6

 7   8   9   10
```

Q.6 Make such a pattern like a pyramid with numbers

1

2 3

4 5 6

7 8 9 10

```c
#include <stdio.h>

int main(){

    int i=1,j,k,n,t=1,g;
```

```c
printf("Enter the value for n:");

scanf("%d",&n);

g=n+4-1;

do

{

  for(k=g;k>=1;k--){

    printf(" ");

  }

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

    printf("%d",t++);

  printf("\n");

  g--;

  i++;

}

while(i<=n);

return 0;

}
```

```
Enter  the  value  for  n:4


        1


      23


    456

  78910
```

Q.7 Display Pascal's triangle

```
          1
         1 1
        1 2 1
       1 3 3 1
      1 4 6 4 1
```

```c
#include <stdio.h>
int main(){
    int n,i,j,k=1,s;
    printf("Enter the value for n:");
    scanf("%d",&n);
    for(i=0;i<n;i++) {
        for(s=1;s<=n-i;s++)
            printf(" ");
        for(j=0;j<=i;j++) {
            if(j==0 || i==0)
                k=1;
            else
                k=k*(i-j+1)/j;
            printf("%4d",k);
        }
        printf("\n");
    }
    return 0;
}
```

```
Enter  the  value  for  n:5
```

```
            1

        1       1

      1     2     1

    1     3     3     1

  1     4     6     4     1
```
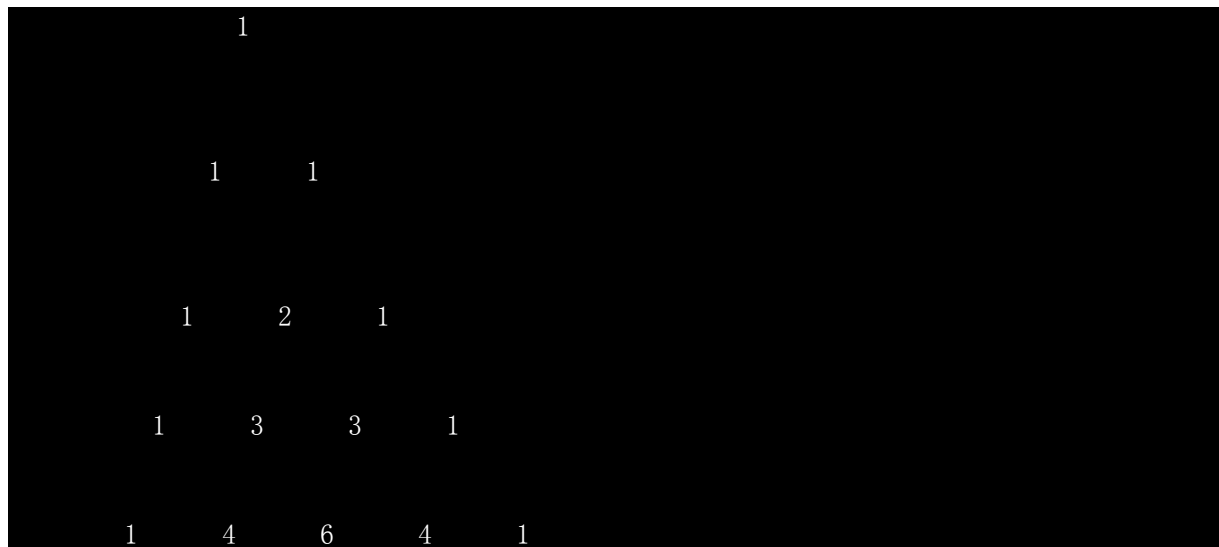
Q.8 Display the first n terms of Fibonacci series

#include <stdio.h>

int main() {

    int i,n,a=0,b=1,temp;

    printf("Enter the value for n:");

    scanf("%d", &n);

    printf("Fibonacci Series:");

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

        printf("%d, ",a);

        temp=a+b;

        a=b;

        b=temp;

    }

    return 0;

}

```
Enter  the  value  for  n:10


Fibonacci  Series:0,  1,  1,  2,  3,  5,  8,  13,  21,  34
```

Q.9 Check whether a given number is a perfect number or not.

```c
#include <stdio.h>

int main() {
    int i=1,n,sum=0;
    printf("Enter the value for n:");
    scanf("%d",&n);
    while(i<=n/2) {
        if(n%i==0) {
            sum=sum+i;
        }
        i++;
    }
    if(sum==n)
        printf("%d is PERFECT NUMBER",n);
    else
        printf("%d is NOT PERFECT NUMBER",n);
    return 0;
}
```

```
Enter  the  value  for  n:-
1


-1  is  NOT  PERFECT  NUMBER
```

Q.10 Find the Armstrong number for a given range of number.

```c
#include <stdio.h>

#include <math.h>
```

```c
int main() {
    int a,b,n,on,rem,c=0;
    double res=0.0;
    printf("Enter 2 number:");
    scanf("%d %d", &a,&b);
    printf("Amstrong number between %d to %d are:",a,b);
    for(n=a+1;n<b;++n)
    {
        on=n;
        while(on!=0)
        {
            on=on/10;
            ++c;
        }
        on=n;
        while(on!=0)
        {
            rem=on % 10;
            res=res+ pow(rem, c);
            on=on/10;
        }
        if(res==n)
            printf("%d ",n);
        c=0;
        res=0;
    }
    return 0;
```

```
}
```

Q.11 Determine whether a given number is prime or not.

```
#include <stdio.h>

int main() {

    int n,i=2,flag=0;

    printf("Enter the value for n:");

    scanf("%d",&n);

    while(i<=n/2) {

        if(n%i==0) {

            flag=1;

            break;

        }

        ++i;

    }

    if(n==1) {

        printf("1 is neither prime nor composite");

    }

    else

    {

        if(flag==0)

            printf("%d is a prime number",n);

        else

            printf("%d is not a prime number",n);

    }
```

```
    return 0;

}
```

```
Enter   the   value   for   n:29



29  is  a  prime  number
```

Q.12 Display the number in reverse order

```c
#include <stdio.h>

int main() {

    int n,r=0;

    printf("Enter the number:");

    scanf("%d",&n);

    do {

        r=r*10;

        r=r+n%10;

        n=n/10;

    }

    while(n!=0);

    printf("Reverse of the number is:%d\n",r);

    return 0;

}
```

```
Enter   the   number:3456



Reverse  of  the  number  is:6543
```

Q.13 Display the sum of the series [9 + 99 + 999 + 9999..]

```c
#include <stdio.h>

void main()
```

```c
{
    long int n,i,t=9;
    int sum=0;
    printf("Enter the value of n:");
    scanf("%d", &n);
    for(i=1;i<=n;i++)
    {
        sum=sum+t;
        printf("%ld ",t);
        t=t*10+9;
    }
    printf("\nsum of the series:%d\n",sum);
}
```

```
Enter  the  value  of  n:5


9  99  999  9999  99999



sum  of  the  series:111105
```

Q.14 find the sum of the series{1-X^2/2!+X^4/4!-...]

```c
#include <stdio.h>
void main()
{
    float x,sum,t,d;
    int i=1,n;
    printf("Enter the value for x:");
    scanf("%f", &x);
    printf("Enter the value for n:");
```

```c
    scanf("%d",&n);

    sum=1;

    t=1;

    while(i<n)

    {

        d=(2*i)*(2*i-1);

        t=-t*x*x/d;

        sum=sum+t;

        i++;

    }

    printf("the sum= %f\n Value of n= %d\n Value of X=%.2f\n",sum,n,x);

}
```

```
Enter  the  value  for  x:2


Enter  the  value  for  n:5


the  sum=  -
0.415873


  Value  of  n=  5


  Value  of  X=2.00
```

Q.15 find the sum of the series [x-x^3+x^5+...]

#include <stdio.h>

#include <math.h>

```c
void main()
{
    int x,sum,ctr,i=1,n,m,mm,nn;
    printf("Enter the value for x:");
    scanf("%d",&x);
    printf("Enter the value for n:");
    scanf("%d",&n);
    sum=x;
    m=-1;
    printf("The value of the series:\n");
    printf("%d\n",x);
    do
    {
        ctr=(2*i+1);
        mm=pow(x,ctr);
        nn=mm*m;
        printf("%d\n",nn);
        sum=sum+nn;
        m=m*(-1);
        i++;
    }
    while(i<n);
    printf("\n The sum=%d\n",sum);
}
```

```
Enter   the   value   for   x:2


Enter   the   value   for   n:5


The   value   of   the   series:


2



_
8

32


_
128

512




   The   sum=410
```

Q.18 Display the pattern like diamond.

#include <stdio.h>

int main()

{

   int i,j,n;

   printf("Enter number of rows\n:");

   scanf("%d",&n);

```c
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=n-i;j++)
            printf(" ");
        for(j=1;j<=2*i-1;j++)
            printf("*");
        printf("\n");
    }
    for(i=1;i<=n-1;i++)
    {
        for(j=1;j<=i;j++)
            printf(" ");
        for(j=1;j<=2*(n-i)-1;j++)
            printf("*");
        printf("\n");
    }
    return 0;
}
```

```
Enter   number   of   rows


:5




        *



      ***

```

```
     *****

    *******

*********

   *******

    *****

     ***

      *
```