Q1.- FIND THE SUM OF FIRST 10 NATURAL NUMBERS.(USING FOR LOOP)

```
#include <stdio.h>


int main() {
   int i,sum = 0;
   printf("The first 10 natural number is:\n");


   for(i=1;i<=10;i++)
   {
      sum = sum + i;
      printf(" %d ",i);
   }
   printf("\nThe sum is %d\n",sum);


   return 0;
}
```

OUTPUT-

```
The first 10 natural number is:
 1  2  3  4  5  6  7  8  9  10
The sum is 55
```

Q2.- DISPLAY THE MULTIPLICATION TABLE OF A GIVEN INTEGER. (USING WHILE LOOP)

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

```
int main() {
  int num,i = 1;
  printf("Enter a number :");
  scanf("%d",&num);
  printf("Multiplication table for %d is :\n",num);
  while (i<=10)
  {
     printf("%d * %d = %d\n",num,i,(num * i));
     i++;
  }
   return 0;
}
```

OUTPUT-

```
Enter a number :3
Multiplication table for 3 is :
3 * 1 = 3
3 * 2 = 6
3 * 3 = 9
3 * 4 = 12
3 * 5 = 15
3 * 6 = 18
3 * 7 = 21
3 * 8 = 24
```

3 * 9 = 27

3 * 10 = 30

Q3.- DISPLAY THE N TERMS OF ODD NATURAL NUMBER AND THEIR SUM. (USING DO....WHILE LOOP)

```
#include <stdio.h>


int main() {
 int num,i=1,sum;
 printf("Enter the number :");
 scanf("%d",&num);


 do
 {
    if(i % 2!= 0){
    sum = sum + i;
    }
    i++;
 }
    while(i<=num);
printf("sum of all odd integer is %d",sum);


 return 0;
}
```

OUTPUT-

Enter the number :10

sum of all odd integer is 25

Q4- DISPLAY THE PATTERN LIKE RIGHT ANGLE TRIANGLES.(USING FOR LOOP)

*

**

***

****

```
#include <stdio.h>

int main()

{

   int i, j, n;


   printf("Enter value of n: ");

   scanf("%d", &n);


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

   {

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

      {

         printf("*");

      }


      printf("\n");
```

```
    }
    return 0;
}
```

OUTPUT-

```
Enter value of n: 4
*
**
***
****
```

Q5- DISPLAY THE PATTERN LIKE RIGHT ANGLE TRIANGLES. (USING WHILE LOOP)

1

2 3

4 5 6

7 8 9 10

```
#include <stdio.h>
int main()
{
  int n,i= 1,j,k= 1;
  printf("Enter the number of rows :");
  scanf("%d",&n);
  while ( i <= n){
     j = 1;
     while ( j <= i){
        printf (" %d ",k++);
```

```
        j++;
        }
        i++;
        printf("\n");
  }
   return 0;
}
```

OUTPUT-

```
Enter the number of rows :4
1
 2  3
 4  5  6
 7  8  9  10
```

Q6- MAKE SUCH A PATTERN LIKE A PYRAMID WITH NUMBERS. (USING DO...WHILE LOOP)

1

2 3

4 5 6

7 8 9 10

```
#include <stdio.h>
int main(){
   int i=1,j,k,rows,t=1,g;
   printf("Enter the number of rows:");
   scanf("%d",&rows);
```

```
   g=rows+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<=rows);

      return 0;
}
```

OUTPUT-

```
Enter the number of rows:4
       1
     2  3
    4  5  6
   7  8  9  10
```

Q7. display Pascal's triangle. (Using for loop)

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

```
#include <stdio.h>
int main()
{
 int row,c=1,s,i,j;
```

```
 printf("Input number of rows:");
 scanf("%d",&row);
 for(i=0;i<row;i++)
 {
 for( s=1;s<=row-i;s++ )
 printf("");
 for(j=0;j<=i;j++)
 {
 if (j==0||i==0)
 c=1;
 else
 c=c*(i-j+1)/j;
 printf("% 4d",c);
 }
 printf("\n");
 }
 return 0;
}
```

OUTPUT-

```
Input number of rows:5

1

  1   1

  1   2   1

  1   3   3   1

  1   4   6   4   1
```

Q8-display the first n terms of Fibonacci series. (Using for loop)

```
#include <stdio.h>

int main()

{

 int i, n, t1 = 0, t2 = 1, s;

    printf("Enter the number of terms: ");

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

```
   printf("Fibonacci Series: ");
    for (i = 1; i <= n; ++i) {
       printf(" %d ", t1);
       s = t1 + t2;
       t1 = t2;
       t2 = s;
   }

   return 0;
}
```

OUTPUT-

```
Enter the number of terms: 12
Fibonacci Series:  0  1  1  2  3  5  8  13  21  34  55  89
```

Q9.- check whether a given number is a perfect number or not. (Using while loop)

```
# include <stdio.h>

int main()
{
  int i = 1,Num,Sum = 0 ;
 printf("Enter any number:") ;
  scanf("%d", &Num) ;

 while( i < Num )
```

```
  {
    if(Num % i == 0)
    Sum = Sum + i ;
    i++;
  }

 if (Sum == Num)
   printf(" %d is a Perfect Number", Num) ;
 else
   printf(" %d is not the Perfect Number", Num) ;

 return 0 ;
}
```

OUTPUT-

```
Enter any number:28
28 is a Perfect Number
```

Q10.-find the Armstrong number for a given range of number. (Using while loop)

```
#include <stdio.h>
void main(){
   int num,r,sum,temp;
   int stno,enno;

   printf("Input starting number of range: ");
   scanf("%d",&stno);

   printf("Input ending number of range : ");
   scanf("%d",&enno);

   printf("Armstrong numbers in given range are: ");
```

```
   for(num=stno;num<=enno;num++){
      temp=num;
      sum = 0;

      while(temp!=0){
         r=temp % 10;
         temp=temp/10;
         sum=sum+(r*r*r);
      }
      if(
sum==num)
         printf("%d ",num);
   }
printf("\n");
}
```

OUTPUT-

Input starting number of range: 1

Input ending number of range : 1000

Armstrong numbers in given range are: 1 153 370 371 407

Q11.- determine whether a given number is prime or not. (Using do…while loop)

```
# include <stdio.h>


int main(){

 int n,i,count=0;

 printf("Enter a number:");

 scanf("%d", &n);

 do{

    if((n!=2) && (n%i==0))

  {
```

```
      count=1;
      break;
   }
   i++;
 }
 while(i<=sqrt(n));
 if (count==0)
 printf(" %d is a prime number",n);
 else
 printf(" %d is not a prime number",n);
 return 0 ;
}
```

OUTPUT-

```
Enter a number:173
 173 is a prime number
```

Q12.- display the number in reverse order. (Using do…while loop)

```
# include <stdio.h>
int main()
{
 int n,a,r,s=0;
 printf("Enter a number:");
 scanf("%d", &n);
 a=n;
```

```
 do{
     r=n%10;
     s=s*10+r;
     n=n/10;
    }
    while(n>0);
    printf("\n The reverse number of %d is %d",a,s);


 return 0 ;
}
```

output-

```
Enter a number:658
 The reverse number of 658 is 856
```

Q13.- display the sum of the series [9 + 99 + 999 + 9999 ...] (Using for loop)

```
# include <stdio.h>

int main()
{
 long int n,i,k=9;
 int sum=0;
 printf("Input the number:");
 scanf("%ld", &n);
 for(i=1;i<=n;i++)
 {
    sum +=k;
    printf("%ld  ",k);
    k=k*10+9;
 }
printf("\nThe sum of series %d \n",sum);

 return 0 ;
}
```

OUTPUT-

Input the number:6
9 99 999 9999 99999 999999
The sum of series 1111104

Q14.- find the sum of the series [1-X^2/2!+X^4/4!- .....]. (Using while loop)

```
#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:");
  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);
```

```
}
```

OUTPUT-

```
Enter the value for x:3

Enter the value for n:6

the sum=-0.991049

 value of n=6

 value of x=3.00
```

Q15. find the sum of the series [x - x^3 + x^5 + ...]. (Using do…while loop)

```
#include <stdio.h>
#include <math.h>
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{
    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);

}
```

OUTPUT-

Enter the value for x:2

Enter the value for n:5

The value of the series:

2

-8

32

-128

512

The sum=410C