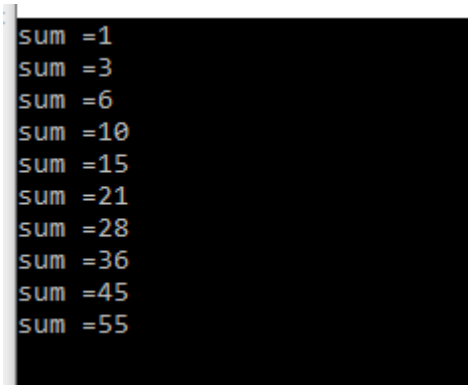
Q1. Find the sum of first 10 natural numbers. (Using for loop).

PROGRAM:-

```
#include<stdio.h>

int main()

{

int i,sum=0;

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

{

        sum=sum+i;

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

        }

}
```

OUTPUT:-



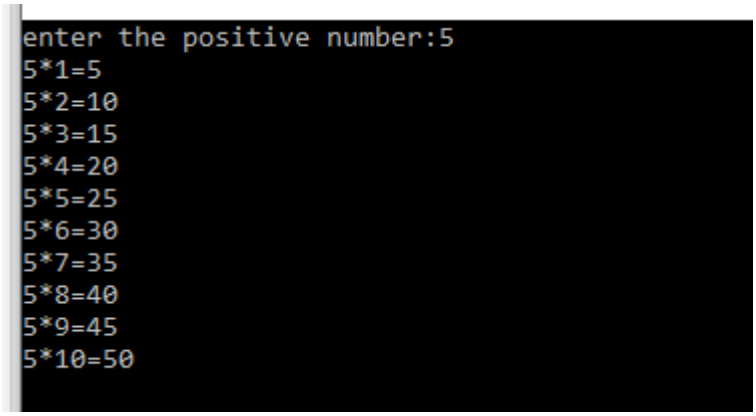
Q2. display the multiplication table of a given integer (Using while loop).

PROGRAM:-

```
#include<stdio.h>

int main()

{

        int i=1,n,mul;

        printf("enter the positive number:");

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

```
        while(i<=10)
        {
                printf("%d*%d=%d\n",n,i,(n*i));
                i++;

        }

        }
```

OUTPUT:-



Q3. display the n terms of odd natural number and their sum (Using do…while loop).

PROGRAM:-

```
 #include<stdio.h>
int main()
{
        int i,num,sum=0;
        printf("enter  the terms of odd natural number:");
        scanf("%d",&num);
        i=1;
        do
        {
                printf("%d\n",2*i-1);
```

```
                sum=(sum+(2*i-1));
                        i++;


        }while(i<=num);


        printf("the sum of odd natural is %d",sum);
}
```

OUTPUT:-

```
enter  the terms of odd natural number:5
1
3
5
7
9
the sum of odd natural is 25
```

Q4. display the pattern like right angle triangles. (Using for loop).

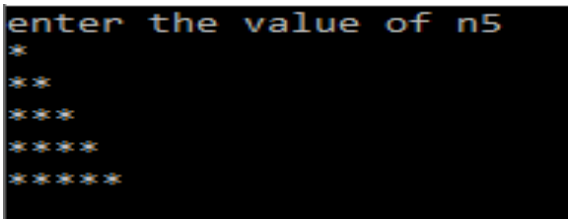
```
*
**
***
****
```

PROGRAM:-

```
#include<stdio.h>
int main()
{
        int i, j,n ;
        printf("enter the value of n");
        scanf("%d",&n);
        for(i=1;i<=n;i++)
        {
```

```
            for(j=1;j<=i;j++)
            {
                printf("*");

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

OUTPUT:-



Q5. . display the pattern like right angle triangles. (Using while loop).

1

2 3

4 5 6

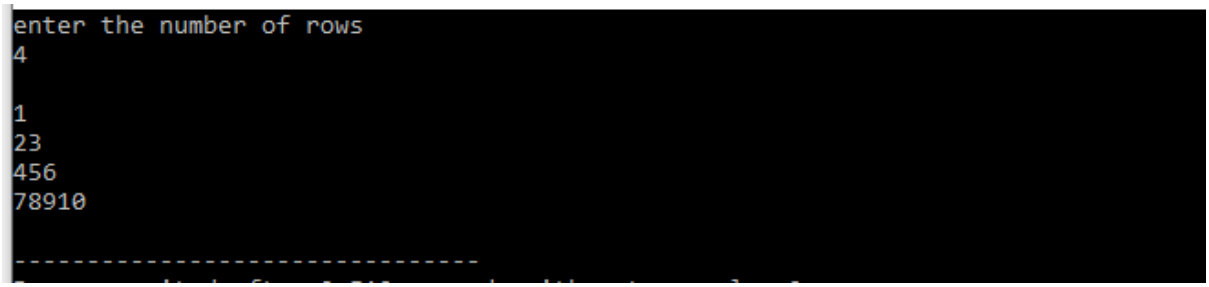
7 8 9 10

PROGRAM:-

```
#include<stdio.h>
int main()
{
        int i=1,j=1,n,value;

        printf("enter the number of rows\n");
        scanf("%d",&n);
        printf("\n");
```

```
        while(j<=n)
        {
        value=1;
                while(value<=j)
                {
                printf("%d",i);
                i++;
                value++;

                }
                j++;

                printf("\n");

        }
        return 0;
}
```

OUTPUT:-



Q6. make such a pattern like a pyramid with numbers (Using do…while loop).

1

2 3

4 5 6

7 8 9 10

PROGRAM:-

```
#include<stdio.h>
int main()
{
int x=1,i=1,j;
do{
j=5-i;
   do{
   printf(" ");
   j--;
   }while(j>0);
j=i;
   do{
   printf("%d ",x);x++;j--;
   }while(j>0);
printf("\n");
i++;
}while(i<5);
return 0;
}
```

OUTPUT:-

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

```
     1
    11
   1 2 1
  1 3 3 1
1 4 6 4 1
```

PROGRAM:-

```
#include<stdio.h>
int main()
{
   int row,c=1,x,i,j;
   printf("Input number of rows: ");
   scanf("%d",&row);
   for(i=0;i<row;i++)
   {
      for(x=1;x<=row-i;x++)
      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");
   }
}
```

OUTPUT:-

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

PROGRAM:-

```
#include <stdio.h>

int main() {

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

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

   scanf("%d", &n);

   printf("Fibonacci Series: ");


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

          {

      printf("%d\t", t1);

      nextTerm = t1 + t2;

      t1 = t2;

      t2 = nextTerm;

    }


   return 0;

}
```

OUTPUT:-

```
Enter the number of terms: 8
Fibonacci Series: 0     1       1       2       3       5       8       13
--------------------------------
Process exited after 1.926 seconds with return value 0
Press any key to continue . . .
```

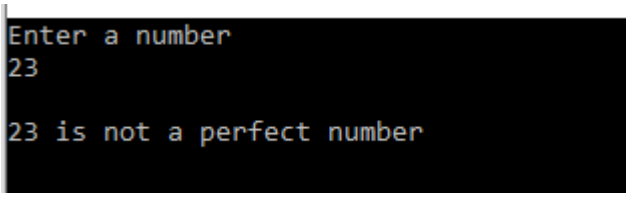
Q9. . check whether a given number is a perfect number or not. (Using while loop).

PROGRAM:-

```
#include<stdio.h>

int main()

{

int num, count = 1, sum = 0;


   printf("Enter a number\n");

   scanf("%d", &num);


   while(count < num)

   {

      if(num%count == 0)

      {

         sum = sum + count;

      }

      count++;

   }


   if(sum == num)

   {

      printf("\n%d is a perfect number\n", num);

   }
```

```
    else
    {
        printf("\n%d is not a perfect number\n", num);
    }

    return 0;
}
```

OUTPUT:-



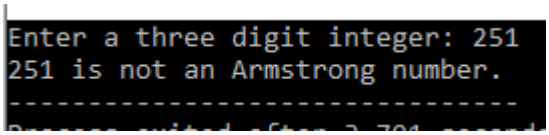
Q10. .find the Armstrong number for a given range of number. (Using while loop).

PROGRAM:-

```
#include<stdio.h>
int main()
{
int num,originalNum, r, result = 0;
    printf("Enter a three digit integer: ");
    scanf("%d", &num);
    originalNum = num;

    while (originalNum != 0)
            {
        r = originalNum % 10;

      result=(result+(r * r * r));
```

```
    originalNum /= 10;
  }

  if (result == num)
    printf("%d is an Armstrong number.", num);
  else
    printf("%d is not an Armstrong number.", num);

  return 0;
}
```

OUTPUT:-



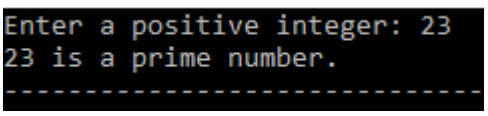
Q11. determine whether a given number is prime or not (Using do…while loop).

PROGRAM:-

```
#include <stdio.h>
int main() {
  int n, i=2, flag = 0;
  printf("Enter a positive integer: ");
  scanf("%d", &n);

  do{

    if (n % i == 0) {
      flag = 1;
      break;
```

```
        }
        ++i;
    }while(i <= n / 2);

    if (n == 1) {
        printf("1 is neither prime nor composite.");
    }
    else if(n==2){
        printf("2 is a prime number");
    }
    else {
        if (flag == 0)
            printf("%d is a prime number.", n);
        else
            printf("%d is not a prime number.", n);
    }

    return 0;
}
```

OUTPUT:-



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

PROGRAM:-

```
#include <stdio.h>
int main() {
    int n, rev = 0, r;
```

```
    printf("Enter an integer: ");
    scanf("%d", &n);
    do {
        r = n % 10;
        rev = rev * 10 + r;
        n /= 10;
    }while (n != 0);
    printf("Reversed number = %d", rev);
    return 0;
}
```

OUTPUT:-

```
Enter an integer: 345
Reversed number = 543
```

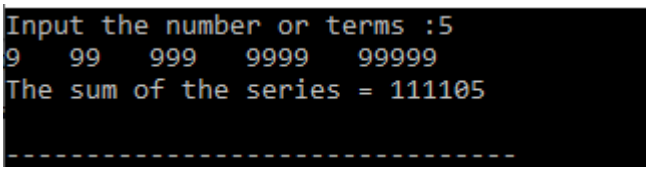
Q13. . display the sum of the series [9 + 99 + 999 + 9999 ...] (Using for loop).

PROGRAM:-

```
#include <stdio.h>


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

```
    return 0;
}
```

OUTPUT:-

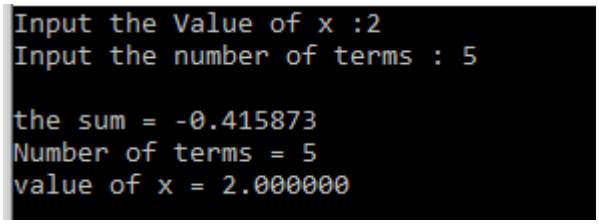


Q14. find the sum of the series [1-X^2/2!+X^4/4!- .....] (Using while loop).

PROGRAM:-

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

float x,sum,t,d;
    int i=1,n;
    printf("Input the Value of x :");
    scanf("%f",&x);
    printf("Input the number of terms : ");
    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("\nthe sum = %f\nNumber of terms = %d\nvalue of x = %f\n",sum,n,x);
}
```

OUTPUT:-



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

PROGRAM:-

```
#include <stdio.h>
#include <math.h>
int main()
{
    int x,sum,ctr;
    int i=1,n,m,mm,nn;
    printf("Input the value of x :");
    scanf("%d",&x);
    printf("Input number of terms : ");
    scanf("%d",&n);
    sum =x; m=-1;
    printf("The values 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("\nThe sum = %d\n",sum);
        return 0;
}
```

OUTPUT:-