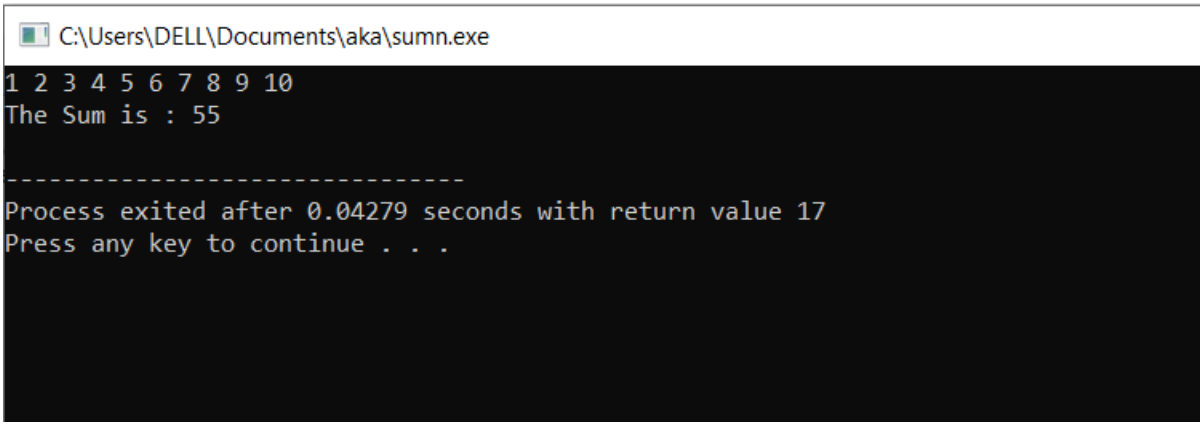
1. find the sum of first 10 natural numbers. (Using for loop)

```
#include <stdio.h>

void main()

{

   int j,sum = 0;

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

   {

 sum = sum + j;

  printf("%d ",j);

   }

   printf("\nThe Sum is : %d\n", sum);

}
```

Output:

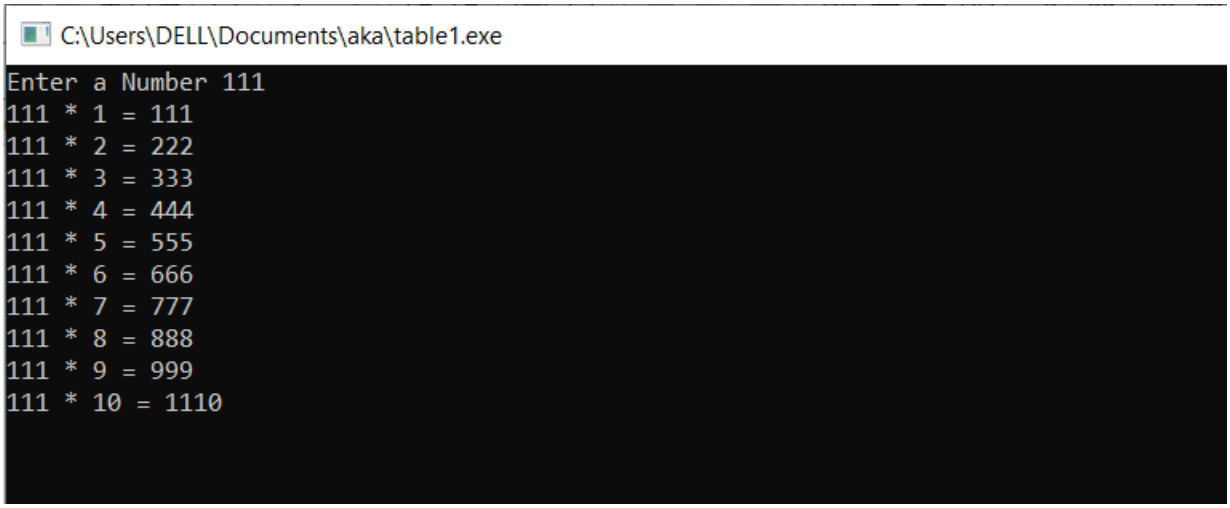


2.Display the multiplication table of a given integer (Using while loop)

```
#include <stdio.h>

int main()

{

  int n, i,prod;

 printf("Enter a Number ");
```

```
 scanf("%d",&n);
 i=1;
 while(i<=10){
        prod=n*i;
          printf("%d * %d = %d \n", n, i, prod);
   ++i;
 }
getch();
 }
```

Output:

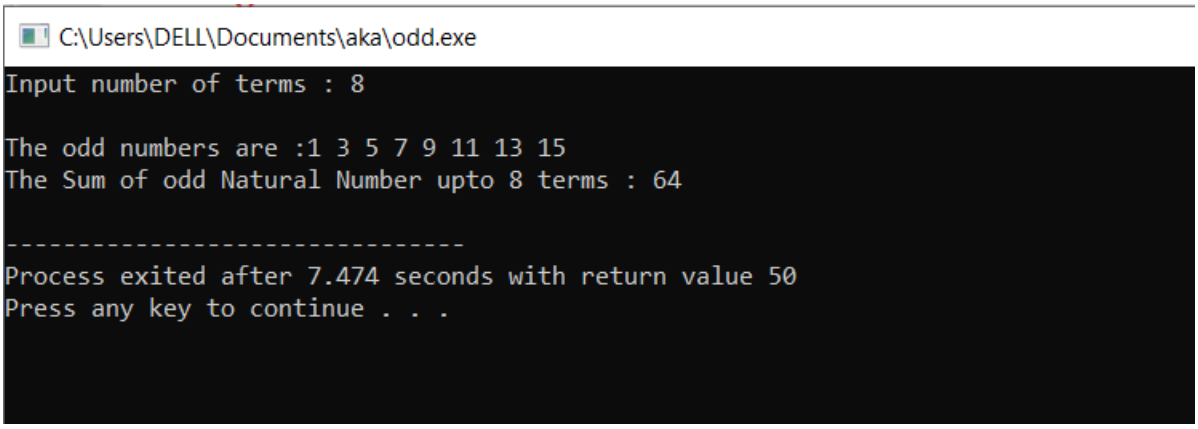


3. Display the n terms of odd natural number and their sum (Using do…while loop)

```
#include <stdio.h>
void main()
{
  int i=1,n,sum=0;
 printf("Input number of terms : ");
  scanf("%d",&n);
```

```
  printf("\nThe odd numbers are :");
  while(i<=n)
  {
   printf("%d ",2*i-1);
   sum+=2*i-1;
   i++;
  }
  printf("\nThe Sum of odd Natural Number upto %d terms : %d \n",n,sum);
}
```

Output:



4.Display the pattern like right angle triangles. (Using for loop)

*

**

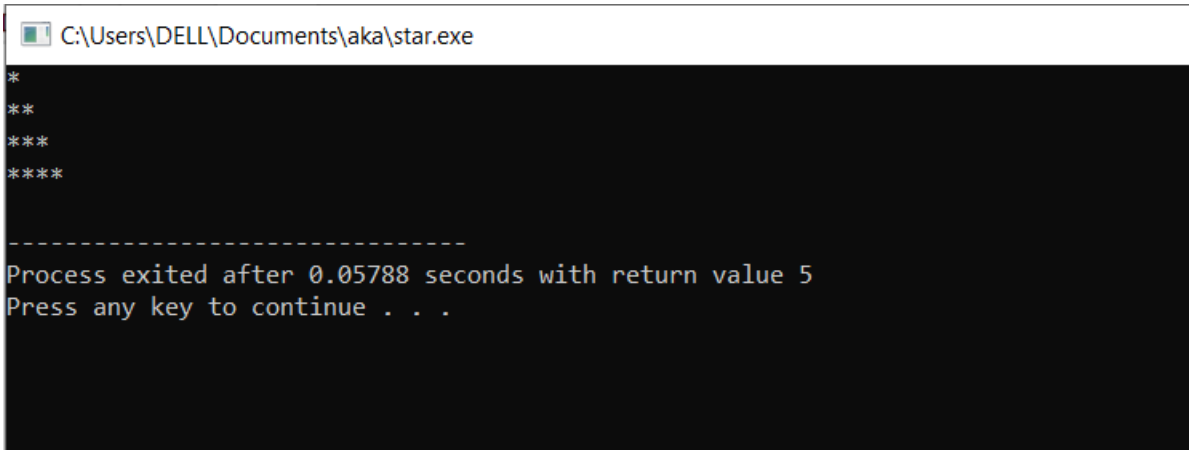
***

****

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

```
  int i,j,rows=4;
  for(i=1;i<=rows;i++)
  {
          for(j=1;j<=i;j++)
            printf("*");
printf("\n");
  }
}
```

Output:



5.Display the pattern like right angle triangles. (Using while loop)

1

2 3

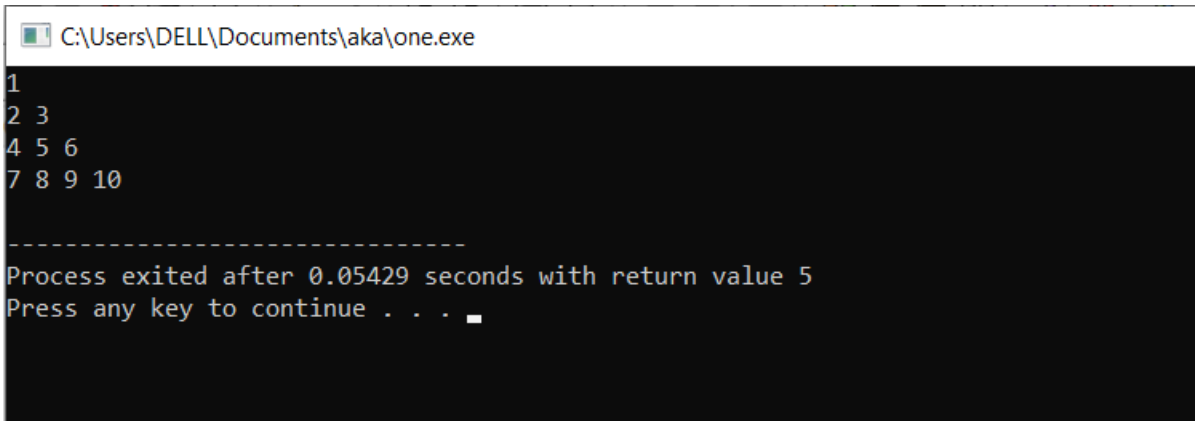
4 5 6

7 8 9 10

```
#include <stdio.h>
void main()
{
  int i=1,j,rows=4,k=1;
```

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

Output:



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

1

2 3

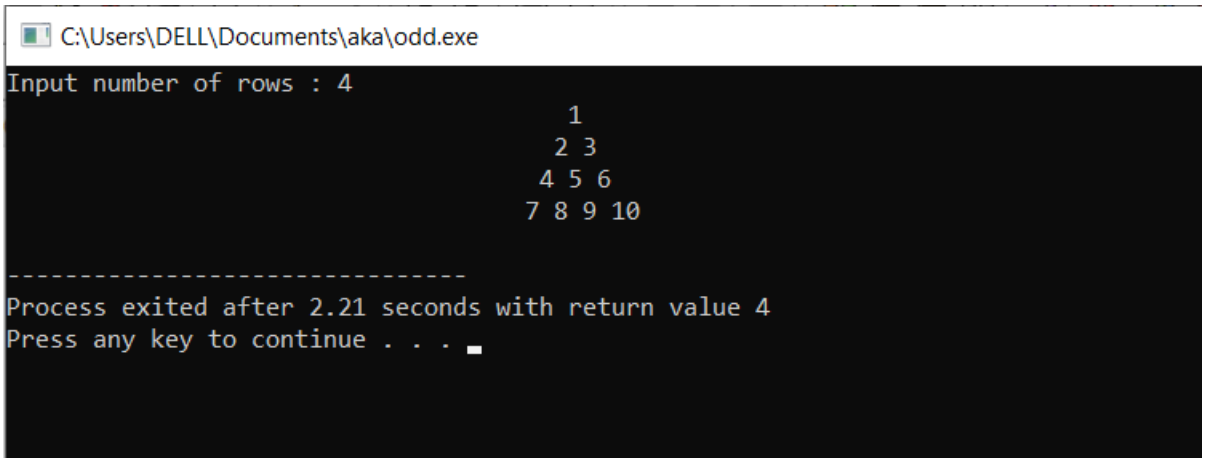
4 5 6

7 8 9 10

```
#include <stdio.h>
void main()
{
  int i=1,j,spc,rows,k,t=1;
   spc=rows+4-1;
  printf("Input number of rows : ");
  scanf("%d",&rows);
  while(i<=rows)
  {
         k=spc;
      while(k>=1)
        {
          printf(" ");
          k--;
        }
     j=1;
           while(j<=i)
           {
          printf("%d ",t++);
           j++;
    }
        printf("\n");
   spc--;
   i++;
```

```
  }
}
```

Output:

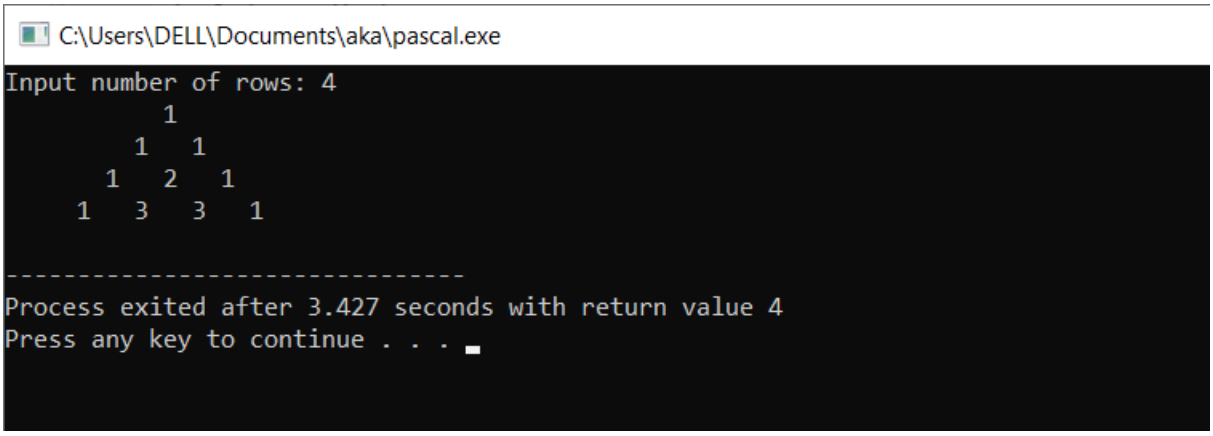


7.

```
#include <stdio.h>

void main()

{

   int no_row,c=1,blk,i,j;

   printf("Input number of rows: ");

   scanf("%d",&no_row);

   for(i=0;i<no_row;i++)

   {

      for(blk=1;blk<=no_row-i;blk++)

      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:

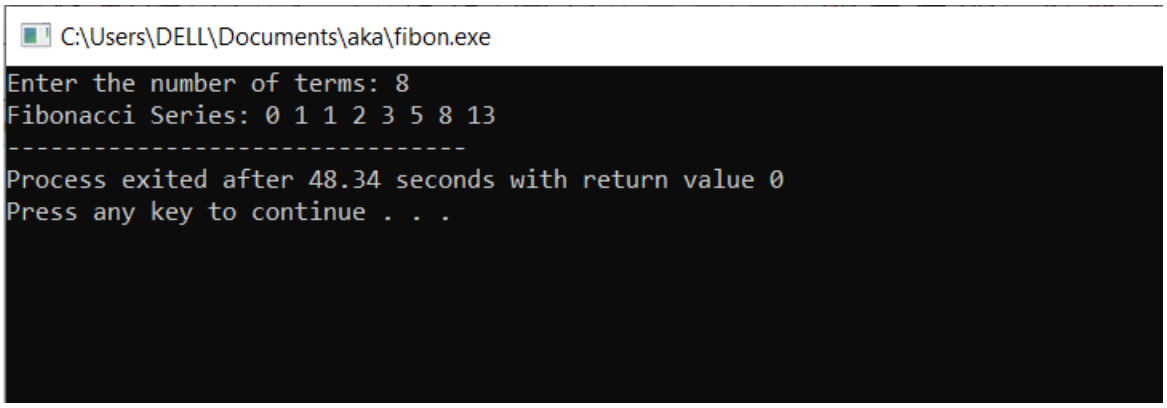


8.Display the first n terms of Fibonacci series. (Using for loop)

```
#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 ", t1);

      nextTerm = t1 + t2;
```

```
        t1 = t2;
        t2 = nextTerm;
    }
 return 0;
}
```

Output:

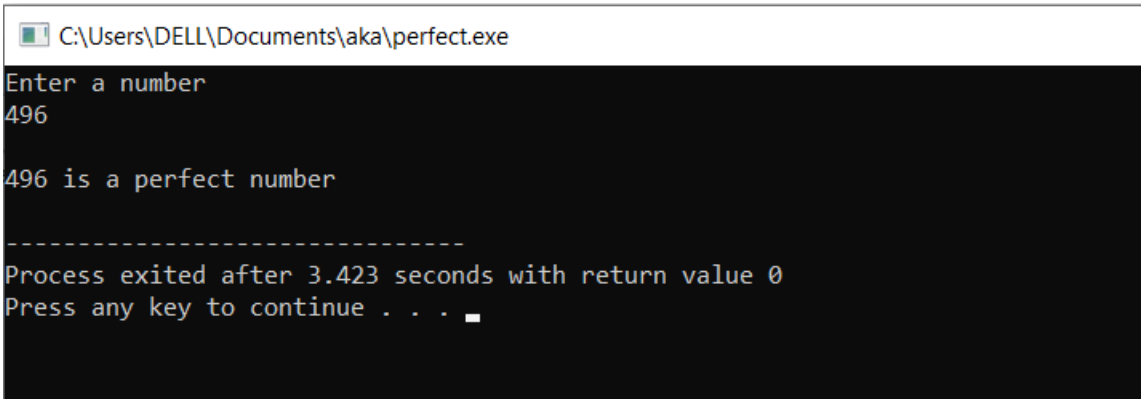


9. check whether a given number is a perfect number or not. (Using while loop)

```
#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:

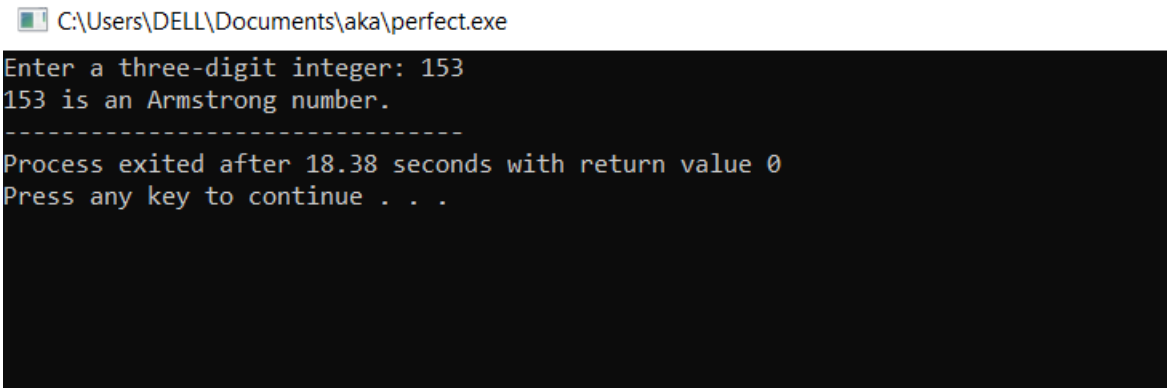


10. find the Armstrong number for a given range of number. (Using while loop)

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

```
    originalNum = num;

    while (originalNum != 0) {

        remainder = originalNum % 10;

       result += remainder * remainder * remainder;

       originalNum /= 10;
    }

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

    return 0;
}
```

Output:

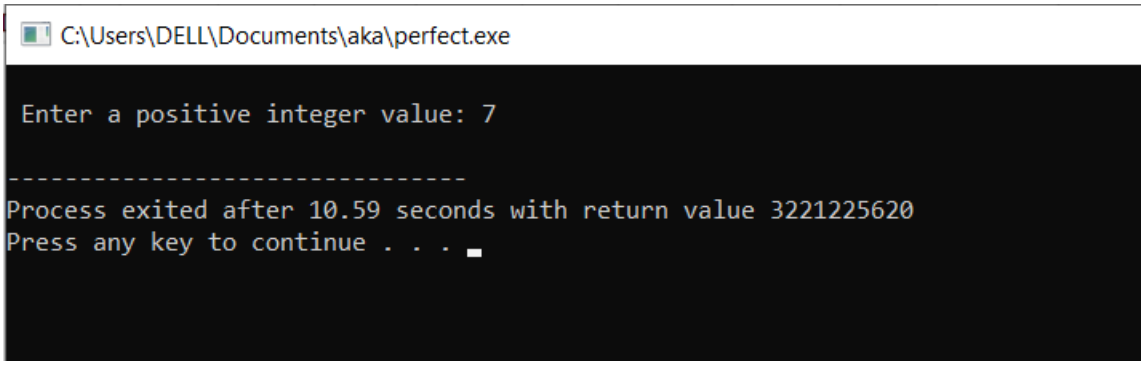


11.Determine whether a given number is prime or not. (Using do…while loop)

```
#include<stdio.h>

#include<math.h>


void main()

{

   int n, i, flag=0;


   printf("\n Enter a positive integer value: ");

   scanf("%d",&n);


   do

   {

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

      {

         flag=1;

         break;

      }

      i++;
```

```
    }while(i<=sqrt(n));



    if (flag==0)
        printf("\n %d is a prime number.",n);
    else
        printf("\n %d is not a prime number.",n);

}
```

Output:

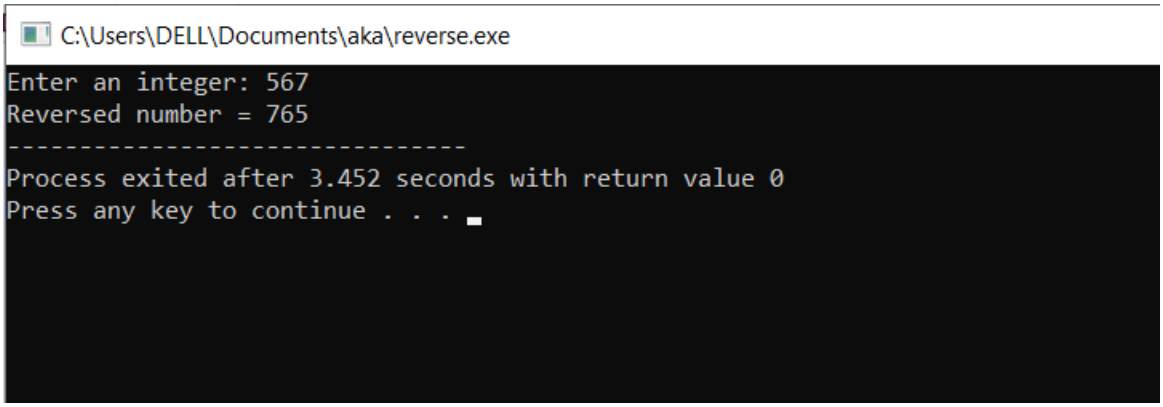


12.Display the number in reverse order. (Using do…while loop)

```
#include <stdio.h>
int main()
 {
    int n, rev = 0, remainder;
    printf("Enter an integer: ");
    scanf("%d", &n);
   while (n != 0)
            {
```

```
    remainder = n % 10;
    rev = rev * 10 + remainder;
    n /= 10;
  }
  printf("Reversed number = %d", rev);
  return 0;
}
```

Output:

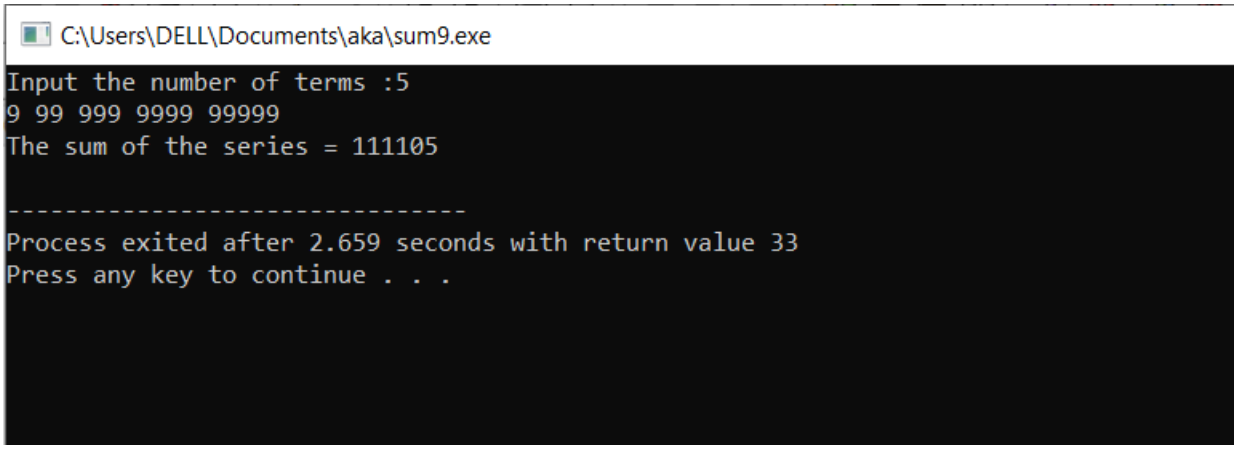


13.Display the sum of the series [9 + 99 + 999 + 9999 ...] (Using for loop)

```
#include <stdio.h>
void main()
{
  long int n,i,j=9;
   int sum =0;
   printf("Input the number of terms :");
    scanf("%ld",&n);
    for (i=1;i<=n;i++)
          { sum +=j;
            printf("%ld ",j);
```

```
        j=j*10+9;
        }
        printf("\nThe sum of the series = %d \n",sum);
}
```

Output:

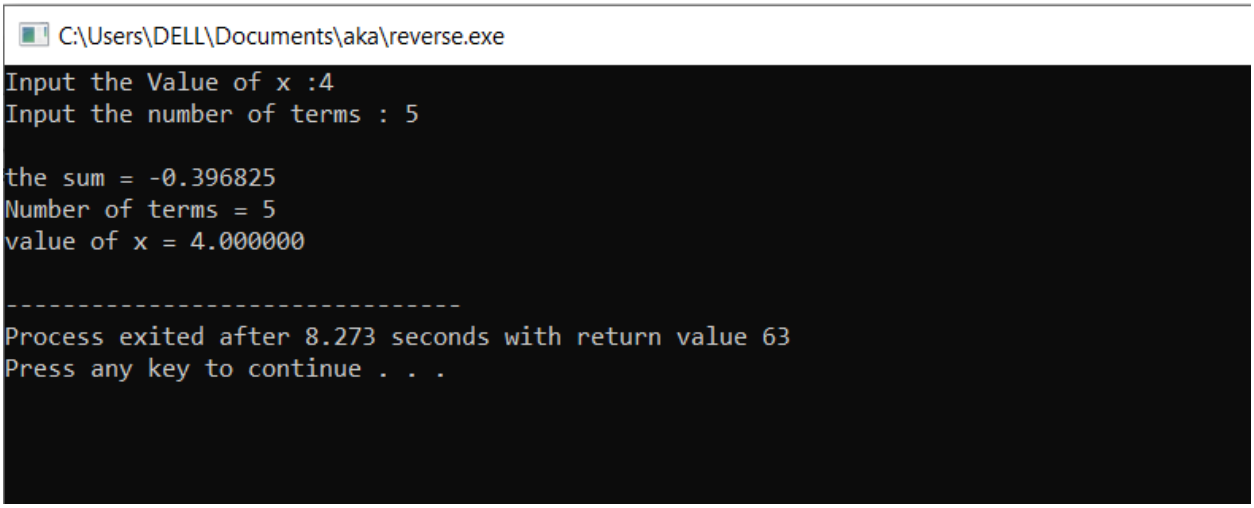


14. Find the sum of the series [1-X^2/2!+X^4/4!- .....]. (Using while loop)

```
#include <stdio.h>
void main()
{
        float x,sum,t,d;
        int i,n;
        printf("Input the Value of x :");
        scanf("%f",&x);
        printf("Input the number of terms : ");
        scanf("%d",&n);
        sum =1; t = 1;
        for (i=1;i<n;i++)
        {
          d = (2*i)*(2*i-1);
```

```
        t = -t*x*x/d;
        sum =sum+ t;
      }
      printf("\nthe sum = %f\nNumber of terms = %d\nvalue of x = %f\n",sum,n,x);
}
```

Output:

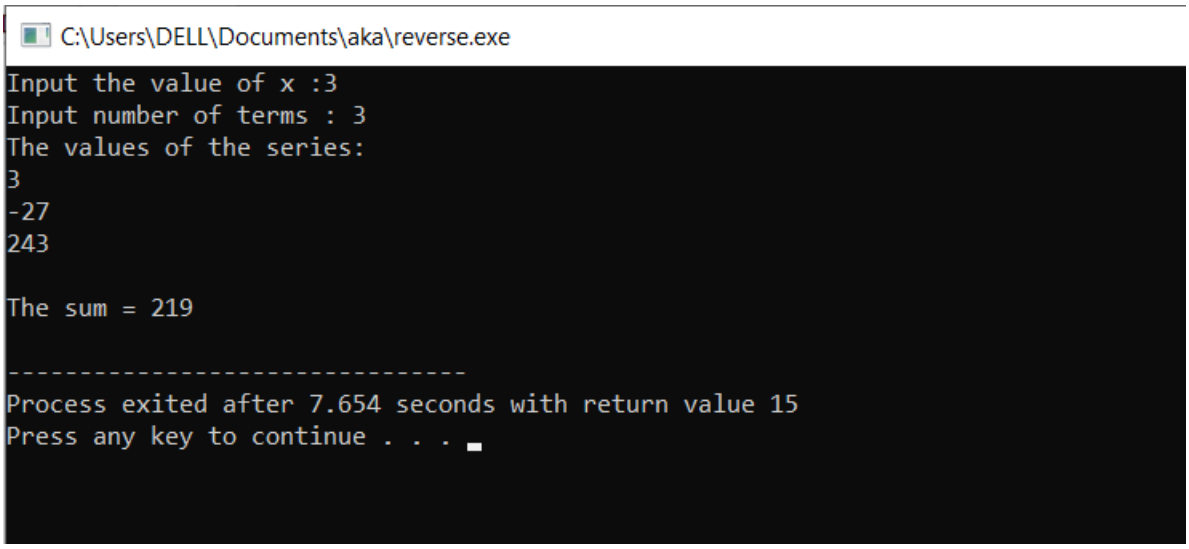


15. find the sum of the series [x - x^3 + x^5 + ……]. (Using do…while loop)

```
#include <stdio.h>
#include <math.h>
void main()
{
      int x,sum,ctr;
      int i,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);
   for (i = 1; i < n; i++)
   {
      ctr = (2 * i + 1);
      mm = pow(x, ctr);
      nn = mm * m;
      printf("%d \n",nn);
      sum = sum + nn;
      m = m * (-1);
        }
        printf("\nThe sum = %d\n",sum);
}
```

Output:

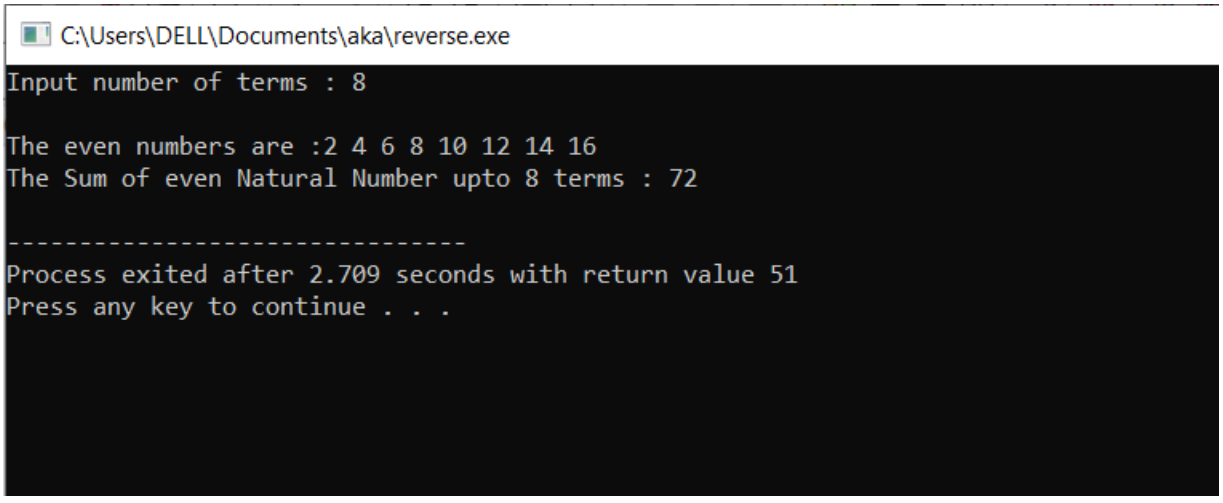


Practice questions:

16. display the n terms of even natural number and their sum.

```
#include <stdio.h>

void main()

{

  int i,n,sum=0;

  printf("Input number of terms : ");

  scanf("%d",&n);

  printf("\nThe even numbers are :");

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

  {

   printf("%d ",2*i);

   sum+=2*i;

  }

  printf("\nThe Sum of even Natural Number upto %d terms : %d \n",n,sum);

}
```

Output:



17. display n terms of natural number and their sum.

```
#include <stdio.h>

void main()

{

  int i,n,sum=0;

  printf("Input Value of terms : ");

  scanf("%d",&n);

  printf("\nThe first %d natural numbers are:\n",n);

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

  {

    printf("%d ",i);

    sum+=i;

  }

  printf("\nThe Sum of natural numbers upto %d terms : %d \n",n,sum);


}
```

Output: