

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

```
#include <stdio.h>

void main()
{
    int j,sum = 0;

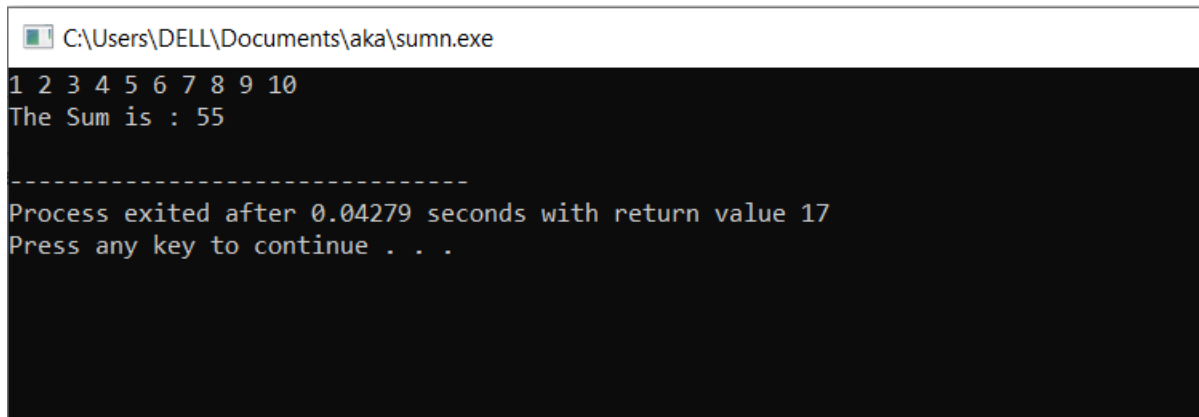
    for (j = 1; j <= 10; j++)
    {
        sum = sum + j;

        printf("%d ",j);

    }

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

Output:



```
C:\Users\DELL\Documents\aka\sumn.exe
1 2 3 4 5 6 7 8 9 10
The Sum is : 55

-----
Process exited after 0.04279 seconds with return value 17
Press any key to continue . . .
```

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:



```

C:\Users\DELL\Documents\aka\table1.exe
Enter a Number 111
111 * 1 = 111
111 * 2 = 222
111 * 3 = 333
111 * 4 = 444
111 * 5 = 555
111 * 6 = 666
111 * 7 = 777
111 * 8 = 888
111 * 9 = 999
111 * 10 = 1110

```

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);

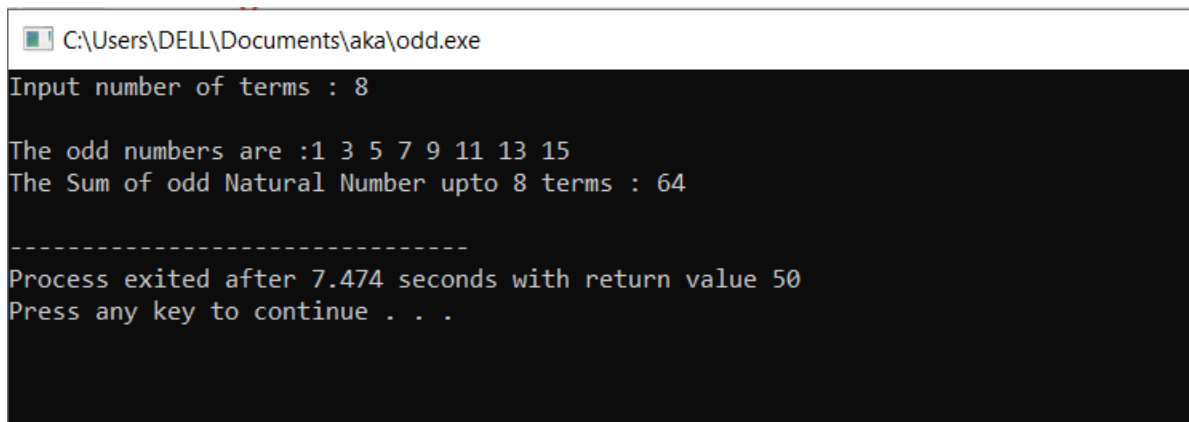
    sum+=2*i-1;

    i++;
}

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

```

Output:



```

C:\Users\DELL\Documents\aka\odd.exe
Input number of terms : 8

The odd numbers are :1 3 5 7 9 11 13 15
The Sum of odd Natural Number upto 8 terms : 64

-----
Process exited after 7.474 seconds with return value 50
Press any key to continue . . .

```

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

```

*

**

***

****

#include <stdio.h>

void main()

{

```

```

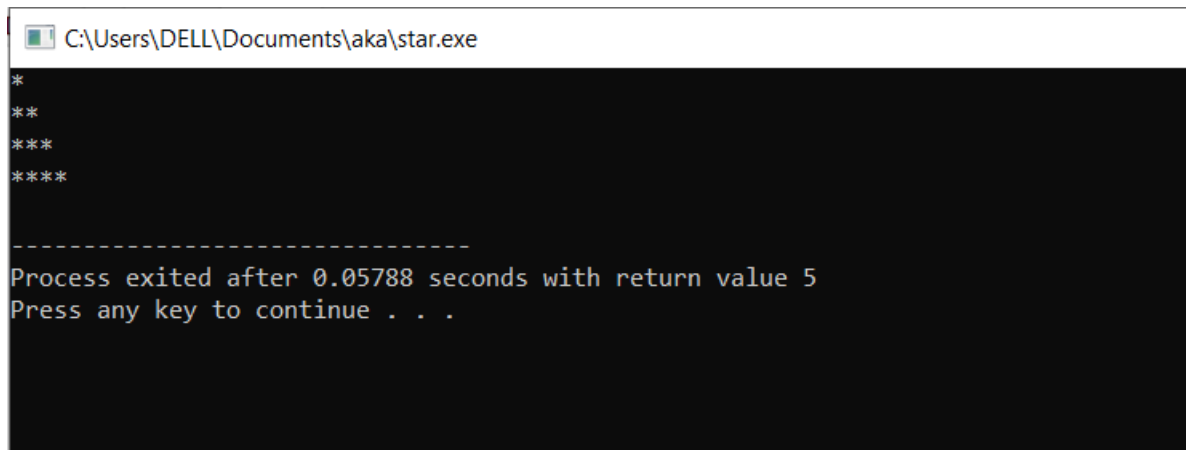
int i,j,rows=4;

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

    printf("\n");
}
}

```

Output:



```

C:\Users\DELL\Documents\aka\star.exe
*
**
***
****

-----
Process exited after 0.05788 seconds with return value 5
Press any key to continue . . .

```

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()
```

```
{
```

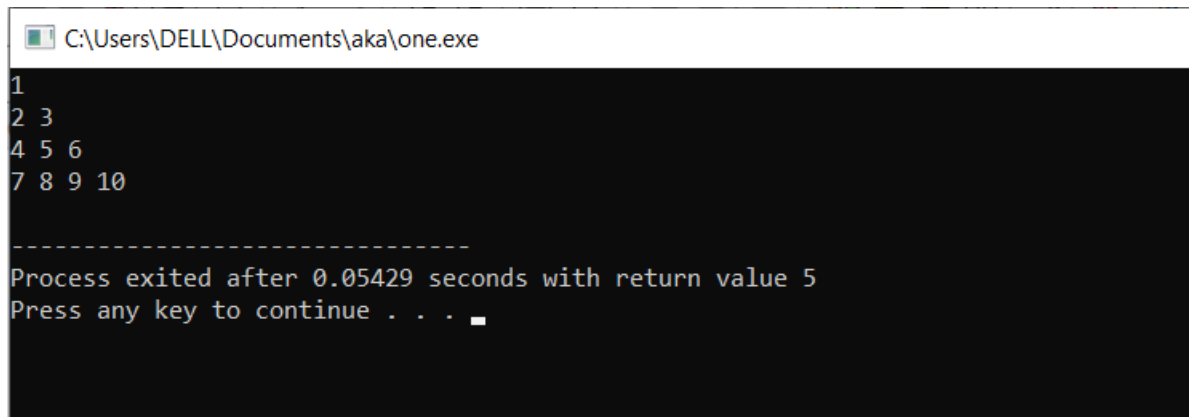
```
    int i=1,j,rows=4,k=1;
```

```

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

```

Output:



```

C:\Users\DELL\Documents\aka\one.exe
1
2 3
4 5 6
7 8 9 10

-----
Process exited after 0.05429 seconds with return value 5
Press any key to continue . . . 

```

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");

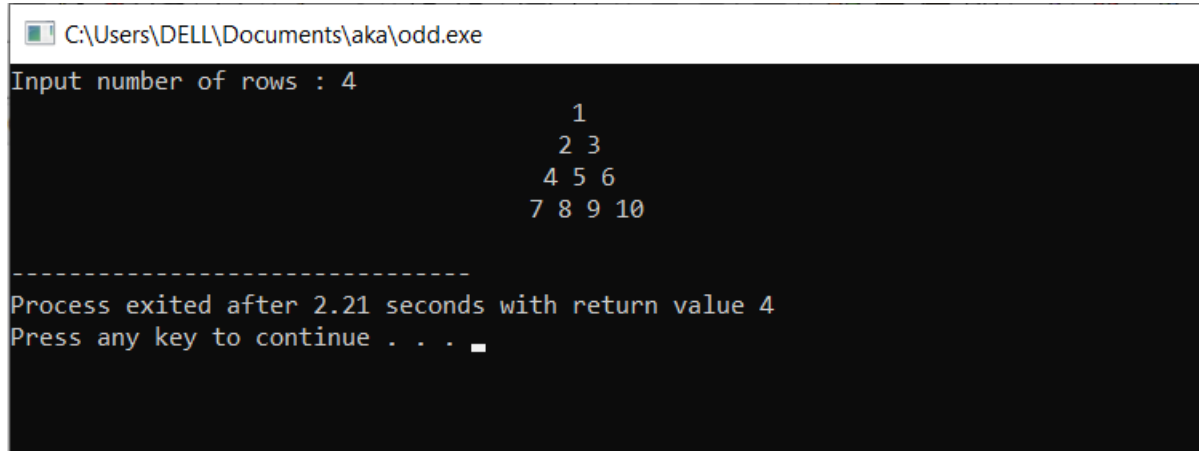
        spc--;

        i++;

    }
```

```
}  
  
}
```

Output:



```
C:\Users\DELL\Documents\aka\odd.exe  
Input number of rows : 4  
  
          1  
        2 3  
       4 5 6  
      7 8 9 10  
  
-----  
Process exited after 2.21 seconds with return value 4  
Press any key to continue . . .
```

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);

        }

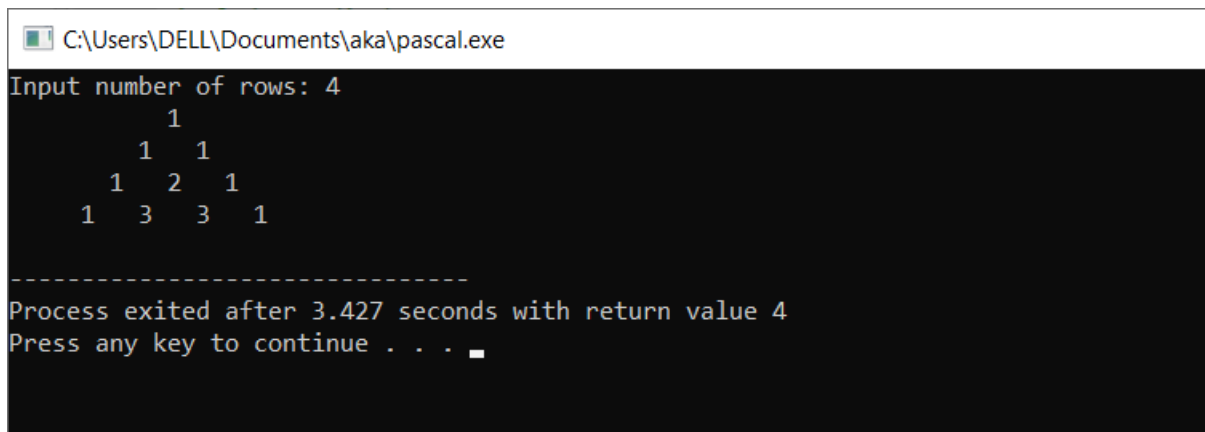
        printf("\n");

    }

}

```

Output:



```

C:\Users\DELL\Documents\aka\pascal.exe
Input number of rows: 4
      1
     1 1
    1 2 1
   1 3 3 1

-----
Process exited after 3.427 seconds with return value 4
Press any key to continue . . . 

```

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;

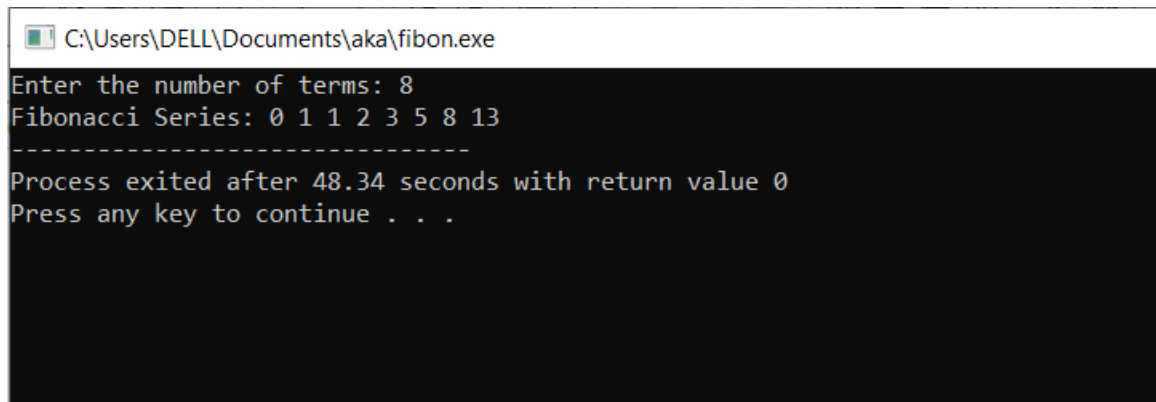
}

return 0;

}

```

Output:



The screenshot shows a Windows command prompt window with the title bar "C:\Users\DELL\Documents\aka\fibon.exe". The text inside the window is as follows:

```

Enter the number of terms: 8
Fibonacci Series: 0 1 1 2 3 5 8 13
-----
Process exited after 48.34 seconds with return value 0
Press any key to continue . . .

```

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;
        }
    }
}

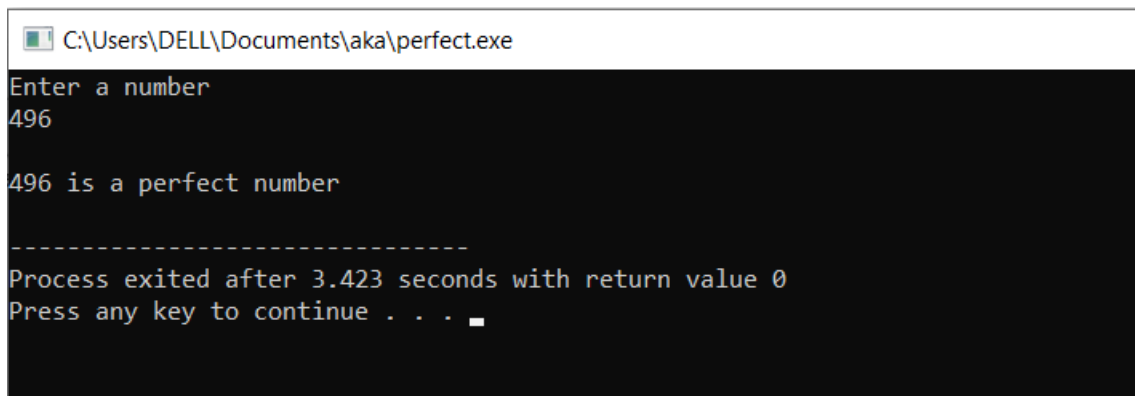
```

```

        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:



```

C:\Users\DELL\Documents\aka\perfect.exe
Enter a number
496

496 is a perfect number

-----
Process exited after 3.423 seconds with return value 0
Press any key to continue . . . 

```

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:

C:\Users\DELL\Documents\aka\perfect.exe

```
Enter a three-digit integer: 153
153 is an Armstrong number.
-----
Process exited after 18.38 seconds with return value 0
Press any key to continue . . .
```

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);

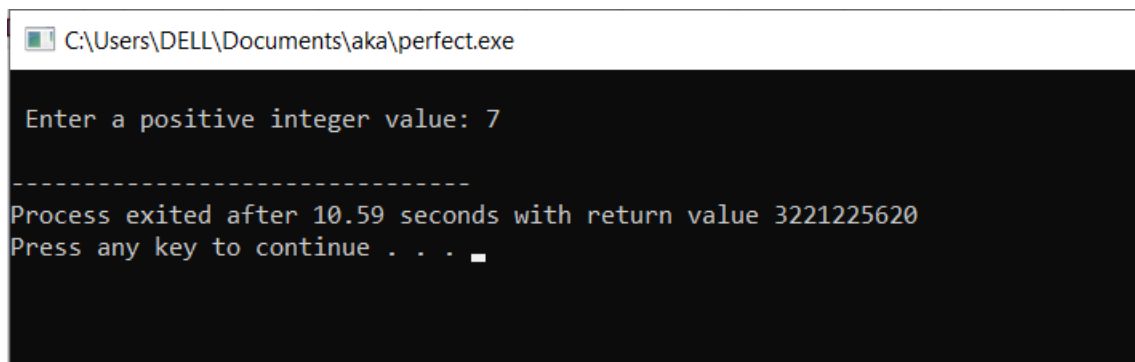
else

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

}

```

Output:



```

C:\Users\DELL\Documents\aka\perfect.exe

Enter a positive integer value: 7

-----
Process exited after 10.59 seconds with return value 3221225620
Press any key to continue . . .

```

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;

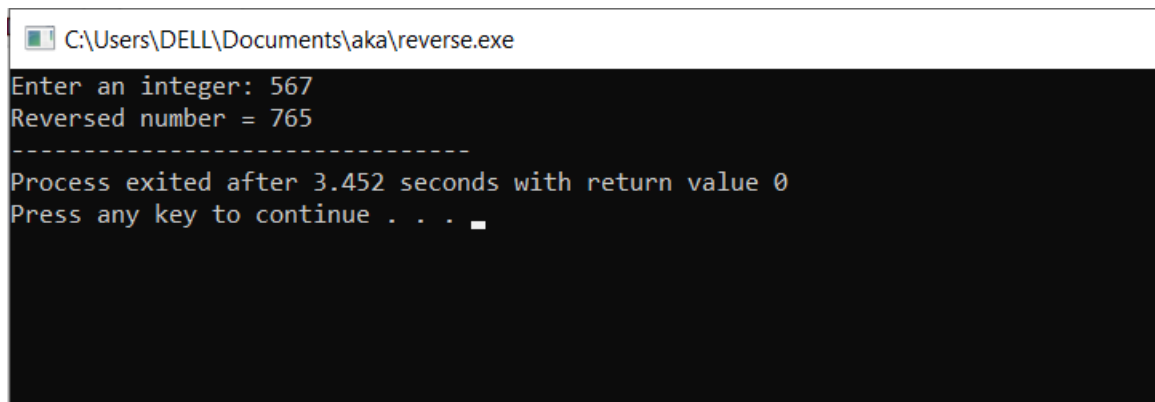
    n /= 10;
}

printf("Reversed number = %d", rev);

return 0;
}

```

Output:



```

C:\Users\DELL\Documents\aka\reverse.exe
Enter an integer: 567
Reversed number = 765
-----
Process exited after 3.452 seconds with return value 0
Press any key to continue . . .

```

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;

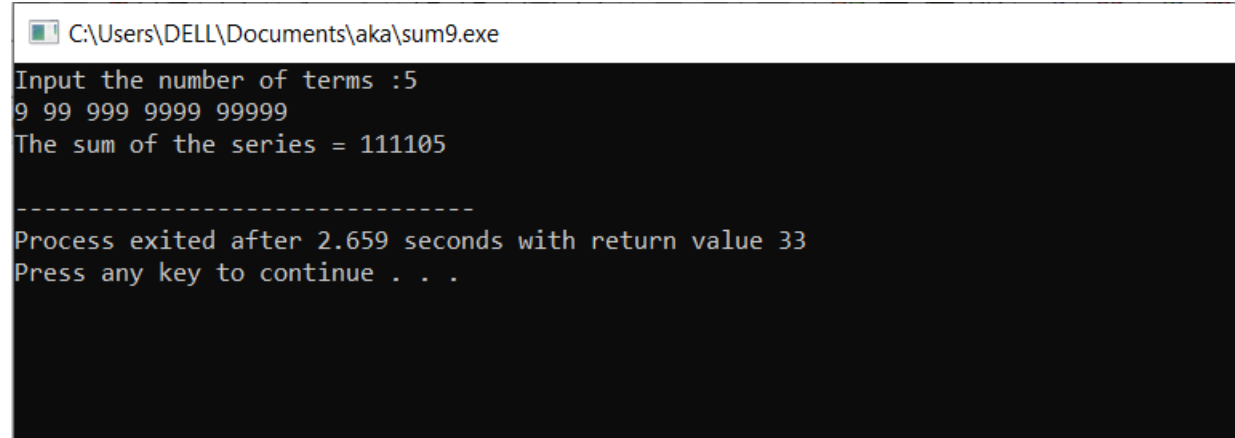
    }

    printf("\nThe sum of the series = %d \n",sum);

}

```

Output:



```

C:\Users\DELL\Documents\aka\sum9.exe
Input the number of terms :5
9 99 999 9999 99999
The sum of the series = 111105

-----
Process exited after 2.659 seconds with return value 33
Press any key to continue . . .

```

14. Find the sum of the series [$1 - X^2/2! + X^4/4! - \dots$]. (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;

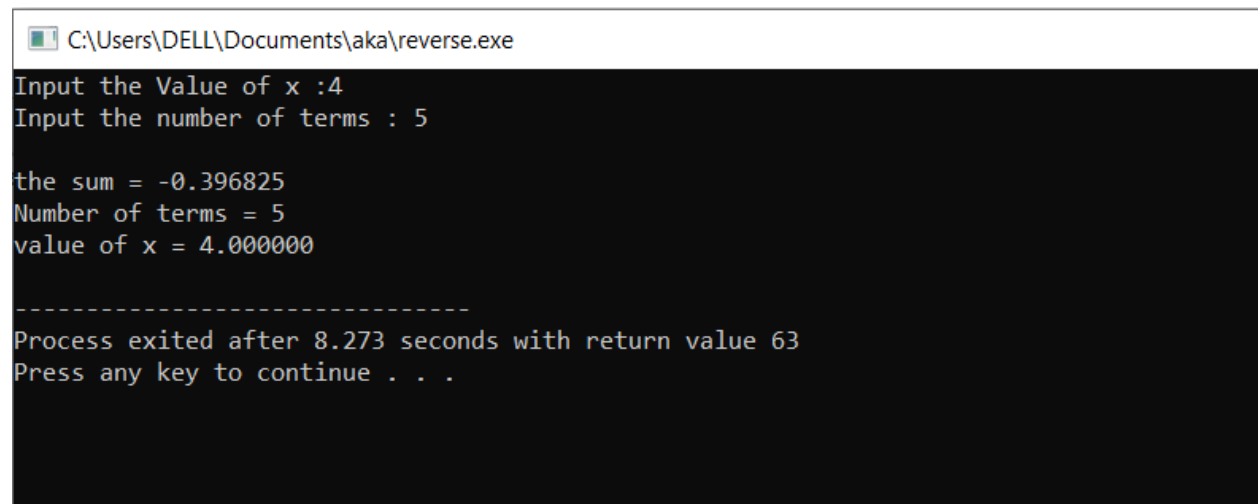
    }

    printf("\nthe sum = %f\nNumber of terms = %d\nvalue of x = %f\n",sum,n,x);

}

```

Output:



```

C:\Users\DELL\Documents\aka\reverse.exe
Input the Value of x :4
Input the number of terms : 5

the sum = -0.396825
Number of terms = 5
value of x = 4.000000

-----
Process exited after 8.273 seconds with return value 63
Press any key to continue . . .

```

15. find the sum of the series [$x - x^3 + x^5 + \dots$]. (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);

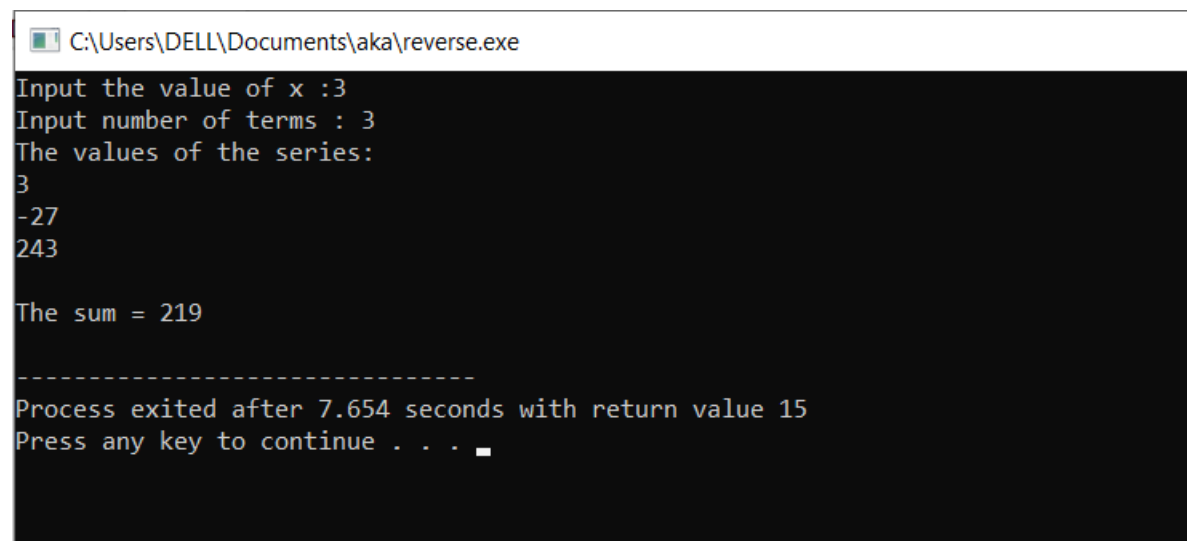
    }

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

}

```

Output:



```

C:\Users\DELL\Documents\aka\reverse.exe
Input the value of x :3
Input number of terms : 3
The values of the series:
3
-27
243

The sum = 219

-----
Process exited after 7.654 seconds with return value 15
Press any key to continue . . .

```

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);

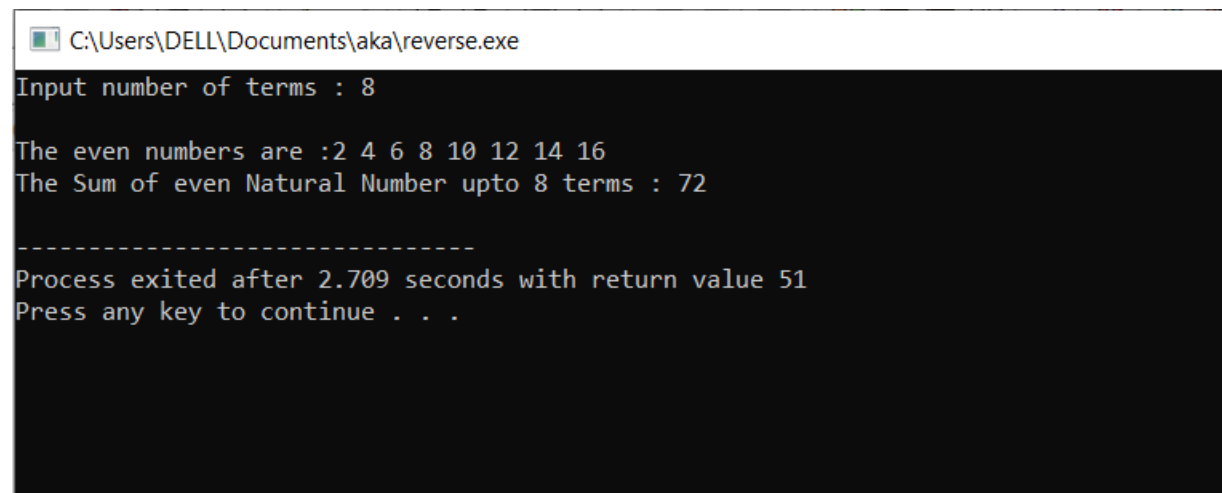
    printf("\nThe even numbers are :");

    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:



```
C:\Users\DELL\Documents\aka\reverse.exe
Input number of terms : 8

The even numbers are :2 4 6 8 10 12 14 16
The Sum of even Natural Number upto 8 terms : 72

-----
Process exited after 2.709 seconds with return value 51
Press any key to continue . . .
```

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);

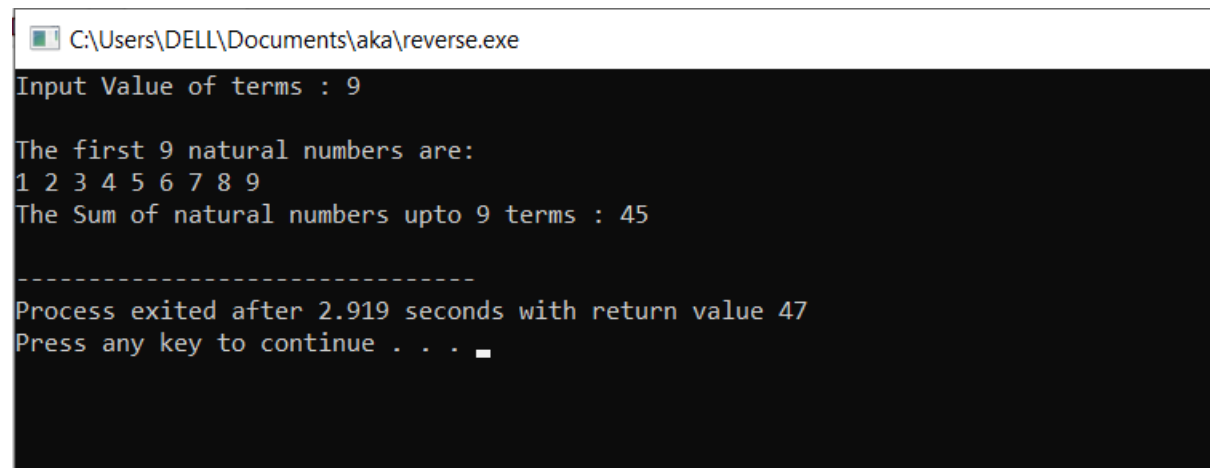
    for(i=1;i<=n;i++)
    {
        printf("%d ",i);

        sum+=i;
    }

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

}
```

Output:



```
C:\Users\DELL\Documents\aka\reverse.exe
Input Value of terms : 9

The first 9 natural numbers are:
1 2 3 4 5 6 7 8 9
The Sum of natural numbers upto 9 terms : 45

-----
Process exited after 2.919 seconds with return value 47
Press any key to continue . . .
```