1.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

2.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

3.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 integer:");
   scanf("%d",&num);
   do
   {
      if((i%2!=1){
      sum=sum + I;
}
     i++;
 }
   while (i<=num);
   printf("Sum of all odd integer is %d",sum);
   return 0;
}
```

Output:

Enter the integer:5

Sum of all odd integer is 9

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

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```
#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

*

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5.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("Please 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:

Please Enter the number of rows:4

1

2 3

4 5 6

7 8 9 10

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>
int main() {
   int i=1,j,k,rows,s=1,p;
   printf("Enter the number of rows:");
   scanf("%d",&rows);
   p=rows+4-1;
   do
   {
      for(k=p;k>=1;k--){
         printf(" ");
      }
      for(j=1;j<=i;j++)
      printf("%d",s++);
      printf("\n");
   }while (i<=rows);
   return 0;
}
```

Output:

Enter the number of rows: 4

1

2 3

4 5 6

7 8 9 10

7.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
```

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

```
#include <stdio.h>
int main() {
   int i,n,s1=0,s2=1,p;
   printf("Enter the number of terms:");
   scanf("%d",&n);
   printf("Fibonacci Series:");
   for(i=1;i<=n;++i)
   {
      printf("%d",s1);
      p=s1+s2;
      s1=s2;
      s2=p;
   }
   return 0;
}
```

Output:

Enter the number of terms:5

Fibonacci Series:01123

9.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 + 1;
      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:12

is not the perfect number

10.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");
   return 0;
}
```

Output:

Input starting number of range:1

Input ending number of range:500

Armstrong numbers in given range are:1153370371407

11.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:324

324 is a prime number

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

```
#include <stdio.h>
int main() {
   int n,a,r,b=0;
   printf("Enter a number:");
   scanf("%d",&n);
   a=n;
   do
   {
      b=n%10;
      b=b*10+r;
      n=n/10;
   }
   while(n>0);
   printf("\n The reverse number of %d is %d",a,b);
   return 0;
}
```

Output:

Enter a number:321

The reverse number of 321 is 32795

13.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 a number:");
   scanf("%ld",&n);
   for(i=1;i<=n;i++)
   {
      sum +=k;
      printf("%ld ",k);
      k=k*10+9;
   }
   printf("\n The sum of series %d \n",sum);
   return 0;
}
```

Output:

Input a number:6

9 99 999 9999 99999 999999

The sum of series 1111104

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=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:5

The sum=-0.974777

value of n=5

value of x=3.00

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,i=1,n,m,nn,mm;
   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);
}
```

Output:

Enter the value for x:2

Enter the value for n:4

The value of the series:

2

-8

32

-128

The sum=-102