

Series Example

➤ Program 1: WAP to find sum of following series

$s = 1/1 + 1/2 + 1/3 + \dots n \text{ times}$

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int i,n;
    float s=0;
    clrscr( );
    printf("enter the no. of term");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
        s=s+1.0/i;
    printf("sum=%f",s);
    getch( );
}
```

enter the no. of term 4
sum=2.083333

➤ Program 2: $s = 1/2 + 3/4 + 5/6 + \dots n \text{ times}$

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int i,n,a=1,b=2;
    float s=0;
    clrscr( );
    printf("enter the no. of term");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        s=s+(float)a/b;
        a=a+2;
        b=b+2;
    }
    printf("sum=%f",s);
    getch( );
}
```

enter the no. of term 4
sum=2.958333

➤ Program 3: $s = 1/3 + 3/4 + 5/6 + \dots n \text{ times}$

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int i,n,a=1,b=3;
    float s=0;
    clrscr( );
    printf("enter the no. of term");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        s=s+(float)a/b;
        a=a+4;
```

enter the no. of term 4
sum=4.063492

```

b=b+2;
}
printf("sum=%f",s);
getch( );
}

```

➤ **Program 4:** $s = 2/5 + 4/9 + 6/13 + \dots + n$ times

```

#include<stdio.h>
#include<conio.h>
void main( )
{
int i,n,a=2,b=5;
float s=0;
clrscr( );
printf("enter the value of n");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
s=s+(float)a/b;
a=a+2;
b=b+4;
}
printf("sum=%d",s);
getch( ); }

```

enter the value of n 3
sum=0.961538

➤ **Program 5:** $s = 1/1 - 1/3 + 1/5 - 1/7 + 1/9 - \dots + n$ times

```

#include<stdio.h>
#include<conio.h>
void main( )
{
int i,n,a=1,z=1;
float s=0;
clrscr( );
printf("enter the value of n");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
s=s+1.0/a*z;
a=a+2;
z=z*-1;
}
printf("sum=%f",s);
getch( );
}

```

enter the value of n 5
sum=0.83492

➤ **Program 6:** $1/3 + 5/5 + 9/7 + 13/9 + \dots + n$ times

```

#include<stdio.h>
#include<conio.h>
void main( )
{
int i=1,j,n,a=1,b=3;
float s=0;
clrscr( );

```

Enter the no. you want to get the series : 4
the sum is= 4.063492

```
printf("Enter the no.you want to get the series : ");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
s=s+(float)a/b;
a=a+4;
b=b+2;
}
printf("\n the sum is=%f",s);
getch(); }
```

➤ **Program 7: $s=1/1!+1/2!+1/3! + \dots + n$ times**

```
#include<stdio.h>
#include<conio.h>
void main( )
{
int i=1,j,n,fact=1;
float s=0.0;
clrscr();
printf("Enter any number : ");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
fact=fact*i;
s=s+1.0/fact;
}
printf("\n the sum is= %f",s);
getch();
}
```

Enter the number you want to get the series : 4

the sum is= 2.666667

➤ **Program 8: $s=1/1!+2/2!+3/3! + \dots + n$ times**

```
#include<stdio.h>
#include<conio.h>
void main( )
{
int i=1,j,n,fact=1;
float s=0.0;
clrscr();
printf("Enter any number :");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
fact=fact*i;
s=s+(float)i/fact;
}
printf("\n the sum is= %f",s);
getch();
}
```

Enter the number you want to get the series : 4

the sum is= 2.666667

Different Triangle Sum**Question : write a program to display following pattern****➤ Program 1:**

<pre>#include<stdio.h> #include<conio.h> void main() { int i,j,n; clrscr(); printf("enter no. of rows"); scanf("%d" &n); for(i=1;i<=n;i++) //outer for loop { for(j=1;j<=i;j++) //inner for loop printf("%d\t",&j); printf("\n"); } getch(); }</pre>	<pre>*****output***** enter no. of rows 5 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5</pre>
---	---

➤ Program 2:

<pre>#include<stdio.h> #include<conio.h> void main() { int i,j,n; clrscr(); printf("enter no.of rows"); scanf("%d",&n); for(i=1;i<=n;i++) { for(j=1;j<=i;j++) printf("%c",(char)(64+j)); printf("\n"); } getch(); }</pre>	<pre>**** output***** enter no. of rows 5 A AB ABC ABCD ABCDE</pre>
---	---

➤ Program 3:

<pre>#include<stdio.h> #include<conio.h> void main() { int n,i,j,v=1; clrscr(); printf("Enter Number of rows : "); scanf("%d",&n); for(i=1;i<=n;i++) { for(j=1;j<=i;j++) printf("%d\t",v++); printf("\n"); } getch(); }</pre>	<pre>*****output***** Enter Number Of Rows : 5 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15</pre>
---	--

➤ Program 4 :write a program to display following output

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,v=1;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%c",(char)(64+v));
            v=v+1 ;
        }
        printf("\n");
    }
    getch( );
}
```

Enter Number Of Rows : 5
A
BC
DEF
GHIJ
GHIJk

➤ Program 5:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,v=1;
    clrscr( );
    printf("Enter Number of rows : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("%d", v);
            v=v+2;
        }
        printf("\n");
    }
    getch( );
}
```

*****output*****
Enter Number Of Rows : 5
1
3 5
7 9 11
13 15 17 19
21 23 25 27 29

➤ Program 6:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j;
    clrscr( );
    printf("Enter Number of rows : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
```

Enter Number Of Rows : 5
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1

```

        for(j=i;j>=1;j--)
            printf("%d",j);
        printf("\n");
    }
    getch(); }

```

➤ Program 7 :

```

#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=i;j++)
            printf("%d\t",i);
        printf("\n");
    }
    getch(); }

```

```

enter no. of rows 5
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5

```

➤ Program 8:

```

#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,v=1;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++) //outer for loop
    {
        for(j=1;j<=i;j++) //inner for loop
            printf("%d\t",v);
    }
}

```

```

v=v+2;
printf("\n");
}
getch(); }

```

```

/*****output *****/
enter no. of rows 5
1
3 3
5 5 5
7 7 7 7
9 9 9 9 9 */

```

➤ Program 9:

```

#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=n;j>=i;j--)
            printf("%d\t",j);
        printf("\n");
    }
    getch();
}

```

```

*****output *****
enter no. of rows 5
5
5 4
5 4 3
5 4 3 2
5 4 3 2 1

```

➤ Program 10 :

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=1;j<=i;j++)
            printf("*\t");
        printf("\n");
    }
    getch( );
}
```

```
*****output*****
enter no.of rows 5
* * * * *
* * * *
* * *
* *
*
```

➤ Program 11:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=1;j<=i;j++)
            printf("%d\t",j);
        printf("\n");
    }
    getch( );
}
```

```
*****output*****
Enter Number Of Rows : 5
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
```

➤ Program 12:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=1;j<=i;j++)
            printf("%c",(char)(64+j));
        printf("\n");
    }
    getch( ); }
```

```
*****output*****
enter no. of rows 5
ABCDE
ABCD
ABC
AB
A
```

➤ Program 13:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,v=1;
    clrscr( );
    printf("Enter Number of Rows :");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=i;j>=1;j--)
            printf("%d\t",v);
        v=v+1;
        printf("\n");
    }
    getch(); }
```

```
*****output*****
enter no. of rows 5
1 1 1 1 1
2 2 2 2
3 3 3
4 4
5
```

➤ Program 14:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j;;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=i;j>=1;j--)
            printf("%d\t",j);
        printf("\n");
    }
    getch( );
}
```

```
enter no. of rows 5
5 4 3 2 1
4 3 2 1
3 2 1
2 1
1
```

➤ Program 15:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(j=n;j>=i;j--)
            printf("%d\t",j);
        printf("\n");
    }
    getch();}
```

```
enter no. of rows 5
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5
```


➤ Program 16:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j;;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=1;j<=i;j++)
            printf("%d\t",i);
        printf("\n");
    }
    getch( );
}
```

```
enter no. of rows 5
5 5 5 5 5
4 4 4 4
3 3 3
2 2
1
```

➤ Program 17 :

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(l=n-i,l>=1;l--)
            printf(" \t");
        for(j=1;j<=i;j++)
            printf("%d\t",j);
        printf("\n");
    }
    getch( );
}
```

```
-----output-----
Enter Number Of Rows : 5
1 2 3 4 5
  1 2 3 4
    1 2 3
      1 2
        1
```

➤ Program 18:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(l=n-i,l>=1;l--)
            printf(" ");
        for(j=1;j<=i;j++)
```

```
enter no.of rows 5
ABCDE
ABCD
ABC
AB
A
```

```

printf("%c",(char)(64+j));
printf("\n");
}
getch();
}

```

➤ Program 19:

```

#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(l=i-1,l>=1;l--)
            printf(" \t");
        for(j=n;j>=i;j--)
            printf("%d\t",j);
        printf("\n");
    }
    getch( );
}

```

enter no. of rows 5

```

5 4 3 2 1
  5 4 3 2
    5 4 3
      5 4
        5

```

➤ Program20:(same in alphabets format)

```

#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(l=i-1,l>=1;l--)
            printf(" \t");
        for(j=i;j>=1;j--)
            printf("%d\t",j);
        printf("\n");
    }
    getch( );
}

```

enter no. of rows 5

```

5 4 3 2 1
  4 3 2 1
    3 2 1
      2 1
        1

```

➤ Program 21:

```

#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr();

```

Enter number of rows:5

```

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

```

```
printf("Enter Number of Rows : ");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
    for(l=1;l<=n-i;l++)
        printf(" \t");
    for(j=1;j<=i;j++)
        printf("%d",j);
    printf("\n");
}
getch( );
}
```

➤Program 22:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(l=1;l<=n-i;l++)
            printf(" ");
        for(j=i;j>=1;j--)
            printf("%d\t",j);
        printf("\n");
    }
    getch( );
}
```

Enter number of rows:5

```

      1
     2 1
    3 2 1
   4 3 2 1
  5 4 3 2 1
```

➤Program 23:**(May 2009)**

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    for(i=1;i<=5;i++)
    {
        for(l=1;l<=n-i;j++)
            printf(" \t");
        for(j=1;j<=i;j++)
            printf("%d\t",i);
        printf("\n");
    }
    getch( ); }
}
```

```

      1
     2 2
    3 3 3
   4 4 4 4
  5 5 5 5 5
```

➤Program 24:

#include<stdio.h>

```
#include<conio.h>
void main( )
{
    int n,i,j,l;
    clrscr( );
    printf("Enter Number of Rows : ");
    scanf("%d",&n);
    clrscr( );
    for(i=1;i<=n;i++)
    {
        for(l=1;l<=n-i;l++)
            printf(" \t");
        for(j=1;j<=i;j++)
            printf("%d\t\t",i);
        printf("\n");
    }
    getch( ); }
```

```
1
2 2
3 3 3
4 4 4 4
5 5 5 5 5
```

Program25

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,k,i,j,l;
    clrscr( );
    printf("enter no. of rows");
    scanf("%d",&n);
    for(i=1,k=1;i<=n;i++)
    {
        for(l=1;l<=n-i;l++)
            printf(" \t");
        for(j=1;j<=i;j++)
            printf("%d\t",k++);
        printf("\n");
    }
    getch( );
}
```

```
1
2 3
4 5 6
7 8 9 10
```

➤Program 26:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int n,k,i,j,l;
    clrscr( );
    printf("enter no. of rows");
    scanf("%d",&n);
    for(i=1,k=1;i<=n;i++)
    {
        for(l=1;l<=n-i;l++)
            printf(" \t");
        for(j=1;j<=i;j++)
```

```
1
2 3
4 5 6
7 8 9 10
```

```
printf("%d\t\t",k++);
printf("\n");
}
getch();
}
```

➤Program 27:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
int i,j,l,z=0,n;
clrscr( );
printf("Enter value for n : ");
scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(j=1;j<=i;j++)
            printf(" %d\t",j);
        for(l=1;l<=z;l++)
            printf(" \t");
        for(k=i;k>=1;k--)
            printf(" %d\t",k);
        z=z+2;
        printf("\n");
    }
    getch(); }
```

Enter value for n : 5

```
1 2 3 4 5 5 4 3 2 1
1 2 3 4   4 3 2 1
1 2 3     3 2 1
1 2       2 1
1         1
```

➤Program 28:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
int l,n,i,j,k;
clrscr( );
printf("input value of n : ");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
for(l=1;l<=n-i;l++)
printf(" \t");
for(j=1;j<=l;j++)
printf("%d\t",j);
for(k=1;k<=i-1;k++)
printf("%d\t",k);
printf("\n");
}
getch( );
}
```

*****output*****

input value of n : 5

```
1
1 2 1
1 2 3 1 2
1 2 3 4 1 2 3
1 2 3 4 5 1 2 3 4
```

➤ Program 29:

```

#include<stdio.h>
#include<conio.h>
void main( )
{
    int l,n,i,j,k;
    clrscr( );
    printf("input value of n : ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        for(l=1;l<=n-i;l++)
        printf(" \t");
        for(j=1;j<=l;j++)
        printf("%d\t",j);
        for(k=i-1;k>=1;k--)
        printf("%d\t",k);
        printf("\n");
    }
    getch( );
}

```

*****output*****

input value of n : 5

```

      1
     1 2 1
    1 2 3 2 1
   1 2 3 4 3 2 1
  1 2 3 4 5 4 3 2 1

```

➤ Program 30: Write a program to display following output

```

#include<stdio.h>
#include<conio.h>
void main( )
{
    int i,j,n,k,l;
    clrscr( );
    printf("enter no.of rows");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(l=1;l<=n-i;l++)
        printf(" \t");
        for(j=i;j>=1;j--)
        printf("%d\t",j);
        for(k=1;k<=i;k++)
        printf("%d\t",k);
        printf("\n");
    }
    getch( );
}

```

enter no.of rows 5

```

      5 4 3 2 1 1 2 3 4 5
      4 3 2 1 1 2 3 4
      3 2 1 1 2 3
      2 1 1 2
      1 1

```

➤Program 31:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int i,j,n,k,l;
    clrscr( );
    printf("enter no.of rows");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(l=1;l<=n-i;l++)
            printf(" \t");
        for(j=i;j>=1;j--)
            printf("%d\t",j);
        for(k=2;k<=i;k++)
            printf("%d\t",k);
        printf("\n");
    }
    getch( );
}
```

```
*****output*****
enter no. of rows 5
5 4 3 2 1 2 3 4 5
  4 3 2 1 2 3 4
    3 2 1 2 3
      2 1 2
        1
```

➤Program 32:

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int i,j,n,k,l;
    clrscr( );
    printf("enter no.of rows");
    scanf("%d",&n);
    for(i=n;i>=1;i--)
    {
        for(l=1;l<=n-i;l++)
            printf(" ");
        for(j=1;j<=i;j++)
            printf("%c",(char)(64+j));
        for(k=i-1;k>=1;k--)
            printf("%c",(char)(k+64));
        printf("\n");
    }
    getch( );
}
```

```
A B C D C B A
  A B C B A
    A B A
      A
```

➤Program 71:To print the Diamond shaped form for given value

```
#include<stdio.h>
#include<conio.h>
void main( )
{
    int l,n,i,j,k;
    clrscr( );
    printf("input value of n : ");
```

```
input value of n : 5

          1
        121
      12321
    1234321
  123454321
1234321
```

```
scanf("%d",&n);
for(i=1;i<=n;i++)
{
for(l=1;l<=n-i;l++)
printf(" ");
for(j=1;j<=i;j++)
printf("%d",j);
for(k=i-1;k>=1;k--)
printf("%d",k);
printf("\n");
}
for(i=n-1;i>=1;i--)
{
for(l=n-i;l>=1;l--)
printf(" ");
for(j=1;j<=i;j++)
printf("%d",j);
for(k=i-1;k>=1;k--)
printf("%d",k);
printf("\n");
}
getch( );
}
```

```
12321
121
1
```

```
#include<stdio.h>
#include<conio.h>
void main( )
{
int l,n,i,j,k;
clrscr( );
printf("input value of n : ");
scanf("%d",&n);
for(i=1;i<=n;i++)
{
for(l=1;l<=n-i;l++)
printf(" ");
for(j=1;j<=i;j++)
printf("* ");
printf("\n");
}
for(i=n-1;i>=1;i--)
{
for(l=1;l<=n-i;l++)
printf(" ");
for(j=1;j<=i;j++)
printf("* ");
printf("\n");
}
getch( );
}
```

input value of n : 3

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

```


➤ **Program 74:WAP to print Pascal's triangle(The following set of no. is called Pascal's Triangle)**

If we denoted rows by i and columns By j , Then any element in the triangle is given by

$$P_{ij} = P_{i-1,j-1} + P_{i-1,j}$$

```
#include<stdio.h>
#include<conio.h>
#include<iomanip.h>
void main()
{
    int m=0,x,b;
    clrscr();
    do
    {
        b=1;
        for(x=0;x<=m;x++)
        {
            if(m==0||x==0)
                printf(setw(3)b;
            else
            {
                b=b*(m-x+1)/x;
                printf(setw(3)b;
            }
        }
        printf(
        m=m+1;
    }
    while(m<=5);
    getch(); }
```

*****output*****

```
1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1
```