DATE:19.11.14

**ASSIGNMENT NO.6**

->PROBLEM STATEMENT:

Write a program in C to accept the first term,the common difference and the number of terms from the user and print the A.P. series and the sum of the terms of the series.

**->ALGORITHM:**

**Step 1:-**Input the first term, a

**Step 2:-**Input the common difference, d

**Step 3:-** Input the number of terms ,n

**Step 4:-**Initialise sum←a,term←a

**Step 5:-**Print term

**Step 6:-**For i=1 to (n-1)

1. term←term+d
2. Print term
3. sum←sum+term

[End of For loop]

**Step 6:-** Print sum

**Step 7:-**End

->CODE:

/\*\*\*\*\*\*TO PRINT AN A.P. SERIES AND IT'S SUM WHERE THE FIRST TERM,COMMON DIFFERENCE AND NUMBER OF TERMS ARE INPUTTED FROM THE USER\*\*\*\*\*\*\*\*\*\*\*/

#include<stdio.h>

#include<conio.h>

void main()

{

/\*Declaration of variables\*/

int a,d,n,sum,term,i;

clrscr();

/\*Input the first term,common difference and the number of terms

from the user\*/

printf("\n enter the 1st term\n");

scanf("%d",&a);

printf("\n enter the common difference\n");

scanf("%d",&d);

printf("\n enter the number of terms we want to print in the A.P series\n");

scanf("%d",&n);

/\*Print the A.P. series\*/

printf("\n\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*A.P SERIES IS\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");

term=a;

sum=a;

printf("%d",term);

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

{

term=term+d;

printf(",%d",term);

sum=sum+term;

}

printf("\n");

/\*Print the sum of the series\*/

printf("\n\*\*\*\*\*\*\*\*\*\*\*\*SUM OF THE A.P SERIES IS\*\*\*\*\*\*\*\*\*\*\n");

printf("%d",sum);

getch();

}

->OUTPUT

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*OUTPUT\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

/\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*1ST RUN\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

enter the 1st term

2

enter the common difference

2

enter the number of terms we want to print in the A.P series

10

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*A.P SERIES IS\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

2,4,6,8,10,12,14,16,18,20

\*\*\*\*\*\*\*\*\*\*\*\*SUM OF THE A.P SERIES IS\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

110

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*2ND RUN\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

enter the 1st term

2

enter the common difference

-2

enter the number of terms we want to print in the A.P series

10

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*A.P SERIES IS\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

2,0,-2,-4,-6,-8,-10,-12,-14,-16

\*\*\*\*\*\*\*\*\*\*\*\*SUM OF THE A.P SERIES IS\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

-70

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*/

**->DISCUSSION:**

An arithmetic progression (AP) or arithmetic sequence is a sequence of numbers such that the difference between the consecutive terms is constant. For instance, the sequence 2, 4, 6, 8, 10, … is an arithmetic progression with common difference of 2.If the initial term of an arithmetic progression is a_1 and the common difference of successive members is *d*, then the *n*th term of the sequence (a_n) is given by

\ a_n = a_1 + (n - 1)d,

and in general,

\ a_n = a_m + (n - m)d.

The sum of a finite arithmetic progression is called an arithmetic series.The behavior of the arithmetic progression depends on the common difference *d*. If the common difference is:

* Positive, the members (terms) will grow towards positive
* Negative, the members (terms) will grow towards negative infinity.

In this program,we have inputted the first term,common difference and the number of terms

At first we have printed the first term,then we have found the subsequent terms by adding the common difference with the term(that holds the value of first term i.e, the value of a) using a for loop.The number of iterations is equal to (n-1).Inside the for loop we have calculated the sum by adding the terms with it in each iterations.