EXPERIMENT NO- 2

AIM: Write an assembly language program to find Fibonacci series of N terms

Resource Required: P-IV and above RAM 128MB, Dot Matrix Printer, Emu 8086, MASM 611/ TASM, Turbo C/C++, Printer, Printout Stationary.

THEORY:

The Fibonacci numbers are the numbers in the following integer sequence.

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, ……..

In mathematical terms, the sequence Fn of Fibonacci numbers is defined by the recurrence relation

Fn = Fn-1 + Fn-2

ALGORITHM:

Step I : Initialize the data segment

Step II : Initialize the counter =10 i.e 0A h

Step III : Initialize SI to starting address

Step IV : Store the 1st term at the location where SI is pointing

Step V : Increment SI to point next location

Step VI : Store next term 1 to location where SI is pointing

Step VII : Increment Si to point to next location

Step VIII : Next term =[SI-2]+[SI-1]

Step IX : Store the result to location pointed by SI

Step X : Increment SI

Step XI Decrement counter

Step XII Check if count=0,if nt the go to step VIII

Step XIII : Display the result.

Step XIV : Stop.

CONCLUSION: We have successfully calculated Fibonacci sequence of desired 'N' numbers using assembly language programming.

Program:

```
Data segment
   count dw 000Ch
   array db count DUP(?)
Data ends
Code segment
   assume cs:Code ds: Data
   Start:
      mov ax,Data
      mov ds,ax
      mov cx,count
      lea si,array
      mov al,00h
      mov [si],al
      inc si
      dec cx
      mov bl,01h
      mov [si],bl
      inc si
      dec cx

      up:
         mov al,[si-1]
         mov bl,[si-2]
         add al,bl
         mov [si],al
         inc si
```

```
    loop up
    int 03h
Code ends
    End start
```

Output: