***//Assignment-12 Data Structures Lab***

***//WAP to display fibonacci series (i)using recursion, (ii) using iteration***

#include<iostream>

#include<conio.h>

using namespace std;

int fibo\_Recursion(int n)

{

if(n==0||n==1)

return n;

else

return fibo\_Recursion(n-2)+fibo\_Recursion(n-1);

}

void fibo(int n)

{

int i,first =0,second =1,temp;

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

{

if(i==1)

cout<<first<<" ";

else if(i==2)

cout<<second<<" ";

else

{

temp=second;

second=first+second;

cout<<second<<" ";

first=temp;

}

}

}

int main()

{

int i,c,num;

cout<<"Menu\nCalculate fibonacci series\n1.Using recursion\n2.Using iterarion\nEnter your choice : ";

cin>>c;

cout<<"Enter the number of terms you want to print : ";

cin>>num;

switch(c)

{

case 1: cout<<"Fibonacci series of "<<num<<" terms : ";

for(i=0;i<num;i++)

cout<<fibo\_Recursion(i)<<" ";

break;

case 2: cout<<"Fibonacci series of "<<num<<" terms : ";

fibo(num);

break;

default: cout<<"You entered wrong choice";

}

getch();

return 0;

}

**OUTPUT:**

**Sample: 1**

Menu

Calculate fibonacci series

1.Using recursion

2.Using iterarion

Enter your choice : 1

Enter the number of terms you want to print : 5

Fibonacci series of 5 terms : 0 1 1 2 3

**Sample: 2**

Menu

Calculate fibonacci series

1.Using recursion

2.Using iterarion

Enter your choice : 2

Enter the number of terms you want to print : 9

Fibonacci series of 9 terms : 0 1 1 2 3 5 8 13 21