Object: - Write a program to print Fibonacci series recursion?

Description:-

1. Recursion

* What is recursion?

The process in which a function calls itself directly or indirectly is called recursion and corresponding function is called as recursion function. Using recursive algorithm, certain problems can be solved quite easily.

Example of such problems are tower of Hanoi(TOH), inorder /preorder /postorder tree traversals, DFS of graph, etc.

* what is base condition in recursion?

In the recursive program, the solution to the base case is provided and the solution of the bigger problem is expressed in terms of smaller problems.

Int fact(int n)

{

if (n<=1) //base case

return 1;

else

return n\*fact(n-1);

}

1. Fibonacci series:-

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

With seed values

F0 = 0 and F1 = 1.

Program:-

#include <stdio.h> //header file

#include<conio.h> // header file

//function to print fibonacii series

void Fibo(int a,int b, int n) //function definition

{

int sum; //declaration

if(n>0) //if statement

{

sum=a+b;

printf("%d ",sum);

a=b;

b=sum;

Fibo(a,b,n-1);

}

}

int main()

{

int a,b,sum,n; //declaration

int i; //declaration

a=0; //first term

b=1; //second term

printf("Enter total number of terms: ");

scanf("%d",&n);

printf("Fibonacii series is : ");

//print a and b as first and second terms of series

printf("%d\t%d\t",a,b);

//call function with (n-2) terms

Fibo(a,b,n-2);

printf("\n");

return 0;

}

