Question:
Develop a program to demonstrate concept of recursion (Factorial / Binary Search / Towers of Hanoi)

Aim:
To calculate factorial of a number using recursion

Algorithm:

- If the number is greater than 1 then return the number times the factorial of its predecessor
- If the number is either 1 or 0 then return 1.

Program

```c
//program to find factorial of a number

#include<stdio.h>

int fact(int n){  //function to find factorial recursively
    if(n>1){    // works on the property that n!= n*(n-1)!
        return (n*fact(n-1));
        }
    else if(n==0 || n==1)
        return 1;  // if n is < 1 then we print the same number as
}

int main(){
    int num;
    printf("enter the number ");
    scanf("%d",&num);
    if(num<0)
        printf("undefined");
    num=fact(num);
    printf("the factorial of the number is %d",num);
    }
```

Output

```
enter the number 30
the factorial of the number is 1409286144
PS E:\code\DS-LAB> cd "e:\code\DS-LAB\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
enter the number 12
the factorial of the number is 479001600
PS E:\code\DS-LAB> cd "e:\code\DS-LAB\" ; if ($?) { gcc tempCodeRunnerFile.c -o tempCodeRunnerFile } ; if ($?) { .\tempCodeRunnerFile }
enter the number 5
the factorial of the number is 120
```