EXERCISE -5

Write a C program to find Factorial of a given number using Recursion

AIM:

To write a C program to find the factorial of a given number using recursion.

ALGORITHM:

1. Start the program.
2. Define a recursive function factorial(int n):
   - If n == 0 or n == 1, return 1.
   - Otherwise, return n * factorial(n - 1).
3. In the main() function:
   - Read an integer n from the user.
   - Check if n is negative; if so, print an error.
   - Otherwise, call the recursive function and print the result.
4. End the program.

PROGRAM (Recursive Factorial):

```
#include <stdio.h>
factorial(int n) {
   if (n == 0 || n == 1)
      return 1;
   else
      return n * factorial(n - 1);
}
int main() {
   int num;
   printf("Enter a positive integer: ");
```

```
    scanf("%d", &num);
    if (num < 0) {
        printf("Factorial is not defined for negative numbers.\n");
    } else {
        printf("Factorial of %d = %llu\n", num, factorial(num));
    }5
    return 0;
}
```

INPUT AND OUTPUT:

```
Enter a positive integer: 5
Factorial of 5 = 120


=== Code Execution Successful ===
```

RESULT:

The program successfully calculates the factorial of a number using recursion.