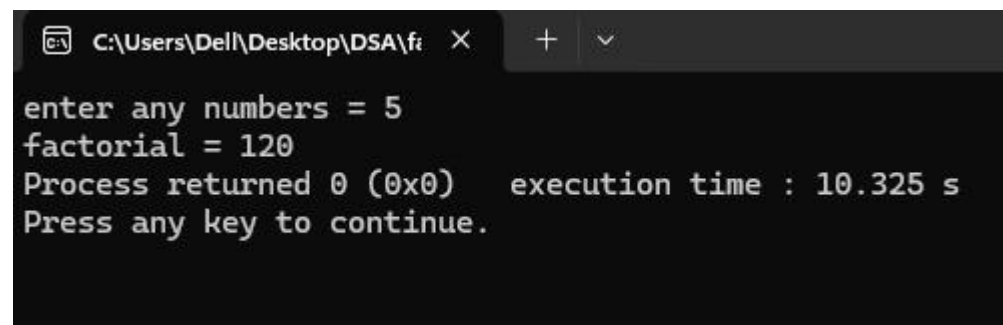


Experiment No: 05**Experiment Name:** Factorial using recursion.**Source Code:**

```
#include<stdio.h>
int fact(int n)
{
    if(n==0){
        return 1;
    }
    else {
        return n*fact(n-1);
    }
}
int main() {
    int n,f;
    printf("enter any numbers");
    scanf("%d",&n);
    f=fact(n);
    printf("factorial = %d",f);
}
```

Output:

```
C:\Users\Del\Desktop\DSA\fi X + v
enter any numbers = 5
factorial = 120
Process returned 0 (0x0) execution time : 10.325 s
Press any key to continue.
```

Discussion: In this experiment, we learned factorial using recursion, where a function calls itself to solve smaller parts of a problem. We used recursion in this experiment to solve the problem step by step. It helps by breaking a big task into smaller parts and repeating the process until it reaches the simplest case. The code checks if n is 0 (base case) and returns 1, otherwise, it multiplies n with $\text{fact}(n - 1)$, repeating until it reaches 0. The program takes a number from the user and prints its factorial. For example, if 5 is entered, the output will be 120. This

experiment successfully showed how recursion works for calculating factorial.