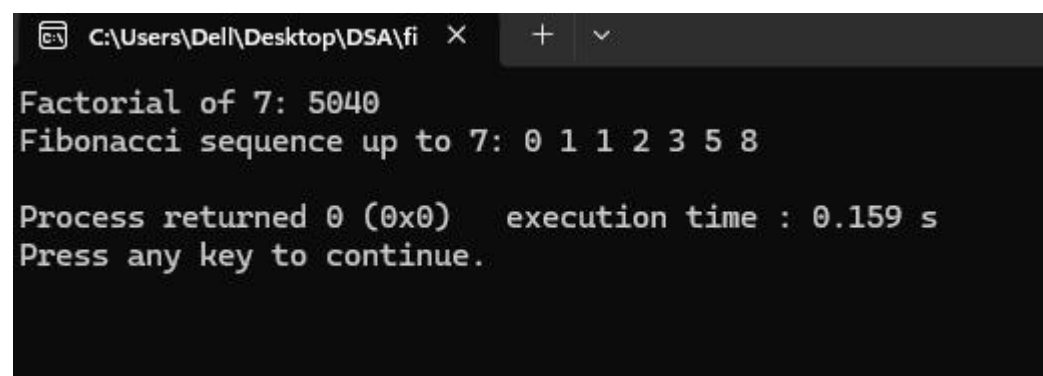**Experiment No:** 06
Experiment Name: Fibonacci series using recursion
Source Code:

```c
#include<stdio.h>
int fibonacci(int n) {
if (n == 0)
return 0;
else if (n == 1)
return 1;
else
return (fibonacci(n - 1) + fibonacci(n - 2));
}
int factorial(int n) {
if (n == 0)
return 1;
return n * factorial(n - 1);
}

int main() {
int n = 7;
int i;
printf("Factorial of %d: %d\n", n, factorial(n));
printf("Fibonacci sequence up to %d: ", n);
for (i = 0; i < n; i++) {
printf("%d ", fibonacci(i));
}
printf("\n");
}
```

Output:

Discussion: In this experiment, we used recursion to find the Fibonacci series and factorial of a number. The Fibonacci function calls itself for smaller values, adding the previous two numbers to get the next one. The factorial function also calls itself, multiplying numbers until it reaches 1.The fibonacci(n) function calculates Fibonacci numbers recursively, If n is 0, it returns 0 (base case).If n is 1, it returns 1,Otherwise, it calls itself for n-1 and n-2, adding both values together.Similarly, the factorial(n) function calculates factorial using recursion.The program first prints the factorial of n = 7 and then displays the Fibonacci sequence up to 7.The program executed successfully, giving the correct results.