Practical No. 9

Aim : Write and execute a program based on recursion.

Theory :

Recursion :

Recursion is the process of repeating items in a self-similar way. In programming languages, if a programs allows you to call a function within a function, then it is called a recursion call.

Syntax :

```
void recursion();
  recursion();
}
int main() {
  recursion();
}
```

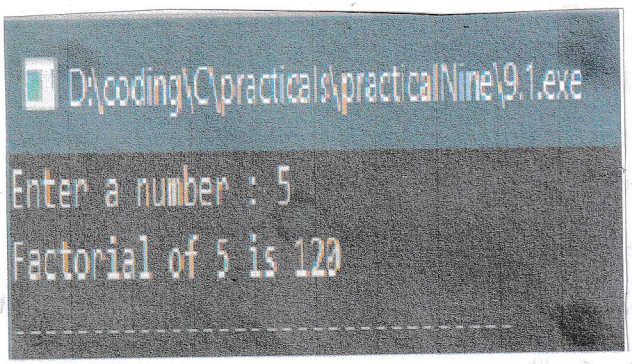
Code :

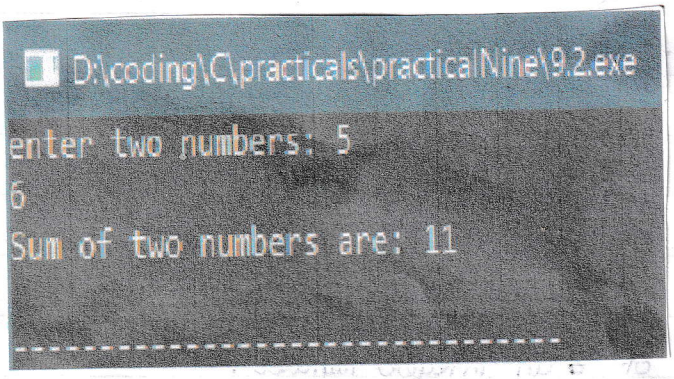
1) To find factorial of an integer number.

→

```
#include<stdio.h>
long int fact(int n);
int main(){
  int n;
    printf("Enter a number:");
    scanf("%d",&n);

    printf("Factorial of %d is %d",n, fact(n));
}
```


D:\coding\C\practicals\practicalNine\9.1.exe
Enter a number : 5
Factorial of 5 is 120


D:\coding\C\practicals\practicalNine\9.2.exe
enter two numbers: 5
6
Sum of two numbers are: 11

```
long int Fact (int n){
    while (n>=1) {
        return n* Fact (n-1);
    }
    return 1;
}
```

2) To find the sum of two numbers.

```
#include <stdio.h>
int sum(int x, int y);
int main(){
    int a,b;
    printf("Enter the two numbers : ");
    scanf("%d %d", &a, &b);
    printf("The sum of the two numbers is : %d ", sum(a,b));
    return 0;
}

int sum (int x , int y ) {

    if (y == 0) {
        return x;
    }
    else
    {
        return (1 + sum(x,y-1));
    }
}
```

Conclusion :

Hence, I got knowledge about recursion and wrote and executed a program based on recursion.