MIT-WPU

MIT-WORLD PEACE UNIVERSITY

F. Y. B. Tech

Trimester: I/II/III Subject: Programming and Problem Solving

Name: Krishnaraj Thadesar **Division:** 9

Roll No.: 109054 **Batch:** I3

Experiment No.: 6

Name of the Experiment: Factorial using Recursion

Performed on: 10rd February 2022

Submitted on: 17st January 2022

AIM: Write an algorithm and draw a flowchart for a C program to find the factorial of a number using recursion.

OBJECTIVE:

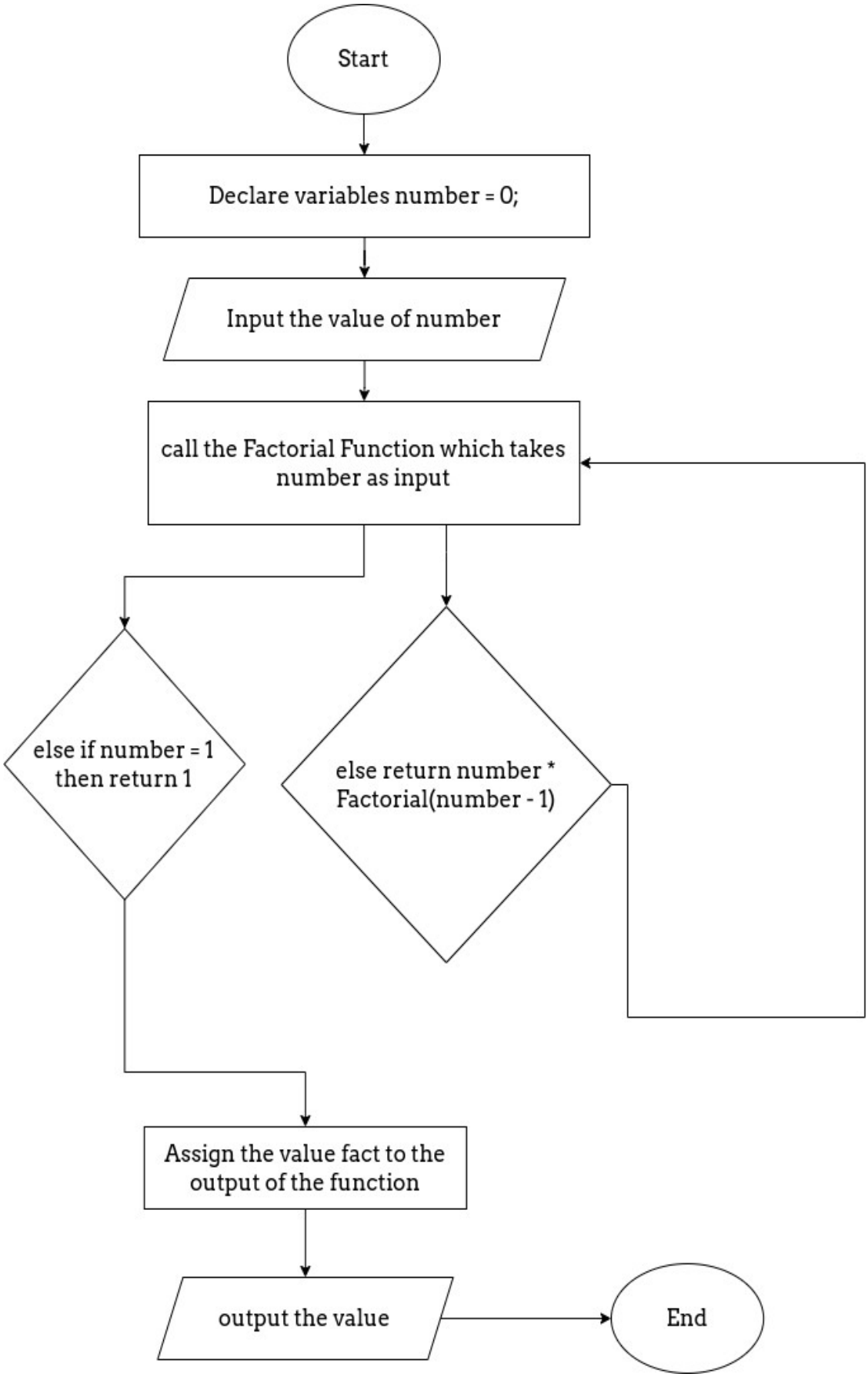
1. To learn and understand recursion in C
2. To learn about factorials.

PLATFORM: *Arch Linux 64 Bit*

ALGORITHM:

Step 1: Start
Step 2: Declare a variable number = 0
Step 3: Input the value of the variable
Step 4: Call the Factorial function passing number as the arguement
Step 5: If value of number is 1 return 1
Step 6: If value of number is not 1, then return number * Factorial(number -1)
Step 7:Assign the value of returned by factorial function to another variable fact.
Step 6: Output value of fact.
Step 7: End

Flowchart:


Start
Declare variables number = 0;
Input the value of number
call the Factorial Function which takes number as input
else if number = 1 then return 1
else return number * Factorial(number - 1)
Assign the value fact to the output of the function
output the value
End

CODE:

```c
// Write a C program to compute the factorial of a given number using recursion.

#include<stdio.h>

double factorial(int number)
{
    if(number == 1)
        return 1;
    return number * factorial(number - 1);
}


int main()
{
    int a = 0;
    printf("Enter the number whose factorial you want: ");
    scanf("%d", &a);
    printf("The factorial of the number is: %.1lf", factorial(a));
    return 0;
}
```

OUTPUT

Addition

```
Enter the number whose factorial you want: 5
The factorial of the number is: 120.0
```

CONCLUSION:

Recursion and Factorials were understood in detail.