## Experiment No: 26

## **Experiment Name:** Find Sum using the following formula : 1+x/1!+x^2/2!+x^3/3!+...+x^n/n!

## **Objective:**

The objective of this program is to calculate the sum of the series 1+x/1!+x^2/2!+x^3/3!+...+x^n/n!. This exercise aims to demonstrate the use of loops, mathematical operations, and user input in C programming.

# **Code:**

#include <stdio.h>

#include <math.h>

double calcSeriesSum(int x, int n) {

double i, total = 1.0;

for (i = 1; i <= n; i++)

total += (pow(x, i) / i);

return total;

}

int main() {

int n,x;

scanf("%d", &x);

scanf("%d", &n);

printf("Sum of the Series 1 + x/1 + x^2/2 + x^3/3 + .. + x^%d/%d is %.5lf\n", n, n, calcSeriesSum(x, n));

return 0;

}

# **Input:**

7

7

**Output:**

Sum of the Series 1 + x/1 + x^2/2 + x^3/3 + .. + x^7/7 is 141365.65000

## **Discussion:**

The program successfully calculates the sum of the series using a loop and mathematical operations.

The use of user input adds flexibility, allowing the user to experiment with different values.