SE226 – LAB#6 2022-2023 SPRING

Aim: Understanding functions, lambda functions and recursion.

Note: In this lab work, you will write a python script for questions 1 and 2. For questions 3 and 4 you will write in C++.

1. Please solve the below equation in python with using only lambda functions and lists. You should take "n" and "x" as parameters entered by user.

$$e^n = 1 + \frac{n}{1!} + \frac{n^2}{2!} + \frac{n^3}{3!} + \cdots + \frac{n^x}{x!}, \qquad -\infty < n < \infty$$

2. Please solve the equation below in python with a recursive function and a global variable. Your function should take "n" as a parameter but returns nothing. Use docstring to explain your function.

$$\sum_{k=1}^{n} \frac{(-1)^{k+1}}{k}$$

3. Please solve the equation in question 2 in C++ using recursion. You should take "n" from the user, but this time you will return the answer.

4. Please overload your function from 3. This time it won't take any parameters. Instead, you will ask for "n" inside of the function.