

Laboratory Work 4

Exercise 1:

Write a Scilab function that takes a real number x as input and returns e^{-x} if $x \geq 0$, and 0 in all other cases.

Exercise 2:

Write a Scilab function that takes a real number x as input and returns $x + 1$ if $x \in [-1, 0]$, $-x + 1$ if $x \in [0, 1]$, and 0 in all other cases.

Exercise 3:

Write a Scilab function that calculates a factorial of a natural integer.

Exercise 4:

Write an Scilab function that calculates a few terms of the Fibonacci sequence, defined as follows:

$$\begin{cases} u_0 = 1, u_1 = 1 \\ u_{n+2} = u_{n+1} + u_n \end{cases}$$

Exercise 5:

Write a Scilab function that calculates a binomial coefficient $C_n^k = \frac{n}{k} C_{n-1}^{k-1}$.

Exercise 6:

Write a **script file** in Scilab to solve the equation $ax^2 + bx + c = 0$ for real numbers a , b and c . The script should prompt the user for the values of a , b , and c , compute the solution(s), and display the results.