Practical 2: Print the Fibonacci Series till n Using SciLab

Aim:

To print the Fibonacci series up to a user-specified number n using SciLab.

Materials Required:

- SciLab software (version 6.1 or higher)
- A computer system with SciLab installed

Theory (In Brief):

The Fibonacci series is a sequence of numbers in which each number (after the first two) is the sum of the two preceding ones. The sequence starts with 0 and 1, and subsequent numbers are calculated as:

$F(n) = F(n - 1) + F(n - 2)$

where $F(0) = 0$ and $F(1) = 1$.

Example:

The first few terms of the Fibonacci series are:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...

Key Points:

- The Fibonacci sequence appears in many natural phenomena, such as the arrangement of leaves on a stem and the branching of trees.
- The sequence has applications in computer algorithms, mathematics, and financial market analysis.

Applications:

- Modeling population growth in biology.

- Algorithm design and problem-solving (like dynamic programming).

- Financial analysis.

Formulas Required:

1. Recursive Formula:

$F(n) = F(n - 1) + F(n - 2)$

for $n >= 2$

2. Base Conditions:

$F(0) = 0, F(1) = 1$

Result:

The Fibonacci series up to the specified number n was successfully printed using SciLab.