

Fibonacci Sequence Project Report

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Project Title

Fibonacci Sequence Generator with MATLAB Graphical User Interface (GUI)

Project Description

This project implements a Fibonacci Sequence Generator using MATLAB with a simple Graphical User Interface (GUI). The program allows users to input the first two numbers of the sequence and specify the desired length of the sequence. Once the **Generate** button is clicked, the application computes the sequence iteratively and displays the result in the output field.

The GUI is designed using **figure** and **uicontrol** components, including labeled input fields, a push button, and a multiline text box for output. Input validation ensures that all values are numeric and that the sequence length is an integer greater than or equal to 2.

Challenge

The main challenges of this project were:

- Designing a compact and user-friendly GUI layout.
- Handling invalid or incomplete inputs with proper validation.
- Integrating the Fibonacci algorithm seamlessly within a GUI callback function.

New Skill Earned

Through this project, I learned:

- How to build MATLAB GUI applications using **uicontrol** and callback functions.
- How to validate and sanitize user input in GUI-based programs.
- How to dynamically generate and display numerical sequences in a graphical environment.

User Manual

1. Launch the application by running **fibonacciseq** in MATLAB.
2. Enter the first number in the **Angka pertama** field (default: 0).
3. Enter the second number in the **Angka kedua** field (default: 1).
4. Enter the desired sequence length in the **Panjang deret** field (default: 10).
5. Click the **Generate** button to display the sequence.
6. The Fibonacci sequence will appear in the output box.

Flowchart

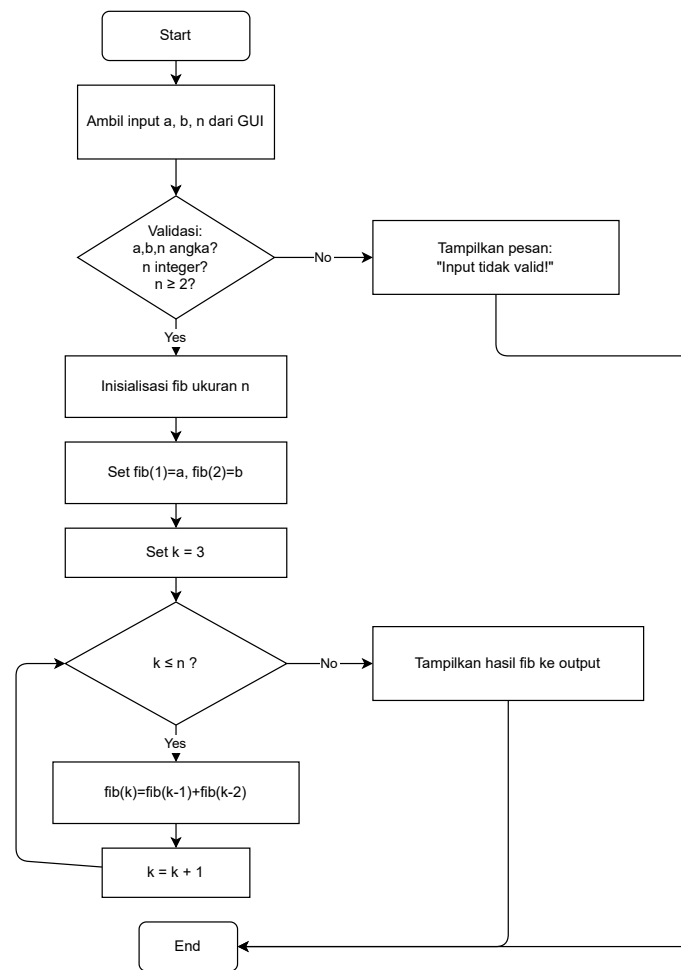


Figure 1: Flowchart of Fibonacci Sequence Generator process.

Another Documentation:

- Github : <https://github.com/habibhkrnwn/algoritmadankomputas/tree/main/FibonacciSequence>.
- Video : https://drive.google.com/file/d/1ua_Qo51AlyEEKXvcj3KmDkMZNXNDFbXFt/view?usp=sharing