📘 USER MANUAL 📘

📌 OVERVIEW

This website allows users to test strings against regular expressions using a Deterministic Finite Automaton (DFA). While Push Down Automata (PDA) and Context-Free Grammar (CFG) representations are also provided, they are for display purposes only and do not perform validation.

The site features two simulation categories:

- Binary RegEx Simulation
- Alphabet (a, b) RegEx Simulation

🖱️ NAVIGATION

Top Tabs:

- Regex 1: Binary RegEx simulation (0 and 1)
- Regex 2: Alphabet Regex simulation (a and b)
- Members: Names of the project contributors

🧪 REGULAR EXPRESSION TESTING

📄 Input Section:

- A RegEx expression is displayed at the top of each page.
- Below it is an input field for typing the string to test.

✅ Input Format:

- Always end each input with a comma (,).
- Examples:
  - ✓ Binary: 111110101,
  - ✓ Letters: aaaabbbbbbaba,
- A yellow Note box provides format hints and samples.

⚙️ FEATURES & BUTTONS

⭕ Simulate Button:

- For Binary: Simulate Binary
- For Letters: Simulate Letter
- Press this to validate your string using the DFA.

🧹 Clear Input:

- Clears the content of the input field:
  - Binary: Clear Binary Button
  - Letters: Clear Letter Button

🧠 PDA & CFG DISPLAY

Important notes:

- PDA and CFG are displayed for educational/reference purposes only.
- They DO NOT process or validate the input string.
- Push Down Automata: Click the Push Down Automata (Binary and Letter) button to view the visual representation.
- Context-Free Grammar: Use the Context-Free Grammar to display grammar rules related to the RegEx.

📈 OUTPUT SECTION

🧩 State Diagram (DFA):

- Located below the buttons
- Shows a visual representation of the DFA:
  - Start state
  - Final (accepting) states are highlighted in green (e.g., q16, q21)
  - Transitions are labeled with input symbols (0, 1, a, b)

If your string is accepted:

- The DFA ends in a green final (accepting) state.

🔍 EXAMPLES

Valid Binary Inputs: (111010000, 1111111011,)

Valid Letter Inputs: (aaababbbbbaba, bbbababaabbbaba,)

📝 TIPS

- No spaces allowed in the input.
- Ensure there’s a comma at the end.
- Refer to the Regular Expression above the input for matching logic.
- Ending in a non-green final (accepting) state = input invalid or not accepted.