https://github.com/iamnotfelix/flcd.git

Identifier EBNF:

```
identifier = non_digit | non_digit{all}
non_digit = lower_letter | upper_letter | underscore
all = lower_letter | upper_letter | digit | underscore
upper_letter = "A" | "B" | ... | "Z"
lower_letter = "a" | "b" | ... | "z
digit = "0" | "1" |...| "9"
underscore = "_"
```

Integer constants EBNF:

```
integer = sign non_zero_digit{all_digit} | non_zero_digit{all_digit} | zero
non_zero_digit = "1" |...| "9"
all_digit = "0" | "1" |...| "9"
sign = "-" | "+"
zero = "0"
```

Documentation:

-------FiniteAutomata Class-------

Description:

The FiniteAutomata class represents a finite automaton with states, transitions, and an alphabet.

Attributes:

- initialState: The initial state of the finite automaton.
- finalStates: The set of final states of the finite automaton.
- states: The set of all states in the finite automaton.
- alphabet: The alphabet used by the finite automaton.
- transitions: The transitions of the finite automaton.

Methods:
---
1. Constructor:
   - FiniteAutomata(string file): Constructs a FiniteAutomata object from a file containing automaton specifi
cations.

2. Check:
   - bool check(string s): Checks if a given string is accepted by the finite automaton. Returns true if accept
ed, false otherwise.

3. Display Methods:
   - void displayInitialState(): Displays the initial state of the finite automaton.
   - void displayFinalStates(): Displays the set of final states of the finite automaton.
   - void displayAlphabet(): Displays the alphabet used by the finite automaton.
   - void displayStates(): Displays the set of all states in the finite automaton.
   - void displayTransitions(): Displays the transition function of the finite automaton.
   - void displayFA(): Displays all components of the finite automaton.

-------Menu Class-------

Description:

The Menu class represents a menu-driven interface for interacting with a FiniteAutomata object. It provide s commands to display information about the finite automaton and check sequences.

Attributes:

- fa: An instance of the FiniteAutomata class used for the menu's operations.

Methods:
---
1. Constructor:
   - Menu(FiniteAutomata f): Constructs a Menu object with an associated FiniteAutomata instance.

2. Command Enumeration:
   - Help: Display available commands and their descriptions.
   - Init: Display the initial state of the finite automaton.
   - Final: Display the set of final states of the finite automaton.
   - State: Display the set of all states in the finite automaton.
   - Alpha: Display the alphabet used by the finite automaton.
   - Trans: Display the transitions of the finite automaton.
   - Check: Check if a given sequence is accepted by the finite automaton.
   - Exit: Exit the program.

3. Command Mapping:
   - toCommand: An unordered_map that maps command strings to their corresponding Command enum values.

4. Menu Operations:
   - void start(): Initiates the menu interface, allowing the user to input commands and interact with the finit e automaton.

Private Methods:
---
1. displayMenu(): Displays the available commands and their descriptions.
2. parseCommand(string command): Parses and executes the given command.
3. checkSequence(): Allows the user to input a sequence and checks if it is accepted by the finite automat on.