

Github link:

→ https://github.com/Badetto/FLCD_Lab2

Finite Automata:

Description: Is an algorithm that iterates through the given transitions values given by the user and checks if the given sequence is valid based on the **Private variables**: "States", "Alphabet", "Transitions", "InitialState" and "FinalStates" (their names are suggestive).

→ **ReadFile**: It reads values from a file, thus initializing all 5 Private variables, also if one of the private variables is empty it will throw an exception.

→ **CheckSequence (sequence: list<string>): bool**: It returns true if the given sequence is valid, otherwise it will return false. A sequence is valid if you can go from a state to another one via some transitions (based on the values from the sequence taken in order); the first state must be an initial state, and the last state must be a final state.

→ **Display**: One print method for each private variable.

BNF for input file:

<file> ::= <states> <in_state> <out_states> <alphabet> <transitions>

<states> ::= "states" <newline> <state_list>

<state_list> ::= <state> <newline> { <state> <newline> }

<in_state> ::= "in_state" <newline> <state> <newline>

<out_states> ::= "out_states" <newline> <state_list>

<alphabet> ::= "alphabet" <newline> <symbol_list>

<symbol_list> ::= <symbol> <newline> { <symbol> <newline> }

<transitions> ::= "transitions" <newline> <transition_list>

$\langle \text{transition_list} \rangle ::= \langle \text{transition} \rangle \langle \text{newline} \rangle \{ \langle \text{transition} \rangle \langle \text{newline} \rangle \}$

$\langle \text{transition} \rangle ::= \langle \text{state} \rangle ", " \langle \text{symbol} \rangle ", " \langle \text{state} \rangle$

$\langle \text{state} \rangle ::= \langle \text{character} \rangle \{ \langle \text{character} \rangle \}$

$\langle \text{symbol} \rangle ::= \langle \text{character} \rangle \mid _$

$\langle \text{character} \rangle ::= "a" \mid "b" \mid \dots \mid "z" \mid "A" \mid "B" \mid \dots \mid "Z" \mid "0" \mid "1" \mid \dots \mid "9"$

$\langle \text{newline} \rangle ::= "\backslash n"$