

<https://github.com/915-Narita-Andrei/FLCD-lab>

## Finite Automata

The internal structure is constructed from several lists of strings which will represent: the states, the alphabet and the final states. There is also a string representing the initial state, and here we don't have a list since we can have only one initial state. Also there is a list of transitions. A transition is represented of 3 strings, 2 of them representing 2 states and the other string is representing the symbol through which the transition is made.

For checking if a given finite automata is a DFA we will simply check to not have from a state 2 transition that have the same symbol.

For checking if a given sequence is accepted by our finite automata we will check if it is a DFA and we parse in parallel the given sequence and the corresponding states from FA. If there is a match between the current character from the sequence and one of the symbol transitions from the current state we will move on. If at some step we will not find a match we can conclude that that sequence is not accepted by our FA. Finally, if we parse all the sequences, we just need to verify if the current state we arrive is find through the final states of FA, if yes the sequence is accepted, otherwise it is not.

<file> = <states-set> <alphabet> <initial\_state> <final\_states> <transitions>

<states\_set> = <state> | <state>,<states\_set>

<state> = p | q | r | s | t ...

<alphabet> = <symbol> | <symbol>,<alphabet>

<symbol> = 0 | 1 | 2 | 3 | ... | 9 | a | b | c | ...

<initial\_state> = <state>

<final\_states> = <state> | <state>,<final\_states>

<transitions> = <transition> | <transition><transitions>

<transition> = <state>,<symbol>=<state>

