Github: https://github.com/Oprea00/FormalLanguages-and-CompilerDesign/tree/main/lab4

Lab 4 Documentation

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For this lab I implemented a class named **FiniteAutomata** which has the following fields: **states**(a list), **alphabet**(a list), **transitions**(a dictionary with a tuple key), **initialState**(just a value), **finalStates**(a list).

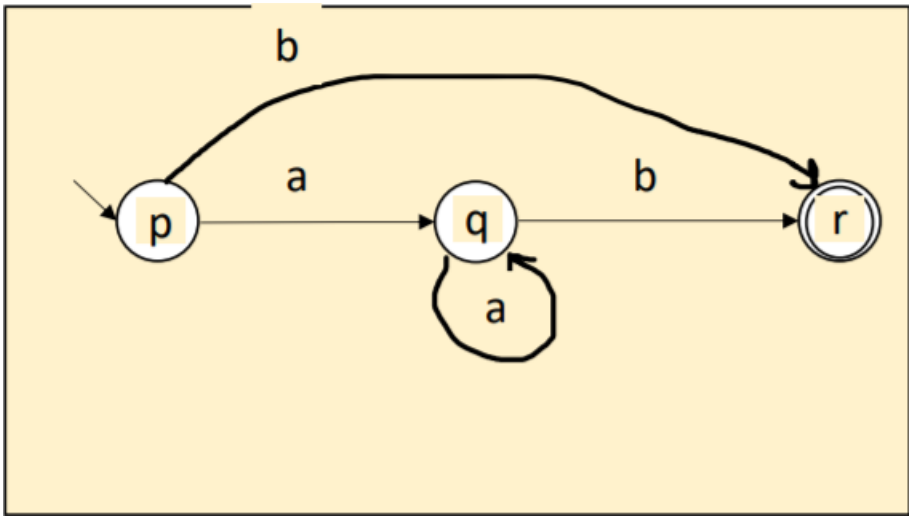
The class has a method named **readFA_fromFile** which reads a file given as parameter line by line, after it splits the elements, it populates the fields.

To display information about the FA I have the methods:

displayStates() – display in the console all FA states
displayAlphabet() – display in the console the FA alphabet
displayTransitions() – display in the console the FA transitions
displayInitialState() - display in the console the initial state of the FA
displayFinalStates() - display in the console the final states of the FA

The method witch verifies if a sequence is accepted by the FA:
verifySequence
input : string
output : True or False
The function returns True if the sequence is accepted by the DFA and False otherwise

I choose the following FA:



File format in EBNF:

alphanumeric = letter | digit
letter = “a” | “b” | … | “z | “A” | ”B” | … | “Z”
digit = “0” | nonZeroDigit
nonZeroDigit = “1” | ”2” | … | “9”
state = letter
transition = state “ “ alphanumeric “ “ state
line1 = {state “ “}
line2 = {alphanumeric “ “}
line3 = {transition “;”}
line4 = state
line5 = {state “ “}
file = line1 \n line2 \n line3 \n line4 \n line5 \n

Example file:

```
p q r
a b
p a q;q a q;q b r;p b r
p
r
```