

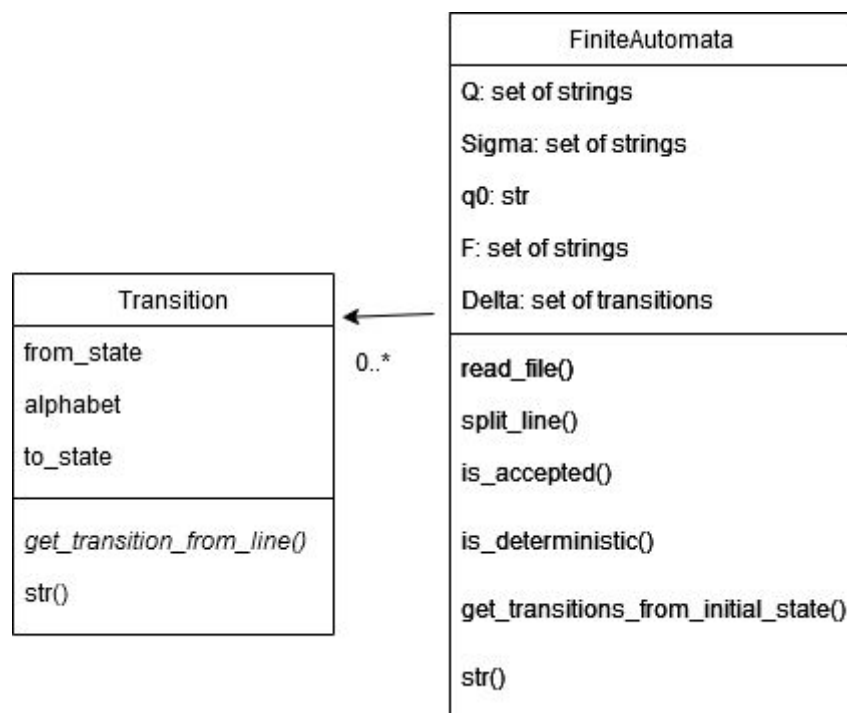
## Laboratory 4

### Finite Automata

Georgiana Loba, 924/2

Write a program that:

1. Reads the elements of a FA (from file)
2. Displays the elements of a finite automata, using a menu: the set of states, the alphabet, all the transitions, the set of final states.
3. For a DFA, verify if a sequence is accepted by the FA.



The finite automata is structured as a class of 5 fields, fields that are sets with the exception of q0 representing the following:

- Q: set of states
- Sigma: alphabet
- q0: initial state
- F: set of final states
- Delta: transition functions

The Delta set will contain objects of class Transition that contain 3 strings which represent the (from\_state, alphabet\_symbol) -> to\_state

In the FiniteAutomata class, I have a function read\_file that reads the first 4 lines (which are fixed in the input file) and splits them into according class fields.

The file has the following structure:

Line 0 - states separated: q1 q2 q3

Line 1 - alphabet symbols: a b

Line 2 - initial state: q1

Line 3 - final states: q2 q3

Starting from line 4, we have a non-fixed number of lines, each representing a transition:

q1 b q2

q1 a q1

q1 a q2

q1 a q3

q1 b q3

I use space for separating the data in the files.