Práctica 2
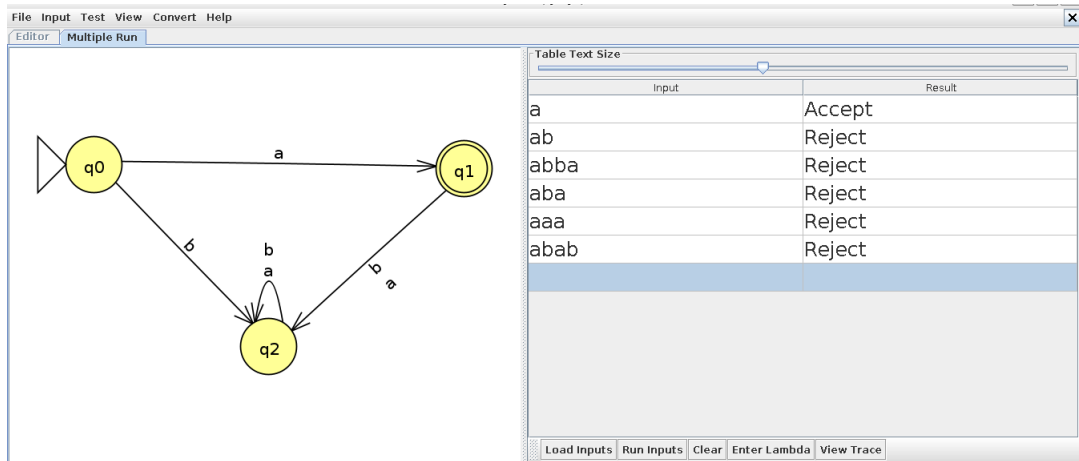
Diego Jesús Romero Luque

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1. Consider the language over the alphabet $\{a, b\}$ that only contains the string a.

   a) Build a DFA that recognizes this language and rejects all those strings that do not belong to the language.
      $M = (\{q_0, q_1, q_2\}, \{a, b\}, \delta, q_0, \{q_1\})$ with:

$\delta(q, \sigma)$	a	b
q_0	q_1	q_2
q_1	q_2	q_2
q_2	q_2	q_2

   b) Test the automaton that you have created by introducing 6 chains.

2. Finite automaton in Octave:

    a) Open the Octave finiteautomata.m script and test it with the given example (see script help) in the GitHub repository.

$octave : 12 > finiteautomata("aa * bb * ", "ab")$

$M = (q0, q1, q2, a, b, q0, q2, (q0, a, q1), (q1, a, q1), (q1, b, q2), (q2, b, q2))$

$w = ab$

$(q0, ab) \vdash (q1, b) \vdash (q2, \epsilon)$

$x \in L(M)$

$ans = 1$

    b) Specify in finiteautomata.json the automaton created in Activity 1 and test it with the script! finiteautomata.json:

```
{
    "name" : "a*",
    "representation" : {
      "K" : ["q0", "q1", "q2"],
      "A" : ["a", "b"],
      "s" : "q0",
      "F" : ["q1"],
      "t" : [["q0", "a", "q1"],
             ["q0", "b", "q2"],
             ["q1", "a", "q2"],
             ["q1", "b", "q2"],
             ["q2", "a", "q2"],
             ["q2", "b", "q2"]]
    }
}
```

$octave : 15 > finiteautomata("a", "a")$

$M = (q0, q1, q2, a, b, q0, q1, (q0, a, q1), (q0, b, q2), (q1, a, q2), (q1, b, q2), (q2, a, q2), (q2, b, q2))$

$w = a$

$(q0, a) \vdash (q1, \epsilon)$

$x \in L(M)$

$ans = 1$