Actividades Práctica 2

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1. Consider the language over the alphabet a, b that only contains the string a.

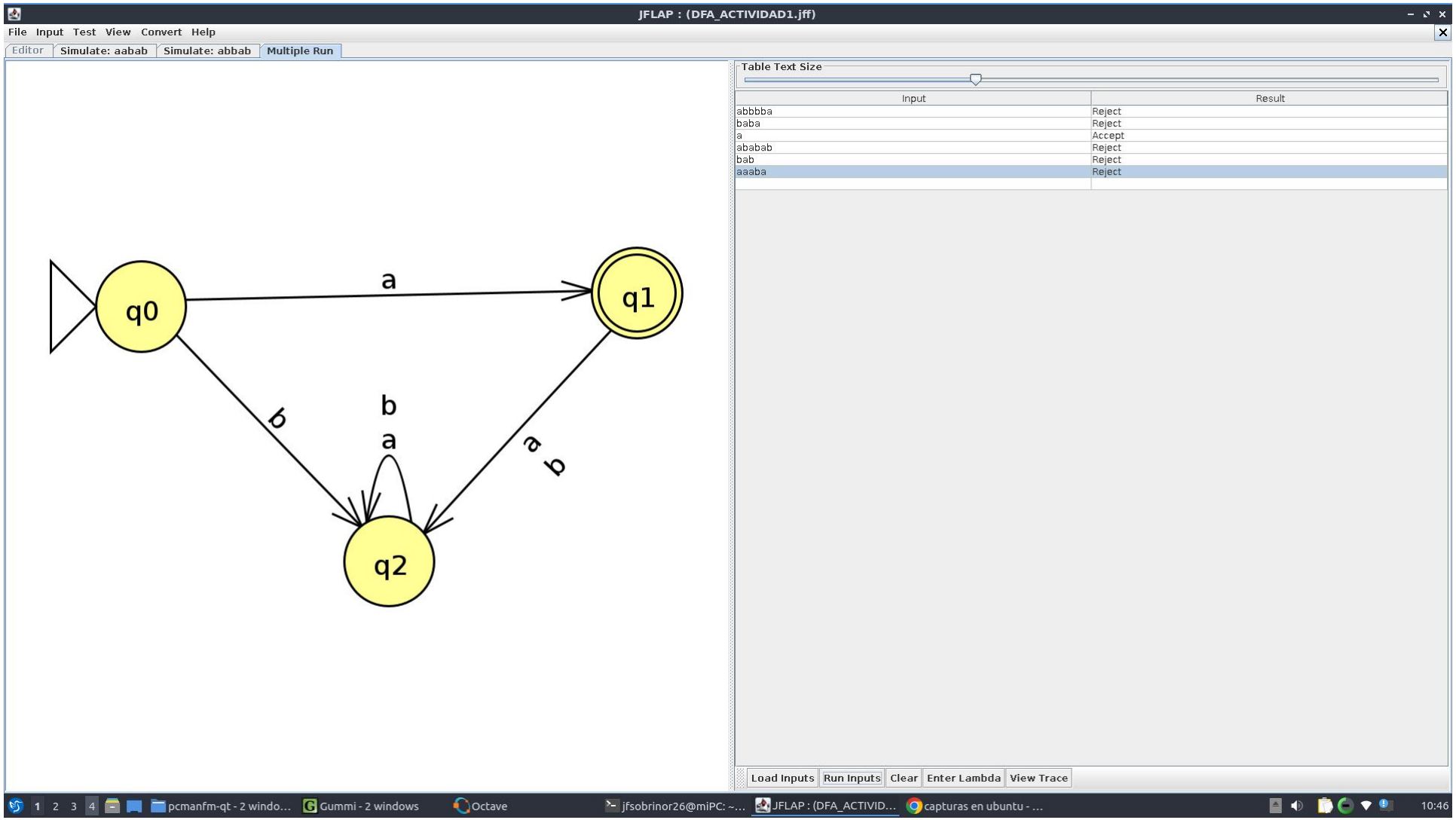
a. Build a DFA that recognizes this language and rejects all those strings that do not belong to the language.

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

a)El AFD que nos piden sería el siguiente:

$$M = (\{q_0, q_1, q_2\}, \{a, b\}, \delta, q_0, \{q_1\})$$

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


JFLAP : (DFA_ACTIVIDAD1.jff)
File Input Test View Convert Help
Editor
Simulate: aabab
Simulate: abbab
Multiple Run
Table Text Size
Input
Result
abbbba
Reject
baba
Reject
a
Accept
ababab
Reject
bab
Reject
aaaba
Reject
Load Inputs
Run Inputs
Clear
Enter Lambda
View Trace
q0
q1
q2
a
b
b
a
a
b
pcmanfm-qt - 2 windo...
Gummi - 2 windows
Octave
jfsobrinor26@miPC: ~...
JFLAP : (DFA_ACTIVID...
capturas en ubuntu - ...
10:46

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.

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

Computation for a given finite automaton and string. The automaton can be either DFA or NFA, and it is defined in a JSON file, like this:

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

(a transition consuming the empty string: [”q1”, ””, ”q2”])

For example:

octave:6 finiteautomata(”aa*bb*”, ”ab”, ”LaTeX”) warning: strmatch is obsolete; use strncmp or strcmp instead

$M = (q_0, q_1, q_2, a, b, q_0, q_2, (q_0, a, q_1), (q_1, a, q_1), (q_1, b, q_2), (q_2, b, q_2))$
$w = ab$
$(q_0, ab) \vdash (q_1, b) \vdash (q_2, \varepsilon)$
$x \in L(M)$