

Integrative practice

Part 1

Computational mathematics

Professor: Gilberto Huesca Juárez

Name: _____

Student ID: _____

Read the assignment before start

In Canvas, write the names and student IDs of all the team members, and the group

This activity is in pairs

Make the proposed activities and at the end, if there are programs to deliver, upload the files packaged within a ZIP file.

You may use java, python or C++.

The name of the main file must be Main.xxx where xxx is the extension for your program file.

The name of the ZIP file must be Exxxxproject1.zip where xxxxx is your student ID. For example, if your student ID is 123456, the file name must be E123456project1.zip

The programs must be properly commented (for example, if you do it in Java, your program should use JavaDoc).

LATE DELIVERY NOT APPLICABLE.

This activity counts as 10% of the final grade.

Make a program that reads from a file the elements that define an DFA- λ and then, shows the processing of a string, step by step.

The transition table will be defined in a txt file. The file shall be defined as follows:

- The first line indicates the set of states of the automata separated by commas.
- The second line indicates the alphabet symbols separated by commas
- The third line indicates the initial state
- The fourth line indicates the set of final states separated by commas.
- The following lines indicate the transition table in the following format:

state, symbol => states

states is a list of elements separated by commas.

Example, the following line

q0, a => q1,q2

indicates that the DFA processes the following: $\delta(q_0, a) = \{q_1, q_2\}$

To indicate a spontaneous transition, the word “lambda” will be used.

It is not necessary that all transitions are specified in this file. An evaluation may not appear if a state indicating that the result of that evaluation is the empty set

The program should print step by step the processing. And this should be repeated while the user wants to.

Do not worry about validating the values in the input file. Suppose that were built correctly.