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First Semester 1402 - 1403

Formal Languages and Automata
Project 1/Optional

(Submitted: 1402-8-8)
(Due: 1402-9-8)

If you are going to submit a solution you must provide answers to **both** of the following questions.

1. Do the following for the DFA model of computation as a compiler.

   a) Describe in detail the high-level structure of the hardware regardless of the technology used (i.e. type and size of the memories and their structure).

   b) Describe in detail the instructions of your compiler and the correct syntax of a program in it.

   c) Provide an example of a DFA and write it down in terms of your compiler as a program.

2. In this project you may introduce a **new** *minimal* and *nontrivial* compiler as an alternative for DFA. In this regard you must, at least, do the following:

   a) Describe in detail the high-level structure of the hardware regardless of the technology used.

   b) Describe in detail the instructions of your compiler and the correct syntax of a program in it.

   c) Provide examples of programs written down in your compiler as programs that solve nontrivial yes/no problems.

   d) Why your compiler may be assumed to be an *extremely simple nontrivial compiler* as an alternative for DFA? (Discuss and try to be convincing!)