Assignment 2

Issue Date: October 29, 2018
Due Date: ∞
$\sum$ 0 Points

Compiler Construction
INF-21440
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Universität Konstanz

University of Konstanz
Database and Information Systems
Prof. Dr. Michael Grossniklaus

Finite Automata and Regular Expressions

Exercise 1: Finite Automata (0 Points)

Create FAs to recognize

a) complex numbers
b) decimal numbers written in scientific notation
c) six-character identifiers, i.e., words consisting of an alphabetic character followed by zero to five alphanumeric characters

Exercise 2: Regular Expressions (0 Points)

The FA from Exercise 1c) can be written as the following RE:

$$([A\ldots Z] \mid [a\ldots z])\ ([A\ldots Z] \mid [a\ldots z] \mid [0\ldots 9])^5$$

Rewrite this RE in terms of the three basic RE operations: alternation, concatenation, and closure.

Exercise 3: PL/I Strings (0 Points)

In PL/I, the programmer can insert a quotation mark into a string by writing two quotation marks in a row. Thus, the string

```
The quotation mark, ", should be typeset in italics
```

would be written in a PL/I program as

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"The quotation mark, "", should be typeset in italics."
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Design an FA and an RE to recognize PL/I strings. Assume that strings begin and end with quotation marks and contain only symbols drawn from an alphabet, designated as Σ. Quotation marks are the only special case.