

Lexical Analysis

Exercise 1

For the given regular expression:

$$a * (bc | d) *$$

1. draw NFA (Non-deterministic Finite Automaton).
2. transform NFA to DFA (Deterministic Finite Automaton).

Exercise 2

Explain why there are no regular expressions which can express the language $a^n b^m$ where $n = m$. This means language over the alphabet a, b where there is the same number of as as bs .

Exercise 3

Write a regular expression that matches:

car, bar, jar, star, crocodile

But does not match:

har, far, mar, rawr

Try to optimize.

Exercise 4

Write a regular expression for an integer number of time units (take into account only milliseconds, seconds, minutes, hours and days).

Examples:

256ms

5s

32m

16h

4d