SMDP - Exercises 2

Model Driven Development - Exercises on Compiler and Programming Languages
Theresa Brandt von Fackh, tebr@itu.dk, 11.2.2014

Task 1

    A. (ab)*
    Language of words that is empty or an infinitive sequence of ab's, e.g. "", "ab", "abab", "ababab". The last letter can't be an "a".

    B. 1(0|1)*
    Language of words that starts with a 1 and is followed by any number of 0's and 1's. It also can be just a 1 followed by nothing. E.g. "1", "10", "11", "101", "100", "111"

    C. ((a(d|c)e))+
    Language of words that contains "ace" or "ade" repeated any number of times with a space inbetween. It has to consist at least of one "ace" or "ade". The sequence has to end with a space. E.g. "ade ", "ace ", "ade ace ace ace ade ace "

Task 2

    A. (a+,)*a+
    B. (if|then|else|while)
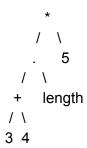   C. (\s|\t|\n)+

Task 3

[A-Za-z_][A-Za-z_0-9]*

Task 4

The Language describes sentences with a Subject, Verb and Object, where the Subject can be either John, Mary or Alice, the Verb can be either reads or writes and the Object can be either book, letter or poem.

Task 5

S -> empty|(S)|{S}|[S]

Task 6

```
        *
      /   \
     .      5
    /   \
   +    length
  / \
 3   4
```

Task 7

A. Name and Type Analysis (3)
B. Name and Type Analysis (3)
C. Lexer/Scanner (1)
D. Correct
E. Parser (2)

Task 8

Expression: x == 0
Statement: if(...) {...}
Declaration: int x = 0