Homework 1

1. **(Optional)** If you want to run the code presented in the lectures, install the Scala programming language available (for free) from

   `http://www.scala-lang.org`

2. **(Optional)** Have a look at the crawler programs. Can you find a usage for them in your daily programming life? Can you improve them (in cases they are linked on different levels, they visit web-pages several times)?

3. Read the handout of the first lecture and make sure you understand the concepts of strings and languages.

4. In the context of the AFL-course, what is meant by the term *language*?

5. Give the definition for regular expressions. What is the meaning of a regular expression?

6. Assume the concatenation operation of two strings is written as $s_1 @ s_2$. Define the operation of *concatenating* two sets of strings.

7. Assume a set A contains 4 strings and a set B 7 strings, how many strings are in $A @ B$?

8. How is the power of a language defined? (Hint: There are two rules, one for $\_^0$ and one for $\_^{n+1}$.)