Quiz 1 Solution

Define Parser Generator

- A compiler tool that builds a parser from the specification of the language.

Fixed-Point Computation

- From the book we have: a computation characterized by the iterated application of a monotone function to some collection of sets drawn from a domain whose structure is known. The computation terminates when it reaches a state where further iterations produce the same answer

- In the examples we will see an algorithm will produce one or more sets (such as the set of states in a deterministic finite automata or a set of follow sets). The algorithm with terminate when the set(s) produced in iteration n are that same as the sets produced in iteration n-1.

Regular Expressions

- Systems that implement regular expressions (such as flex) often have operators that make writing regular expressions easier. The following are some examples of these operations. For each item write a regular expression that uses only the basic operations I showed in the lecture (concatenation RS, union R|S and closure R*) as translations of the operations shown below. In the following assume the alphabet is {0,1,2,3,4,5,6,7,8,9}

a. . is a regular expression that specifies the language {0,1,2,3,4,5,6,7,8,9}. Note the expression is just a single period or dot.

- 0|1|2|3|4|5|6|7|8|9

b. [0-2] {1,2} is a regular expression that specifies the language {x | x is a string of 0s, 1s and 2s that is between 1 and 2 characters long inclusive}. Some example strings in the language are 21, 10, 12, 2, 00, 1.

- 0|1|2|00|01|02|10|11|12|20|21|22

c. [^0-6]+ is a regular expression that specifies the language {x | x is a string of 7s, 8s and 9s that is one or more characters long}. Some example strings in the language are 8, 988797, 999, 87.

- (7|8|9)(7|8|9)*