CS 331 Programming Languages, Spring 2013

UnQuiz A Solutions

UnQuiz A was distributed in class on Wednesday, January 23, 2013.

1. This problem concerns the grammar given below.

$S \rightarrow A$
$S \rightarrow B$
$A \rightarrow cA$
$A \rightarrow \varepsilon$
$B \rightarrow Bd$
$B \rightarrow d$

1a. Based on the above grammar, write a derivation for the string "*ddd*".

We begin with the start symbol (S), apply one rule at a time, and finish with the required string.

S
B
Bd
Bdd
ddd

1b. Describe the language generated by this grammar.

This language consists of the empty string, all strings consisting of one or more cs and all strings consisting of one or more ds. In other words, ε, c, cc, ccc, $cccc$, …, d, dd, ddd, $dddd$, ….