INF210. Compulsory Exercise 2

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Deliver written solutions to the exercises listed below. The submission deadline is Monday 10 November 2003, 12.00

Please remember that I am interested in solutions more than in answers!!!

1. Give the leftmost derivation of 1001 by the following CFG:

   $S \to A1B$

   $A \to 0A|\Lambda$

   $B \to 0B|1B|\Lambda$

2. Design a PDA to accept the following languages. (You may accept either by final state or by empty stack, whichever is more convenient.)

   — The set of all strings of 0's and 1's such that no prefix has more 1's than 0's.

   — The set of all strings of 0's and 1's with an equal number of 1's and 0's.

3. Convert the CFG

   $S \to aAA$

   $A \to aS|bS|a$

   to a PDA that accepts the same language by empty stack.

4. Construct a PDA that accepts the language

$$\{a^n b^m c^{2(n+m)} | n \geq 0, m \geq 0\}.$$