5DV037  Fundamentals of Computer Science
          Spring 2012
Obligatory Exercise 2

Due date: February 14, 2012

1. Give an NFA that accepts the language
   \[ L \left( (a+b)^* b (a+bb)^* \right) \].
   Explain why your solution is correct.

2. Give an DFA that accepts the language
   \[ L \left( aa^* + aba^* b^* \right) \].
   Explain why your solution is correct.

3. Consider the following GTG

   \[ \begin{array}{c}
   \begin{array}{c}
   a \\
   a+b \\
   a \\
   \end{array} \\
   \begin{array}{c}
   a+b \\
   \lambda \\
   ab \\
   bb \\
   \end{array}
   \end{array} \]

   (a) Find an equivalent GTG with only two states. Show the main steps in the solution process.
   (b) What is the language accepted by this graph?