1. (5 points) Describe an NFA to accept the set of nonempty strings over \( \{a, b, c\}^* \) such that the final character has appeared before.

2. (8 points) For the \( \varepsilon \)-NFA of Exercise 2.5.2 of our text,
   a) Compute the \( \varepsilon \)-closure of each state.
   b) Describe all the strings of length 2 or less accepted by the automaton.
   c) Describe a string in \( \{a, b, c\}^* \) which is not accepted by the automaton, or prove that the language accepted by the automaton is \( \{a, b, c\}^* \).
   d) Convert the automaton to a DFA.

3. (4 points) Design an \( \varepsilon \)-NFA to accept the set \( L_{010^*1011} \) of binary strings which contain an 010 repeated one or more times or a 1011 repeated one or more times.