1. Construct a Deterministic Finite Automaton (DFA) to describe each of the following languages:
   a) The set of all strings over \{a, b, c\} that begin with a b, end with an a, and contain at least one c. (For example, bccbaa is in the language, but bac is not in the language.)
   b) The set of all strings over \{a, b, c\} that contain bbc as a substring. (For example, abbcbb is in the language, but ababc is not in the language.)
   c) The set of all strings over \{a, b, c\} that contain at least one a and one c. (For example, abca is in the language, but ab is not in the language.)
   d) The set of all strings over \{a, b\} whose length is less than 3. (For example, ab is in the language, but aba is not in the language.)
   e) The set of all strings over \{0, 1\} that have length 5 and represent a binary number that is less than 7 (111 in binary). (For example, 00101 is in the language, but 11001 is not in the language.)

2. Construct a Nondeterministic Finite Automaton (NFA) for each of the following languages:
   a) \((abc)^* + a^* + a(b^*)c\)
   b) The set of all strings over \{a, b, c\} that contain cba as a substring.
   c) The set of all strings over \{a, b, c\} that contain either aa or abc as a substring.