CSC236 Tutorial Exercises, July 12

These exercises are meant to give you practice devising DFAs and manipulating formal languages.

1. Devise a DFA over the alphabet $\Sigma = \{1, 2, 3\}$ that accepts the language of finite strings that include 321 as a substring.

   (a) Draw the automaton

   (b) Write down all the parts that define the automaton you've drawn (Alphabet Σ, State space Q, transition function δ, etc)

2. Let $\Sigma = \{a, b\}$. Consider the language that consists of all strings that contain neither consecutive a's nor consecutive b's. Draw DFA that accepts this language.

3. Suppose L is the language of finite binary strings consisting of one or more 1 concatenated with one or more 0. Describe with an English sentence each of the following: $\text{Rev}(L)$, L^*, and $\text{Rev}(L) \circ L^*$.