CSC236 Tutorial 9

1. Let L be the language $\{a, ab\}^{\circledast}$. List some of the elements of L and then define a predicate $P(s)$ such that for all strings s over alphabet $\{a, b\}$, $P(s)$ is true iff s in $\{a, ab\}^{\circledast}$.

2. Describe three different languages L over alphabet $\{a, b, c\}$ such that $L = L^{\circledast}$.

3. Give a DFA for each language below.

   (a) $L_1 = \{s \in \{0,1\}^* : s$ contains at least 2 characters and $s's$ second character is $a1\}$.

   (b) $L_2 = \{s \in \{0,1\}^* : s$ contains fewer than 2 characters$\}$.

   (c) $L_3 = \{s \in \{a,b\}^* :$ every a in s is eventually followed by $b\}$.
   For example, $aaab \in L_3$ because there is a b that follows every a, even though it is not immediately after the first two as.

   (d) $L_4 = \{s \in \{a,b\}^* :$ the third-last character of s is a $b\}$.