1. List the elements of $\{a, ab\}^*$. Find a way to describe strings in this language, i.e., find a predicate $P(s)$ such that $P(s)$ is true iff s in $\{a, ab\}^*$, for all strings s over alphabet $\{a, b\}$.

2. Find three different examples of a language L over alphabet $\{a, b, c\}$ such that $L = L^*$.

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 a 1 $\}$

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 <u>eventually</u> followed by b$\}$. For example, $aaab \in L_3$ because there is a b that follows every a– even though it is <u>not</u> immediately after the first two as.

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