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 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 \( a \)s.

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