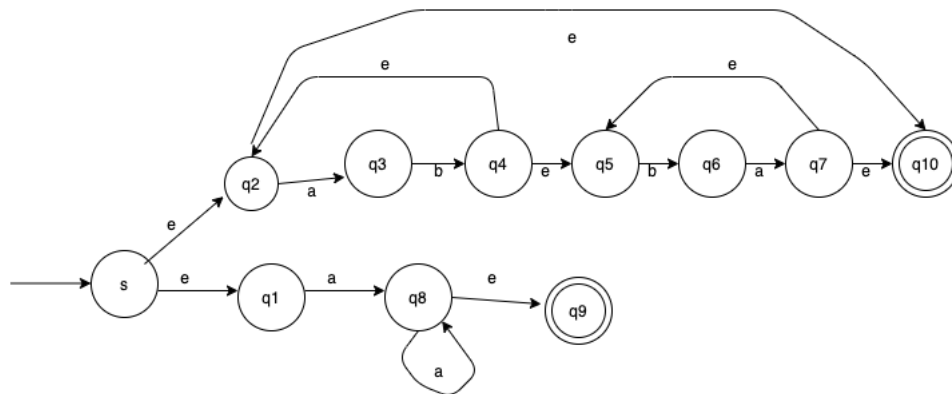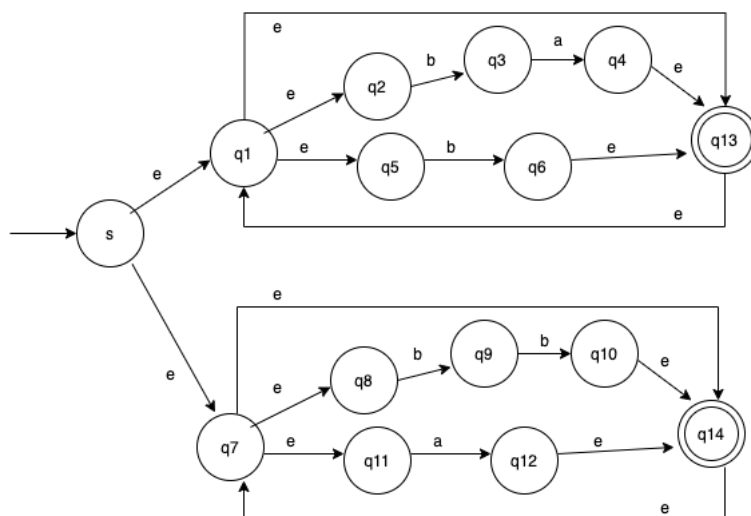1. Draw a state diagram for nondeterministic finite automata that accepts the following languages
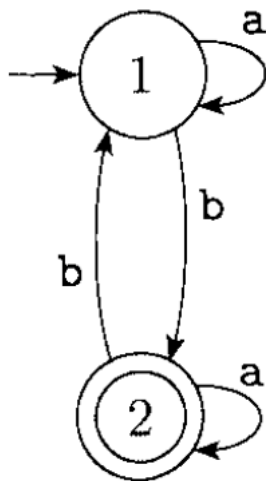   There can be multiple answers, below is one example answer.
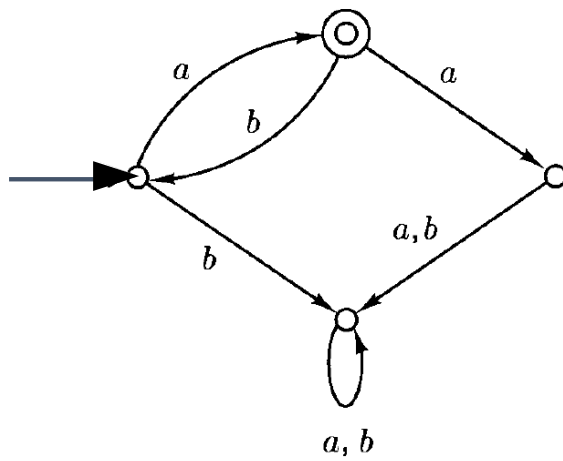
   1.1 $((ab)^*(ba)^*) \cup aa^*$

   1.2 $(ba \cup b)^* \cup (bb \cup a)^*$

2. Give the regular expression for the language accepted by the following finite automaton:
   There can be multiple answers, below is one example answer.

$$a^*b(a \cup (ba^*b))^*$$

$$a(ba)^*$$

3. Write the regular expression for the following sets

   3.1 All strings over $\{a, b\}$ that are odd in length
$$((a \cup b)(a \cup b)(a \cup b))^*$$
   3.2 All strings over $\{a, b\}$ that end with bb
$$(a \cup b)^*bb$$