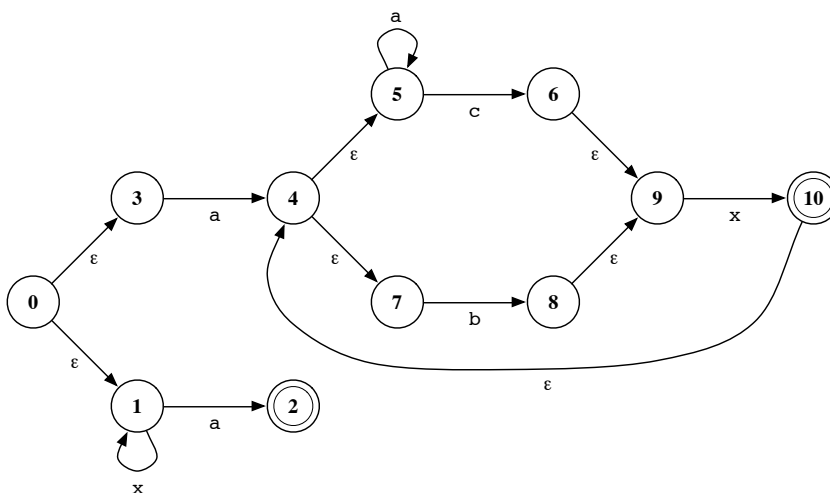


This homework assignment is a written assignment that should be turned in at the beginning of class on Tuesday January 27.

1. Write regular expressions for the following languages:
 - (a) Strings over the alphabet $\{a, b, c\}$ with an even number of bs (*e.g.*, “abaabcbb”, “aaaa”, *etc.*).
 - (b) Strings over the alphabet $\{a, b, c\}$ where the first a precedes any occurrence of b (*e.g.*, “ccaa”, “abc”, “acacb”, *etc.*).
 - (c) Strings over the alphabet $\{0, 1\}$ that represent powers of two without leading 0s (*e.g.*, “1”, “10”, *etc.*).
2. (a)-(c) Draw the non-deterministic finite state machines (NFAs) for the languages in 1(a)-(c).
3. Convert the following NFA to a DFA using the subset-construction method.



4. Give an RE that defines the same language as the NFA in Problem 3.