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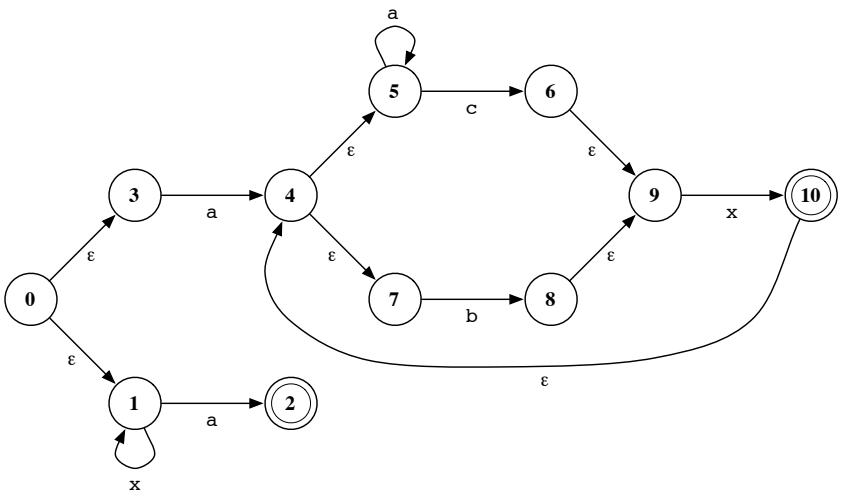
| **CMSC 22610**<br>**Winter 2005** | **Implementation**<br>**of**<br>**Computer Languages** | **Homework 2**<br>**Due January 30** |

1. Write regular expressions for the following languages:
   (a) Strings over the alphabet $\{a, b, c\}$ with an odd number of $a$s.
   (b) Strings over the alphabet $\{a, b, c\}$ where the first $a$ precedes any occurrence of $b$.
   (c) Strings over the alphabet $\{0, 1\}$ that represent powers of two.
2. (a)-(c) Draw the 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 for that defines the same language as the NFA in Problem 3.