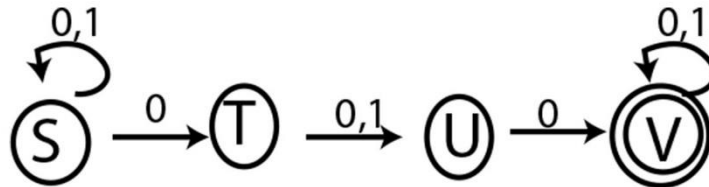# CS 383

HW 1

due in class on Monday, September 11

I said on the first day that homework needed to be typed but this one is all pictures. You can do it by hand as long as you do it neatly.

1. Give DFAs accepting the following languages over the alphabet {0,1}:
   a. The set of strings ending in 000.
   b. The set of strings containing 000 as a substring.
   c. The set of strings containing exactly three 0's.

2. Give an NFA that accepts the set of strings over the alphabet {0,1,2,3} such that the final digit in the string *has* appeared before.

3. Give an NFA that accepts the set of strings over the alphabet {0,1,2,3} such that the final digit in the string *has not* appeared before.

4. In Java an identifier (name) must be composed of letters, digits, underscore and dollar sign and can't begin with a digit. Give a DFA that accepts the valid identifiers. You can use symbols <L> and <D> to represent "any letter" and "any digit" respectively.

5. Convert the following NFA to a DFA and describe in English what strings it accepts:

6. Convert the following NFA to a DFA and describe in English what strings it accepts: