CS 383 HW 7

Due in class Wednesday, December 4.

This doesn't need to be typed but it must be legible.

- Design a TM to accept {ww^{rev} | w∈(0+1)*} (i.e., even-length palindromes) For this one draw out the TM as a complete state-transition diagram.
 For the remaining questions give a step-by-step description in English of the TM, but it is not necessary to draw out the state-transition diagram. For example, one step with question (1) might be "If the first letter of the input is 0, overwrite it with a blank and move right until you find a blank, then move one step left...."
- 2. Design a Turing Machine to accept the strings that have the same number of 0's and 1's, such as 000111 and 010101.
- 3. Design a TM to accept {ww $| w \in (0+1)^*$ } You might find non-determinism helpful.
- 4. Design a TM that starts with the binary code for a number N on its tape and ends with the code for N+1. So if it starts with 10011 it ends with 10100 and if it starts with 1111 it ends with 10000.
- 5. Here is a non-deterministic TM. Find all configurations that can be derived from A011

