

# Theory of Computation

## Homework 1

Due: 2008/03/20

**Problem 1.** Describe a Turing machine that accepts a string  $x \in \{0, 1\}^*$  if and only if  $x$  contains an odd number of 0's. You do not need to specify the exact states and state transitions of the Turing machine. Just sketch the idea in pseudo code.

**Problem 2.** Let  $L \subseteq \{0, 1\}^*$  be a non-recursive language. Does there exist an  $L' \subseteq L$  that is recursive? Justify your answer.