# Automata Theory: Assignment 6

**Due date: February 28 (Thursday)**

**Problem 1** (5 points)
Demonstrate that, if $L_1$ is a regular language on the alphabet $\Sigma = \{a, b\}$, then the following subset of $L_1$ is also a regular language:

$$L_2 = \{w : \ w \in L_1 \text{ and the length of } w \text{ is odd}\}.$$

**Problem 2** (5 points)
Describe a method for determining whether a given regular language $L$ includes any string $w$ such that $w^R$ is also in $L$.