

CS 4810 Homework Assignment 1 due Friday in class August 31

This homework is concerned with sets of finite length strings of 0's and 1's. Design finite automata for each of the following problems:

1. The set of all strings containing the substring 11.
2. The set of all strings that start and end in the same symbol.
3. The complement of the set in Item 2.
4. The set of all strings containing both of the substrings 01 and 10.
5. Write an induction hypothesis sufficient to prove that the automaton below accepts the set of all strings with an even number of 0's and an odd number of 1's. The start state is A and the set of final states is $\{C\}$. You only need to write the induction hypothesis. You do not need to prove the claim.

	0	1
A	B	C
B	A	D
C	D	A
D	C	B