Reading assignment: Finish reading Chapter 1, sections 1.3-1.4.

Problems:

1. Design a NFA that does pattern matching for the string $x = ababaababab$ over the alphabet \{a, b\}, i.e. that accepts the language of all strings $w$ over \{a, b\} that contain $x$ as a substring. Then use the ‘on-the-fly’ subset construction to convert this NFA to a pattern matching DFA for the string $x$.


3. Sipser’s book page 86, Exercise 1.13 parts (a), (b), (c), (d), (e), (i), (l), Bonus: (f).

4. Sipser’s book page 86, Exercise 1.16 (b). (Use the method from the handout.)

5. Show that if there is an NFA recognizing $A$ then there are NFA’s recognizing
   
   (a) $\text{PREF}(A) = \{x | \text{there is some } y \in \Sigma^* \text{ with } xy \in A\}$

   (b) $\text{SUFF}(A) = \{y | \text{there is some } x \in \Sigma^* \text{ with } xy \in A\}$

6. (Advance Notice Bonus not due until Feb 6) Sipser’s book page 90, Problem 1.42