

Week 9 Workshop

0. NFAs 1

(a) Construct an NFA for the language "all binary strings ending in either 011 or 110".

(b) Construct an equivalent DFA for the same language.

1. NFAs 2

- (a) Construct an NFA for the language "all strings from the alphabet $\Sigma = \{0, 1, 2\}$ containing only 0's and 1's, and at most one 1".
For instance, the strings 0000, 0010, 1000, 0, 1, and ϵ should be accepted. The strings 0101, 2, 000020, 102000, 011, should be rejected.

- (b) Construct an NFA for the language "all binary strings that have a 1 as one of the last three digits".

2. DFA to NFA, DFA Minimization

Let L be the language where the alphabet is $\Sigma = \{0, 1, 3, 9\}$ such that $w \in L$ iff. the string "311" is a substring of w .

(a) Give an NFA to accept strings in L .

(b) Give an equivalent DFA for your NFA (using the algorithm from 311).

(c) Is your DFA minimized? If not, give the minimized DFA using the algorithm from 311.