

CSE 311: Foundations of Computing I

Section 9: DFAs, NFAs, and Minimization

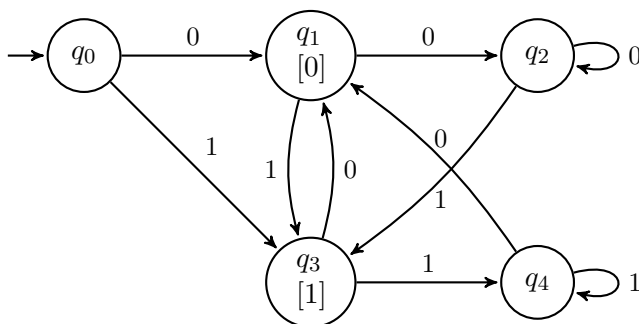
1. DFAs

Construct DFAs to recognize each of the following languages. Let $\Sigma = \{0, 1\}$.

- (a) Strings that do not contain the substring 101.
- (b) Strings that contain an even number of 1s and odd number of 0's and do not contain the substring 10.

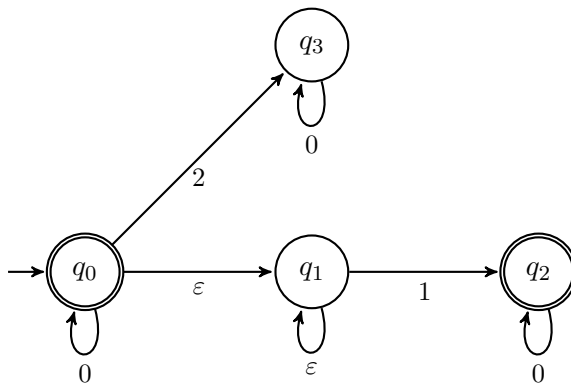
2. FSMs with Output

Describe the output of this machine, which operates on binary strings.



3. NFAs

- (a) What language does the following NFA accept?



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

4. DFA Minimization

Minimize the following DFA. For each step of the algorithm write down the groups (of states), which group was split in the step the reason for splitting that group:

