

Assignment 2

COMSATS University Islamabad
Sahiwal Campus



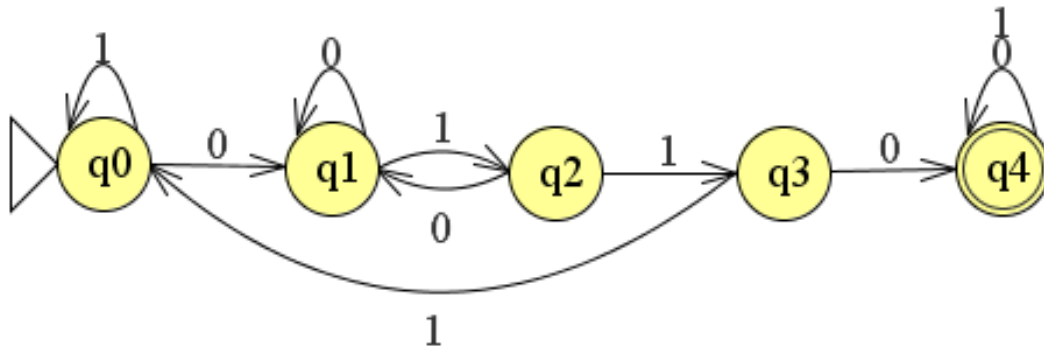
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Automata Theory (CSC312)

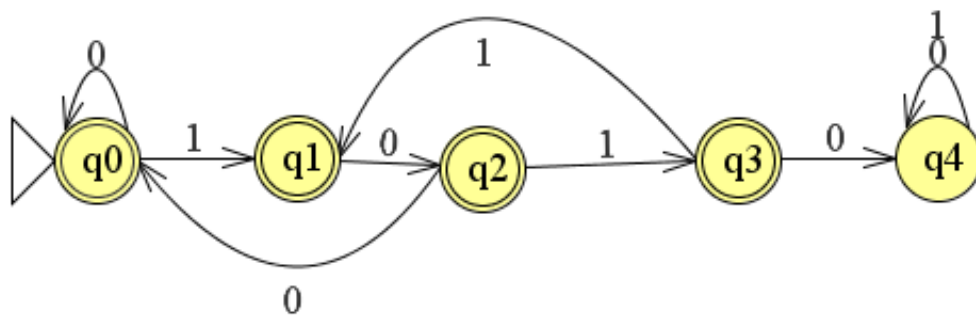
June 19, 2020

1. Give DFA for the following languages, over the alphabet $\{0, 1\}$

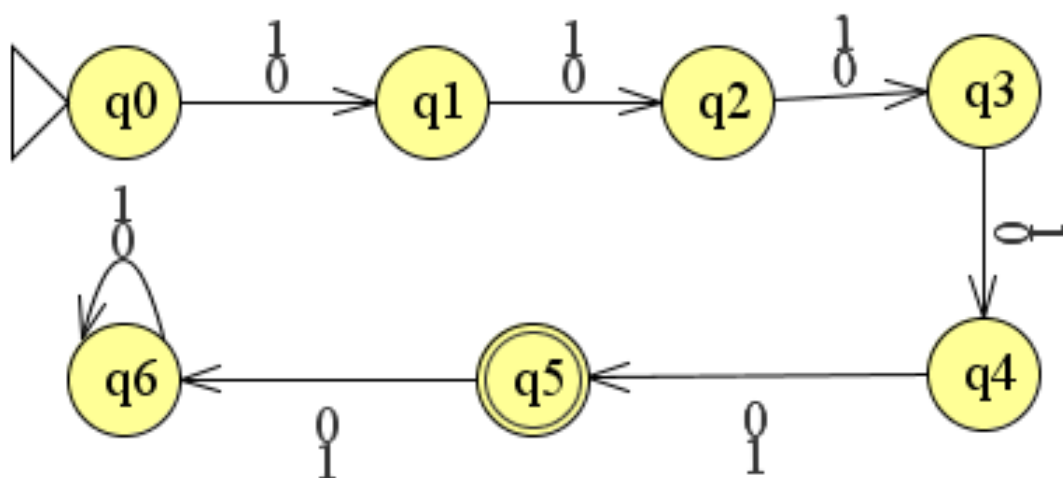
1.1 Set of all strings containing the substring 0110



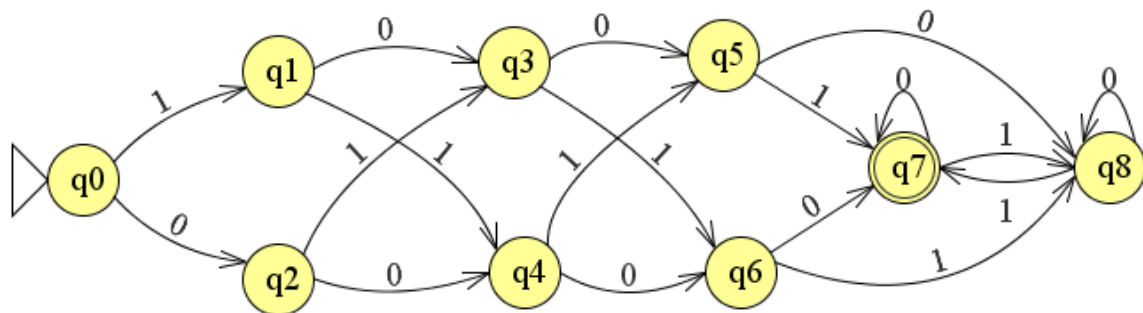
1.2 Set of all strings that do not contain the substring 1010



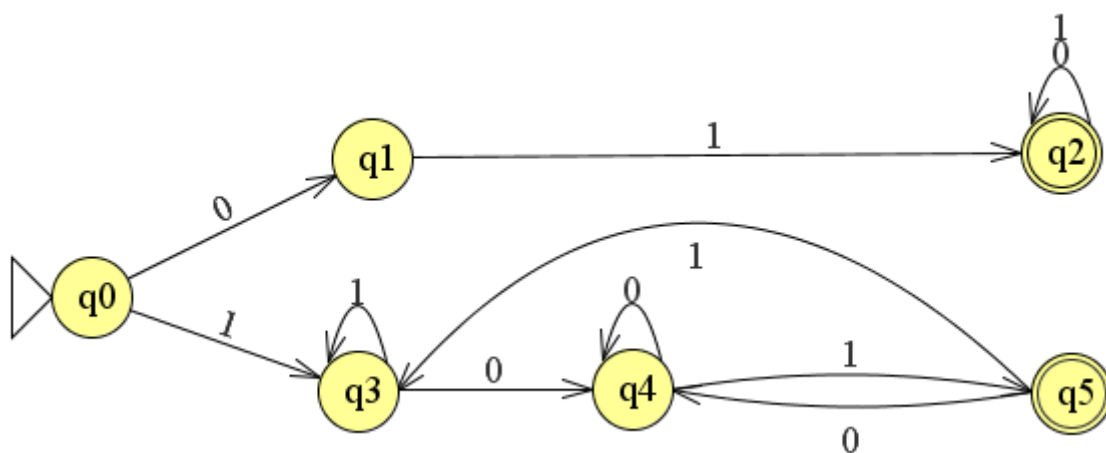
1.3 Set of all strings that are exactly of length 5



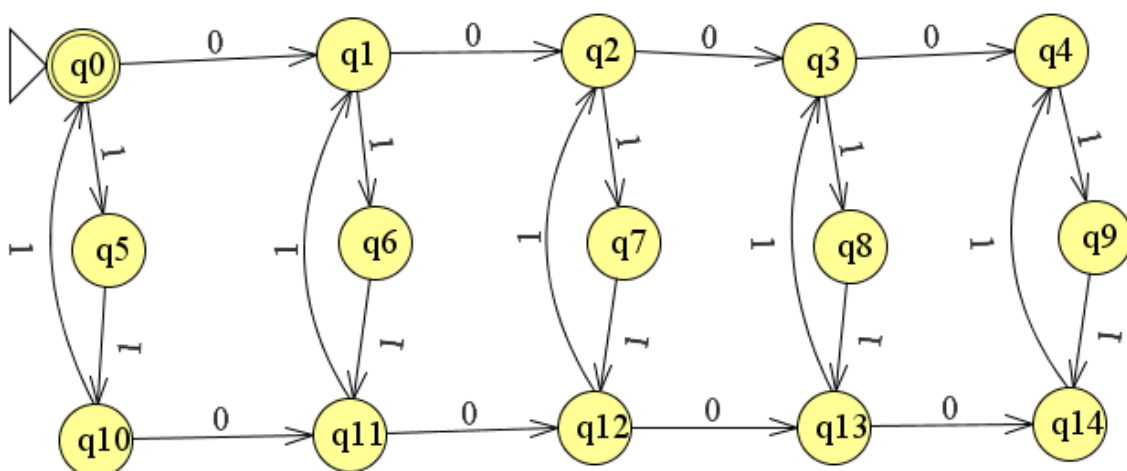
1.4 Set of all strings that are at least of length 4 and contains even number of 1's



1.5 Set of strings that either begin or end (or both) with 01

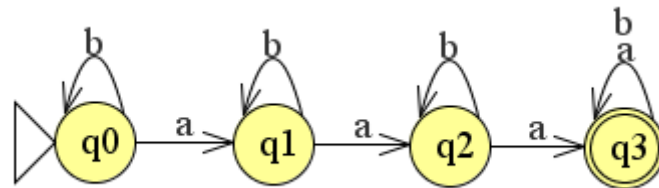


1.6 Set of all strings with number of 0's in multiples of 5 and number of 1's in multiple of 3

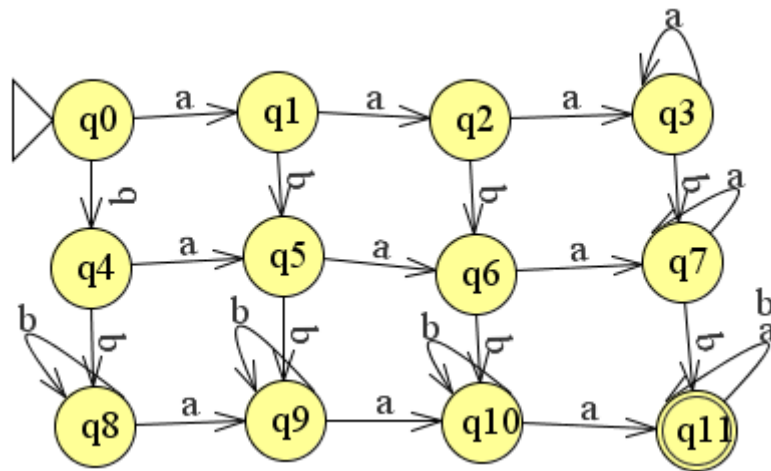


2. Give DFA for the following languages, over the alphabet {a, b}

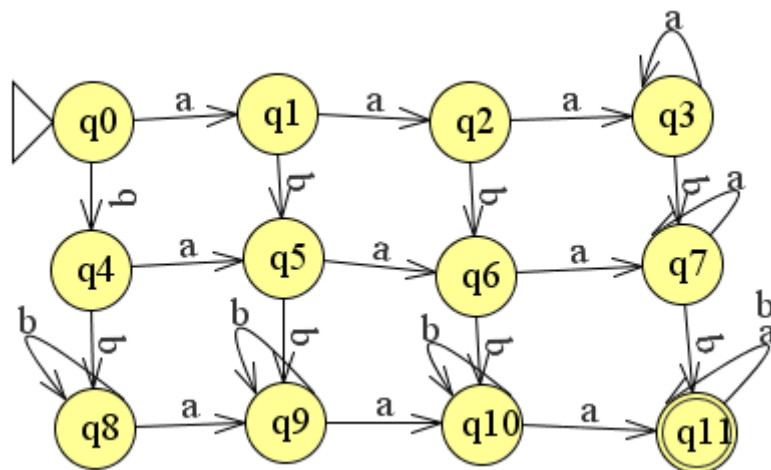
2.1 {w | w has at least three a's}



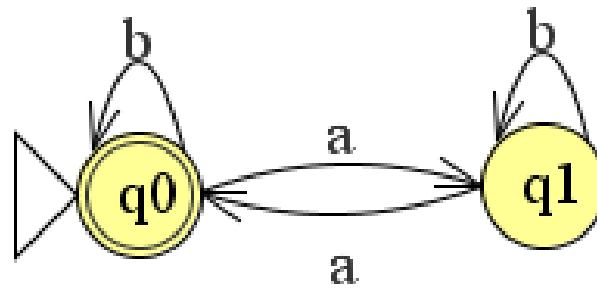
2.2 {w | w has at least three a's and at least two b's}



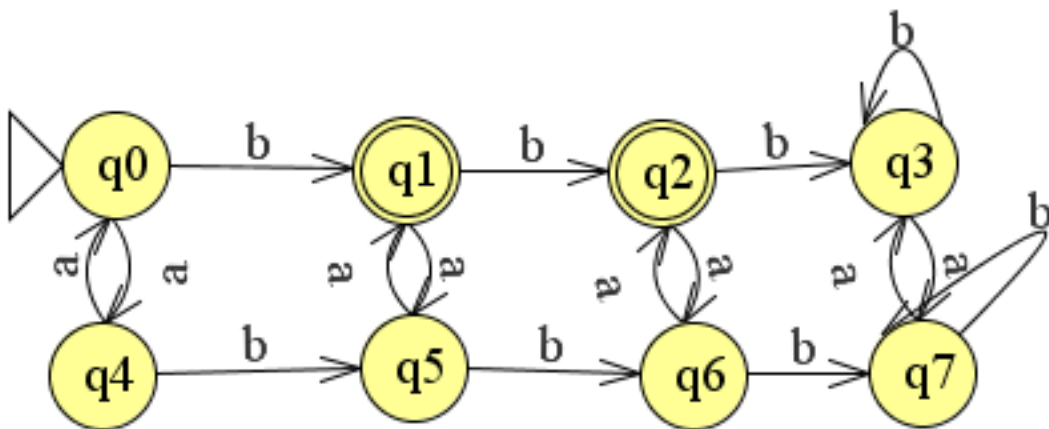
2.3 {w | w has exactly two a's and at least two b's}



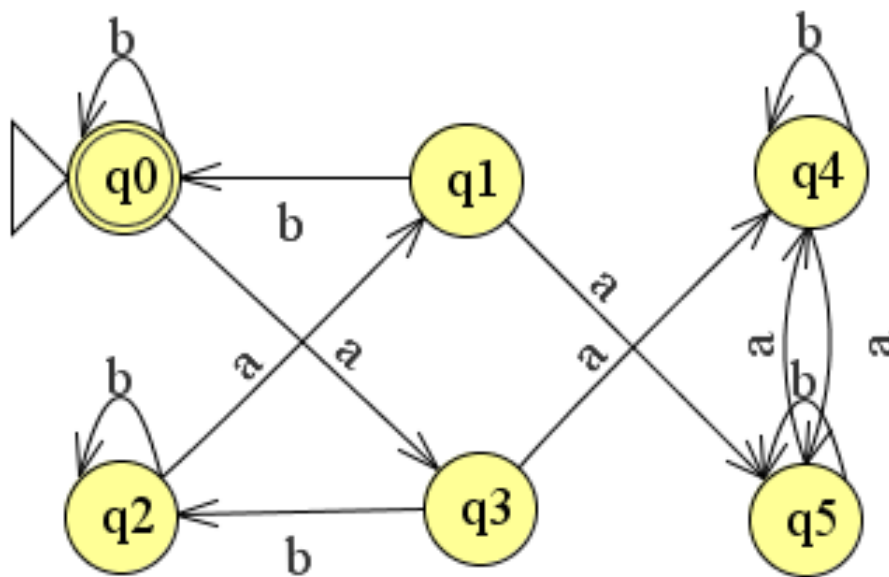
2.4 $\{w \mid w \text{ has an even number of a's}\}$



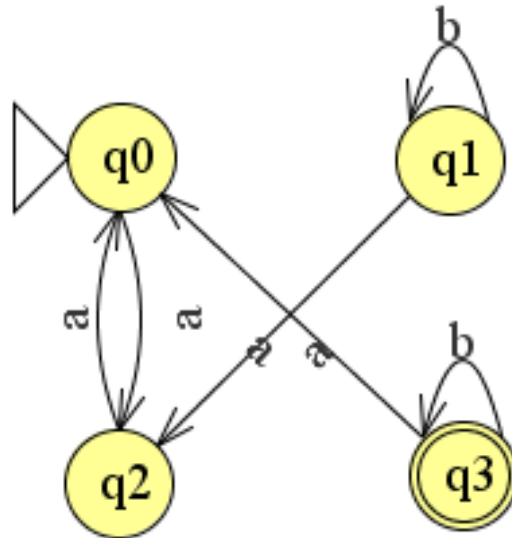
2.5 $\{w \mid w \text{ has an even number of a's and one or two b's}\}$



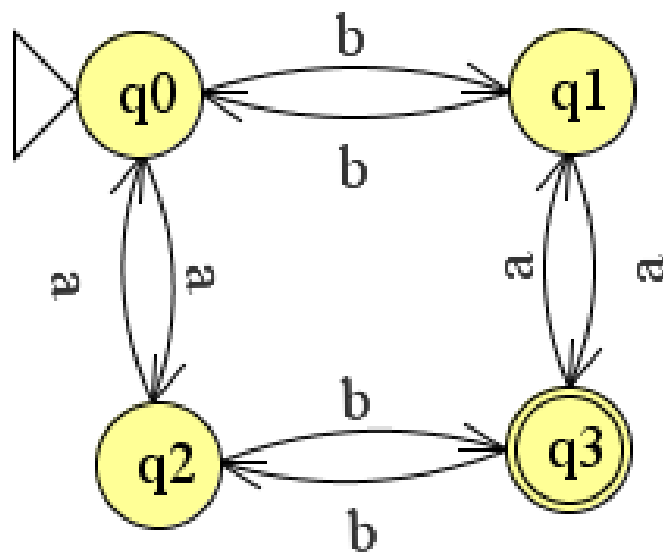
2.6 $\{w \mid w \text{ has an even number of a's and each a is followed by at least one b}\}$



2.7 $\{w \mid w \text{ has an odd number of a's and ends with a b}\}$



2.8 $\{w \mid w \text{ has even length and an odd number of a's}\}$



2.9 All strings that do not end with aa.

