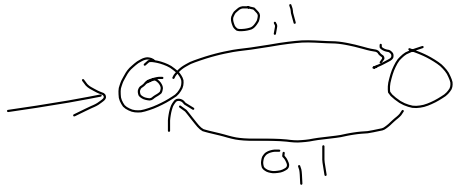
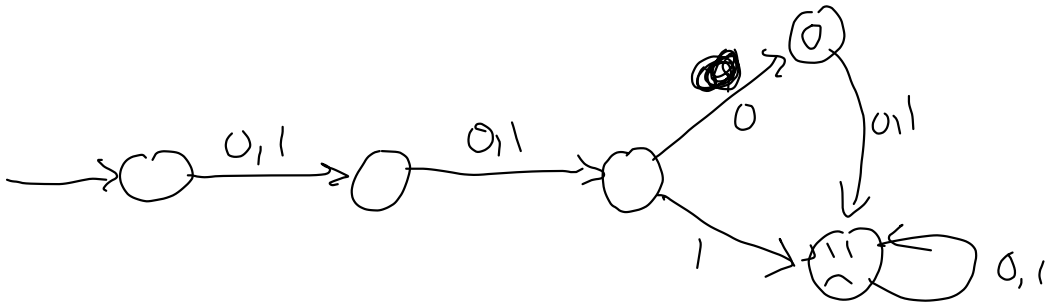
Remember: "ε" is the string with 0 chars.

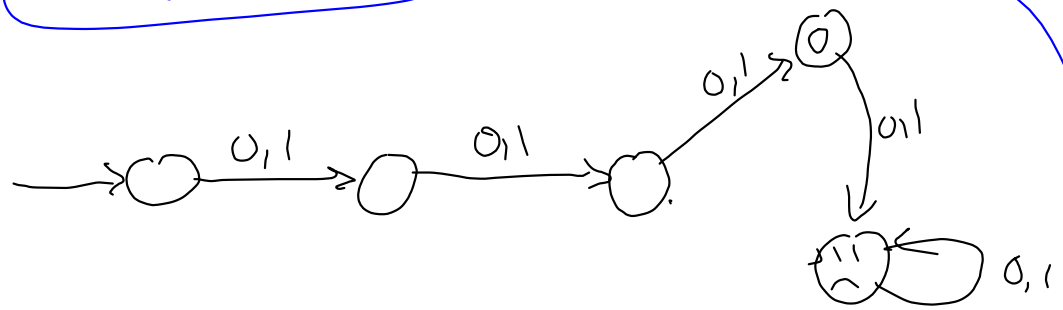
Challenge 1: strings of even length



Challenge 2: Strings of length 3 and end in 0.

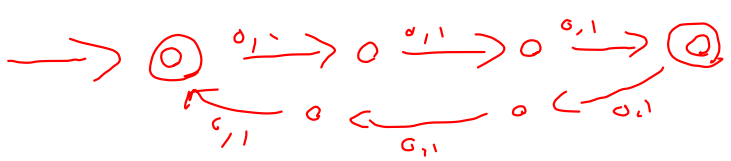


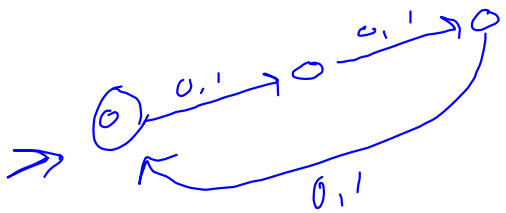
Length 3

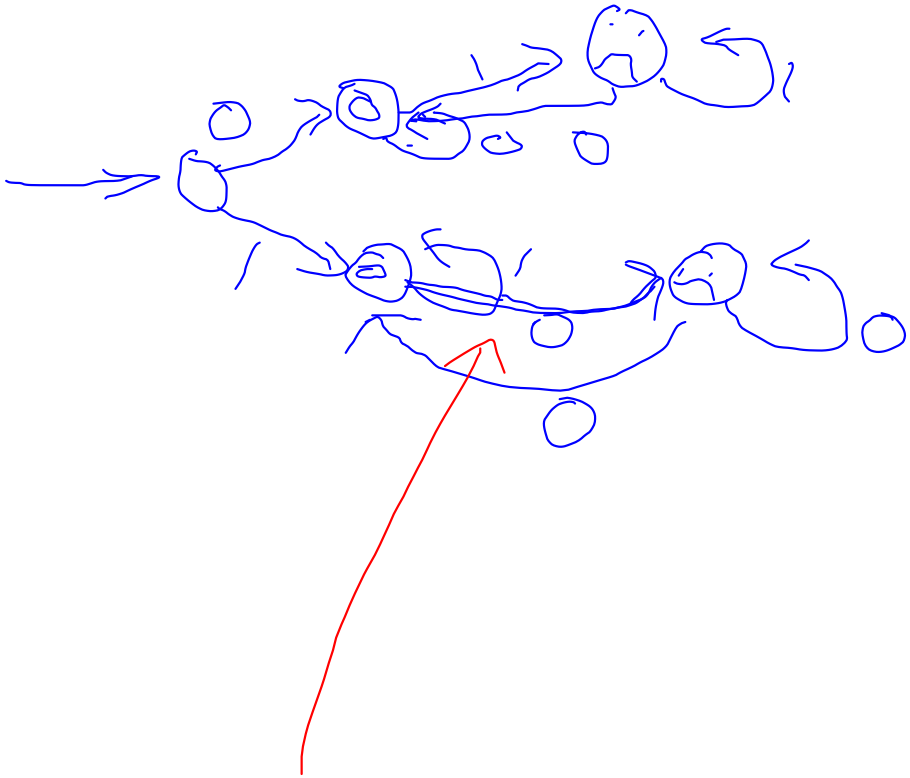


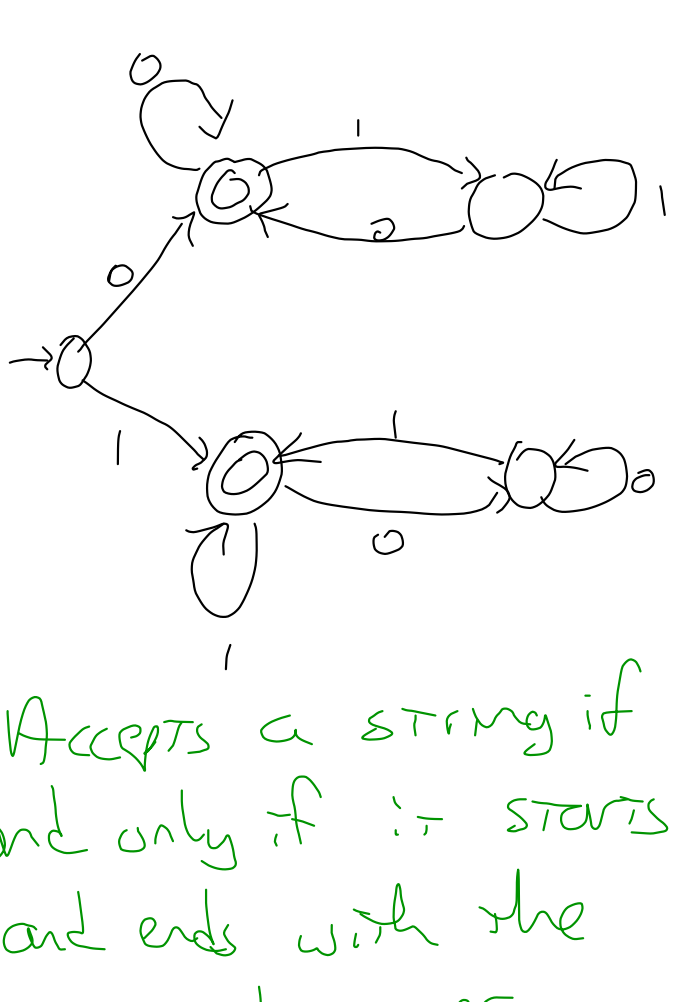
Starts and ends with the same character.

Accept a string if and only if its length is 0, 3, 6, 9, 12, 15, ... , that is, a multiple of 3.







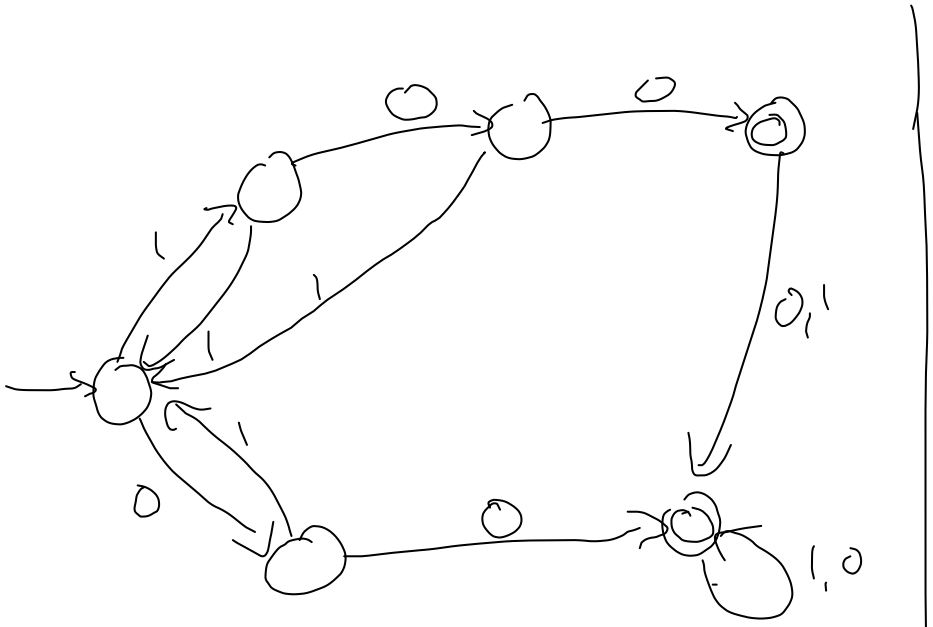


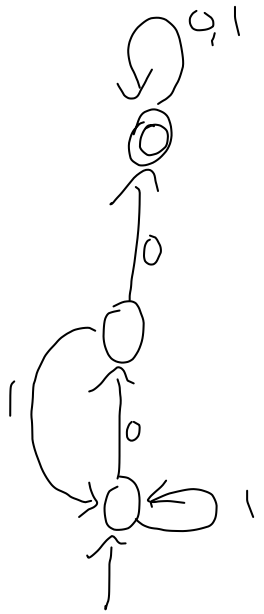
Accepts a string if and only if it starts and ends with the same character.

Accepts if and only if it contains "00" somewhere in the string.

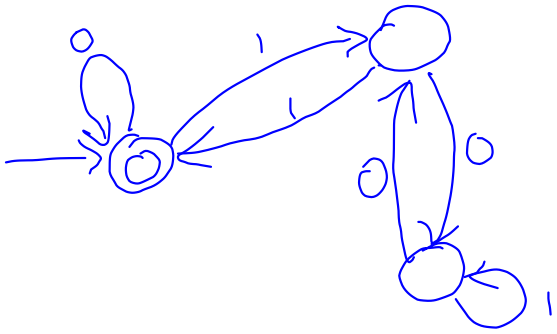
Eg: $\mathcal{L} = \{00, 001, 100, 000, 10100, \ldots\}$

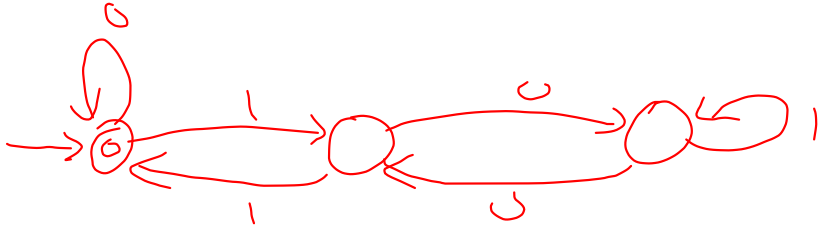
NOT acceptable: 101, 11, 1, 0, 010, 1101010, ...





What is the language of this DFA?





$L = \{ \varepsilon, 0, 00, 11, 000, 011, 110, 1001, 0000, 1100,$
$0011, 0110, 1111, 10101, \ldots \}$

0 0 0 3 0 3 6 9 0 12

3 6 15 16 8 4 2 1 (21)

4 2 1 8 4 2 1

Accepts a string if and only if, as a binary number, it is a multiple of 3.

XC + 8

What is the language of this DFA ?