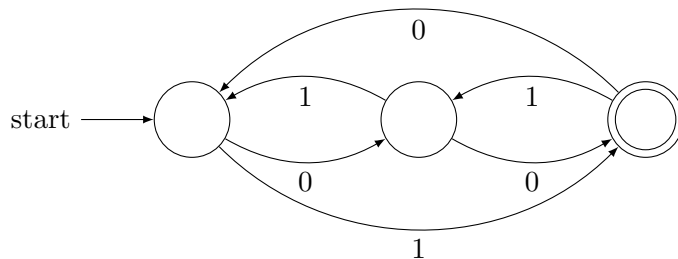# Problem Set 2

This problem set is due on Friday, February 6, by 5pm. Please submit your solution online using bcourses, as a pdf file.

You can type your solution, or handwrite it. If you handwrite it, then either scan it or take a good resolution picture of each page and then collate the pictures and export them to a *single* pdf file.
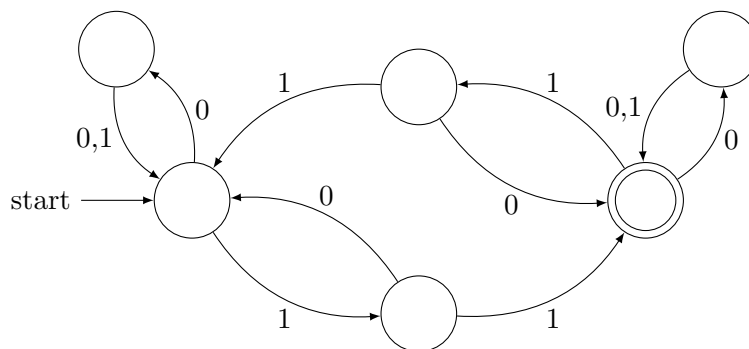
## Problem 1: DFA to Regex (20/100)

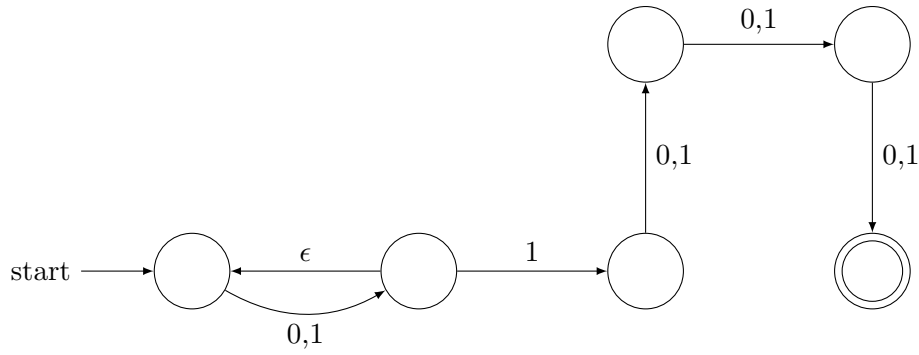Convert the following DFA to a regular expression.



## Problem 2: DFA to Regex (20/100)

Convert the following DFA to a regular expression.



## Problem 3: NFA to Regex (20/100)

Convert the following DFA to a regular expression.

start

$\epsilon$

0,1

1

0,1

0,1

0,1

# Problem 4: Reverse (40/100)

Let `reverse` reverse the characters of a string. For example, `reverse`(HelloWorld) = dlroWolleH. Let $L$ be a regular langauge. Let $R$ be each string of $L$ reversed. Prove that $R$ is also a regular langauge.