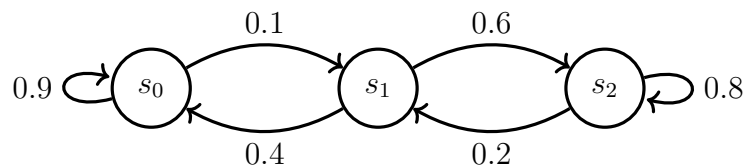# Quantitative Verification – Exercise sheet 7
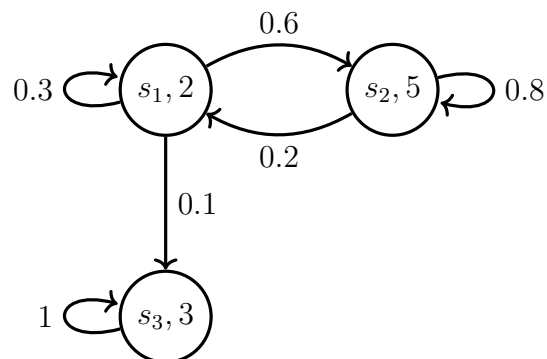
Exercise 7.1

Compute the steady state distribution of the following Markov Chain by solving the corresponding linear equation system.
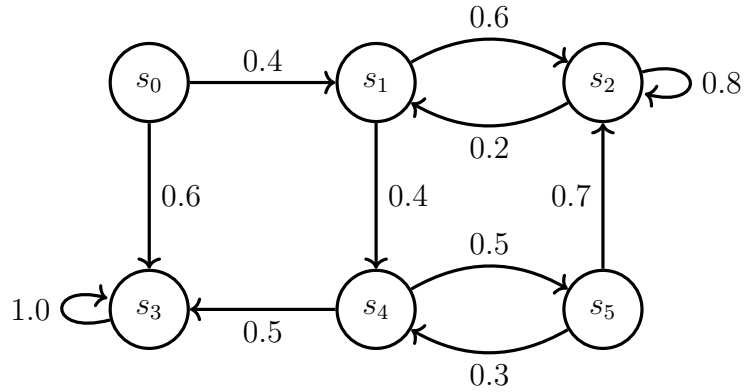

Exercise 7.2

For each initial distribution π, compute the average reward obtained in the following Markov Chain.

Given an initial distribution π and step bound n, how can you compute the average (accumulated) n-step reward? What is the 2-step average reward for $\pi = \{s_1 \rightarrow 1\}$?

Exercise 7.3

Compute the probability of reaching the set $\{s_1, s_4\}$ in the following Markov Chain.

Exercise 7.4

For the following Markov Chain, determine the set of its strongly connected components and identify which are "bottom".