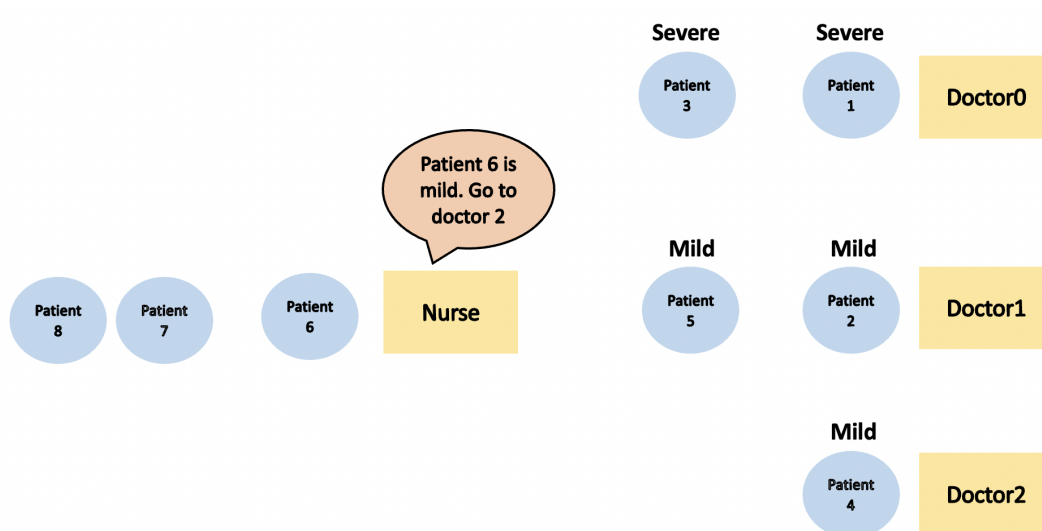


Simulation Project

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Brief Description of the Model

A clinic opens from 10:00 A.M. to 6 P.M. but serves until all patients have been treated. It has one nurse and 3 doctors (denoted by doctor0, doctor1, and doctor2). All patients must be initially assessed by the nurse so that she can assign them to different doctors by the level of seriousness; mild or severe. If the symptom is severe, the patient will be assigned to doctor0. If the symptom is mild, the patient will be assigned to doctor1 or doctor2, depending on the shortest queue at that time. (If the number of people in doctor1's and doctor2's queues is the same, the patient will be assigned to doctor1's queue)



Assumption of the Model

The interarrival time of a patient is exponentially distributed with a mean of 3 minutes
The nurse's service time is a constant time of 1 minute per patient.
There are 2 types of patients, mild and severe, with probabilities of 0.8 and 0.2 respectively
The service time of doctor0 is an exponential random variable with a mean of 10 minutes
The service time of doctor1 is an exponential random variable with a mean of 5 minutes
The service time of doctor2 is an exponential random variable with a mean of 5 minutes

Motivation for the Problem

We would like to estimate the expected average time spent in the system and the waiting time in queue to improve the speed of services.