Final Specifications

# Requirements Specification

Selected Problem: Emergency Room Simulator

## Specific Requirements

* The program will simulate a small-town emergency room.
* The simulation tries to be as efficient as possible.
* Upon arrival, each patient is assigned a priority number and placed into the appropriate queue.
* Each category of injury has its own probability:
  + Priority 1-10: 70%
  + Priority 11-15: 20%
  + Priority 16-20: 10%
* The emergency room has two categories of caregivers:
  + Nurses
    - Can treat priority 1-10
    - Take 1-10 minutes to treat a patient
  + Doctors
    - Can treat priorities 1-20
    - Take 1-20 minutes to treat a patient
* The hospital keeps a record of patients treated by name and number of times treated using a map. **(partially implemented)**
* The program simulates a week (10080 minutes) of the operation of the emergency room.
* The simulation prompts the user for the following values:
  + The average hourly arrival rate (not more than 60 patients per hour)
  + The number of doctors
  + The number of nurses
* The simulation calculates the average wait time for patients. **(Not currently working correctly)**

## Notes

* The simulation uses inheritance:
  + Doctors and nurses **are** caregivers.
* The simulation uses a map:
  + Stores patients by name and keeps track of how many times each patient has been treated.
* The simulation uses queues:
  + High priority injury queue
  + Low priority injury queue

# UML

