Simulation Of A Multi-Facility Outpatient Clinic
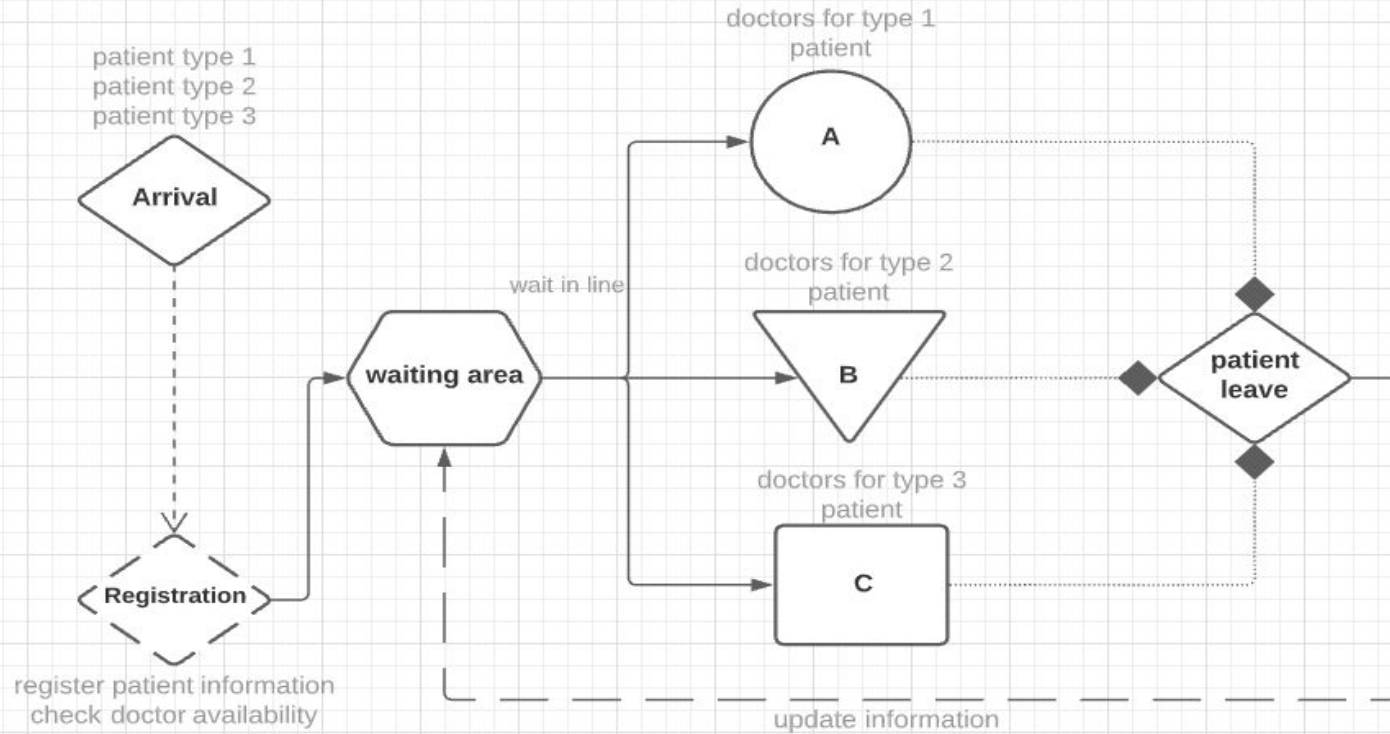
Group 4 - Final Project

Diagram

Team Responsiblity 1

How many servers of what type?
1 of Type 3
1 of Type 2
1 of Type 1

Do they vary with load?
No limit to the amount of patients waiting/arriving.

Input distribution?
Exponential Distribution (Arrival rate: Lambda = 15 patient/sec)
Arrival → Registration → Waiting area → Service area → Leave

What would the future event list look like?
Exponential Distribution (Arrival rate: Lambda = 15 patient/sec) // around 5 patient/sec for each type

Service distribution?
Exponential Distribution (Service rate: Mu = 5/7/9 patient/sec) for each type

Team Responsiblity 2

Define what objects go on what linked list?
1. Undefined patient goes to the fel event list
2. They get put into a linked list in time order
3. Based on the distribution rate of the register the undefined patients are assigned a type and put into 3 different linked list for different object types
4. Each server type has its own service distribution rate
5. Once a patient is in service the service is busy and the coming patient will go to the corresponding del.
6. Once the a patient is served they are replaced with the next patient in the del

Clock Time: 0
fel: [Patient #1 Arrival Time: 1 (UNDEFINED)]
//Register:
SA:
SB:
SC:
delA: []
delB: []
delC: []

Clock Time: 1
fel: [Customer #2 Arrival Time: 3,   customer #1 A leave time: 5]
//Register:customer #1 A
SA: customer #1 A // 1 MAX
SB:
SC:
delA: []
delB: []
delC: []

Clock Time: 3
fel: [customer #1 A leave time: 5, Customer #3 Arrival Time: 6]
//Register:[customer #2 A]
SA: customer #1 A // 1 MAX
SB:
SC:
delA: [customer #2]
delB: []
delC: []