Set-3 ABMS Midsem

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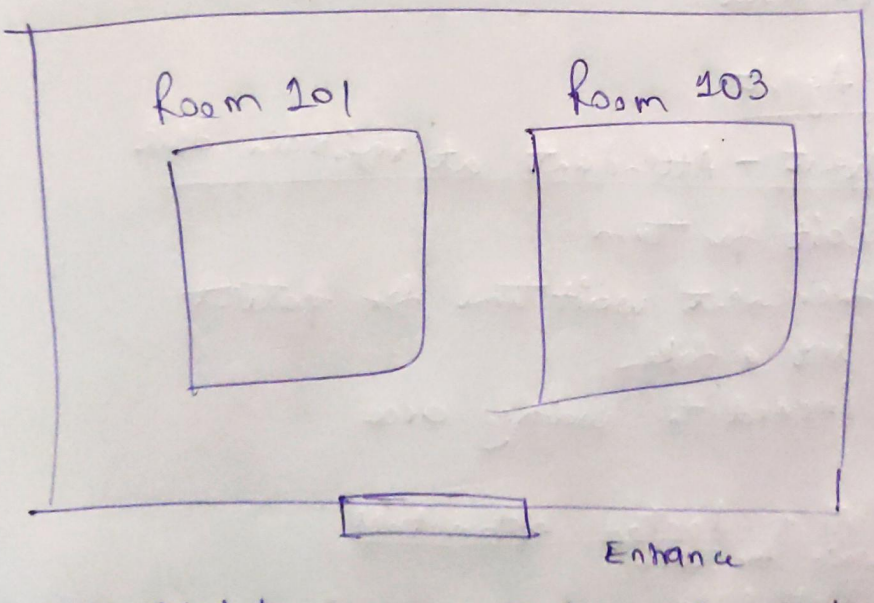
Q-1 Explain environment

→ There are 5 different stages

1. Registration desk
2. Waiting area
3. Test patients sights
4. Eye test and waiting area (½)
5. Opthamalogist consultation

Environment



→ we need to create 5 desks for 5 tasks

→ ~~There~~ And there are 2 rooms that each desk can go

→ So, there are $2 \times 2 \times 2 \times 2 \times 2 = 32$ initial environment configuration.

So, we need to select an environment from 32 conditions, do we count total wait time for patients

Agents

Static agents

→ Doctors at optometrist evaluation

→ Attendant at registration desk

~~Patients~~ co

Mobile Agent

→ Patients coming in the campus

Conditions - 32 initial conditions

Agent Interactions

① Agent to Agent

① Patient - Attendant at registrain desk

→ Wait for turn
→ Increment wait time for patient
→ Get a token
→ Proceed to waiting area

② Patient - doctor optometrist

→ wait for turn
→ Test eyes
→ Increment wait time

③ Patient - doctor for eye test

→ Get pressure test
→ Go to waiting room
→ Increment wait time

④ Patient - doctor at Consultation
→ Get medicines list
→ Increment wait counter

⑤ Patient - Patient Interaction
→ during all 4 stages above while waiting for his/her turn

Agent Environment Interactions

① Patient - Room Shifting
→ While shifting to another room for another task
→ Increment wait time for patient while shifting rooms

② Patient - In a Room
→ Just aggregate all the waiting time for a patient at a room

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Inputs
→ Constants
→ No of doctors
→ No of people (attendants) at registration desk
→ Dilation room waiting time (½ an hour)

Parameters
→ Waiting time at registration desk (to fill the form)
→ Waiting time at optometrist evaluation (test conduct) time
→ Time to receive opthamalogist consulation.
→ Initial number of patients

Outputs → Total time taken by patients to complete all stages.
→ Since we aggregate time taken by each patient at each stage, we can compute total time
→ So, least total time for patients is best model.

Experiment I have this idea.
→ Since rate of arrival of patients is not constant, we can model patient arrival time using Generalised poisson distribution

→ So input initial no of patients = 10
→ Time taken at each stage expect oscilation stage = 1 min
→ Generalised poisson will help send patients more during (lets say 10-2pm) and less from (6pm-10pm). It has overdispersion and underdispersion parameters

↳ So, we configure environment ~~at 32 initial~~ at 32 different setups, send patients, count wait times and report the time.

Pick the best model with least time consumption
