

Python Programming Hospital System **Project**

Mostafa S. Ibrahim

Teaching, Training and Coaching since more than a decade!

Artificial Intelligence & Computer Vision Researcher

PhD from Simon Fraser University - Canada

Bachelor / Msc from Cairo University - Egypt

Ex-(Software Engineer / ICPC World Finalist)



Hospital System

- There are 20 different specialization (e.g. Children, Surgery, etc)
- For each specialization, there are only 10 available spots [queue]
- The program keeps showing this menu of options

```
Program Options:  
1) Add new patient  
2) Print all patients  
3) Get next patient  
4) Remove a leaving atient  
5) End the program  
Enter your choice (from 1 to 5):
```

Hospital System: Adding a patient

- To add a patient: provide which specialization, name and status
 - Specialization: 1-based integer (e.g. 1 to 20)
 - Status is 0 (normal), 1 (urgent) and 2 (super urgent)
 - Normal patient is added to the end of the current queue of this specialization
 - Urgent patient is added after current urgents patients & before normal patients
 - Super-urgent patient is added after current super-urgent patients & before urgent/normal patients
 - Read the requested specialization [1-20].
 - Read his name and status (0 = regular, 1 urgent)
 - If 10 patients exist in this specialization, apologize and don't accept.

Hospital System

- Get next patient
 - Given a specialization, return the top patient of the queue
 - And remove from the queue
 - If no patient: just inform the Dr about that
- Remove a leaving patient
 - A patient may decide to leave before seeing a doctor
 - Provide specialization and name
 - If no such a person: inform about that

Dummy Data & Testing

- When we build new systems, typically no user data
- We may write a function that adds dummy data to the system
- Write a dummy function that adds initially several scenarios
 - E.g. a specialization with 10 persons of all different statuses
 - Eg. another specialization with a specific status
 - E.g. another one with 2 out of the 3 statuses
- Overall: different scenarios help you verify the correctness
- Testing
 - Think in all possible scenarios that activate every line of code you wrote and verify all needed cases
 - Testing is an important aspect in software engineering

My Dummy Data

Program Options:

- 1) Add new patient
- 2) Print all patients
- 3) Get next patient
- 4) Remove a leaving patient
- 5) End the program

Enter your choice (from 1 to 5): 2

Specialization 3: There are 10 patients.

Patient: Dummy2 is Super Urgent

Patient: Dummy5 is Super Urgent

Patient: Dummy8 is Super Urgent

Patient: Dummy1 is Urgent

Patient: Dummy4 is Urgent

Patient: Dummy7 is Urgent

Patient: Dummy0 is Normal

Patient: Dummy3 is Normal

Patient: Dummy6 is Normal

Patient: Dummy9 is Normal

Specialization 6: There are 4 patients.

Patient: AnotherDummy0 is Normal

Patient: AnotherDummy1 is Normal

Patient: AnotherDummy2 is Normal

Patient: AnotherDummy3 is Normal

Specialization 9: There are 5 patients.

Patient: ThirdDummy0 is Urgent

Patient: ThirdDummy1 is Urgent

Patient: ThirdDummy2 is Urgent

Patient: ThirdDummy3 is Urgent

Patient: ThirdDummy4 is Urgent

Specialization 13: There are 3 patients.

Patient: ForthDummy0 is Super Urgent

Patient: ForthDummy1 is Super Urgent

Patient: ForthDummy2 is Super Urgent

Specialization 14: There are 6 patients.

Patient: FifthDummy5 is Super Urgent

Patient: FifthDummy6 is Super Urgent

Patient: FifthDummy7 is Super Urgent

Patient: FifthDummy0 is Urgent

Patient: FifthDummy1 is Urgent

Patient: FifthDummy2 is Urgent

Program Options:

- 1) Add new patient
- 2) Print all patients
- 3) Get next patient
- 4) Remove a leaving patient
- 5) End the program

Enter your choice (from 1 to 5): 1

Enter specialization: 3

Sorry we can't add more patients for this specialization at the moment.

Program Options:

- 1) Add new patient
- 2) Print all patients
- 3) Get next patient
- 4) Remove a leaving patient
- 5) End the program

Enter your choice (from 1 to 5): 1

Enter specialization: 16

Enter patient name: mostafa

Enter status (0 normal / 1 urgent / 2 super urgent): 1

Specialization 16: There are 1 patients.
Patient: mostafa is Urgent

Enter your choice (from 1 to 5): 3

Enter specialization: 16

mostafa, Please go with the Dr

Program Options:

1) Add new patient

2) Print all patients

3) Get next patient

4) Remove a leaving patient

5) End the program

Enter your choice (from 1 to 5): 3

Enter specialization: 6

AnotherDummy0, Please go with the Dr

Program Options:

1) Add new patient

2) Print all patients

3) Get next patient

4) Remove a leaving patient

5) End the program

Enter your choice (from 1 to 5): 3

Enter specialization: 15

No patients at the moment. Have rest, Dr

Enter your choice (from 1 to 5): 4

Enter specialization: 6

Enter patient name: AnotherDummy3AnotherDummy3

No patient with such a name in this specialization!

Program Options:

1) Add new patient

2) Print all patients

3) Get next patient

4) Remove a leaving patient

5) End the program

Enter your choice (from 1 to 5): 4

Enter specialization: 6

Enter patient name: AnotherDummy3

Specialization 6: There are 2 patients.

Patient: AnotherDummy1 is Normal

Patient: AnotherDummy2 is Normal

Program Options:

- 1) Add new patient
- 2) Print all patients
- 3) Get next patient
- 4) Remove a leaving patient
- 5) End the program

Enter your choice (from 1 to 5): 1

Enter specialization: 6

Enter patient name: urg1

Enter status (0 normal / 1 urgent / 2 super urgent): 1

Program Options:

- 1) Add new patient
- 2) Print all patients
- 3) Get next patient
- 4) Remove a leaving patient
- 5) End the program

Enter your choice (from 1 to 5): 1

Enter specialization: 6

Enter patient name: urg2

Enter status (0 normal / 1 urgent / 2 super urgent): 1

Specialization 6: There are 4 patients.

Patient: urg1 is Urgent

Patient: urg2 is Urgent

Patient: AnotherDummy1 is Normal

Patient: AnotherDummy2 is Normal

Enter your choice (from 1 to 5): 1
Enter specialization: 6
Enter patient name: super1
Enter status (0 normal / 1 urgent / 2 super urgent): 2

Enter your choice (from 1 to 5): 1
Enter specialization: 6
Enter patient name: super2
Enter status (0 normal / 1 urgent / 2 super urgent): 2

Enter your choice (from 1 to 5): 1
Enter specialization: 6
Enter patient name: normal
Enter status (0 normal / 1 urgent / 2 super urgent): 0

Enter your choice (from 1 to 5): 1
Enter specialization: 6
Enter patient name: urg3
Enter status (0 normal / 1 urgent / 2 super urgent): 1

Specialization 6: There are 8 patients
Patient: super1 is Super Urgent
Patient: super2 is Super Urgent
Patient: urg1 is Urgent
Patient: urg2 is Urgent
Patient: urg3 is Urgent
Patient: AnotherDummy1 is Normal
Patient: AnotherDummy2 is Normal
Patient: normal is Normal

“Acquire knowledge and impart it to the people.”

“Seek knowledge from the Cradle to the Grave.”