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
```

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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
```