

Doctor's Appointment Management



CS241D - DATA STRUTURE AND ALGORITHMS

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CHAPTER 1

Mr. James has started a new hospital “Gordon Hospital”.

The hospital is new and there is only one doctor who specializes in only three categories.

- Heart patients
- Accident patients
- General patients.

The administration is following the principle of first come first served. But they have a serious problem; they can't prioritize between different types of patients.

For example, if the **General** patient comes first and then the **Heart** patient. They cannot prioritize the heart patient.

Mr. James wants a system where the system automatically prioritizes the critically ill. He wants a system that should be given such priority:

1st Emergency:

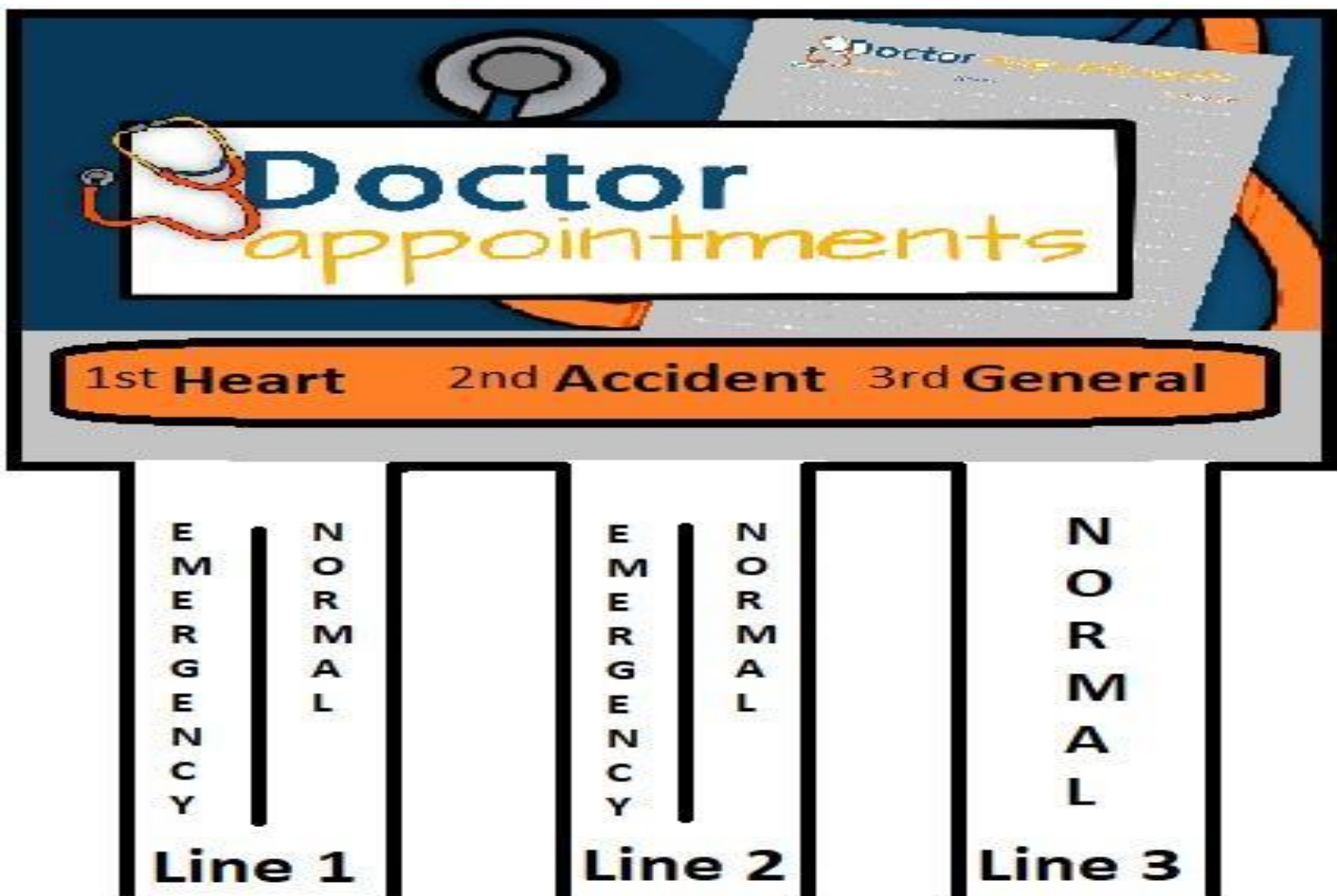
- 1st Heart
- 2nd Accident

2nd Non-emergency:

- 1st Heart
- 2nd Accident
- 3rd General

After all these conditions are satisfied, the patient will see a doctor for a check-up.

We have designed the software to perform computerized tasks that take more time if performed manually. Patients that come first will be checked-up first. We have made some priorities to check out the patients depend on their groups. If a patient in serious condition will come, doctors will treat him/her. Patient who will book an appointment will enlisted by using enqueue, and the patients who complete their check-up with the doctor will remove from the list by using the dequeue method. The software will also tell if the list of patients is empty.



DATA STRUCTURES REQUIRED

The data structure that will be used

- Queue
- Linked list

Languages and tools

Language:

- Java

Tools:

- Eclipse

CHAPTER 2

Section 1:

INTRODUCTION

Our system is doctor appointment management in which we will prioritize the patients according to their condition. If they are facing some serious problem or if they have an emergency case, our system will prioritize them and they will be treated first. There are three main cases through which we divide our patients that are general patient, heart patient, and accident patient. First heart patients would be treated than accident patients and at last general patients will be treated. In case when more than two emergency patients will come, they would be treated by first come method, which comes first will be treated first.

METHODOLOGY

There are few methods that we have added and implemented in our project so our system could be able to perform various tasks. The three most important methods we added in project are:

- Add
- Meet up with doctor:
- Empty

ADD:

In the add function there are two parameters: string name and integer priority. This method will add the patients in queue according to their condition. If priority is 1 the patient will be added in heart emergency, patients of priority will be of accident emergency, patients of priority three will be heart patients, whereas the general patient will be treated in other cases.

Meet up with doctor:

Now this method will allow patients to meet up with the doctor. If there will be not a heart emergency case, then the patient relatively dequeue and accident emergency patient will be prioritize so after treating with them these patients would be dequeue too, this will continue to work until there will be no patient. After treating with accident emergency, heart patient will poetize, then accident patient and at last when there will be no other serious patient the general patient will be treated. Patients will be dequeuing after their checkup.

Empty:

This will work when there is not a single patient.

Section: 3

Experiments and results:

We tested some people and divided them into different categories.

1 is for Heart Emergency

2 is for Accident Emergency

3 is for Heart

4 is for Accident

5 is for General

The first patient comes Ali with Priority 1, then Bilal comes with priority 2, then Chand comes with priority 3,

Danish with priority 4, Fahad with priority 1, Gohar with priority 2, Hammad with priority 5, Ilyas with priority 2.

Finally, the system makes a clear distinction between patients on priority Based on these numbers that are issued to patients to see a doctor

Ali 1

Fahad 2

Bilal 3

Gohar 4

Ilyas 5

Chand 6

Danish 7

Hamaad 8

Recommendation: We only recommend it when a patient comes in for a checkup. Input data into the system with the priority number,

After this, the system will automatically prioritize among patients on a priority basis.

Section: 4

Conclusions:

Having the ability to help sick people get better is a rare privilege that only **doctors** and a few other professionals have. However, a managed way of handling emergency patients first is a most needed thing in every hospital. Compared to the usual queuing method, the web-based doctor's appointment system could significantly increase patient's satisfaction with registration and reduce total waiting time effectively. Due to lack of specialized doctors, we have set priorities. Our system automatically prioritizes the critically ill. However, further improvements are needed for broad use of the **system**.

Future Directions:

Some future directions are the improvements in the patient's module, which includes setting reminders for the appointments and saving the appointment date to the calendar. With time, we will have new specialized doctors and we will update our priority system accordingly. We will have specialized doctors for eye, brain etc. in future and our queuing system will change by focusing on the future needs and prioritize depending upon how critical the patient's situation is.