**Introduction**

A new medical facility in Dublin needs a software solution for their accidents and emergency. For this problem, I needed to implement the topics that have been discussed over the past few weeks in class such as priority queues, mysql queries, linked lists.

The following steps were needed to complete the solution using a console menu.

1. Gather patient details.
2. Add patient to queue (fifo) .Using first in first out. When the patient comes to the front of the queue, the triage nurse will assess on a scale of 1 to 10 how much they need to see doctor.
3. Get patient priority level and store it in a list.
4. Bring patient with highest priority to top of the queue so the doctor can see the patient that needs the most urgent care first.
5. Display how long the waiting list is.

Video of Interaction –

<https://www.youtube.com/watch?v=J8t927VOOzw>

Github link –

Feature 1 – Console Menu User Interface

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The menu will list a range of options.

Option 1 – Add a new patient to the waiting list for triage nurse.

Option 2 – Add Priority level for patient

Option 3 – Record patient treatment

Option 4 – View waiting list

Option 1 Functionality:

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Information is gathered on the patient by inserting input values into variables.

The following variables stored information on the user –

Ppsnumber, name, telephone, age, symptom, priority, treatment.

Priority and treatment were left blank, to be updated after in the options 2 and 3.

The patient input was given an initatied object Patient(), this information on the patient was then added to the queue using enqueue() function.

Option 2. – Add priority level for patient

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Option 2 used a queue method to get the patient that was first in.

Using this queue method, it enables the triage nurse to give priority to the patient. When the the priority is added, this patient object is added to the SLL using the .add patient function. This will allow the doctor to see the highest priority in option 3.

Option 3.

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On option 3, the doctor is shown the highest priority patient first. The get priority function iterates throught the single linked list and compares the priority attribute between nodes.

The doctor inserts the treatment into the input which is inserted into the patient.treatment variable.

The patient is then added to the database.

Option 4.

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Option 4 uses the function size() which is found in the sll class

Graphical user interface, application

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**Data Persistence:**

The programme uses DB browser for lite to store its data.

The programme uses ACID methodologies, in this case Durability. When the programme is stopped running, the information that has been entered into the system will still be stored in the database – ‘Records’

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A db\_service class was created to communicate with the database – Records.

Using a try – catch method, a query which inserted the pps number, name, telephone, symptoms, treatment was inserted.

4. Data Structure:

1. Priority Queues

Priority queue was used to initially store the patient as a First In First Out. Once the priority was entered, the patient was added to a single linked list.

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1. Single linked lists

The single linked list held information on the patient priority and by iterating through the single linked list, the system was able to display the priority with the highest number.

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Conclusion

For the functionality of the waiting list in a hospital situation the use of single linked lists and priority queues were sufficient in creating a programme to solve this use case.

A major flaw in the programme I created is it’s sustainability. I think in a real life situation it would need a lot of improvement to be useful.

The big problem is that every time I run the programme it will add duplicate data from the patients I have added.

Text, application

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