EMERGENCY ROOM QUEUE MANAGMENT SYSTEM

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1 PROBLEM STATEMENT

Emergency rooms must prioritize patients based on urgency. Critical patients need immediate care and should be placed at the front of the queue, while normal patients wait at the back. This project simulates a priority-based patient queue using a doubly linked list in C++, allowing insertion, deletion, and real-time status display

2 KEY FEATURE

- InsertAtBegning(int id) – Adds a critical patient to the front
- InsertAtEnd(int id) – Adds a normal patient to the back
- InsertAtPosition(int id, int pos) – Inserts a patient at a specific position
- DeleteFromBegining() – Treats and removes the first patient
- displayQueue() – Shows queue from front to back
- displayReverseQueue() – Shows queue from back to front
- displayStatus() – Displays current queue status

3 TCONCLUSION

his project successfully simulates a real-world Emergency Room queue using a doubly linked list in C++. It prioritizes critical patients, manages dynamic insertions and deletions, and provides clear visualizations of the queue. Through this system, we demonstrate efficient patient handling, practical use of data structures, and real-time status tracking — all essential for responsive healthcare management.

4 PSEUDOCODE

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STRUCT PatientNode
   INT a prev, next

CLASS ERQueue
   POINTER front, back
   INT count

METHOD InsertAtBeginning(id)
   Create node → link before
front

METHOD InsertAtEnd(id)
   Create node → link after back

METHOD InsertAtPosition(id,
pos)
   Traverse to pos-1 → insert
node

METHOD DeleteFromBeginning()
   Remove front node

METHOD displayQueue()
   Traverse front → back

METHOD displayReverseQueue()
   Traverse back → front

METHOD displayStatus()
   Show front, back, count
```

5