



# HOSPITAL MANAGEMENT SYSTEM

## IN C

PAITENT QUEUE MANAGEMENT USING LINKED LIST

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## Objective:

- Develop a simple console-based hospital management system in C. Use a queue data structure to manage patients. Provide functionality to add patients Serve (dequeue) patients View all waiting patients Save/load patient data from a file

# INTRODUCTION :

- Purpose: To efficiently manage patient records in a hospital using a queue data Structure.

## Highlights:

- Queue-based patient handling (FIFO)
- Dynamic memory management
- File storage for data persistence

## WHY WE USE QUEUE:

- **FIFO (First-In, First-Out)** behavior matches real-world hospital queue logic.
- Patients are served in the order they arrive.
- New patients are added at the rear, and served patients are removed from the front.

# ENQUEUE OPERATION :

**Function:** void enqueue(Patient patient)

- Allocates memory for a new node
- Adds the node at the rear of the queue
- Updates rear pointer

## Why Important?

- Ensures patient joins the queue in order

# DEQUEUE OPERATION :

**Function:** void dequeue()

- Removes the patient from the front
- Frees memory
- Updates front pointer

**Purpose:**

- Simulates a patient being served or treated

## DISPLAYING QUEUE :

**Function:** void displayQueue()



- Traverses the linked list
- Displays all patient information in order

**Useful For:**

- Hospital staff to view current queue



## PROJECT FEATURES :

- Add new patients
  - Serve (dequeue) patients
  - Display all patients
  - Save and load data from file
  - Exit with automatic data saving
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# STORING PATIENT INFORMATION :

- Name
  - Age
  - Disease
  - Admission date
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- `struct Node`
  - Represents each node in the queue
  - Contains a Patient and a pointer to the next node

# FILE OPERATIONS :

## **Saving to File**

- void saveToFile()
- Writes all patients to a text file (patients\_data.txt)

## **Loading from File**

- void loadFromFile()
- Reads and enqueues patients from file at program startup

## **Why Important?**

- Keeps data persistent between program runs

# MAIN MENU SYSTEM :

- Displays options:

- 1.Add Patient
- 2.Serve Patient
- 3.Display Patients
- 4.Save Data
- 5.Exit

- Uses do-while loop and switch statement for user interaction



CODE :

- <https://onlinegdb.com/jK5Y420Bo>
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# SAMPLE OUTPUT :

1. Add Patient
2. Serve Patient
3. Display Patients
4. Save Data
5. Exit

Enter your choice: 1

Enter name: lakshmi

Enter age: 10

Enter disease: fever

Enter admission date: 22\4\2025

Patient added to the queue.

# CONCLUSION :

- Efficient real-world simulation using C
- Demonstrated queues, file handling, and dynamic memory
- Foundation for more complex hospital systems

