PROJECT REPORT:

HOSPITAL MANAGEMENT SYSTEM

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1. Abstract

The Hospital Management System is a Python and MySQL-based project designed to simplify hospital operations. It uses a terminal-based interface to manage Patients, Beds, and Drug inventories.

This project showcases real-world application of Python, modular programming, file handling, and database integration.

2. Introduction

In today's digital era, hospitals require efficient systems to manage large volumes of patient and operational data. Traditional paper-based processes lead to errors, delays, and miscommunication.

This project presents a simple yet functional command-line Hospital Management System that automates essential hospital tasks using Python on the frontend and MySQL as the backend.

The system consists of three interconnected modules:

- Patient Management System
- Bed Management System
- Drug/Pharmacy Management System

Each module performs CRUD operations, ensuring data accuracy and reducing manual

workload.

3. Problem Statement

Hospitals have to manage a lot of work in day to day life from the patient management,bed management,drug management and many other
Most of these operations are commonly prone to:

- errors due to manual written records
- Mismanaged records
- Delayed updates
- Lack of centralized access
- Difficulty in exporting or analyzing data

A simple and working system is required to digitize and simplify these administrative processes using basic Python logic and MySQL database connectivity.

The aim is to create a lightweight, terminal-based Hospital Management System to help person working there to perform essential tasks efficiently without relying on complex software.

4. Objectives

- To design a menu-driven hospital management system using Python.
- To implement MySQL database integration for storing real data.
- To perform CRUD operations for patients, beds, and drugs.
- To implement CSV export for external reporting.
- To understand modular programming and database connectivity.
- To build real-world problem-solving skills using Python.

5. Scope of the Project

This project focuses on the core functionalities required in a small or medium hospital setup .
The system includes:

- Patient registration, updates, and viewing records
- Bed availability tracking and assignment
- Drug inventory management
- Exporting reports in CSV format or in the format to open in excel files to print eaisly (for offline use or analysis)

- A simple menu-driven command prompt interface

6. Existing System vs Proposed System

Existing System (Manual)

- Paper records are easily lost or damaged.
- Manual updating takes time; slow retrieval.
- High risk of data loss and no backups.
- Bed availability confusion and miscommunication.

Proposed System (Digital Python + SQL)

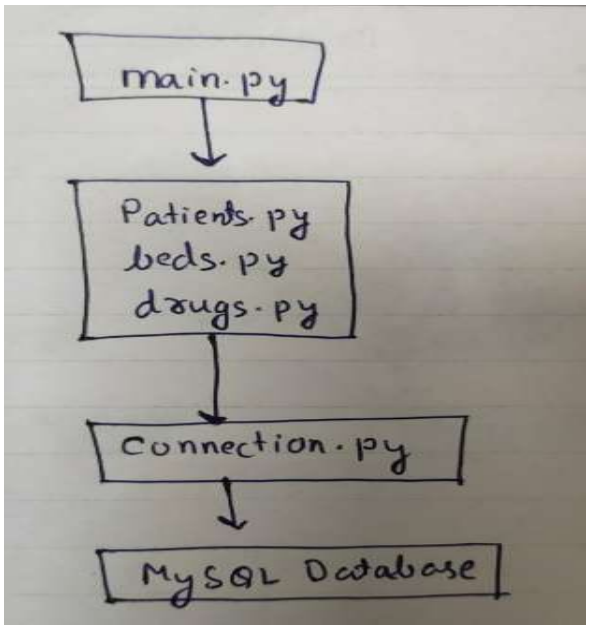
- All data stored securely in MySQL.
- Instant add, view, and update operations.
- Automated CSV generation.
- Fewer human errors and structured records.
- Modular code makes it easy to maintain.

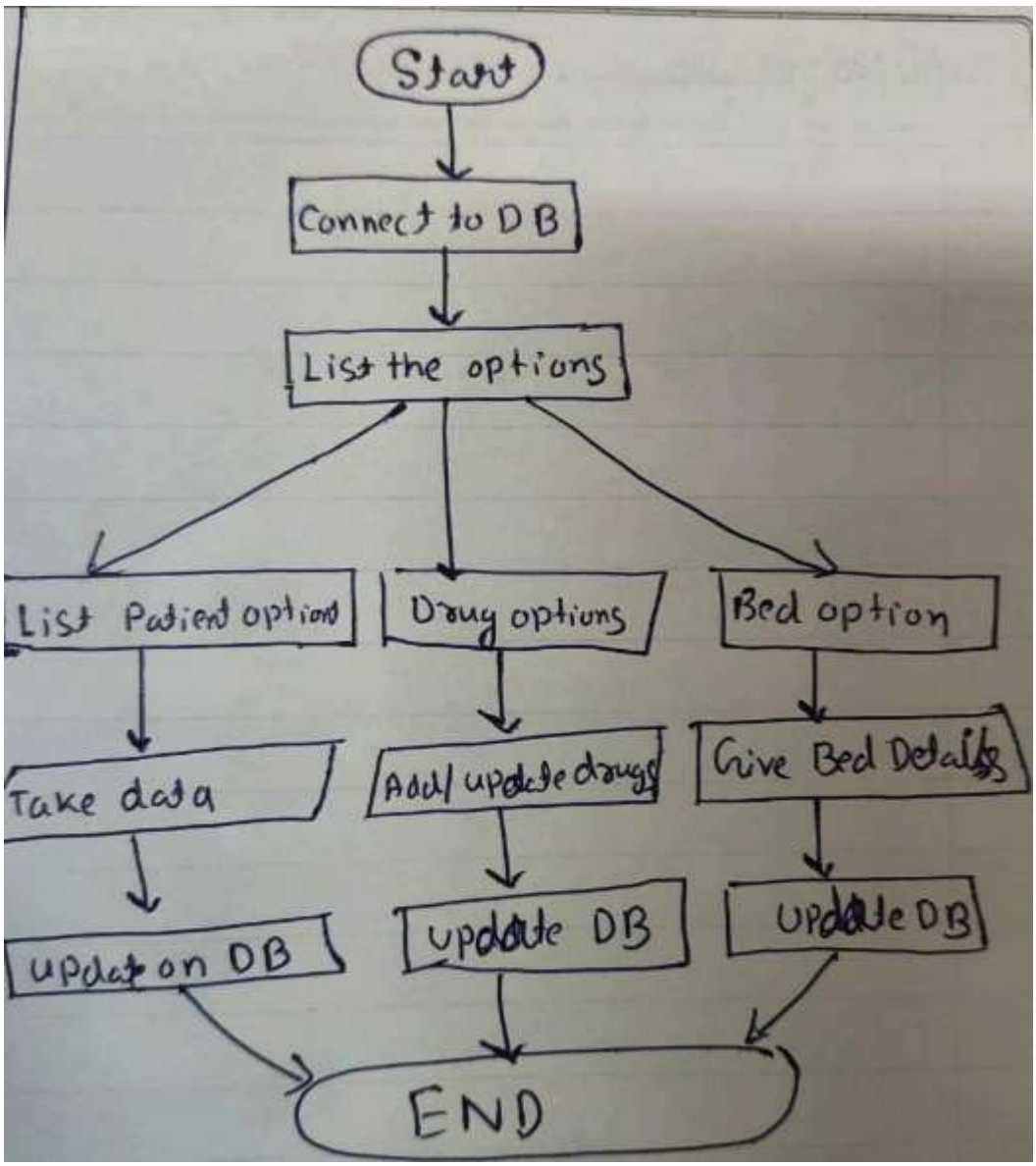
7. System Requirements

Software:

- Python 3.13 and above (https://www.python.org/downloads/)
- MySQL Server(https://dev.mysql.com/downloads/mysql/)
- MySQL Workbench(https://dev.mysql.com/downloads/mysql/)
- mysql-connector-python library(py -m pip install mysql-connecter-python)
- VS Code or any other code editor

8. System Design





9. Database Design

Table: patients

	patient_id	name	age	gender	phone	address	disease	admit_date	discharge_date
▶	1	Akash Kumar	56	M	8596742132	Kota	Jaundice	2025-11-23	NULL
	2	Akash Singh	19	M	8989898989	Bhopal	Stomach Ache	2025-11-23	NULL
*	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Table: beds

bed_id	ward_type	status	current_patient_id
1	ICU	OCCUPIED	1
NULL	NULL	NULL	NULL

Table: drugs

drug_id	name	type	stock_qty	price	expiry_date
1	Paracitamol	Tablet	10	5.00	2027-05-05
2	Insulin	Injection	15	200.00	2026-05-01
NULL	NULL	NULL	NULL	NULL	NULL

10. Implementation

The project is implemented as 5 separate Python modules:

1. **main.py**: Controls entire navigation.
2. **connection.py**: Handles MySQL connection.
3. **patients.py**: CRUD operations + CSV export.
4. **beds.py**: Bed management functions.
5. **drugs.py**: Drug inventory functions.

11. Testing

Test ID	Module	Input	Expected Output
T01	Patient Add	Name, age, etc.	Record inserted
T02	View Patients	–	List shown
T03	Add Bed	Bed ID	Successful insert
T04	Assign Bed	Bed + Patient ID	Status = OCCUPIED
T05	Export CSV	–	CSV generated

12. Result (screenshots)

1)T01-Patients ADD

```
You are now in the patient management section.
1.Add Patient
2.View Patients
3.Update Patient
4.Export Patients data to csv or excel file
5.GO BACK TO MAIN MENU
Enter your choice (1-5): 1
Fill the details of the new patients here.
Enter name:Rakesh Ranjan
Enter age:25
Enter gender(M/F/O):M
Enter phone number:8522587896
Enter address:Kota
Enter disease:Appendix problem
Enter admit date in format YYYY-MM-DD (example: 2025-11-23)
Admit date: 2025-11-23
Patient added successfully.
```

2)T02-View Patients

```
You are now in the patient management section.
1.Add Patient
2.View Patients
3.Update Patient
4.Export Patients data to csv or excel file
5.GO BACK TO MAIN MENU
Enter your choice (1-5): 2
Here is the list of all patients.

--- PATIENT LIST ---
(1, 'Akash Kumar', 56, 'M', '8596742132', 'Kota', 'Jaundice', datetime.date(2025, 11, 23), None)
(2, 'Akash Singh', 19, 'M', '8989898989', 'Bhopal ', ' Stomach Ache ', datetime.date(2025, 11, 23), None)
(3, 'Rakesh Ranjan', 25, 'M', '8522587896', 'Kota', 'Appendix problem', datetime.date(2025, 11, 23), None)
```

3)T03-Add Bed

```
You are now in the bed management section.
1.Add New Bed
2.View Status
3.Assign Bed to Patient
4.Free a Bed
5.Export Bed data to CSV
6.GO BACK TO MAIN MENU
Enter your choice (1-6): 1
Enter ID: 2
Type (ICU/General/Private): ICU
Bed added successfully.
```

4)T04-Assign a Bed

```
You are now in the bed management section.
1.Add New Bed
2.View Status
3.Assign Bed to Patient
4.Free a Bed
5.Export Bed data to CSV
6.GO BACK TO MAIN MENU
Enter your choice (1-6): 3

--- ASSIGN BED ---
Enter Bed ID to assign: 2
Enter Patient ID to assign to this bed: 3
Bed assigned successfully.
```

5)T05-Export CSV

```
You are now in the patient management section.
1.Add Patient
2.View Patients
3.Update Patient
4.Export Patients data to csv or excel file
5.GO BACK TO MAIN MENU
Enter your choice (1-5): 4
Export patients data to csv or excel file here.

Exporting data to patients.csv ...
Exported to patients.csv
```

Exported File Screenshot

patients.csv

```
1,Akash Kumar,56,M,8596742132,Kota,Jaundice,2025-11-23,
2,Akash Singh,19,M,8989898989,Bhopal , Stomach Ache ,2025-11-23,
3,Rakesh Ranjan,25,M,8522587896,Kota,Appendix problem,2025-11-23,
```

13. Conclusion

The Hospital Management System successfully demonstrates how a Python project can work with MySQL to solve real-world problems. This system manages hospital data efficiently with simple terminal controls. This project enhanced my understanding of modular programming, CRUD operations, SQL queries, and structured software development.