A comprehensive Project Report on COVID Bed Management System

ACKNOWLEDGEMENT

The satisfaction and euphoria that accompany the successful completion of any task would be incomplete without complementing those who made it possible, whose guidance and encouragement made our efforts successful.

My sincere thanks to highly esteemed institution PES University for grooming up me in to be software engineer.
I am grateful to Revathi G , Asst.Professor,Dept.of **CSE**, PES University who helped me to complete this project successfully by providing guidance,encouragement and valuable suggestion during entire period of the project.

Nanda Kumar T(PES1UG22CS375)
Nikhil M (PES1UG22CS384)

ABSTRACT

The **COVID Bed Management System** aims to streamline hospital bed allocation, availability, and tracking during the COVID-19 pandemic. This web-based application provides an efficient platform for managing patient admissions and discharges while ensuring real-time updates on bed occupancy.

The project facilitates hospitals in maintaining accurate records of available beds and enhances communication between hospitals and patients. Patients can view bed availability, make reservations, and track their status. The system also includes a robust database for administrators to manage hospital details, patient data, and COVID-related statistics effectively.

This project is built with a **Flask** backend, a user-friendly **HTML/CSS** frontend, and a **MySQL** database for data storage. It aims to address the challenges faced during the pandemic, providing a reliable and scalable solution for hospital bed management.

CONTENTS

CHAPTER 1: INTRODUCTION

1.1 Objectives

- To provide a seamless platform for hospitals to manage bed allocations during the COVID-19 pandemic.

- To offer patients real-time updates on bed availability across hospitals.

- To improve administrative efficiency in handling patient data and hospital resources.

1.2 Limitations

- Limited to hospitals registered on the platform.

- Requires stable internet connectivity for real-time updates.

- System usage may be impacted during high traffic or server overload.

CHAPTER 2: STUDY OF EXISTING SYSTEM

2.1 Case Study on Existing Systems

Current systems for bed management are either manual or scattered across various applications. These lack real-time data synchronization and efficient communication.

2.2 Proposed System

The proposed system integrates all functionalities into a single, user-friendly platform, providing centralized access for hospitals, patients, and administrators.

CHAPTER 3: DATABASE DESIGN
3.1 Software Requirement Specification

3.1.1 Collection of Requirements
- Functional Requirements:
  1) **Bed Management:** Maintain records of available, occupied, and reserved beds.
  2) **Real-Time Updates:** Provide real-time tracking of bed availability and updates on patient statuses.
  3) **Patient Registration:** Enable smooth registration of patients, including personal and medical details.
- Non-Functional Requirements:
  1) **Scalability:** The system should handle a growing number of patients and users without significant degradation in performance.
  2) **Security:** Ensure secure handling of sensitive patient data through encryption and authentication mechanisms.

3) **User-Friendliness:** Provide an intuitive interface for medical staff with minimal training requirements.

3.1.2 Software and Hardware Requirements

● Software Requirements:

1) **Programming Language:** Python

2) **Framework:** Flask (for backend development)

3) **Database Management System:** MySQL

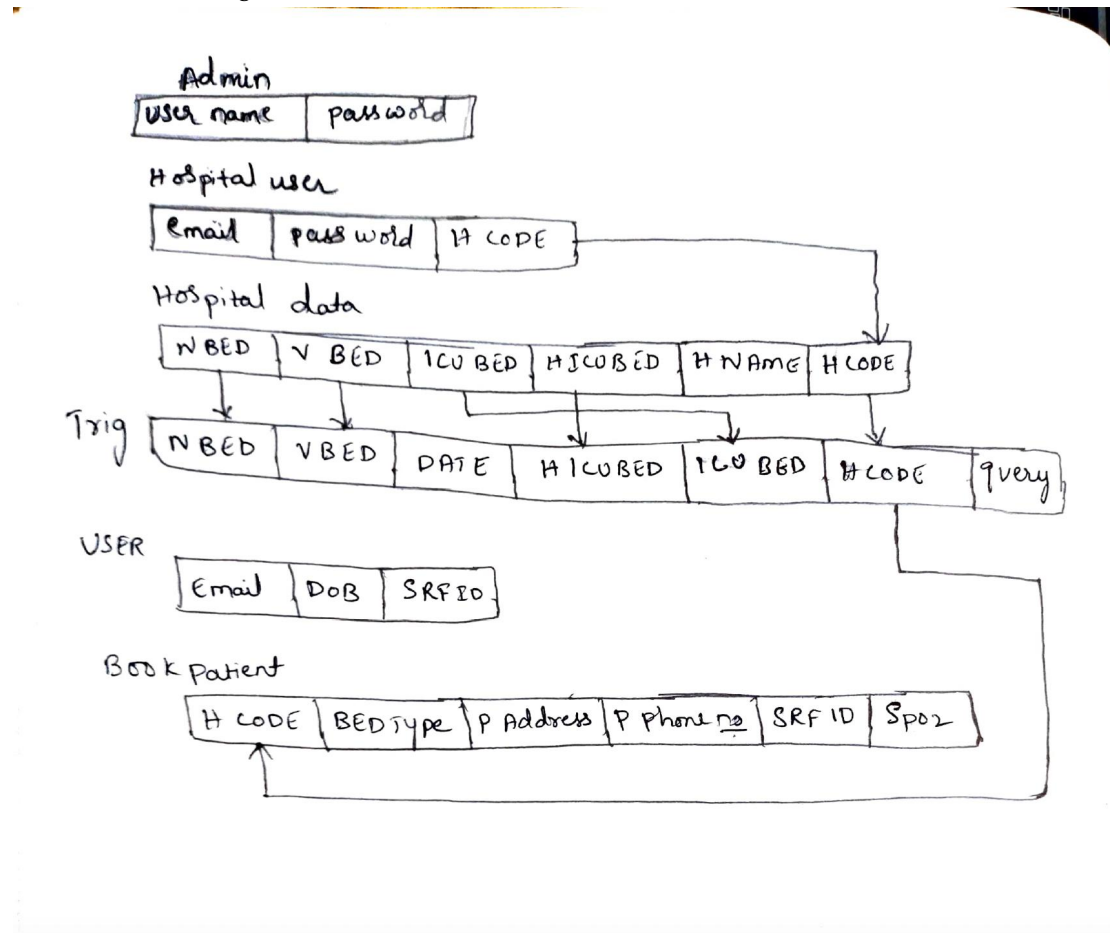4) **Frontend Technologies:** HTML, CSS

● Hardware Requirements:

1)**Memory:** Minimum 8GB RAM

2)**Storage:** At least 50GB free disk space

3)**Processor:** Quad-core processor or higher

3.2 Conceptual Design

3.2.1 ER Diagram
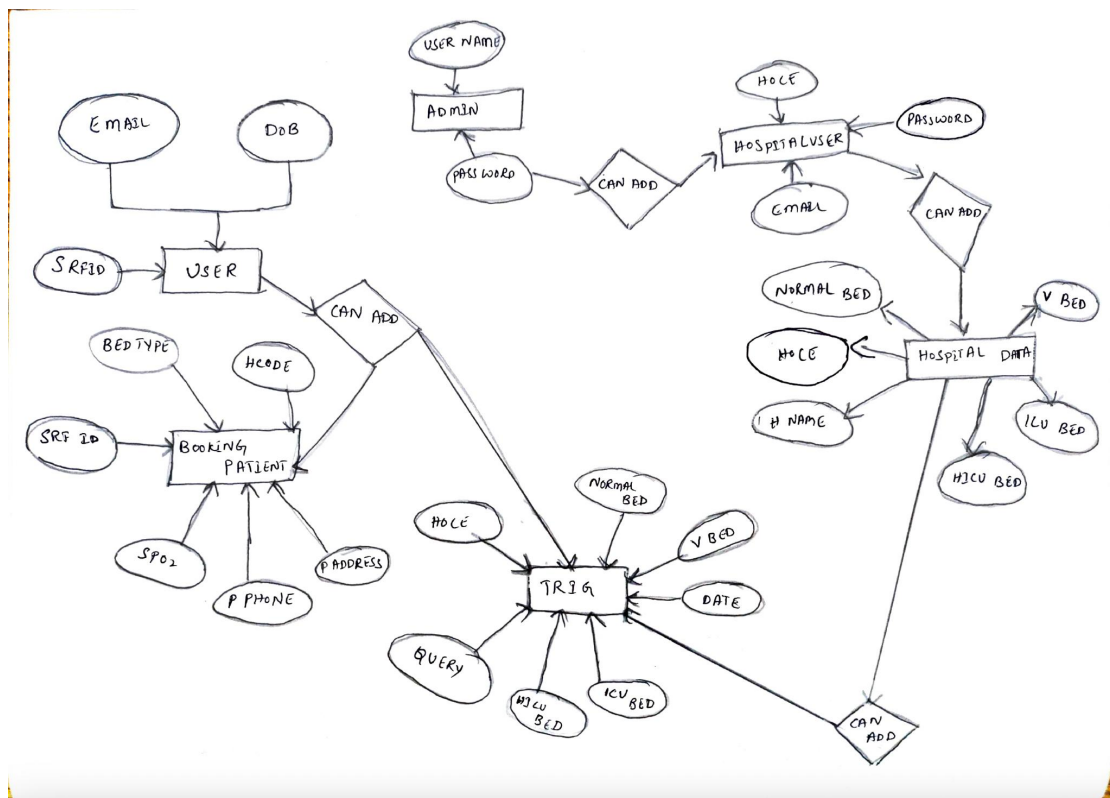
3.2.2 Schema Diagram

3.3 Implementation

3.3.1 Frontend

- **Technologies Used:** HTML and CSS

- Features:

    1) User-friendly forms for patient registration.

    2) Dashboards for bed availability and occupancy details.

    3) Notifications and alerts for critical updates.

3.3.2 Backend

- **Framework:** Flask

- Responsibilities:

    1) Handle API endpoints for data retrieval and updates.

    2) Integrate the MySQL database for secure and efficient data storage.

3) Implement business logic for bed allocation and patient management.

3.3.3 Triggers and Stored Procedures

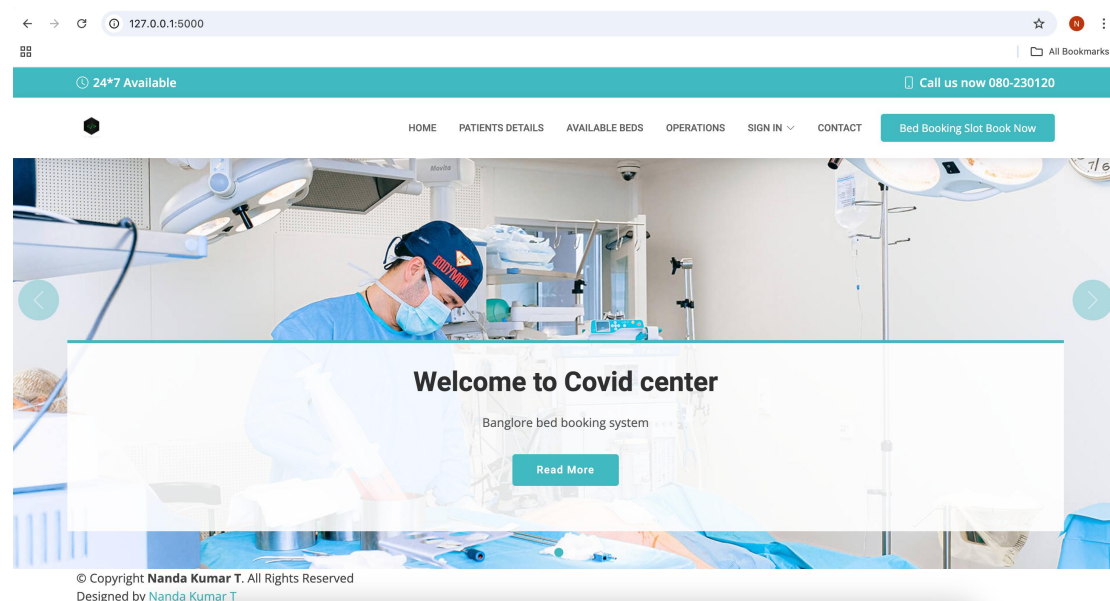● Usage:

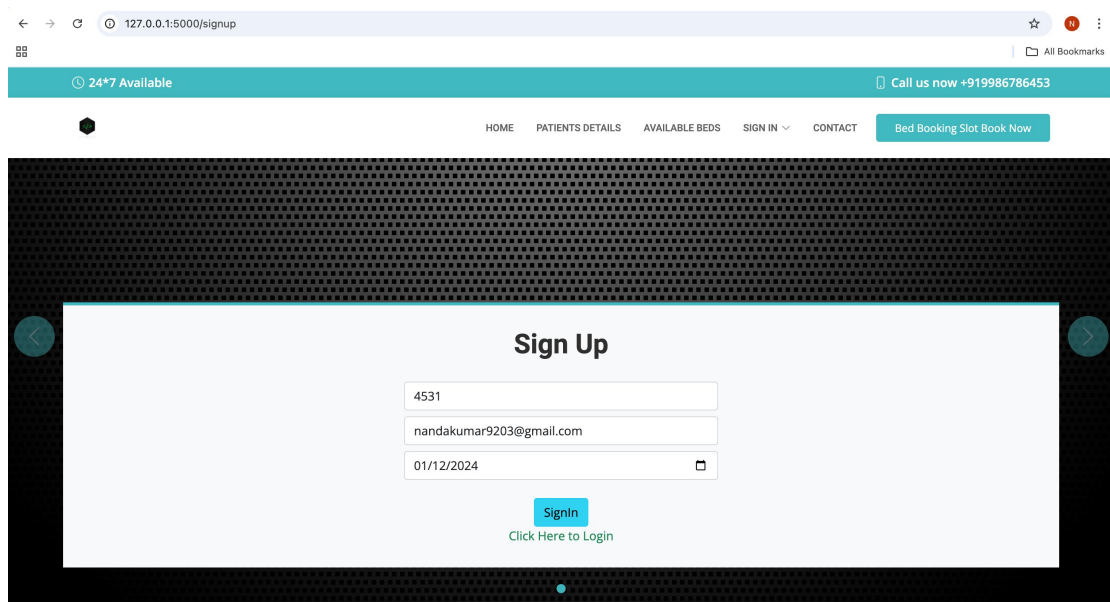1) Triggers to automatically update bed availability when a patient is admitted or discharged.

2) Stored procedures to streamline complex queries, such as generating reports on bed utilization trends.
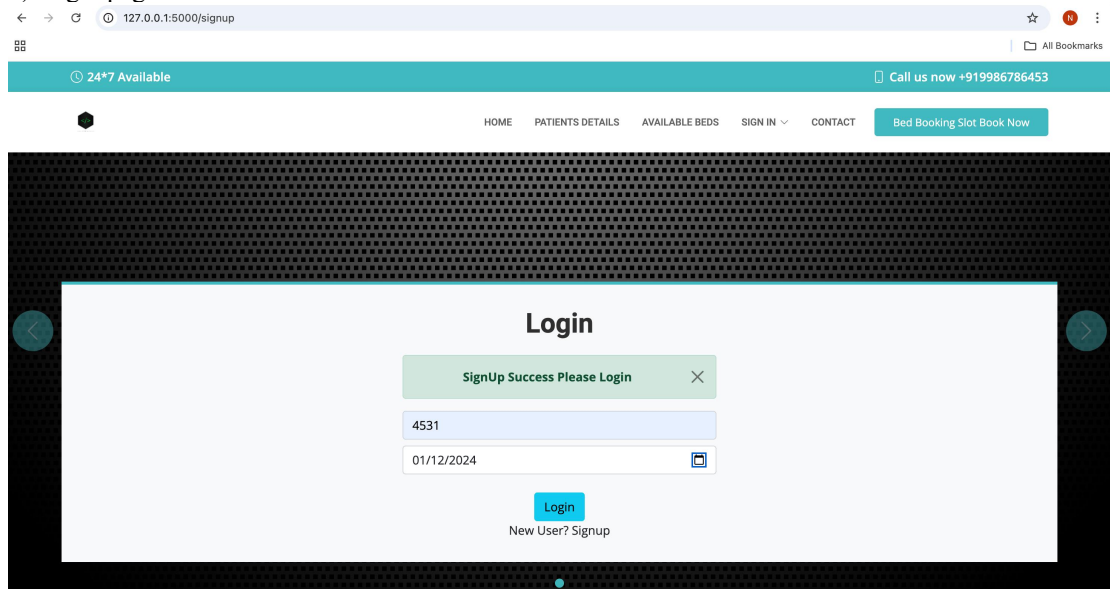
CHAPTER 4: USER INTERFACES

4.1 Screenshots

2)Sign up page

ⓒ 24*7 Available   📱 Call us now +919986786453

HOME   PATIENTS DETAILS   AVAILABLE BEDS   SIGN IN ⌄   CONTACT   [Bed Booking Slot Book Now]

Sign Up

4531

nandakumar9203@gmail.com

01/12/2024

SignIn

Click Here to Login

3) Login page

ⓒ 24*7 Available   📱 Call us now +919986786453

HOME   PATIENTS DETAILS   AVAILABLE BEDS   SIGN IN ⌄   CONTACT   [Bed Booking Slot Book Now]

Login

SignUp Success Please Login   ✕

4531

01/12/2024

Login

New User? Signup

4) Bed booking page

HOME   PATIENTS DETAILS   AVAILABLE BEDS   WELCOME NANDAKUMAR9203@GMAIL.COM ⌄   CONTACT   Bed Booking Slot Book Now

Book Bed Slot

Covid Care Center

4531

HICU Bed

Select hospitalcode by looking the availablity of beds in table right side

100

12

Nanda Kumar

3823713713

213,iufei,iherfigwcvg

Book Slot

Available Beds

Hospital Code	Hospital Name	Normal Bed	HICU Bed	I.C.U Bed	Ventilator Bed
98	Hospital_1	1	9	7	23
99	Hospital_2	11	2	12	12
100	Hospital_3	3	5	12	0

HOME   PATIENTS DETAILS   AVAILABLE BEDS   WELCOME NANDAKUMAR9203@GMAIL.COM ⌄   CONTACT   Bed Booking Slot Book Now

Patient Details

DETAILS
4531
HICUBed
HICUBed
100
12
Nanda Kumar
3823713713
213,iufei,iherfigwcvg

5) Hospital login

HOME   PATIENTS DETAILS   AVAILABLE BEDS   SIGN IN ⌄   CONTACT   Bed Booking Slot Book Now

Hospital Login

hospital123@gmail.com
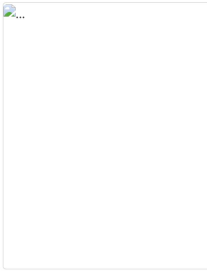
••••••••••

Login

6) Hospital details

HOME   PATIENTS DETAILS   AVAILABLE BEDS   WELCOME HOSPITAL123@GMAIL.COM ⌄   CONTACT   Bed Booking Slot Book Now

Add Hospital Data

Covid Care Center

Hospital Code : 98

Enter Hospital Name

Normal Bed Available?

H.I.C.U Bed Available?

I.C.U Bed Available?

Ventilators Bed Available?

Add

Hospital Data	
Hospital Code : **98**	
Hospital Name : **Hospital_1**	
Normal Beds Available :**1**	
H.I.C.U Beds Available: **9**	
I.C.U Beds Available :**7**	
Ventilators Beds Available : **23**	
✎ 🗑	

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7) Update Hospital details

Update Hospital Data

Covid Care Center

Hospital_1

3

9

7

23

Update

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8) Admin login
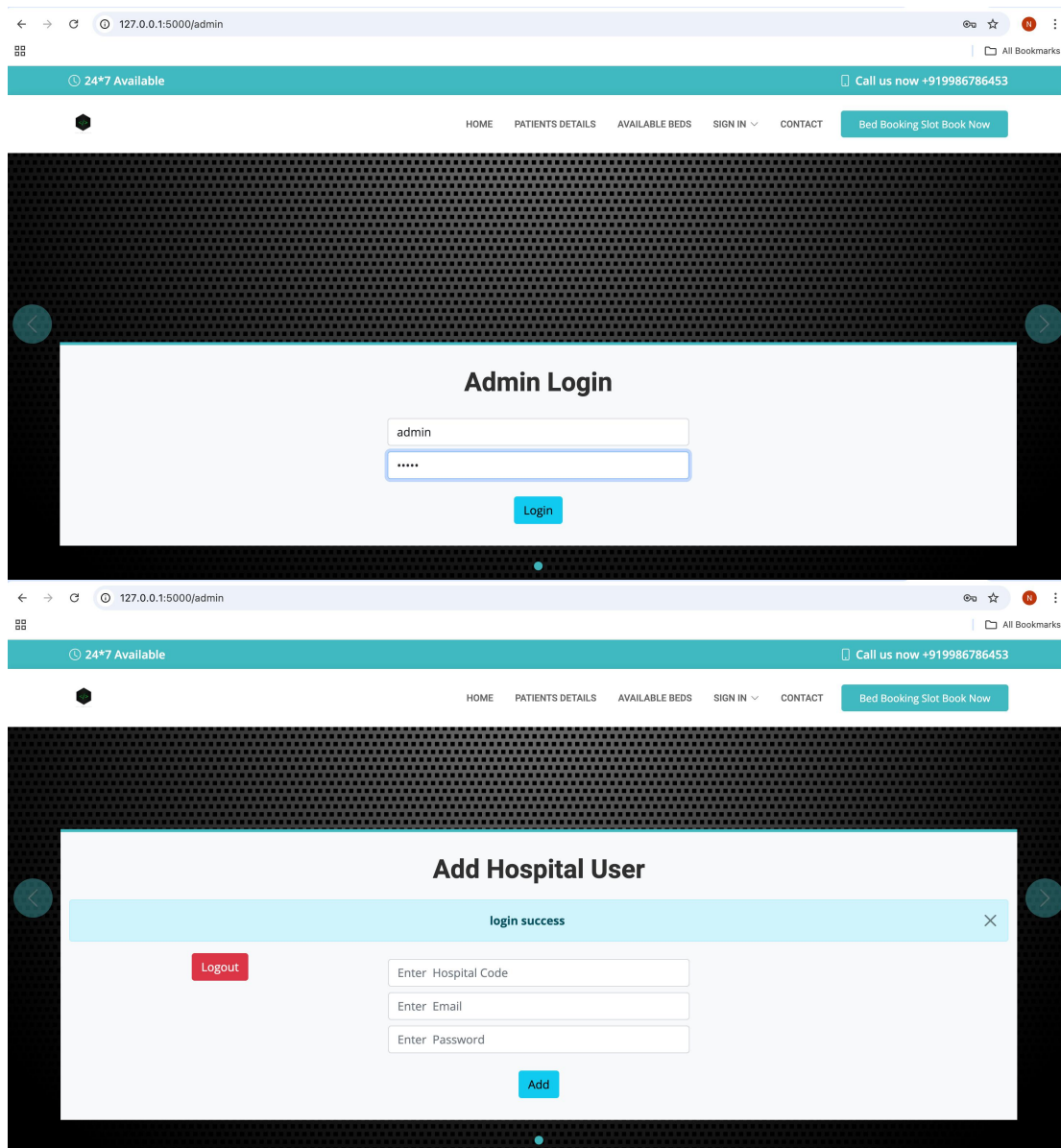
CONCLUSION

The **COVID Bed Management System** successfully addresses the challenges of bed allocation and management during the pandemic. The system enhances transparency and efficiency, ensuring timely access to healthcare resources.

FUTURE ENHANCEMENTS

- Integration of predictive analytics for bed demand forecasting.
- Mobile application development for wider accessibility.
- Multi-language support to cater to diverse user bases.

REFERENCES

- Flask Documentation

- MySQL Reference Manual

- HTML and CSS Guides