

## **Industrial Training Report**

### **A SUMMER TRAINING REPORT**

## **HOSPITAL MANAGEMENT SYSTEM**

*Submitted by*

**Moirangthem Satyabrata**

**24MCA20343**

*in partial fulfillment for the award of the degree of*

**MASTER OF COMPUTER APPLICATION**

**IN**

**DEPARTMENT OF COMPUTER APPLICATION**



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## **BONAFIDE CERTIFICATE**

Certified that this Summer Training report **HOSPITAL MANAGEMENT SYSTEM** is the bonafide work of **MOIRANGTHEM SATYABRATA** who carried out the Summer Training work under my/our supervision.

Signature of the Training  
Supervisor

Manvinder Singh

Senior Technical Instructor

EVA Solutions Pvt. Ltd.

Submitted for the Summer Training viva – voce examination held in July 2025.

**INTERNAL EXAMINER**

**HEAD OF DEPARTMENT**

**EVA Solution Pvt. Ltd.**

EVA Solutions Pvt. Ltd., located at SCO-26, Kishore Street, Bhupindra Road, Patiala, Punjab, is a dynamic and ISO 9001:2008 certified Information Technology services and consulting company. Established with a vision to deliver innovative digital solutions, EVA Solutions specializes in software development, website designing, e-commerce development, mobile application development, graphic designing, and digital marketing services.

The organization prides itself on a client-first approach, focusing on building user-friendly, scalable, and customized IT solutions that cater to the evolving needs of businesses across various sectors. EVA Solutions works with a diverse client base ranging from small start-ups to well-established companies.

With a strong emphasis on quality, professionalism, and timely project delivery, EVA Solutions Pvt. Ltd. has positioned itself as a trusted partner in digital transformation. Their development team comprises skilled software engineers, web designers, graphic artists, and digital marketers who work collaboratively to provide comprehensive and effective solutions.

In addition to providing IT services, EVA Solutions is committed to promoting skill development among students and young professionals through structured industrial training and internship programs. The company offers hands-on training in technologies such as:

- WordPress and Content Management Systems (CMS)
- Web Development (HTML, CSS, JavaScript, PHP)
- E-commerce Development (WooCommerce, Shopify)
- Mobile App Development
- UI/UX Design
- Digital Marketing and SEO

These training programs aim to bridge the gap between academic learning and industry expectations, fostering employable skills and real-world project experience for aspiring IT professionals.

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## EVA Solutions Pvt. Ltd.

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Ref: EVA/2025/3042

Dated: 26.05.25

To

Training and Placement Officer,  
Department of Computer Science & Engineering,  
Chandigarh University, Mohali.

**Sub: Six Weeks Training.**

Dear Sir,

This is to your reference letter

**Mr. Moirangthem Satyabrata** student of MCA of your Institute is permitted to undergo Industrial Training in our Company **w.e.f June 2025 for Six Weeks.**

Further the student may please be informed to bring the following documents at the time of joining with us.

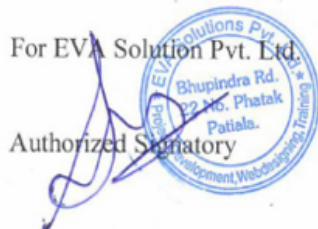
- College Identity Card for Identity Proof.
- The photocopy of this letter duly signed by the Training & Placement Officer.
- Joining Letter duly signed by the Training & Placement Officer.

This also brings to your notice that no stipend will be paid to the trainee.

Yours faithfully,

For EVA Solution Pvt. Ltd.

Authorized Signatory



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## **TABLE OF CONTENTS**

### **CHAPTER 1. INTRODUCTION**

- 1.1. Identification of Client/ Need/ Relevant Contemporary issue
- 1.2. Identification of Problem
- 1.3. Identification of Tasks
- 1.4. Timeline
- 1.5. Organization of the Report

### **CHAPTER 2. LITERATURE REVIEW/BACKGROUND STUDY**

- 2.1. Timeline of the reported problem
- 2.2. Existing solutions
- 2.3. Bibliometric analysis
- 2.4. Review Summary
- 2.5. Problem Definition
- 2.6. Goals/Objectives

### **CHAPTER 3. DESIGN FLOW/PROCESS**

- 3.1. Evaluation & Selection of Specifications/Features
- 3.2. Design Constraints
- 3.3. Analysis of Features and finalization subject to constraints
- 3.4. Design Flow
- 3.5. Design selection
- 3.6. Implementation plan/methodology

### **CHAPTER 4. RESULTS ANALYSIS AND VALIDATION**

- 4.1. Implementation of solution

## **CHAPTER 5. CONCLUSION AND FUTURE WORK**

5.1. Conclusion

5.2. Future work

## **REFERENCES**

## **ACKNOWLEDGEMENT**

## CHAPTER 1

### INTRODUCTION

#### 1.1. Identification of Client /Need / Relevant Contemporary issue

Hospitals need an efficient digital system to manage patients, appointments, billing, and records. The demand for automation and digital healthcare has increased after the COVID-19 pandemic.

#### 1.2. Identification of Problem

Manual hospital systems are inefficient, leading to delays, human errors, data loss, and miscommunication between departments.

#### 1.3. Identification of Tasks

- Design user roles (Admin, Doctor, Patient)
- Create appointment system
- Build database
- Implement billing and e-prescription features
- Test functionality

#### 1.4. Timeline

- Week 1 – 2 :- Requirement Gathering
- Week 3 – 4 :- Database & UI Design
- Week 5 – 6 :- Module Development
- Week 7 :- Testing
- Week 8 :- Final Documentation

#### 1.5. Organization of the Report

The report is organized into five core chapters addressing system analysis, literature, design, implementation, and future enhancements.

## CHAPTER 2

### LITERATURE REVIEW / BACKGROUND STUDY

#### 2.1. Timeline of the reported problem

#### 2.2. Existing solutions

Several Hospital Management Systems (HMS) have been developed and implemented across healthcare institutions. These include :-

- **Medixcel EMR** :- A cloud-based platform that offers comprehensive EMR services including patient management, lab integrations, and billing. However, it's costly and tailored for large hospitals.
- **Practo Ray** :- Known for appointment scheduling, digital prescriptions, and follow-ups. It is user-friendly but lacks full administrative modules.
- **OpenMRS** :- An open-source medical record system targeted at low-resource settings. While feature-rich, it has a steep learning curve for implementation and customization.

These solutions, while effective, either target large-scale institutions or lack flexibility, customization, and affordability for smaller clinics and hospitals.

#### 2.3. Bibliometric analysis

Feature	Observed in Existing Systems	Effectiveness	Drawbacks
Patient Registration	Yes	Reduces paperwork	Limited customization
Appointment Management	Yes	Improves time efficiency	Some systems lack auto-reminder support
Medical History Management	Yes	Helpful in diagnosis	Security concerns in cloud-only solutions
Billing and Payment	Yes	Automated billing saves time	Integration with local systems is limited
Role-Based Access	Yes	Enhances security	Often only available in premium versions
E-Prescription	Yes	Accurate & fast delivery	Requires structured training to use properly



## 2.4. Review Summary

The literature review emphasizes a gap in the market for a cost-effective, user-friendly, and secure HMS tailored to small-to-medium clinics. Existing solutions are either too complex or expensive. The current summer training project addresses this gap by designing a system with essential HMS features such as :-

- User Authentication
- Appointment Scheduling
- Doctor/Patient Interaction
- Billing and Reports

## 2.5. Problem Definition

- What is to be done :-  
Design and develop a web-based Hospital Management System with essential functionalities for administration, doctor, and patient users.
- How it is to be done :-  
Using HTML, CSS, JS, PHP, and MySQL to build a modular system with role-based dashboards, patient records, billing, and appointment management. The project will follow full-stack development principles and be hosted in a local environment (XAMPP).
- What is not to be done :-  
The system does not cover :-
  - Real-time chat or telemedicine modules
  - Integration with insurance providers or pharmacy inventory
  - Mobile app or offline support

## 2.6. Goals/Objectives

- Build a login-based access system for multiple roles (Admin, Doctor, Patient).
- Design a patient registration and appointment booking module.
- Implement electronic medical records and prescription management.
- Develop billing and invoice generation features.
- Ensure a responsive UI for accessibility and ease of use.
- Test the entire system with dummy entries to validate accuracy and workflow.

These goals are :-

- Narrow and specific :- Each goal targets a particular functionality.
- Precise :- Clearly outlines deliverables (e.g., "invoice generation").

- Tangible and Concrete :- Demonstrable through modules/screens.
- Measurable :- System can be tested for functionality, responsiveness, and error-handling.

## CHAPTER 3

### DESIGN FLOW / PROCESS

#### 3.1. Evaluation & Selection of Specifications/Features

Based on the literature and existing solutions reviewed in Chapter 2, the following features were identified as essential, desirable, or optional :-

Feature	Importance	Included in Final Design
User Authentication	Essential	Yes
Role-Based Dashboard	Essential	Yes
Patient Registration	Essential	Yes
Appointment Scheduling	Essential	Yes
Medical History / EMR	Essential	Yes
E-Prescriptions	Desirable	Yes
Billing and Invoice	Essential	Yes
Real-time Chat	Optional	No
Feedback Mechanism	Desirable	Yes
Reports & Analytics	Desirable	Yes
Integration with Pharmacy	Optional	No

#### 3.2. Design Constraints

- Regulatory Compliance :- The system does not store or transmit real patient data; therefore, HIPAA/NDHM compliance is not applicable during development but should be considered for future deployment.
- Economic :- The solution must be free and use open-source tools (PHP, MySQL, HTML, CSS, JS).
- Environmental :- Minimal energy/resource usage; hosted locally via XAMPP.
- Health/Safety :- No physical hazards; UI designed to minimize cognitive load.
- Manufacturability :- Code is modular and reusable; can be deployed to any compatible server.
- Professional Ethics :- Data privacy and login security implemented to protect user data.
- Social/Political :- The system is intended to improve access to healthcare management without discrimination.

- Cost Constraints :- No commercial software or hardware dependencies — strictly open-source stack used.

### 3.3. Analysis of Features and Finalization Subject to Constraints

Feature	Final Decision	Justification
Real-time Chat	Removed	Adds complexity, requires backend socket support
Integration with Pharmacy	Removed	Beyond the training scope, requires external API
Advanced Security (2FA)	Modified	Only role – based access added
Reports	Simplified	Export in basic Excel or PDF format

### 3.4. Design Flow

Alternative 1:- Monolithic Web Application

- All functionalities (login, patient data, appointments, billing) handled in a single PHP-based structure.
- Pros :- Simple, easy to maintain, faster to develop.
- Cons :- Less scalable, tightly coupled.

Alternative 2 :- Modular Web Application with Role-Based Views

- Separate modules for Admin, Doctor, Patient.
- Distinct PHP files and access control for each role.
- Pros :- Scalable, secure, maintainable.
- Cons :- Slightly higher development time.

### 3.5. Design Selection

Chosen Design: Alternative 2 - Modular Web Application

Criteria	Alternative 1 (Monolithic)	Alternative 2 (Modular)
Scalability	Low	High
Maintainability	Moderate	High
Security	Basic	Role – based access
Suitability for future	Low	High

#### Reason for Selection :-

The modular design provides a clean separation of concerns, better access control, and aligns with full-stack development best practices. It supports future enhancements like API integrations or mobile app extensions.

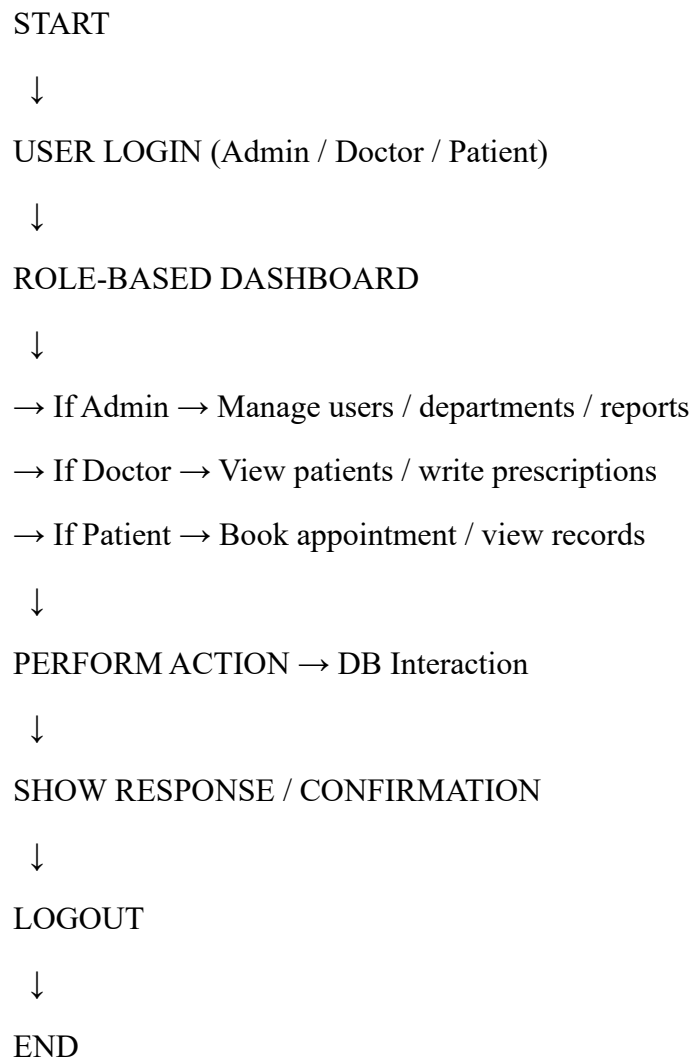
### 3.6. Implementation Plan / Methodology

System Development Life Cycle (SDLC) Model :- Waterfall Model

Implementation Steps :-

1. Requirement Analysis :- Identify user roles, modules, and data needs.
2. Database Design :- Entity-Relationship Diagram (ERD) created for Patients, Doctors, Appointments, Billing.
3. UI/UX Design :- HTML/CSS wireframes for all role-based dashboards.
4. Backend Development :- PHP scripts developed for CRUD operations.
5. Integration :- Linking front-end forms to MySQL database.
6. Testing :- Dummy data used for unit and functional testing.

**Flowchart of HMS Workflow :-**



## CHAPTER 4

### RESULT ANALYSIS AND VALIDATION

#### 4.1. Implementation of Solution

The Hospital Management System (HMS) was implemented using a modern full-stack web development approach, utilizing a variety of tools for analysis, design, coding, testing, and reporting. The results of the summer training work are validated below based on different stages of development and deployment.

##### Analysis Tools Used

- Requirement Analysis was conducted through user role breakdown (Admin, Doctor, Patient).
- Functional and non-functional requirements were clearly documented using structured tables and flow logic.
- Database normalization was applied to eliminate redundancy and improve data integrity.

##### Design Tools and Schematics

- Wireframes & UI Mockups were created using hand sketches and web browser previews.
- Database Design :- ER Diagrams and relational schemas were designed using phpMyAdmin and visualized through MySQL Workbench.
- Modular UI Structure :- Bootstrap was used to create responsive and mobile-friendly layouts.
- Navigation Flow :- Clearly defined through navbar links and dashboard segmentation for each user role.

##### Report Preparation Tools

- Microsoft Word and LaTeX were used to structure the project documentation.
- Diagrams and flowcharts were created using [draw.io](https://draw.io).
- Code was version-controlled and shared through GitHub :- [GitHub Repository](#)

##### Training Management and Communication Tools

- XAMPP was used as the local development and testing environment.
- phpMyAdmin allowed GUI-based database management.

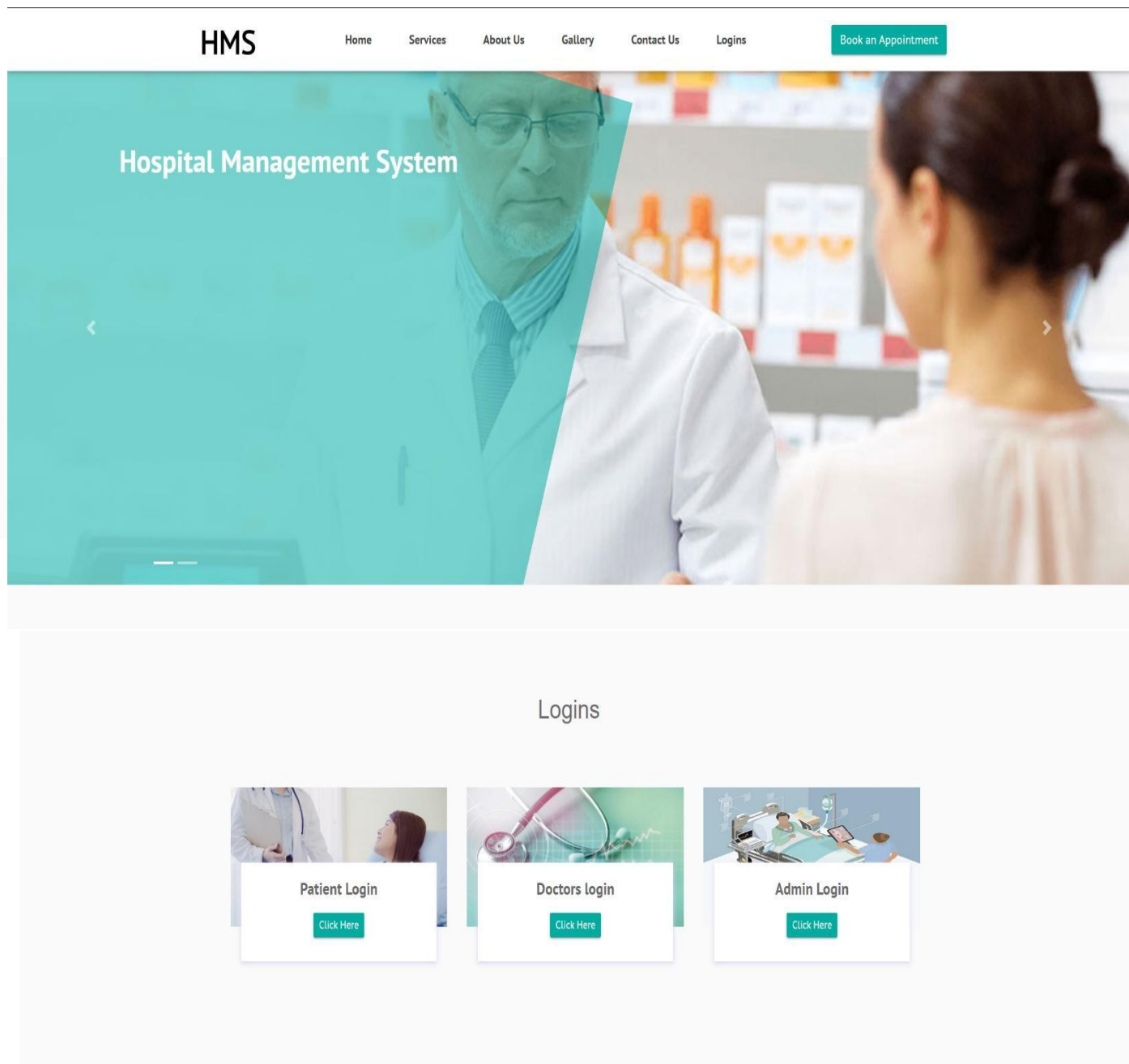
- Internal communication with the project supervisor was conducted via email and Google Docs comments during feedback cycles.
- All stages of development were recorded in a task sheet for progress tracking.

## Testing, Characterization, and Data Validation

### Validation Summary :-

- Dummy users (patients/doctors/admins) were used to test login and dashboard functionalities.
- Sample appointment records were created to simulate real-world hospital scheduling.
- Medical records and prescriptions were inserted and retrieved successfully.
- All modules integrated without data corruption or workflow failure.

### Screenshots and Output :-





## Our Key Features

Take a look at some of our key features



Cardiology



Orthopaedic



Neurologist



Pharma Pipeline



Pharma Team



High Quality treatments



## About Our Hospital

The Hospital Management System (HMS) is designed for Any Hospital to replace their existing manual, paper based system. The new system is to control the following information; patient information, room availability, staff and operating room schedules, and patient invoices. These services are to be provided in an efficient, cost effective manner, with the goal of reducing the time and resources currently required for such tasks.

A significant part of the operation of any hospital involves the acquisition, management and timely retrieval of great volumes of information. This information typically involves; patient personal information and medical history, staff information, room and ward scheduling, staff scheduling, operating theater scheduling and various facilities waiting lists. All of this information must be managed in an efficient and cost wise fashion so that an institution's resources may be effectively utilized. HMS will automate the management of the hospital making it more efficient and error free. It aims at standardizing data, consolidating data ensuring data integrity and reducing inconsistencies.

## Our Gallery

View Our Gallery

All

Dental

Cardiology

Neurology

Laboratry





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D-204, Hole Town South West, Delhi-110096,India

Phone: 1122334455

Email: Info@gmail.com

Timing: 9 am To 8 Pm

Hospital Management System

## HMS | Patient Registration

### Sign Up

Enter your personal details below:

Full Name

Address

City

Gender

☐ Female ☐ Male

Enter your account details below:

Email

Password

Password Again

☒ I agree

Already have an account? [Log-in](#)

Submit

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## HMS | Doctor Login

### Sign in to your account

Please enter your name and password to log in.

Email

Password

[Forgot Password ?](#)

Login

HOSPITAL MANAGEMENT SYSTEM



## Admin Login

Sign in to your account

Please enter your name and password to log in.

 Username

 Password





Login

[Back to Home Page](#)

HOSPITAL MANAGEMENT SYSTEM

HMS

MAIN NAVIGATION

-  Dashboard
-  Appointment History
-  Patients
-  Search

## DOCTOR | MANAGE PATIENTS

Hospital Management System  abc

Doctor / Manage Patients

Manage Patients

### Patient Details

Patient Name	Mansi	Patient Email	jk@gmail.com
Patient Mobile Number	9878978798	Patient Address	*ldghy
Patient Gender	Female	Patient Age	46
Patient Medical History(if any)	No	Patient Reg Date	2019-11-05 16:19:41

### Medical History











#	Blood Pressure	Weight	Blood Sugar	Body Temperature	Medical Prescription	Visit Date
1	120/185	85 Kg	80/120	101 degree	#Fever, #BP high 1 Paracetamol 2 jocib tab	2019-11-06 09:50:07

Add Medical History

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HMS

MAIN NAVIGATION

-  Dashboard
-  Doctors
-  Users
-  Patients
-  Appointment History
-  Contactus Queries
-  Doctor Session Logs
-  User Session Logs
-  Reports
-  Patient Search

## ADMIN | DASHBOARD

Hospital Management System  Admin

Admin / Dashboard

 Manage Users  
Total Users : 6

 Manage Doctors  
Total Doctors : 9

 Appointments  
Total Appointments : 3

 Manage Patients  
Total Patients : 5

 New Queries  
Total New Queries : 1

## CHAPTER 5

### CONCLUSION & FUTURE WORK

#### 5.1. Conclusion

The Hospital Management System project provides an effective solution for managing hospital operations digitally, reducing manual effort and improving efficiency across departments. It brings together key functionalities such as patient registration, appointment scheduling, billing, and medical record management into one user-friendly platform. By applying web development skills and internet programming concepts, the system demonstrates how technology can streamline healthcare processes and improve the overall patient experience. This project not only enhances our understanding of full-stack development but also highlights the importance of automation in modern healthcare environments.

#### 5.2. Future Work

The current HMS solution serves as a solid foundation for small to mid-sized clinics or hospitals. However, there are several enhancements and future directions that can extend its capability, usability, and reach :-

Required Modifications :-

- Implement data encryption for sensitive information (e.g., patient records and prescriptions).
- Add password recovery mechanism using email/OTP.

Change in Approach (if scaled) :-

- Migrate from local (XAMPP) to a cloud-based environment (e.g., AWS, Heroku).
- Use MVC architecture or frameworks (e.g., Laravel) for better code structure and scalability.
- Implement RESTful APIs for interoperability with other systems (e.g., pharmacy or insurance).

Suggestions for Extension :-

- Mobile Application :- Build Android/iOS apps to increase accessibility for patients and doctors.
- Real-time Features :- Add live chat between doctor and patient for teleconsultation.
- Analytics Dashboard :- Include charts for tracking revenue, patient demographics, and treatment success rates.

- Voice and OCR Input :- Use voice-to-text or Optical Character Recognition for faster data entry

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## Acknowledgement

" Opportunity to work and learn in a professional environment. I'm thankful to my mentors and colleagues for their guidance and feedback. I also thank Chandigarh University and the Training & Placement Department for facilitating this training."

## CERTIFICATE



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Ref: EVA/2025/6029

Dated: 07.07.2025

### TO WHOM IT MAY CONCERN

This is to certify that Mr. Moirangthem Satvabrata of Department of Masters of Computer Applications, Chandigarh University, Mohali, has undergone six weeks industrial training 18<sup>th</sup> May-2025 to 5<sup>th</sup> July-2025 at our organization to fulfill the requirements for the award of degree of MCA.

During the training, he worked on the project Hospital Management System in Front End Technology development using UI/UX under my supervision.

During his tenure, we found him sincere and hard working.

We wish him a great success in the future.

For EVA Solution Pvt. Ltd.

Authorized Signatory



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