Industrial Internship Report on

”MediBook”

Prepared by

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Executive Summary
This report provides details of the Industrial Internship provided by upskill Campus and The IoT Academy in collaboration with Industrial Partner UniConverge Technologies Pvt Ltd (UCT). This internship was focused on a project/problem statement provided by UCT. We had to finish the project including the report in 4 weeks’ time. My project was MediBook This internship gave me a very good opportunity to get exposure to Industrial problems and design/implement solution for that. It was an overall great experience to have this internship.

TABLE OF CONTENTS

1 Preface

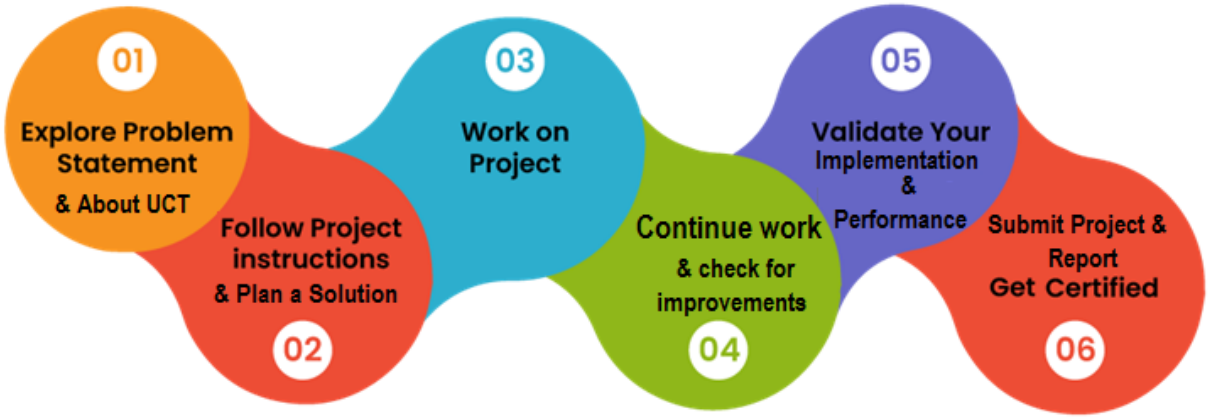
Summary of the whole 6 weeks' work.

About need of relevant Internship in career development.

Brief about Your project/problem statement.

Opportunity given by USC/UCT.

How Program was planned



Your Learnings and overall experience.

Thank to all (with names), who have helped you directly or indirectly.

Your message to your juniors and peers.

2 Introduction

2.1 About UniConverge Technologies Pvt Ltd

A company established in 2013 and working in Digital Transformation domain and providing Industrial solutions with prime focus on sustainability and RoI.

For developing its products and solutions it is leveraging various **Cutting Edge Technologies e.g. Internet of Things (IoT), Cyber Security, Cloud computing (AWS, Azure), Machine Learning, Communication Technologies (4G/5G/LoRaWAN), Java Full Stack, Python, Front end** etc.

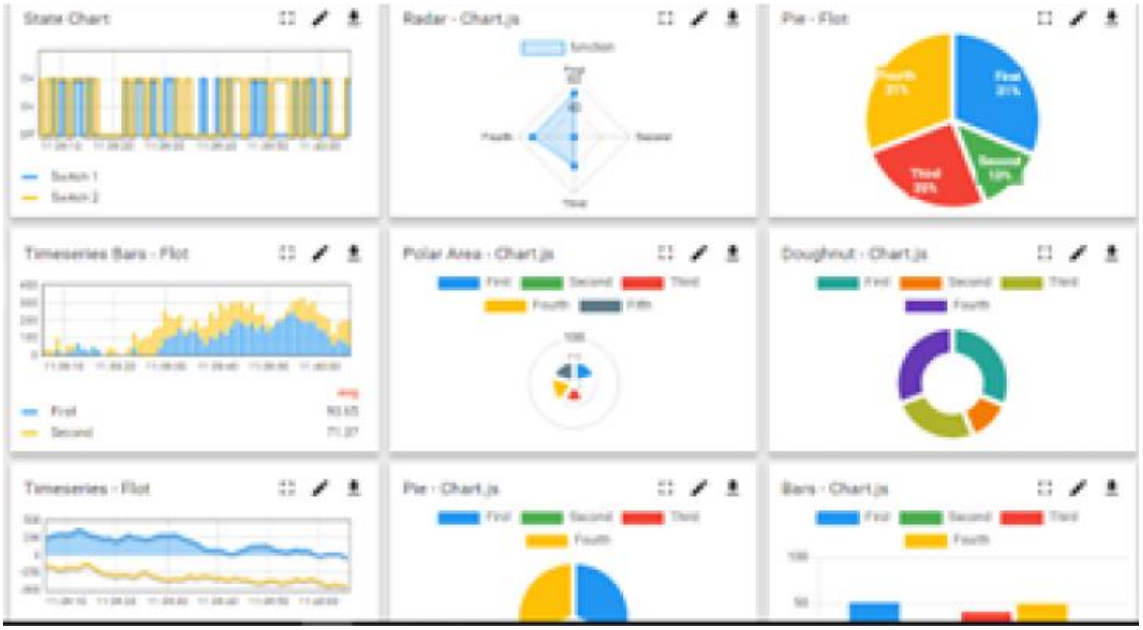
i. UCT IoT Platform (UCT Insight)

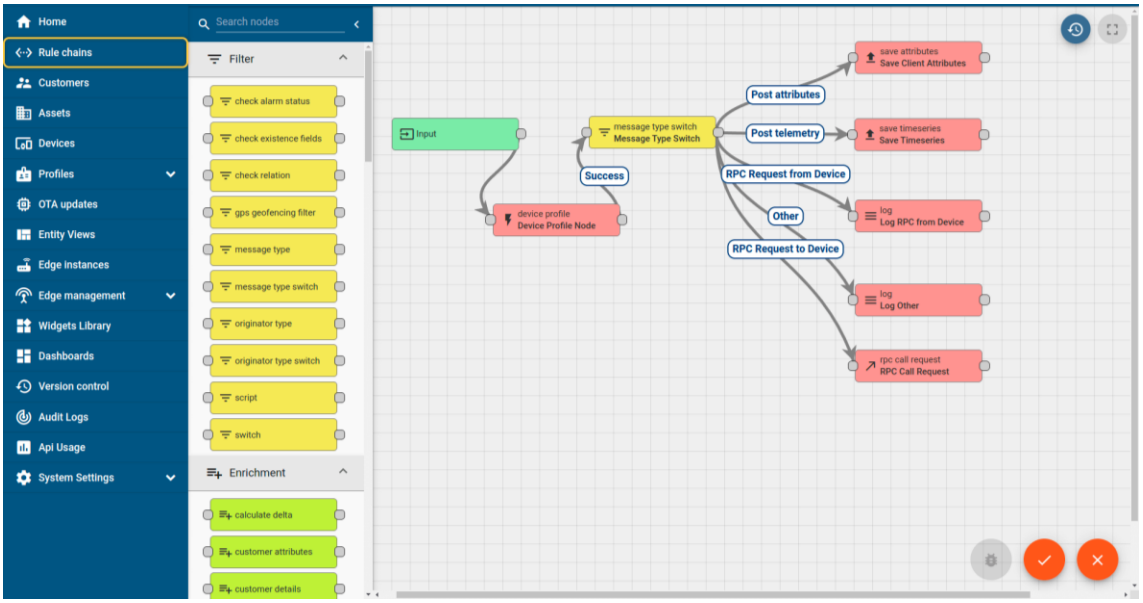
UCT Insight is an IOT platform designed for quick deployment of IOT applications on the same time providing valuable "insight" for your process/business. It has been built in Java for backend and ReactJS for Front end. It has support for MySQL and various NoSql Databases.

- It enables device connectivity via industry standard IoT protocols - MQTT, CoAP, HTTP, Modbus TCP, OPC UA
- It supports both cloud and on-premises deployments.

It has features to

- Build Your own dashboard
- Analytics and Reporting
- Alert and Notification
- Integration with third party application(Power BI, SAP, ERP)
- Rule Engine





ii. Smart Factory Platform (FACTORY WATCH)

Factory watch is a platform for smart factory needs.

It provides Users/ Factory

- with a scalable solution for their Production and asset monitoring
- OEE and predictive maintenance solution scaling up to digital twin for your assets.
- to unleased the true potential of the data that their machines are generating and helps to identify the KPIs and also improve them.
- A modular architecture that allows users to choose the service that they what to start and then can scale to more complex solutions as per their demands.

Its unique SaaS model helps users to save time, cost and money.

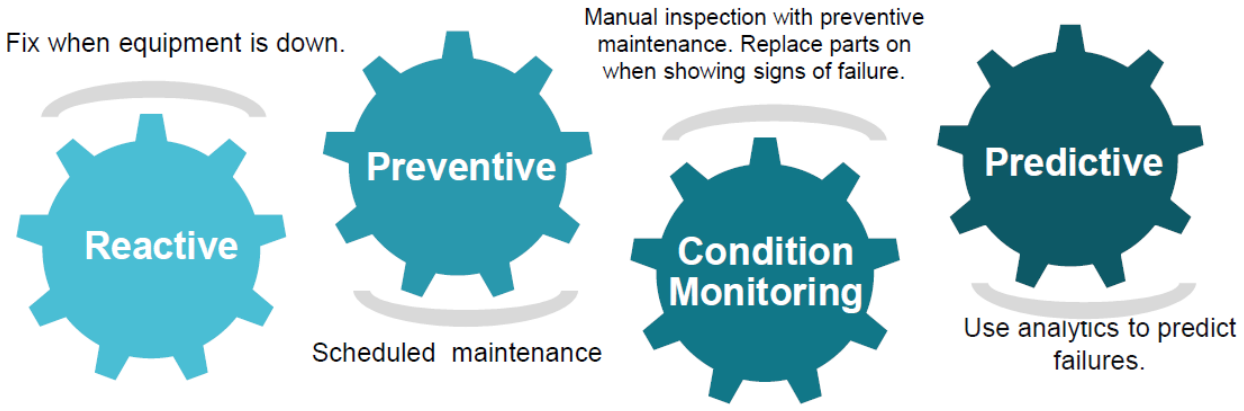
Machine	Operator	Work Order ID	Job ID	Job Performance	Job Progress		Output		Rejection	Time (mins)				Job Status	End Customer
					Start Time	End Time	Planned	Actual		Setup	Pred	Downtime	Idle		
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i
CNC_S7_81	Operator 1	WO0405200001	4168	58%	10:30 AM		55	41	0	80	215	0	45	In Progress	i

iii. LoRaWAN based Solution

UCT is one of the early adopters of LoRAWAN teschnology and providing solution in Agritech, Smart cities, Industrial Monitoring, Smart Street Light, Smart Water/ Gas/ Electricity metering solutions etc.

iv. Predictive Maintenance

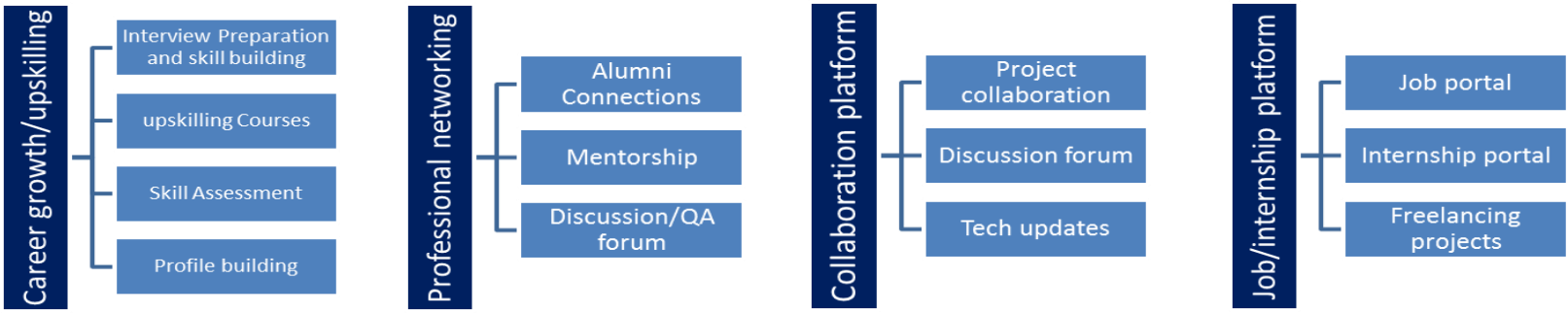
UCT is providing Industrial Machine health monitoring and Predictive maintenance solution leveraging Embedded system, Industrial IoT and Machine Learning Technologies by finding Remaining useful life time of various Machines used in production process.



2.2 About upskill Campus (USC)

upskill Campus along with The IoT Academy and in association with Uniconverge technologies has facilitated the smooth execution of the complete internship process.

USC is a career development platform that delivers **personalized executive coaching** in a more affordable, scalable and measurable way.



2.3 The IoT Academy

The IoT academy is EdTech Division of UCT that is running long executive certification programs in collaboration with EICT Academy, IITK, IITR and IITG in multiple domains.

2.4 Objectives of this Internship program

The objective for this internship program was to

- ☛ get practical experience of working in the industry.
- ☛ to solve real world problems.
- ☛ to have improved job prospects.
- ☛ to have Improved understanding of our field and its applications.
- ☛ to have Personal better communication and problem solving.

3 Problem Statement

MediBook is a comprehensive healthcare data management system designed to streamline and enhance the management of healthcare data for doctors, patients, and administrative staff. The system will include functionalities for managing doctor and patient records, scheduling appointments, processing fees, and providing information about doctors. Below is a detailed breakdown of the system's components and functionalities.

Purpose: To create an efficient and user-friendly system for managing healthcare data, improving the quality of care, and streamlining administrative processes.

Scope: The system will serve hospitals, clinics, and individual healthcare providers, enabling them to manage patient records, doctor schedules, and other essential healthcare data.

Doctor Profiles: Create and manage profiles for doctors, including personal information, specialization, qualifications, and contact details.

Appointment Scheduling: Allow doctors to manage their schedules, view upcoming appointments, and update availability.

Fee Management: Manage consultation fees, payment records, and generate invoices.

Information Sharing: Provide a platform for doctors to share their qualifications, specializations, and other relevant information with patients.

- **Calendar View:** Provide a calendar view for doctors and patients to see available slots and book appointments.
- **Automated Reminders:** Send automated reminders to patients and doctors for upcoming appointments.
- **Rescheduling and Cancellations:** Allow easy rescheduling and cancellation of appointments with real-time updates to the calendar.

4 Existing and Proposed solution

Existing Solutions:

- **Electronic Health Records (EHR) Systems:**
  - Widely used for maintaining patient records.
  - Features include patient history, medical records, and prescription management.
  - Limitations: Often complex and expensive to implement, may lack user-friendly interfaces, and integration issues with other healthcare systems.
- **Hospital Management Systems (HMS):**
  - Comprehensive systems used by hospitals to manage patient data, appointments, billing, and other administrative tasks.
  - Limitations: Often tailored for large hospitals, making them less suitable for smaller clinics or individual practitioners. These systems can also be costly and require extensive training for staff.
- **Appointment Scheduling Software:**
  - Standalone solutions focusing on appointment booking and scheduling.
  - Limitations: Limited integration with other healthcare systems, lack of comprehensive patient management features, and often not designed to handle complex billing processes.

1.2 Limitations of Existing Solutions:

- **High Cost:** Many existing systems are expensive to purchase, implement, and maintain.
- **Complexity:** Systems can be overly complex, requiring extensive training and technical support.
- **Lack of Integration:** Difficulty integrating with other healthcare applications and platforms, leading to data silos.
- **Limited Customization:** Inflexibility to adapt to the specific needs of different healthcare providers.
- **User Experience:** Often lacking in user-friendly interfaces, making them difficult for both healthcare providers and patients to use.

2. Proposed Solution: MediBook

2.1 Overview: MediBook aims to address the limitations of existing solutions by providing an affordable, user-friendly, and comprehensive healthcare data management system that integrates seamlessly with other healthcare applications.

2.2 Key Features and Benefits:

- **Cost-Effective:** Designed to be affordable for both large healthcare organizations and smaller clinics or individual practitioners.
- **User-Friendly Interface:** Intuitive and easy-to-navigate interface for both healthcare providers and patients, reducing the need for extensive training.
- **Comprehensive Management:**
    - **Patient Records:** Detailed and easily accessible patient records.
    - **Appointment Scheduling:** Efficient appointment booking and management with automated reminders.
    - **Billing and Payments:** Integrated payment gateway for processing fees and generating invoices.
    - **Doctor Information:** Detailed profiles and searchable database of doctors.
- **Integration Capabilities:** Seamless integration with other healthcare systems and third-party applications, such as telemedicine platforms and insurance providers.
- **Customization:** Flexible system that can be tailored to the specific needs of different healthcare providers.
- **Data Security:** Robust security measures to protect sensitive healthcare data, including encryption and access controls.
- **Reports and Analytics:** Advanced reporting and analytics features to provide insights into patient care and administrative processes.

2.3 Value Addition:

- **Enhanced Patient Care:** By providing comprehensive and easily accessible patient records, MediBook helps healthcare providers deliver better and more personalized care.
- **Operational Efficiency:** Streamlined administrative processes, such as appointment scheduling and billing, reduce the workload on healthcare staff and improve overall efficiency.
- **Improved Patient Engagement:** User-friendly interfaces and features like automated reminders enhance patient engagement and satisfaction.
- **Scalability:** Designed to grow with the needs of healthcare providers, from small clinics to large hospitals.

4.1 Code submission (Github link)

https://github.com/tahamurade/upskillcampus

4.2 Report submission (Github link) :

https://github.com/tahamurade/upskillcampus

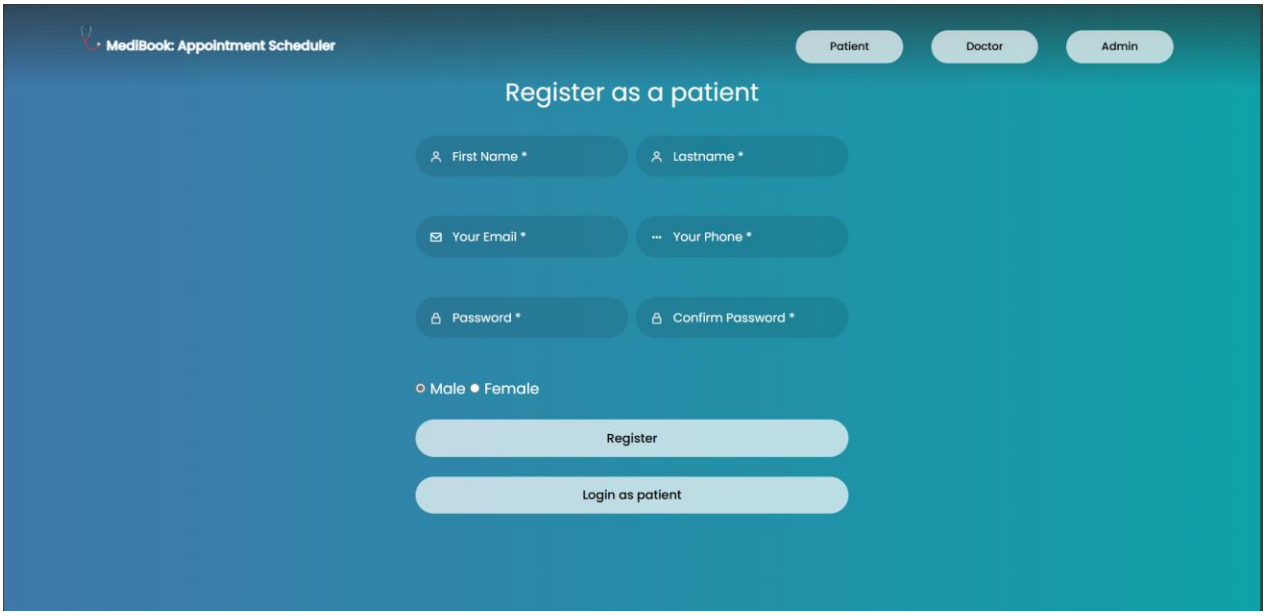
5 Proposed Design/ Model

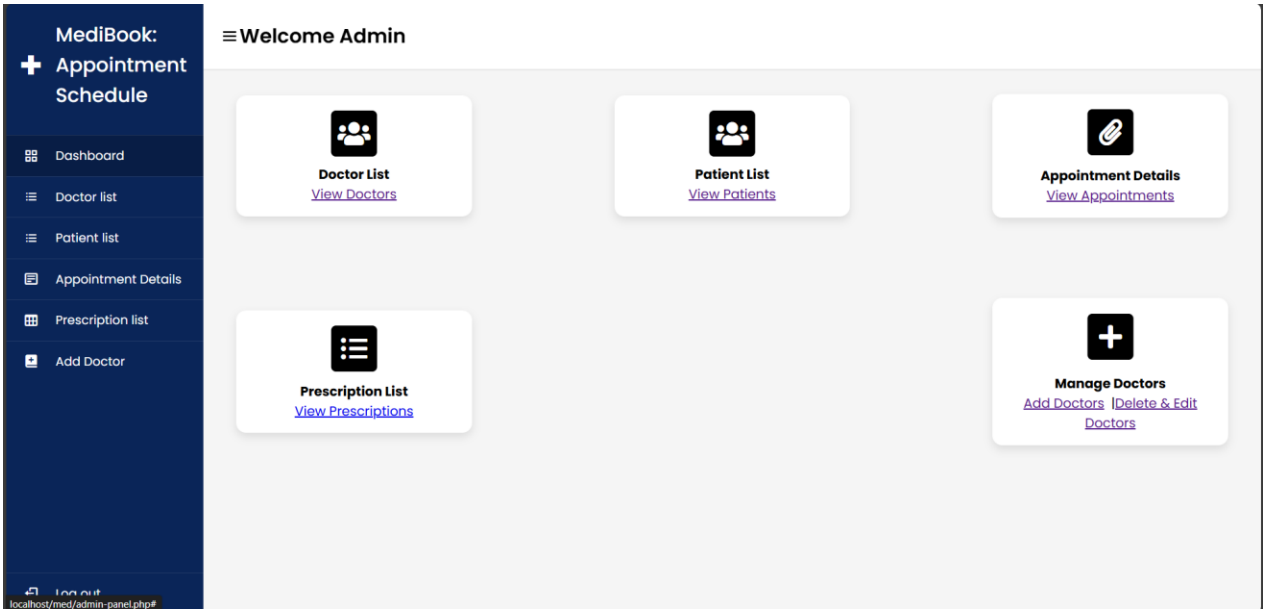
High-Level Design: Provide a high-level architectural diagram illustrating the system's components and their interactions.

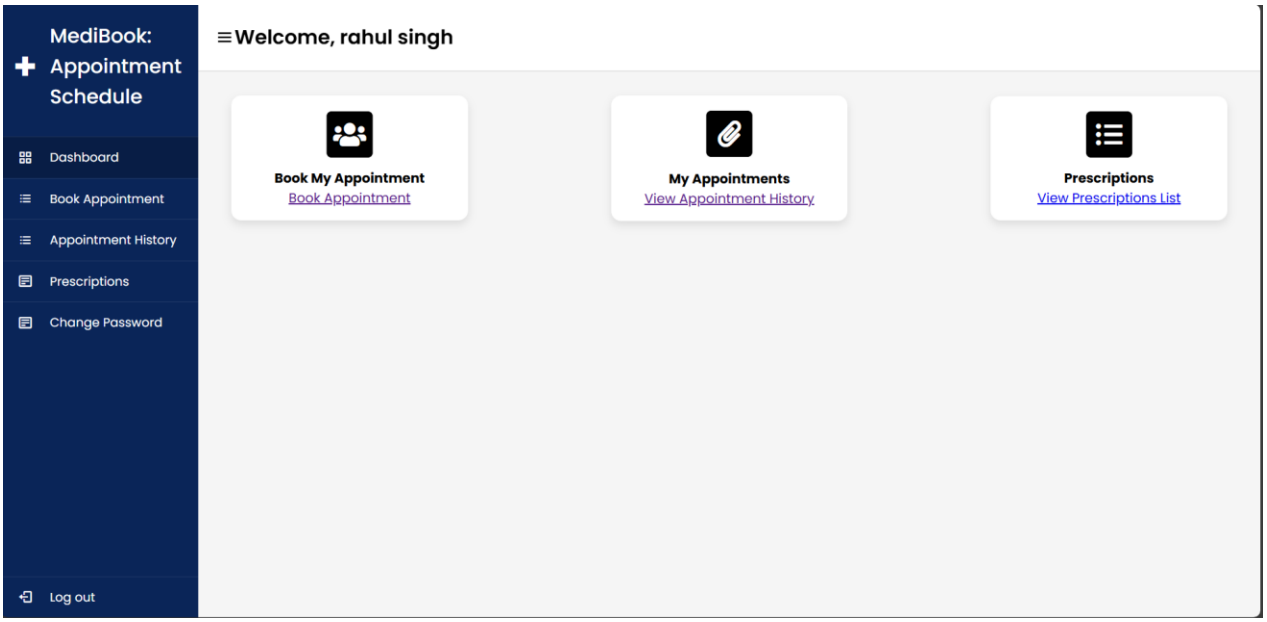
Low-Level Design: Detailed diagrams showing data flow, database schema, and interactions between different modules.

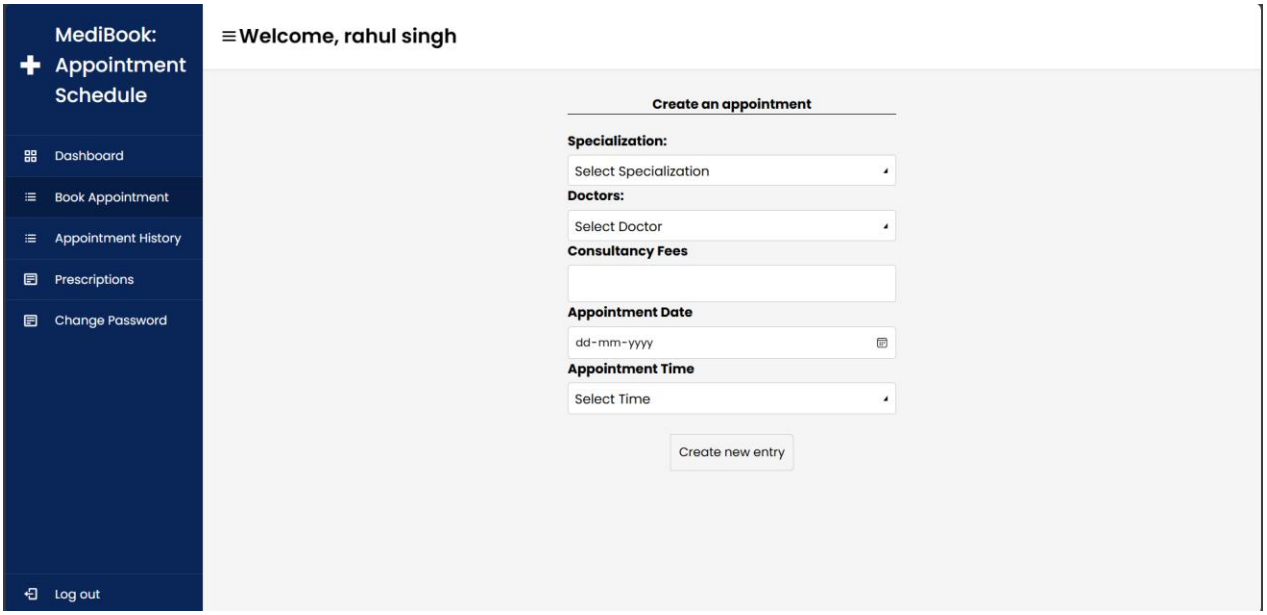
Interfaces: Define the interfaces for user interaction, including login screens, dashboards, appointment booking, and payment processing.

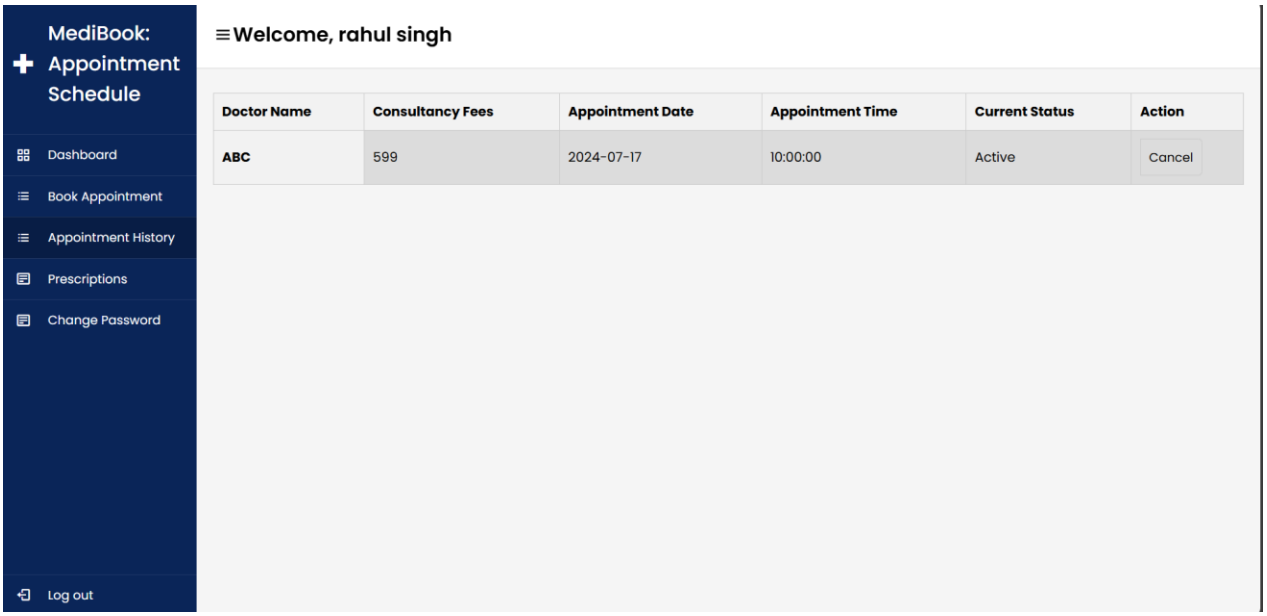
5.1 Interfaces (if applicable)




MediBook: Appointment Schedule
Dashboard
Doctor list
Patient list
Appointment Details
Prescription list
Add Doctor
Log out
localhost/med/admin-panel.php#
≡Welcome Admin
Doctor List
View Doctors
Patient List
View Patients
Appointment Details
View Appointments
Prescription List
View Prescriptions
Manage Doctors
Add Doctors |Delete & Edit Doctors


MediBook: Appointment Schedule
Dashboard
Book Appointment
Appointment History
Prescriptions
Change Password
Log out
≡Welcome, rahul singh
Book My Appointment
Book Appointment
My Appointments
View Appointment History
Prescriptions
View Prescriptions List


MediBook: Appointment Schedule
Welcome, rahul singh
Dashboard
Book Appointment
Appointment History
Prescriptions
Change Password
Log out
Create an appointment
Specialization:
Select Specialization
Doctors:
Select Doctor
Consultancy Fees
Appointment Date
dd-mm-yyyy
Appointment Time
Select Time
Create new entry


MediBook: Appointment Schedule
Welcome, rahul singh
Dashboard
Book Appointment
Appointment History
Prescriptions
Change Password
Log out
Doctor Name
Consultancy Fees
Appointment Date
Appointment Time
Current Status
Action
ABC
599
2024-07-17
10:00:00
Active
Cancel

6 Performance Test

Test Plan: Develop a comprehensive test plan covering unit tests, integration tests, and system tests.

Test Cases: Define test cases for each functionality, including expected outcomes and pass/fail criteria.

Performance Testing: Conduct performance tests to ensure the system can handle a large number of users and transactions efficiently.

7 My learnings

Throughout the development and implementation of the MediBook healthcare data management system, I have gained invaluable knowledge and experience that will significantly contribute to my career growth. Here are the key learnings from this project:

1. Technical Skills:

- **Software Development:** I enhanced my skills in full-stack development, including backend development using PHP and frontend development with HTML, CSS, and JavaScript. This project also allowed me to work with frameworks such as React and Angular.
- **Database Management:** I gained a deep understanding of SQL databases, including designing database schemas, writing complex queries, and optimizing database performance.
- **Cloud Computing:** Working with AWS and Google Cloud provided me with hands-on experience in deploying and managing cloud-based applications, ensuring scalability and reliability.
- **API Integration:** I learned how to integrate third-party APIs and services, such as payment gateways and telemedicine platforms, into the MediBook system.

2. Project Management:

- **Requirement Analysis:** I developed skills in gathering and analyzing requirements from healthcare providers, translating their needs into technical specifications.
- **System Design:** Designing the high-level and low-level architecture of MediBook helped me understand the importance of planning and structuring a complex system.

- **Agile Methodology:** I experienced working in an Agile environment, which included iterative development, regular sprint planning, and continuous feedback cycles.

3. Problem-Solving and Innovation:

- **Existing Solutions Analysis:** Evaluating existing healthcare management systems taught me how to identify limitations and areas for improvement, which guided the development of a more efficient and user-friendly solution.
- **User-Centric Design:** Emphasizing the importance of user experience, I learned to design interfaces and workflows that are intuitive and easy to use for both healthcare providers and patients.

9 Future work scope

- **Telemedicine Integration:** Incorporate telemedicine functionalities for virtual consultations.
- **AI and Machine Learning:** Implement AI and machine learning for predictive analytics, personalized treatment plans, and automated diagnostics.
- **Mobile App:** Develop a mobile app version of the system for easy access on smartphones and tablets.
- **Multi-language Support:** Provide support for multiple languages to cater to a diverse user base.