



# **Final Year Project**

**Project name: LifeEasy**

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- **Introduction**

- **Introduction of the topic**

Hospital management system is a software developed to enhance the efficiency of the hospitals by automation and integrating clinical and critical administrative procedures. These systems are carefully developed to address the requirements of the clinics and hospital, offering improved patients care delivery, secure data storage, and smooth communication between departments. Hospital management system performs as an intergraded platform that uses application programing interfaces (APIs) to communicate with other system software and take advantage of the host systems capabilities. It's compatibility helps user to access from across desktop, mobile and online web platforms guarantees accessibility and improves the overall user experience for the patients, administration and healthcare professionals.

As part of a final year project, we have to showcase the knowledge and skills we have gained through a comprehensive endeavor. Web development was selected for the project. The hospital management system embodies the technical skills in the field of information technology. In this era which is rapidly digitalizing, healthcare industry are facing increasing pressure to streamline operations with growing patients. Life Easy intents to revolutionize hospital management system by providing web based solution to addresses inefficiencies like unmanaged patients record, manual billing errors and traditional appointment scheduling. Life Easy prioritizes accessibility, user centric designs and dependable system design.

Because of modular and expandable features and designs, the system can be upgraded in the upcoming future that includes AI-driven health analytics, and IoT based technologies to monitor patient. LifeEasy prioritizes security, simplicity and handle medical data are handled in accordance with the HIPAA and GDPR where appropriate. Moreover, LifeEasy gives hospital administrators control over the hospitals operational activities like everyday operations, manage doctors, manage employees of the hospital, paying salaries, and monitoring performance of the hospital. Doctors has streamlined access to patients medical histories and reports, and scheduled appointments for the next visit if necessary. Patients

has benefits from features like real-time appointment scheduling, email notifications, save reports and clear billing and save as in history.

### - **Current Scenario**

The healthcare industry is facing a number of difficulties and challenges, including the demand of high quality, patient centric care, to manage the growing patients are getting more complex and time consuming. The traditional hospitals management systems are restricted to the manual procedure and outdated software which has hardly any updates. The operational inefficiencies caused by the outdated software frequently affects the productivity of the medical care as well as administrative process. These are the problem highlight the need of modern and integrated solution like LifeEasy hospital management system.

- **Inefficient appointment Scheduling:**

long waiting period by patients, overlapping appointments and high rate of error on no shows are available are all consequences of manual scheduling process. These inefficiencies puts a lot of pressure on the staffs, this cusses interference in hospital workflows, and dissatisfaction around the patients.

- **Fragmented Data management:**

many hospitals still rely on paper based record keeping management system or lack of digital system that lacks interoperability. Disorganized patients data, disorganized hospitals, labs, staffs, inventory , delay in obtaining vital medical information, and a higher chance of mistakes like inaccurate dates or misdiagnose and miss information are the consequences of this fragmentations. For example, it might be difficult for doctors to obtain a full information of the patients health.

- **Billing and financial inefficiencies:**

Traditional billing system are highly error risk. Such as incorrect invoicing or

duplicate charges. Which leads to financial disparities and damage in trust of patients. In the hospital system, manual payroll process for the employees are laborious and cause errors. Which cause delay in employees wages disbursements. Facing challenges in financial transparencies for the administrators and patients because of lack of payment tracking.

- **Inventory Mismanagement:**

Inadequate tracking of medical supplies in the pharmacies often results in overstocks or outstocks. A hospital may amass extra inventory that might be expired and if taken any expired may cause serious health issues or run out of essential pharmaceuticals during periods of high demand, may result in financial losses and compromising patients care and experience. These problems are made worse by labor intensive work.

- **Limited reporting and analytics:**

Hospital administrators might find challenge to keep the eye on performance indicators (KPIs) like patients outcome, financial report, reserve beds by the patients because of the majority of older systems lack strong and modern reporting system that gives details information on the financial, number of beds available or number of patients. Hospital may find issues to find operational bottlenecks, or make data choices to raise the caliber of services without any real time analytics.

The healthcare industry is witnessing a rapid change towards digitalization and fuelled by advancements in technology.

- **Problem Domain and Project as a Solution**

### **Problem Domain:**

Despite being important to the welfare of the societies, the healthcare sector suffers from severe operational inefficiencies that renders it difficult to provide patients with high

quality care. The modern healthcare facilities are not always met by traditional hospitals systems. System the are frequently relying on antiquated software or manual processes. These problem shows in a various number of crucial areas:

- Disorganized patient data management:

like traditional system uses paper based records or fragmented digital systems that leads to the misplace of patients information, spelling error, delays on retrieving of the data, and increased risk of medical error and error on financial. This lack of centralized database hampers efficient care on delivery.

- Error – prone Billing and Payroll Systems:

Financial Inconsistencies are produced, transparency is reduced and administrative staff is burdened by inaccurate invoicing or miscalculation, delayed payment monitoring and manual payroll computations.

- Inadequate inventory Management:

Inadequate monitoring of medical histories reports, medical equipment and supplies results in shortages or overstocking, which affects the quality of care and raises operation expenses.

- Inefficient appointment Scheduling:

manually scheduling processes results in long await in time, sometimes conflicts on schedule and missed appointments are result of manual scheduling. Patient have to go inperson to book appointment.

- Lack of real-time reporting:

hospitals total efficiency is impacted when they are unable to track real time performance, maximum resources or data driven decisions due to a lack of thorough

reporting and analytics.

The expanding number of patients, more regulations and rising need of smooth operations that make patients user experience better and more focused on patients services all exacerbate these problems. Inefficiencies not only strain the hospitals resources but also there will be patients outcome compromises, staff robust and operational sustainability.

## **Project as a Solution**

The LifeEasy Hospital Management System was created to solve the operational inefficiencies that plague conventional hospital management system. By utilizing modern web technologies this project directly tackle the challenges identified in problem domain. The system is a solutions for healthcare facilities of all size because of the user focused design of the system.

- Online appointment booking:**

this project has the online booking system that patients can access through a web interface from anywhere. LifeEasy is revolutionizing appointment booking. This feature focus to solve manual process that might caught error and give ability to choose doctors available time slots, healthcare providers, and fast confirmation. This project helps patient not need to show up to book and improve patient flow, integrated real time notification like email. LifeEasy increases patients satisfactions and decrease waiting time.

- Automated salary, invoice and payment:**

The system implements financial management element streamlining payrolls and billing procedures. This project solves the problem related to manual invoice instead it provide online automated invoice generate. Monitoring payment statuses and providing clear financial records.

- Patient data management and medical history:**

This project has secured data storage and manage patients data such as personal information, medical history and other records. Healthcare professionals can easily access the medial reports of the patients including previous diagnoses, prescriptions, and allergies. Only authorized user can access the sensitive data or information it was possible because of role base access control.

- **Comprehensive Reporting and analytics:**

LifeEasy provides reporting and anaylutics tools to empower hospital administrators. The system produces data on important thing like number of patients, number of appointments made, total employees, income total,etc. real time hospital operations monitoring is made dashboard. Hospital might proactively address issues and improve operations.

- **User friendly UI:**

LifeEasy provide userfriendly design so that patients can navigate and use the features smoothly without any confusion. This project prioritized both patients and hospital staffs. The UI design has clean layout, and straight forword navigation and every user can access the feature. The UI also ensuring seamless access on desktop, tablets and phones.

- **Aims and Objectives**

Aim:

The primary aim of this project is to streamline and optimize hospital operations and enhance the overall quality of patient care by digitalizing and automate hospital processes.

Objectives:

### Automate Patient Registration and Data Management:

- A digital system for patient registration that minimize paperwork.
- Ensure safe and well-organized data management, create centralized database to access easily.

### Enhance Appointment Scheduling and Management:

- Implement simple appointment scheduling feature to reduce wait times.
- Integrate real-time notifications for patients regarding appointment.

### Streamline salaries payment and bills manage:

- Develop billing module that generates invoices and manages and tracks payment.
- Develop simple salary payment for employees

### Provide Comprehensive Reporting and Analytics:

- Generate detailed reports on patient outcomes, hospital performance.
- Incorporate analytics to provide insights that can guide in decision-making

#### **- Structure of the Report**

- Introduction:

This chapter includes introduction of the report i.e Project description, Current scenario, Problem domains, project as solution and Aims and objectives. Brief description on the topics is given in the chapter.

- Background:

This chapter includes the detail information about the end users and client and

understanding the solution of the project, review of the similar applications, and making critical comparison between the similar website, projects, systems, etc.

- **Development:**

This chapter consists of the detail development of the project, starting with the methodologies used for the time management. A brief explanation of activities of each phases of the selected methodology.

- **Testing and analysis**

This chapter consists of the information related to optimal solutions of the projects, evaluation of the system and system operation.

- **Conclusion**

This chapter discussed the social, legal, and ethical issues that arisen during the development of this project. This highlights the advantages and limitations of the project and the future work for the further enhance the platforms impact and adaption.

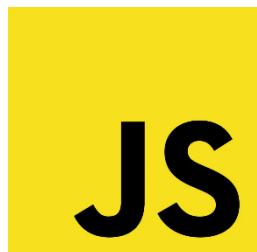
- **Resource requirements:**

Software Development Tools:

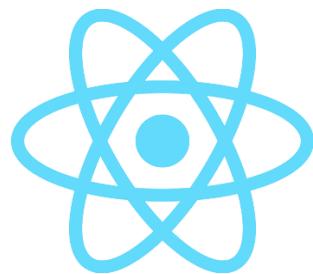
- **Frontend Development:**



- HTML, CSS: For building the structure and styling the user interface.



- JavaScript: add interactivity and improve the functionality of the frontend.



- React.js: A JavaScript library for building user interface, and making dynamic and responsive user interface.

- Backend Development:



- Node.js: A JavaScript runtime that is utilized for running server-side code to process server requests and oversee backend.
  - Express.js: A framework for Node.js that makes it easier to develop server-side logic and API routes.
- 
- Database Management:



- MySQL: A relational database management system to store and manage all data, including user data, product details, medical records, and transaction

details.



- IDE software:

Visual Studio Code: A popular code editor that supports all the languages with debugging features, and extensions to enhance productivity.



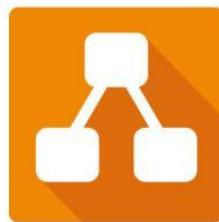
## Design

Figma: A world wide used design tool that allows to design wireframe, prototype and graphic designs.



## Draw.io

Draw.io is a cross-platform graph drawing software application that is used to create diagram such as flowchart, entity relation diagram, relation diagram and flow chart.



- **Background**

Many healthcare institutions are turning to hospital management system. The key features of an effective HMS include:

- Appointment scheduling: automated appointment scheduling, and appointment reminders

Patients registration: streamline patient registration.

Billing and payment: efficient billing generating.

The key consideration that this project has are:

- User-friendliness: easy for the users
  - Data security: securing patients and doctors information
  - Scalability: adapting with the industry growths
- **Similar projects**

### ..1. Epic

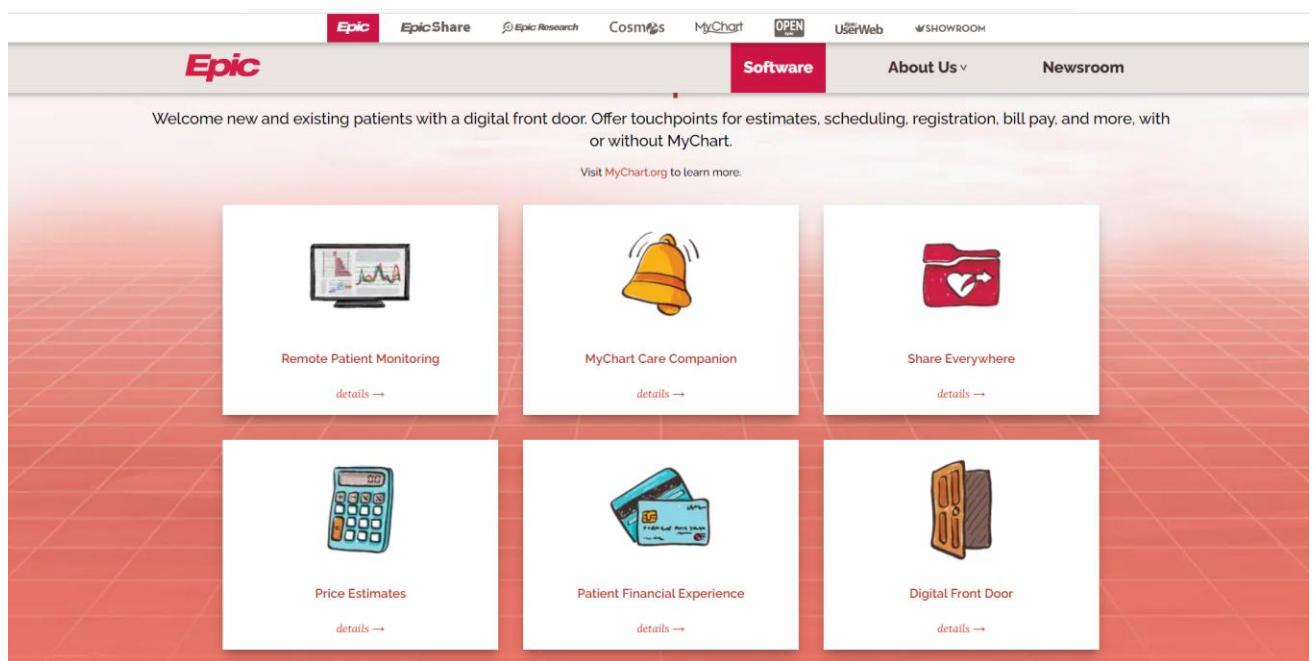


Figure 1 Epic

## ..2. Clinincone

The screenshot shows a web browser window for the Clinincone website. At the top, there is a navigation bar with links for 'Our Services', 'Our Doctors', 'Blog', 'All About Vaccines', 'Contact us', and a green button labeled 'Make a Payment'. Below this, there is a large image of Dr. Mahesh Dahal, a man in a white lab coat. To the right of the image, there is a box containing his professional details:

**Dr. Mahesh Dahal, MD**  
 Department : General Physician | Endocrinology  
 NMC No : 6173  
 Qualification : MBBS, MD (Internal Medicine)  
 OPD Schedule : Sun - Fri : 3 pm to 8 pm (Lalitpur)  
 OPD Schedule: Wed: 10:30 am to 2 pm (Bhaktapur)

**Appointment type**

\*Choose an appointment Type  
 Clinic Visit  
 Online

**Branches**

Choose an option  
 Choose an option  
 Bhaktapur (Wed - 10:30 am to 2 pm) (+NPR700.00)  
 Lalitpur (Sun - Fri : 3 pm to 8 pm) (+NPR850.00)

**Send Inquiry**

At the bottom of the page, there is a Windows taskbar with various pinned icons and a search bar.

## ..3. Mediteck

The screenshot shows the Mediteck Conditions Explorer interface. On the left, there's a sidebar with navigation links like 'Return To', 'Home', 'Workload', 'Diagnostics', 'Provider Notes', 'Nurse/Allied Health', 'Medications', 'Compose', 'More', 'Suspend', and 'Conditions Explorer'. The main area is titled 'Conditions Explorer' and shows a search result for 'Diabetes mellitus'. It includes sections for 'Notes' (with a table of progress and admission notes) and 'Vitals' (with a table of heart rate, arterial blood pressure, noninvasive systolic blood pressure, noninvasive diastolic blood pressure, and weight). There are also sections for 'Acute' symptoms (Fever, Dyspnea, Hypoxemia, Hyperglycemia, Anemia, Retinopathy) and 'Chronic' conditions (Diabetes mellitus, GERD, Hypertension). A 'Procedures' section lists Central venous catheterization and Cataract removal. A 'Labs' section shows a full panel lab result from 29m ago.

Figure 2 Mediteck

#### ..4. Hospital Management System (infaERP)

The screenshot shows the infaERP UI design for the 'Appointments' module. The top navigation bar includes 'Save', 'More Like This', 'Permalink', 'HOMEOPATHY', and 'Settings'. The main menu has tabs for 'Home', 'Doctors', 'Patients', 'Appointment', 'Diagnosis', 'Prescription', 'HRM', 'Reports', 'Administrations', and 'Settings'. The 'Appointment' tab is active. The dashboard shows a calendar view for March 2012. Appointments are color-coded: blue for 'Consulted', red for 'Cancelled', and green for 'New Appointments'. Specific dates like March 16th have a tooltip showing '1 - App'. The right side features 'Quick Links' for New Appointment, Edit Appointment, Delete Appointment, pending, and Preview Appointment. 'Patient Details' links include Patients List, Add New Patient Details, Edit Patients Details, and Delete Patients Details. 'Account Details' links include Patients Payment, Vendor Payments, Patients Deposit, Vendor Deposit, and Patients Cheques.

Figure 3 infaERP UI design

### - Review of journals/articles

#### 1. Design and Implementation of Hospital Management System



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International Journal of Engineering and Innovative Technology (IJEIT)

Volume 5, Issue 1, July 2015

## Design and Implementation of Hospital Management System

Adebisi O.A, Oladosu D.A, Busari O.A and Oyewola Y.V Department of Computer Engineering Technology, the Polytechnic, Ibadan

**Abstract -**The paper developed an automated system that is used to manage patient information and its administration. This was with a view to eliminate the problem of inappropriate data Keeping, inaccurate reports, time wastage in storing, processing and retrieving information encountered by the traditional hospital system in order to improve the overall efficiency of the organization. The tools used to implement the system are Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), Hypertext Preprocessor (PHP), and My Structured Query Language(MySQL).The Proposed system was tested using the information collected from Murab Hospital, Ilorin, kwara State , Nigeria and compared with the existing traditional hospital system. The design provides excellent patient services and improved information infrastructure.

**Index Terms-**Management system, System design, web application system, Hospital Administration.

### I. INTRODUCTION

Hospital is an organization that mobilizes the skills and efforts of a widely divergent group of professionals, semi-professionals, professional's personnel, to provide highly personalized personnel services to patients [1].World health Organization (WHO) has defined hospital as an integral part of social and medical organization that provides the complete curative and preventive health care and treatment to people. Hospitals are the focal points of education for the health professionals and clinical research necessary for advancement of medicine. Thus, the hospital is one of the most complexes of all administrative organizations. The main purpose of the hospital is to provide adequate care and treatment to the people. Various operational works

the timely acquisition and processing of clinical information related to the patient [4]. The hospital management system (HMS) comprises a computerized web based application for record keeping, tracking and prescriptions with monitoring. HMS can manage multiple users of the system and can have the track of the right assigned to them. It makes sure that all the users function with the system as per the rights assigned to them and they can get their work done in efficient manner. A good management system should allow for input and output by providing an objective for recording and aggregation information. It should be able to quickly collect and edit data, summarize results, and adjust as well as correct errors promptly [5]. Reference [5] designs HMS that Retrieve Information from the database as quickly as one searches on the screen and authenticate the users with the access control facility to prevent unauthorized users from accessing the data but does not include exporting of Data (History) on the database to appear in various formats (PDF, CSV, TXT). Reference [6] designs various HMS modules but the system is not designed to manage the affairs of the hospital but only built for the Patient Health Records. This paper provides solution to the existing problems of the hospital. The design improves the accuracy of medical records and efficient retrieval and usage of medical records. The purpose of the paper is to design HMS that helps to;

1. Eliminate redundancy in term of data storage. Data will be stored in a computer not heap of files.
2. Reduce the time wasted in retrieving data especially in finding a past health records.
3. increase Efficiency and Interactivity in any area of specialization in the hospital

An automated method for managing and administering patient data was established in the paper. This was done in an effort to increase the organization's overall efficiency by resolving issues with improper data keeping, erroneous reporting, and time waste in the traditional hospital system's processing, storing, and retrieving of information. Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), Hypertext Preprocessor (PHP), and My Structured Query Language (MySQL) are the tools utilized to create the system. Using data gathered from Murab Hospital in Ilorin, Kwara State, Nigeria, the proposed method was evaluated and contrasted with the current conventional hospital system (Adebisi O.A, n.d.).

## 2. E –Hospital Management & Hospital Information Systems – Changing Trends

# E –Hospital Management & Hospital Information Systems – Changing Trends

Premkumar Balaraman, Kalpana Kosalram

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**Abstract** — The rapid growth in Information & Communication Technology (ICT), and the power of Internet has strongly impacted the business and service delivery models of today's global environment. E-Hospital Management Systems provide the benefits of streamlined operations, enhanced administration & control, superior patient care, strict cost control and improved profitability. Globally accepted health care systems need to comply with Healthcare Insurance Portability and Accountability Act (HIPAA) standards of the US and that has become the norm of the Healthcare industry when it comes to medical records management and patient information privacy. The study is focused on understanding the performance indicators of Hospital information systems (HIS), summarizing the latest commonly agreed standards and protocols like Health Level Seven (HL7) standards for mutual message exchange, HIS components, etc... The study is qualitative and descriptive in nature and most of the data is based on secondary sources of survey data. To arrive at a conclusive idea of the larger picture on E- Hospital Management and Hospital information systems, existing survey data and specific successful case studies of HIS are considered in the study. With so many customized versions of E – hospital management solutions (E – HMS) and Hospital Information systems (HIS) available in the market, a generic module wise version of E – Hospital

**Index Terms** — Information & Communication Technology (ICT), Health Level Seven (HL7), Healthcare Insurance Portability and Accountability Act (HIPAA), E – hospital management solutions (E – HMS), Hospital Information systems (HIS)

### I. INTRODUCTION

Hospital Information systems are in high demand to handle increasing population needs and also aids the practicing doctors and hospital service and support staff with timely service and precision. There are varied metrics available to assess the performance of services like hospital industry, and the successful implementation and usage of Hospital information system forms a crucial role. Hospital information systems are available in the software market which in most cases needs to be customized and in some cases HIS needs to be developed as a customized software based on specific hospital requirements (user requirements). The paper looks at assessing and identifying the key components of E – HMS as its needs and management varies across the globe. Also identification of the key performance indicators of E – HMS / HIS is also attempted from a benchmarking perspective.

#### 1.1 Objective of the study



daily basis and HIS plays a crucial role. Hospital services are customer and society sensitive and the quality of HIS and service of hospital staff needs to be precise and of highest standards. Today's hi-tech Hospital services are predominantly provided by private players in the market at increased costs despite low cost competition by public sector hospitals. OECD report (2012) finds that attempts to control costs by regulatory means, such as reducing fees paid to healthcare providers and rationing user access, have typically only been temporarily successful.

E-Hospital Management System provides the benefits of streamlined operations, enhanced administration & control, superior patient care, strict cost control and improved profitability. Due to business and legal demands—like the Healthcare Insurance Portability and Accountability Act (HIPAA) of the United States as a Global norm —healthcare organizations are fully realizing the urgency to integrate their businesses. Unfortunately, most of the health information systems are still proprietary and often only serve one specific department within a healthcare business. This represents a significant obstacle to business integration.

## II. RESEARCH METHODOLOGY

The study is qualitative and descriptive in nature and most of the data is based on secondary sources of survey data. Such an approach is adopted in the study as the area of research is very broad and sources of data are also spread across multiple locations. To arrive at a conclusive idea of the larger picture on E- Hospital Management and Hospital information systems, analyzing the existing survey data and specific successful case studies of HIS would give a better result in finding the answers to the research question framed.

## III. DEFINITION OF HOSPITAL INFORMATION

information processing and information storage subsystem of a hospital, whereby it is not just about computer systems and networks and the computer-based application systems that are installed on them, but it is about the information in a hospital as a whole.

HIS consist of different softwares that are integrated in order to capture data in specific sections of the hospital [Garrido, Raymond, Jamieson, Liang and Wiesenthal [2004:21-22]], handle the workflow of daily medical services and also assist in managing financial, administrative and clinical data. From the various definitions of HIS, it is understood that HIS is a very broad area as it encompasses services catering to varied departments and personnel of an hospital and finally satisfying the patient care in its true sense. Hospital Information Systems (HISs) are supposed to make the right information and knowledge available to the right people, in the right place, at the right time and in the right form.

## IV E – HOSPITAL MANAGEMENT / HIS STANDARDS & TECHNOLOGIES

The developments in technology and internet speed made services like Telemedicine a dream come true for today's patient care needs. Telemedicine can be referred to as the provision of medical services from a distance [Wootton, Craig and Patterson, 2006:1]. This includes diagnosis, treatment and prevention of diseases. The types of telemedicine can be categorized as real-time or pre-recorded telemedicine. Also the growing technology and varied solutions in the hospital management domain necessitated for the development of common protocols and standards at global level. Such standards and legal requirements are discussed in further sections.

According to Belgium Federal Public Service – FPS

When it comes to the management of medical records and the privacy of patient information, globally recognized health care systems must adhere to the US Healthcare Insurance Portability and Accountability Act (HIPAA) regulations, which have become the industry standard. The study's main goals are to comprehend hospital information systems' (HIS) performance metrics and to summarize the most recent widely accepted protocols and standards, such as Health Level Seven (HL7) standards for message transmission between parties and HIS components, among others. The majority of the data in this qualitative, descriptive study comes from secondary sources of survey data. Existing survey

data and particular effective HIS case studies are taken into consideration in the study in order to reach a definitive understanding of the broader situation regarding E-hospital management and hospital information systems (Premkumar Balaraman, 2013).

### 3. E-tools for hospital management: An overview of smartphone applications for health professionals

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#### 1. Introduction

Italian hospitals are managed and organized by a hospital management unit (HMu), which consists of a General Manager, an Administration Manager and a Chief Medical Officer. The main occupation of this unit is the achievement of different goals set by the hospital administration itself and ruled by Italian law, healthcare policies and programs. In particular, HMUs must provide management, organization and arrangement of hygiene and prevention issues and of forensic medicine; promotion of scientific acknowledgements; and qualitative improvement of the provided health services. Moreover, the hospital administration is jointly responsible for the clinical governance of the structure and aims to improve the efficacy and suitability of its healthcare services. In this context, the HMU plays a crucial role in the organization and setting of hospital resources and services, such as the arrangement of ward spaces and activities, personnel shifts and timetables, beds and equipment management, and patient admissions and discharges. All the activities mentioned above are directly or indirectly regulated by this central administrative, management and supervisory body [1].

Commonly, the management of the main hospital activities is organized by different software packages that run only on desktop computers, which may not always allow fast and practical use by health operators. This problem could be overcome by combining these software packages with mobile health [2,3]. Mobile health, defined as the use of mobile and wireless technologies to support the achievement of health objectives [4], is a rapidly expanding area within e-health. Since the number of medical apps has been increasing consistently in recent years, a growing number of clinicians and health professionals have become increasingly accustomed to using smartphones and these applications, achieving successful results in different fields [5].

Recent literature reviews have evaluated the various uses of smartphones and tablet devices in many different contexts, such as health promotion interventions (smoking cessation, body weight loss, reducing alcohol consumption, sexually transmitted disease)

Typically, various desktop computer software programs are used to administer the primary

hospital operations; however, this may not always enable quick and useful use by medical professionals. Combining these software programs with mobile health could help with this issue. In order to assess their features and analyze them based on their content, quantity of downloads, and application area, this study aims to give a general overview of smartphone and tablet applications used for hospital management and administration (a, n.d.).

4. Key performance indicators of HSE in the hospital management system during corona virus pandemic

## 1- Introduction

Hospital is one of the important institutions in the modern healthcare system. Today, hospitals are important as they undertake the responsibility of large resources and capital associated with the public health as well as human resources, physical, financial, and equipment capital (Moktadir, et al, 2020). In today's society, in which complex systems are often used, failure of a system or incidence of accidents can cause impairments at different levels, and even be a threat for the public and environment(Ghasemi& Babaeinesami, 2020). Due to the existence of inherent uncertainty in natural disasters, related organizations are not able to optimally use the critical infrastructures to reduce destructive effects (Ghasemi& Babaeinesami, 2019) . For this reason, everyone is seeking a safe system with low risk probability. Here, risk means uncertainty and indicates incidence of an event with a certain severity (Apornak, 2020). The results of risk assessment determine what damage would be incurred to the system with incidence of every risk, and what would be the environmental consequences (Kejriwal, et al, 2021).

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The global standard organization defines risk to involve a probability of accident and resulting consequences. Ding (2018), defines risk as combination of the probability of incidence of any risk and its consequences.

The recent crisis that the entire world is facing caused by COVID-19 a pandemic that has forced all organizations whether public or private to rethink their mission and vision(Ghasemi, et al, 2021) Thus, the efficacy of the healthcare sector depends greatly on the rapidity to adapt to the new dramatic situation(Babaeinesami & Ghasemi. 2021). Before the World Health Organization (WHO) had declared the COVID-19, a pandemic crisis, on 11 March 2020, Algeria had the situation under control, although the first two cases were registered on 25 February 2020 (Shafipour-omran, et al, 2021). The rapid evolution of the pandemic coronavirus crisis requires that the common strategies should be oriented toward ensuring the health of the population and a continuous assessment of the events to give priority to future needs. The situation in Algeria is not far from the rest of the world, with a total of 55,081 cases and 1880 deaths recorded until 22 October 2020, with a mortality rate of 11.70%. This high rate represents a threat to the national health situation of the country that leads to making a study to understand how the healthcare sector is dealing with this crisis and what are the available and efficient managerial tools to help managers and healthcare staff to better control facilities (Ahmadi Choukolaei, et al, 2021). The international statistics of WHO place Algeria in the fourth position in Africa (with 50,914 cases) after

In order to create a strategy agenda and set of strategic decisions during the corona virus pandemic, this article analyzes the key performance indicators (KPIs) of HSE in the hospital management system. The research first focuses on choosing the useful indicators for evaluating the hospital administration's HSE management system by professionals using a bank of gathered indicators, using the various decision-making tools that are accessible based on the criteria that patients find important. The fuzzy TOPSIS approach is then used to rank the HSE KPIs. According to the findings, the TOPSIS algorithm is among the most

dependable, scientific, and managerial approaches to decision-making (Mousavi, 2022).

- Comparison chart

Features	LifeEasy	Epic	Meditech	Cerner Health
<b>Platform</b>	Web-based	Web, app	Web	Web, App
<b>Payment</b>	Free	Subscription	Subscription	Subscription
<b>Appointment scheduling</b>	Yes	Yes	Yes	Yes
<b>Patient management</b>	Registration, medical records	Mychart portal	Patient portal	Centralized records
<b>Billing &amp; payment</b>	Invoice, salaries	Integrated billing	Financial integration	Comprehensive billing system
<b>Offline access</b>	No	No	No	No
<b>Reporting and analytics</b>	Operational and financial reports	Limited patient recommendations	Clinical decision insights	Advanced reporting tools

Table 1 comparison table

- **Methodology:**

- **Different methodology**

- **Waterfall methodology**

Waterfall methodology uses a linear and structured approach. Projects are divided into distinct phases, each of which must be completed before moving on to the next. Waterfall model excels in situations where requirements are well defined and not changed (Vanitha Sivasankaran Balasubramaniam, n.d.).

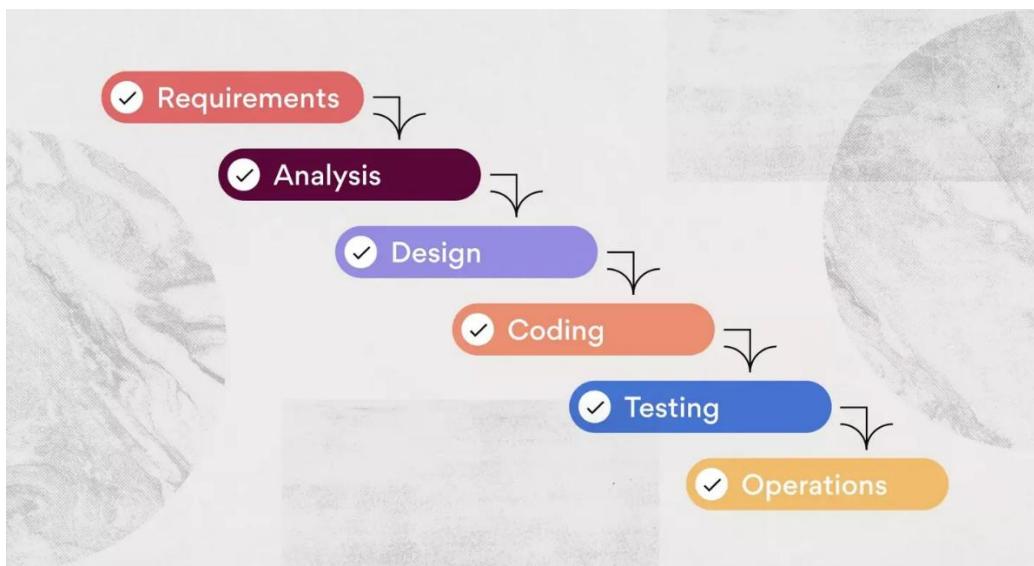


Figure 4 waterfall methodology

- **Agile methodology**

Agile methodology is a project management framework that breaks projects down into several dynamic phases, it is also known as sprints (Iaoyan, 2024).



Figure 5 agile methodology

- **Incremental software development**

Incremental model is a process of software development where requirements are broken down into multiple increments is done in steps from analysis design, implementation, testing, maintains (Bennett, 2024).

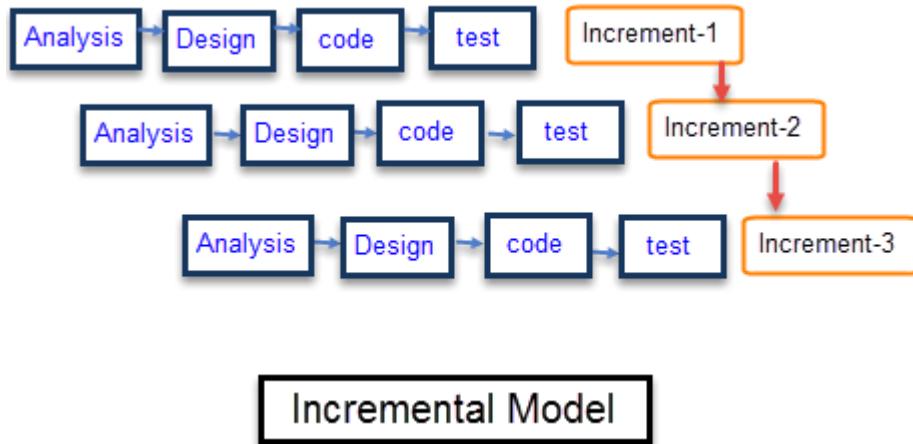
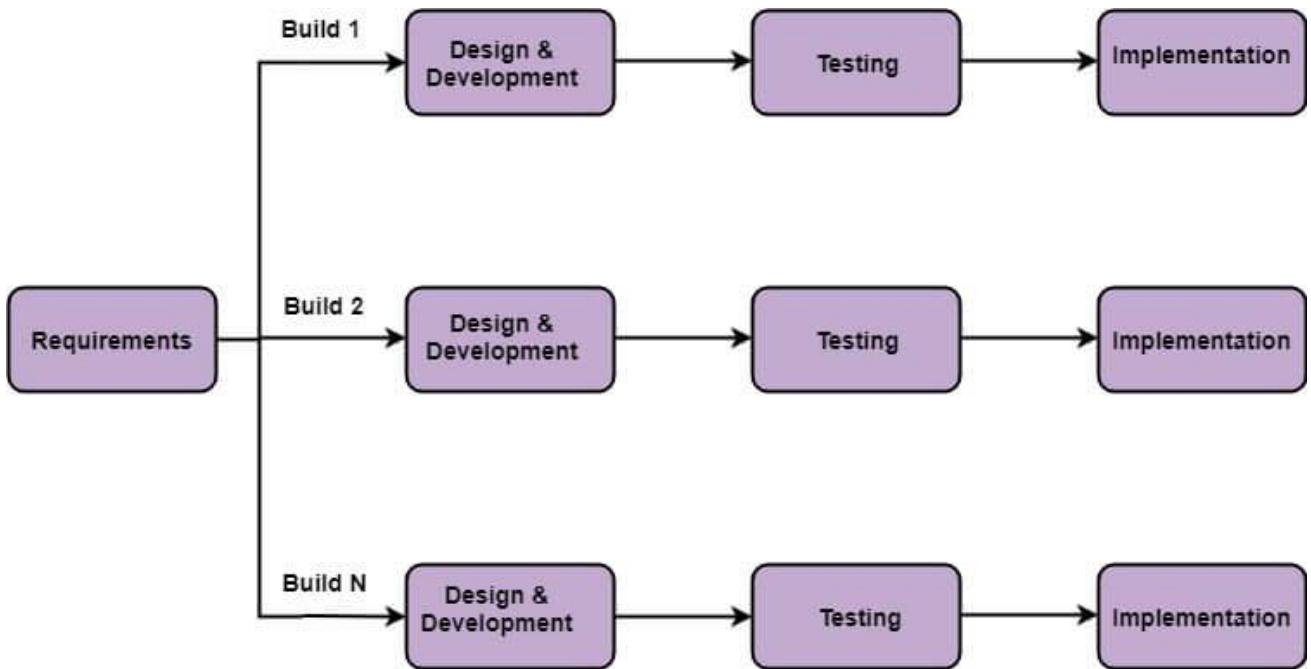


Figure 6 incremental methodology

- **Incremental software development life cycle (SDLC)**

To develop this project effectively and efficiently, Incremental methodology will be used. The incremental model is a software development process in which requirements are split up into several independent software development cycle modules. Every module in this paradigm goes through the phases of requirements, design, implementation, and testing. The module's functionality is increased with each new release. (roger, 2021)



**Fig: Incremental Model**

- Software development life cycle (SDLC):

The SDLC is a structured process that guides the development of software.

#### 1. Requirement Analysis:

In this phase, the project's general plan and resources required are defined. Documenting the features required as well as system performance and security requirements. Defining the scope of the project and finding inspirations like design, features.

#### 2. Design and Development:

After gathering all the requirements, in this phase system architecture design, database design, user interface, wireframe, high-level design, and prototype design are designed based on gathered requirements.

After the system designing phase, development of the project begins. Code is developed according to the specifications and developing efficient code for better performance.

It includes frontend, backend, database.

### 3. Testing:

In this phase, the objective is to test functionality and performance of the code and project. It determines whether it works as expected and if we get any errors or bugs it will be fixed before deployment. Several types of testing will be done such as unit testing, system testing and user acceptance testing.

### 4. Implementation:

In this final phase of incremental methodology, it is the full and final updates to the software. software is fully tested and is errors free, client expectation and requirements are approved the software is deployed to the real world environment.

- **Work breakdown structure:**

A WBS in project management is a hierarchical decomposition of a project into a smaller component. It starts with the overall project goal at the top and then breaks thing down into smaller.

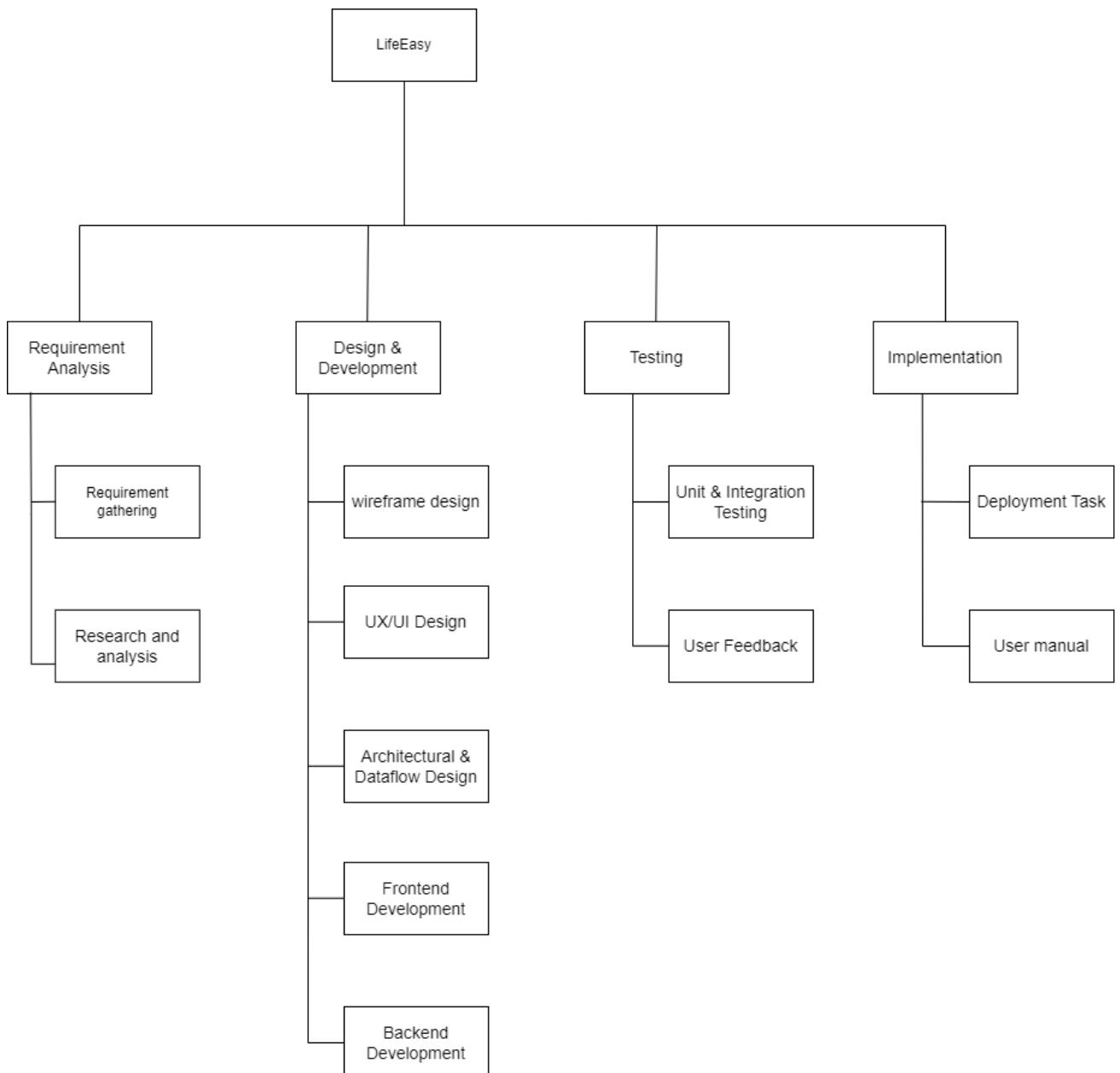


Figure 7 work breakdown



- Work breakdown structure revised
- First increment

In first increment register and login features are completed.

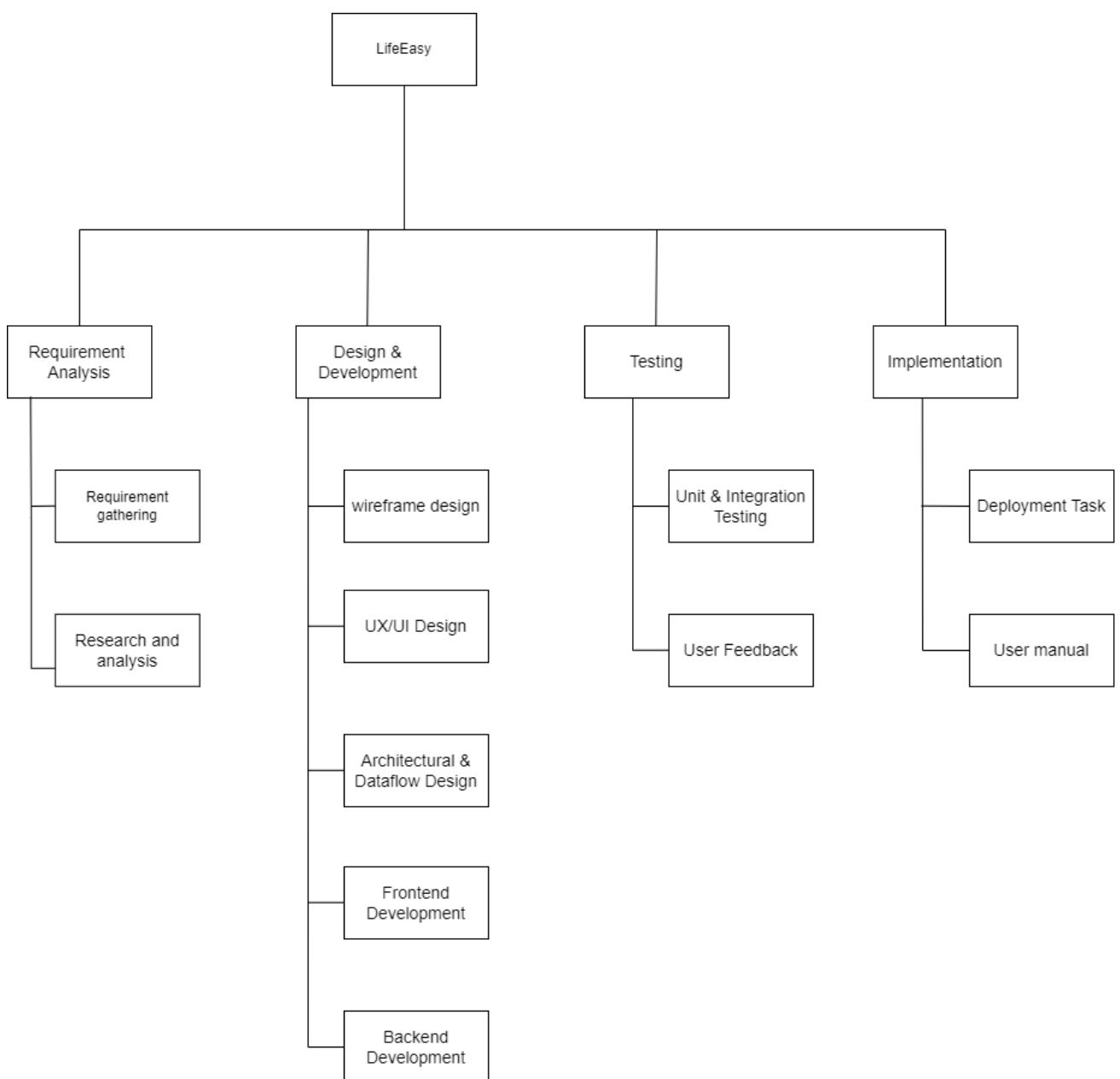


Figure 8 first increment WBS

- Second increment

In second increment appointment and admin are focused.

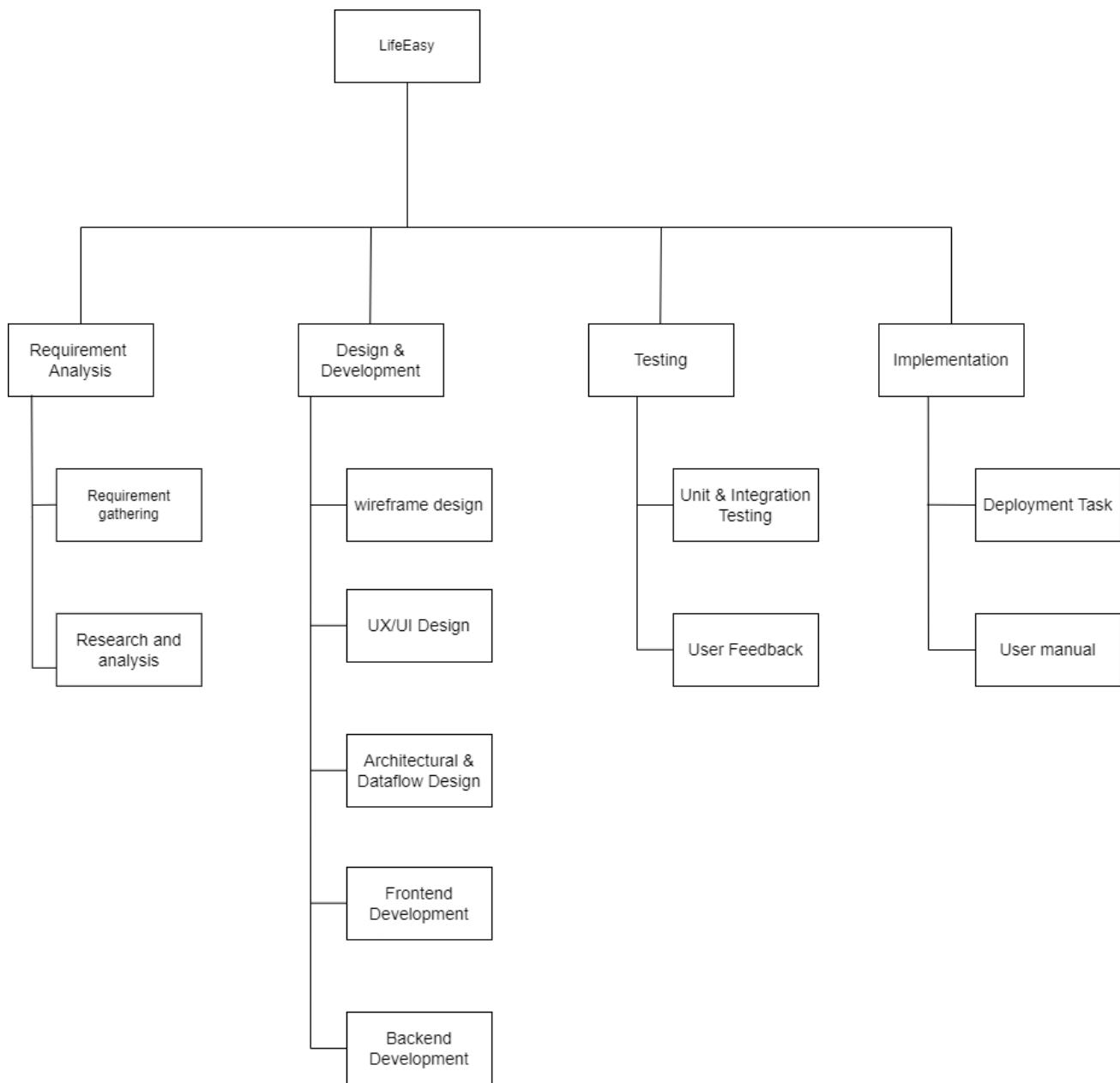


Figure 9 Second increment WBS

- Third increment

In the third increments we focus on medical records, admit patient, bed manage and system notification. In the medical record we can store patients reports safe.

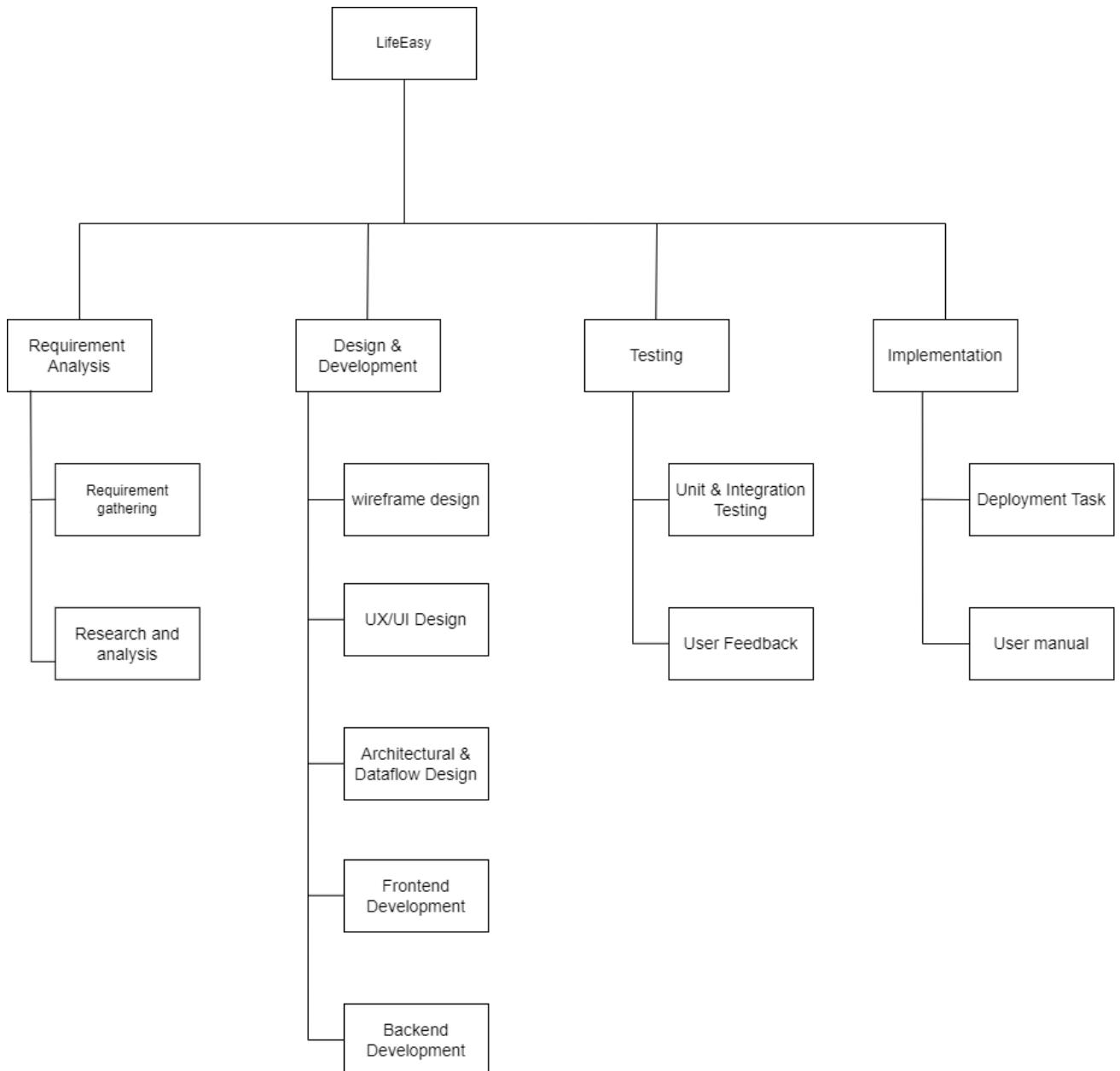


Figure 10 third increment WBS

- Fourth increment

In the fourth increment bed manage, billing and reporting are more focused.

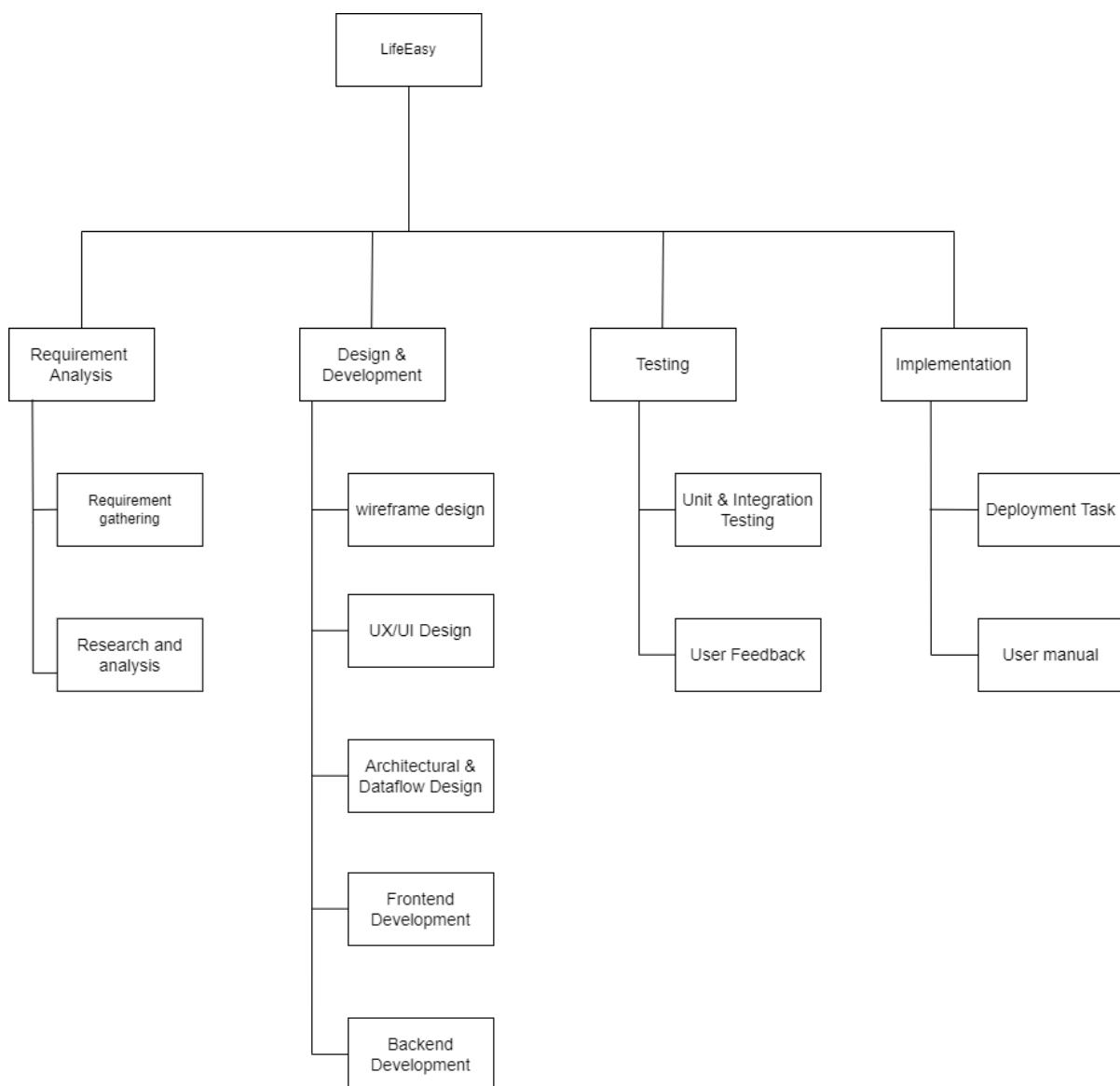


Figure 11 Fourth increment WBS



**Milestone:**

Milestone	Increment	Features	Time	Objectives
<b>Requirement Analysis</b>	-	Requirements gathering, scope definition, and planning	Week 1	Identify core functionalities, user roles (admin, doctor, patient), and research about the project journals.
<b>Increment 1</b>	Login/Signup	- User registration and login system	Week 4	Implement basic user authentication (login/signup) for admin, doctor, and patient
		- Role-based access controls		Ensure secure access based on user roles
<b>Increment 2</b>	Booking & DB	- Appointment booking system	Week 4	Allow patients, doctor, and receptionist to book appointments with doctors and manage schedules
		- Database integration		Set up database to store patient, doctor, and all data
<b>Increment 3</b>	Medical Record & Notification	- Medical record management	Week 4	Enable doctors to add/update patient medical history and access health records by doctor and patient.
		- Notification system		Implement notifications/reminders for appointments, follow-ups.
<b>Increment 4</b>	Billing, Payment & Reporting	- Billing and payment system	Week 5	Automate billing, generate invoice and enable secure payment options. Easy and secure salary payment.
		- Reporting system		Generate financial reports, patient treatment summaries, and operational analytics

- **Milestone revised**

- **First increment**

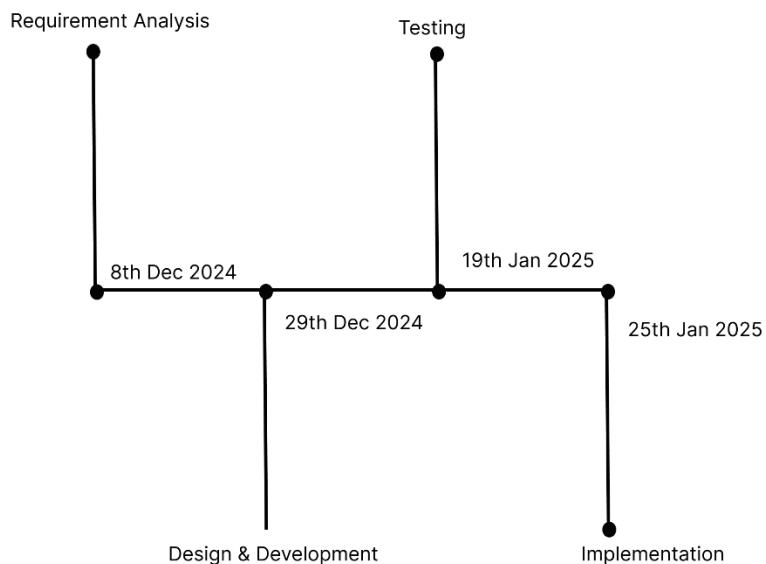


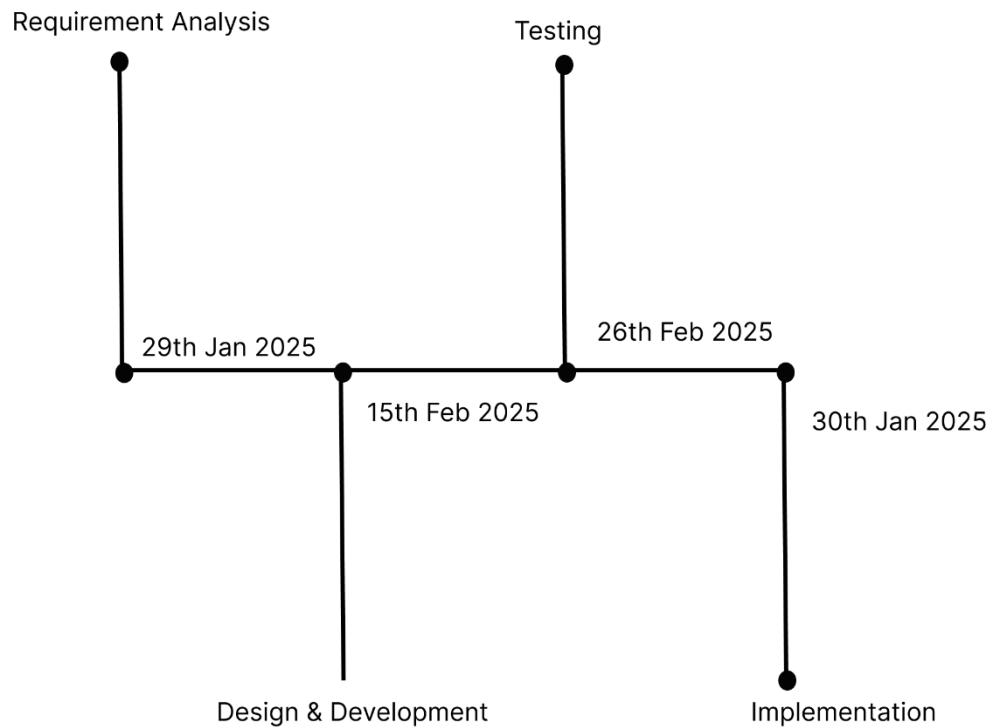
Figure 12 First milestone increment

- Milestone review for first increment

- ✓ Milestone 1 : Requirement Analysis
- ✓ Status : Completed
- ✓ Milestone 2 : Design & development
- ✓ Status : Completed
- ✓ Milestone 3 : testing
- ✓ Status : Completed
- ✓ Milestone 4 : implementation
- ✓ Status : Completed

- **Second increment**

s



#### Milestone Review for Second Increment

- ✓ Milestone 1 : requirement analysis

Status : Completed

- ✓ Milestone 2 : Design & Development

Status : Complete

- ✓ Milestone 3 : Testing

Status : Complidered

- ✓ Milestone 4 : Implementation

Status : Complete

- **Third increment**

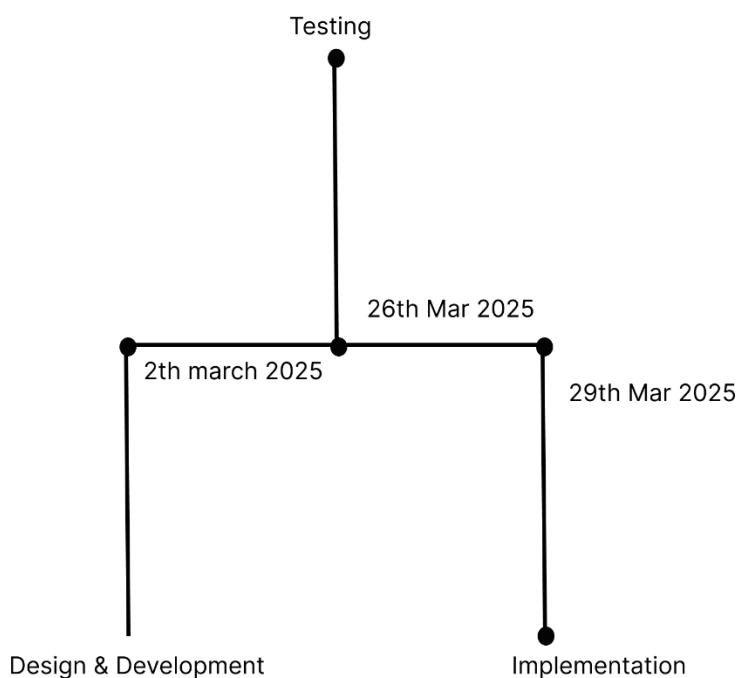


Figure 13 Third milestone increment

#### Milestone Review for third Increment

- ✓ Milestone 1 : Design & Development

Status : Complete

- ✓ Milestone 2 : testing

Status : Complete

- ✓ Milestone 3 : implementation

Status : Complete

- **Forth increment**

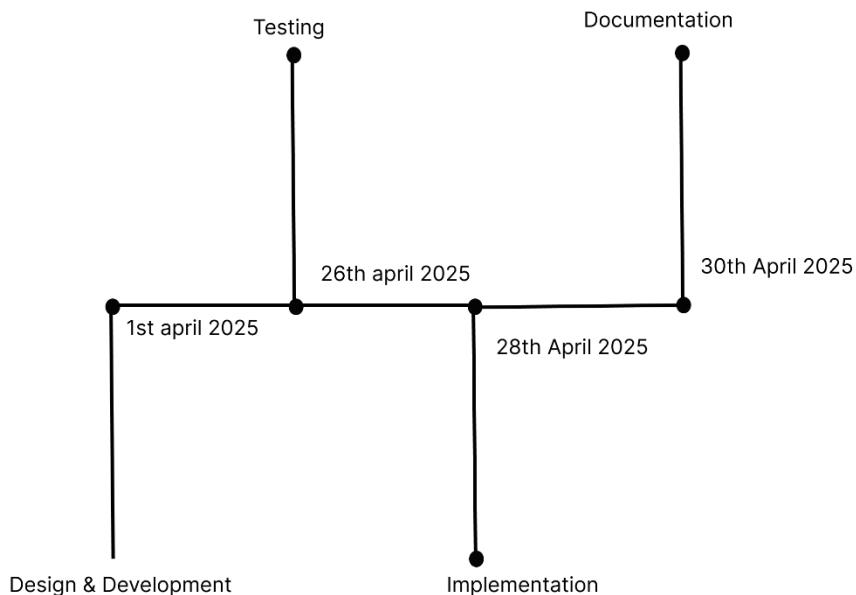


Figure 14 fourth milestone increment

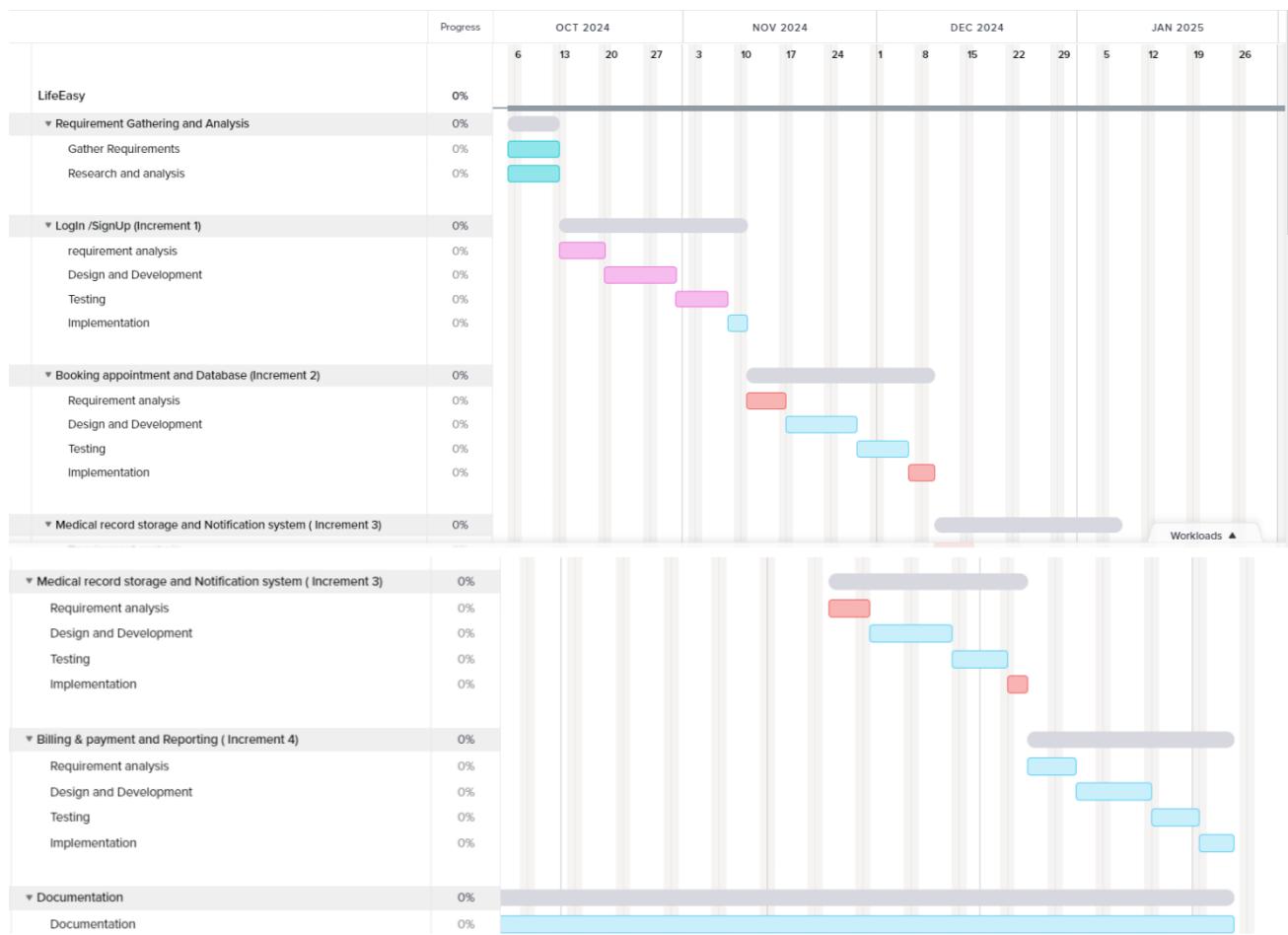
#### Milestone Review for fourth Increment

- ✓ Milestone 1 : Design & Development
- ✓ Status : Complete
- ✓ Milestone 2 : Testing
- ✓ Status : Complete
- ✓ Milestone 3 : Implementation
- ✓ Status : Complete
- ✓ Milestone 4 : Documentation
- ✓ Status : Complete

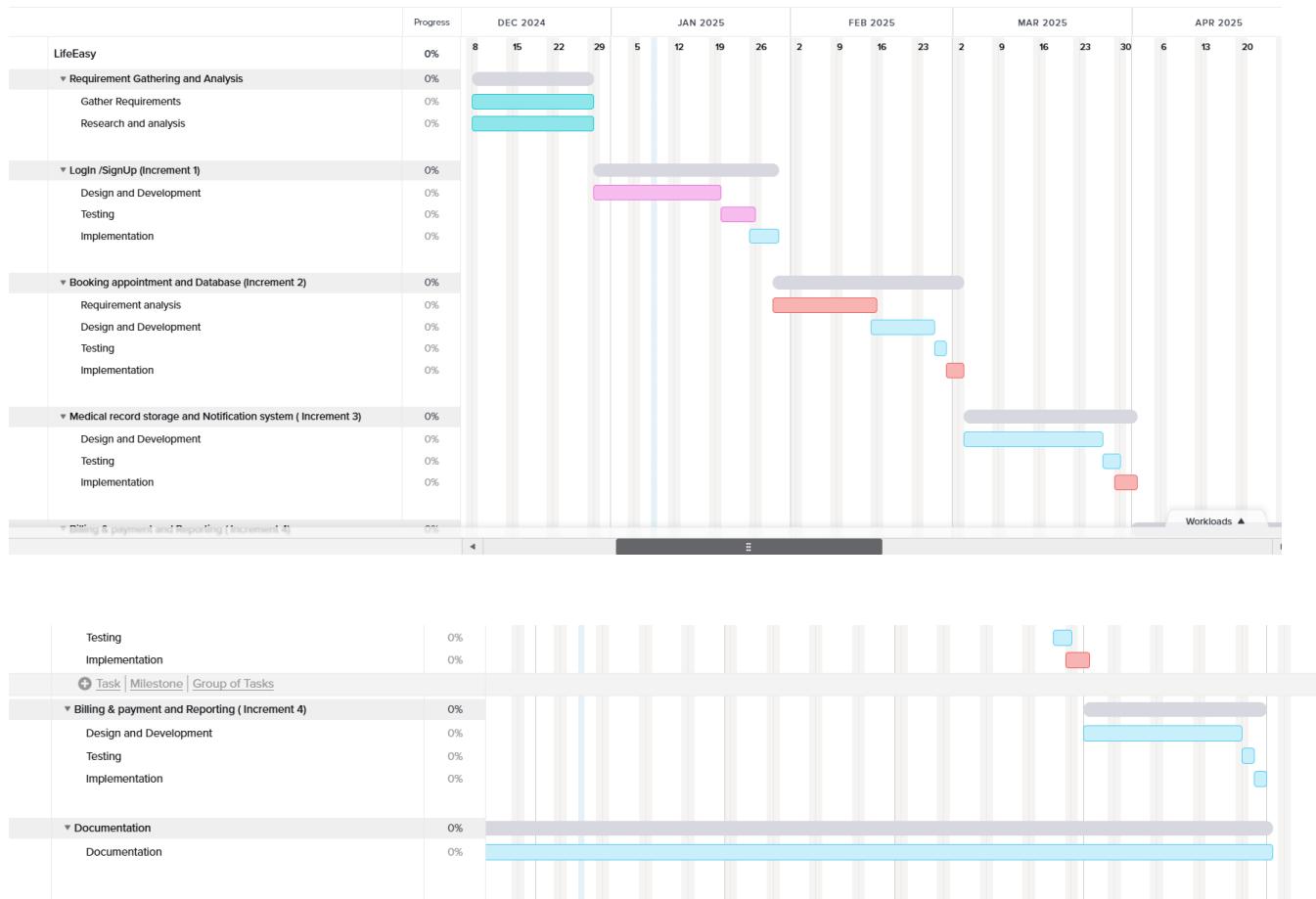


## Gantt chart previous:

Gantt chart of the project management.



## - Gantt chart revised



- **Work Done**

- ..1. **Software requirement specification**

Software requirement specification is a document that details the features and functions of a software. It outline the functional and non functional requirements.

- **Functional requirements**

- 1. Registration

- Patient registers and data are stored secured.
    - Provide medical records.
    - Opt verification should be implement

- 2. User management

- Role based access control like admin patient doctor.
    - Should have secured login

- 3. Book an appointment

- Allow patient to book and appointment, reschedule and cancel the appointment
    - Notify patient for the appointment status or reminder.

- 4. Billing and payment

- Generate invoice based on services.
    - Track and save payment patients bills.

## 5. Login

- Patient should only login after registration
- Should be secured login.

- **Non functional requirements**

1. User friendly : website should be user friendly easy to navigate and easy to learn.
2. Security: data should be encrypted and users must have secured login and register data.
3. Reliability : the system should be reliable most of the time it should be available to the user. It should have auto backup.
4. Code readability : code should be well maintain which will help developer to understand easily.

- **Initial Entity relation diagram (ERD)**

Entity relation diagram is a diagram that shows the structure of a database.

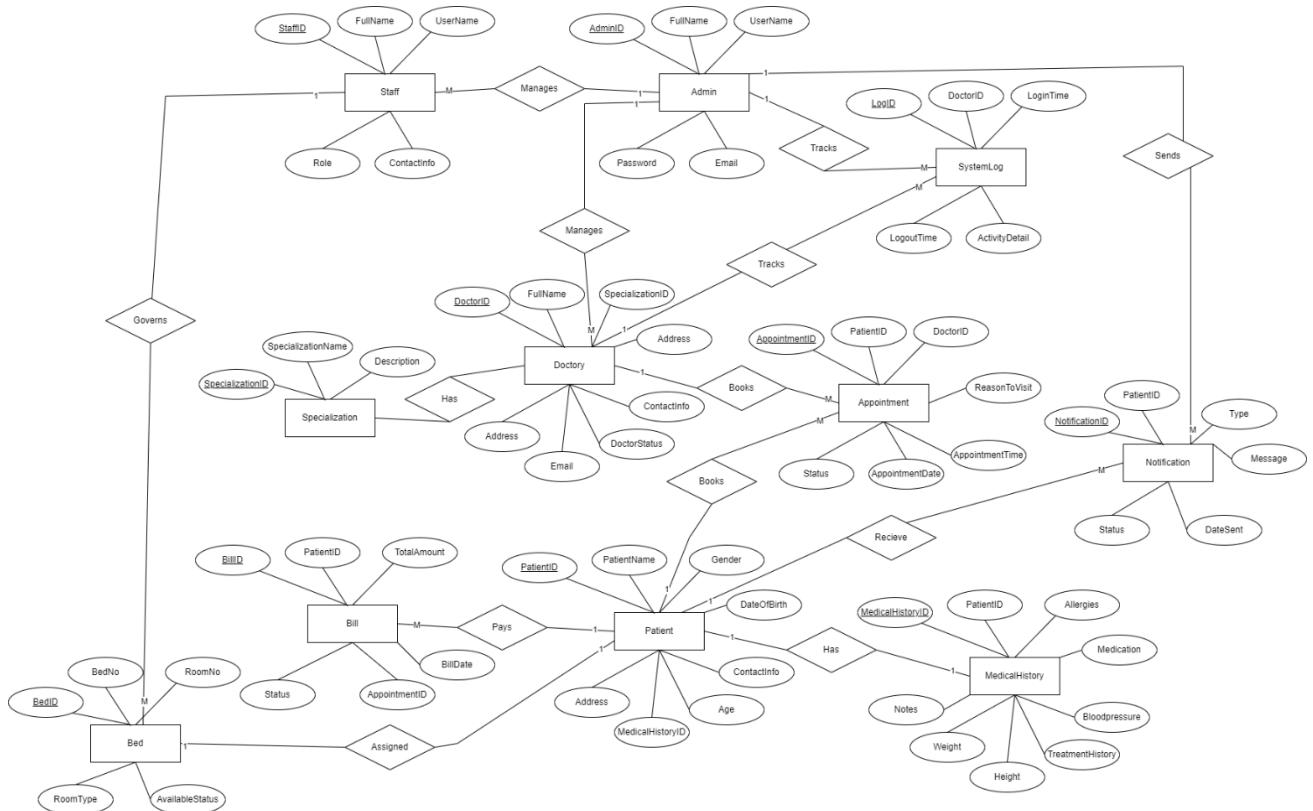
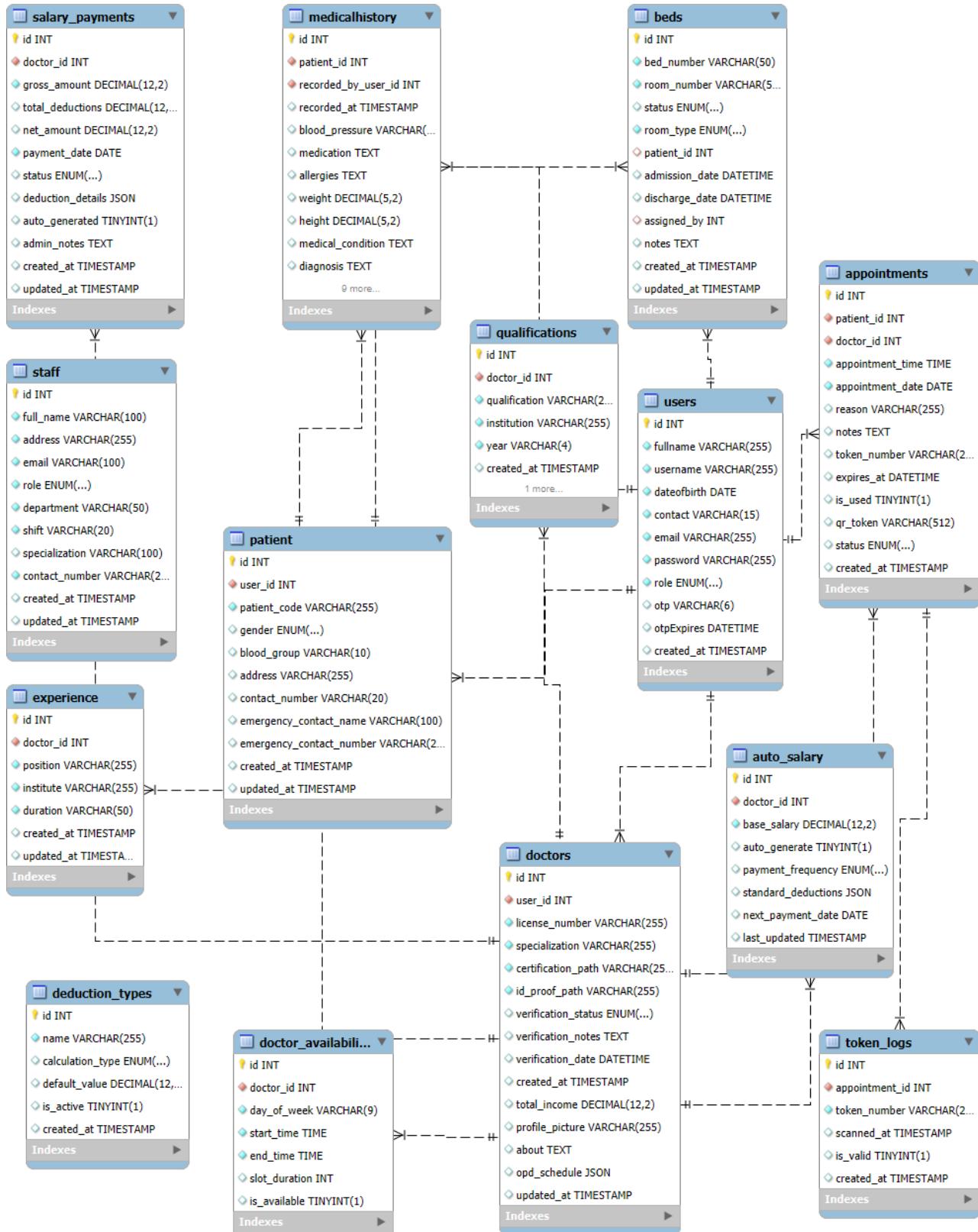


Figure 15 Entity Relation Diagram

## - Final Entity Relation Diagram



16 Final Entity relation diagram

## - Relation diagram

Relation diagram help to show actual table and there relationships in a database, it shows all the attributes with the primary key and foreign keys.

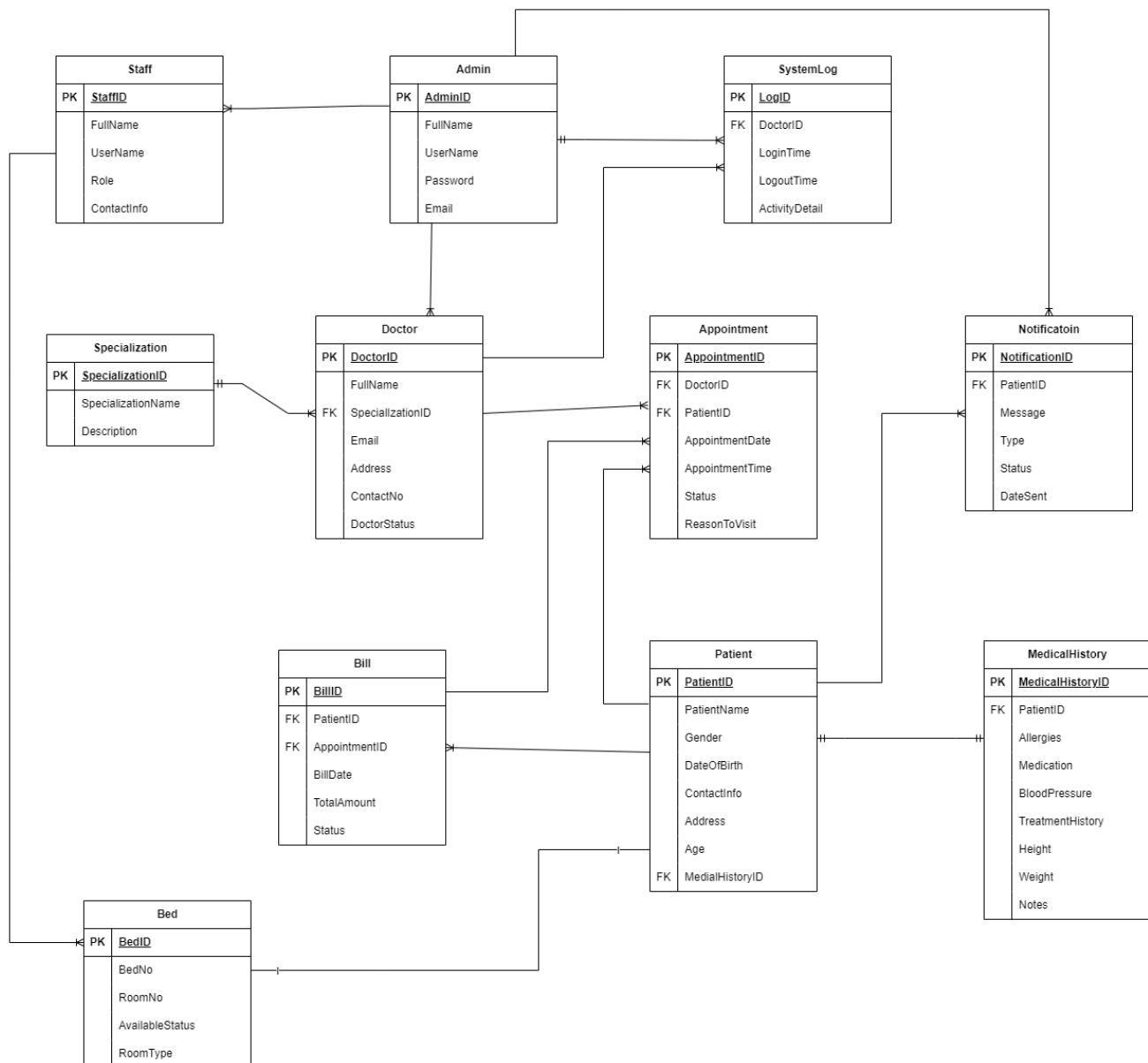


Figure 17 Relation diagram

- **Usecase diagram**

In the usecase diagram it visualize the interactions between user and system. Use case provides high level overview of the system.

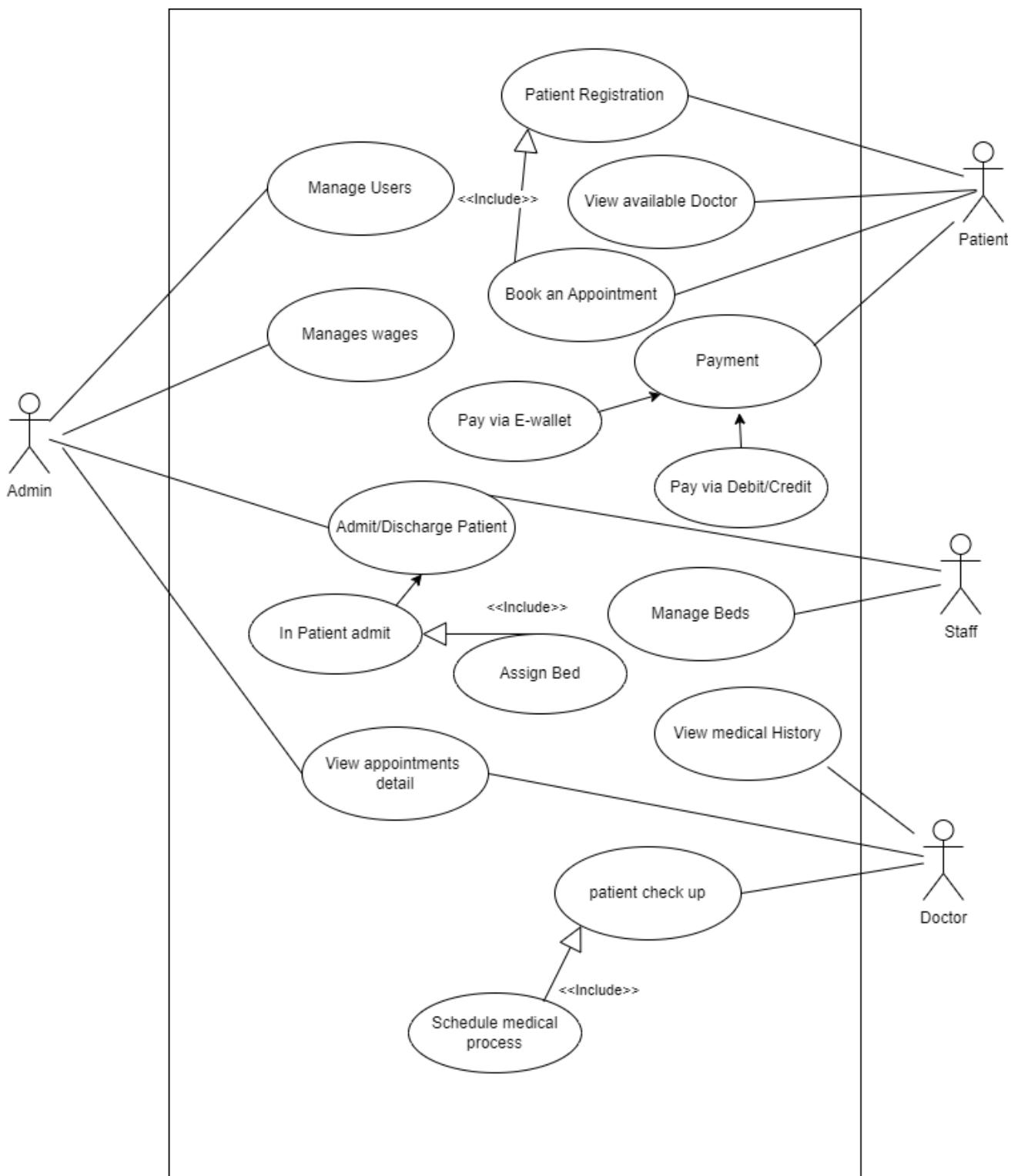


Figure 18 Usecase Diagram

### - Sequence diagram

Sequence diagram is visualization of objects interacting with each other in a system.

This diagram consist of lifelines, time duration and messages which is exchange over time.

- Register sequence diagram

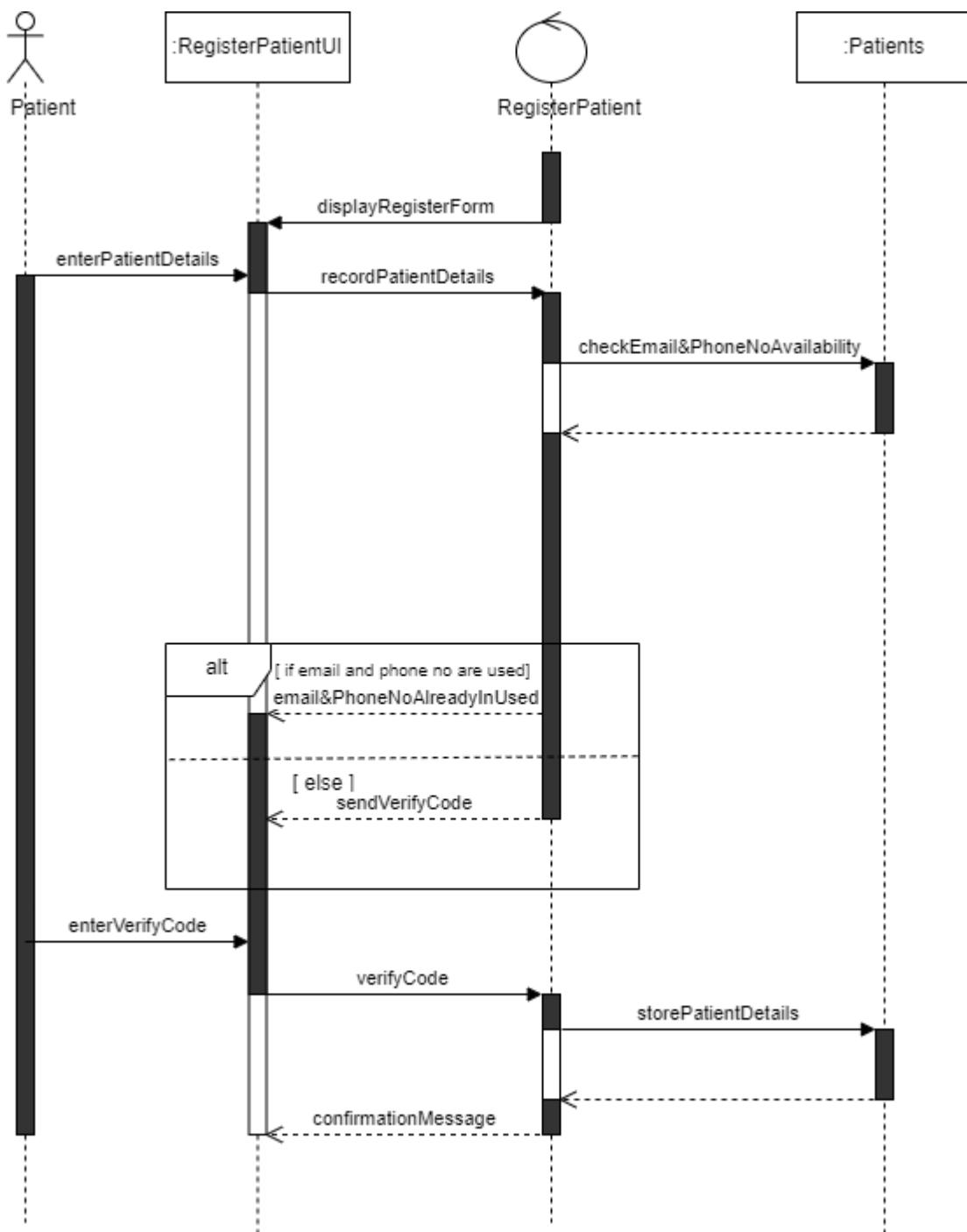


Figure 19 Register sequence diagram

- Appointment sequence diagram

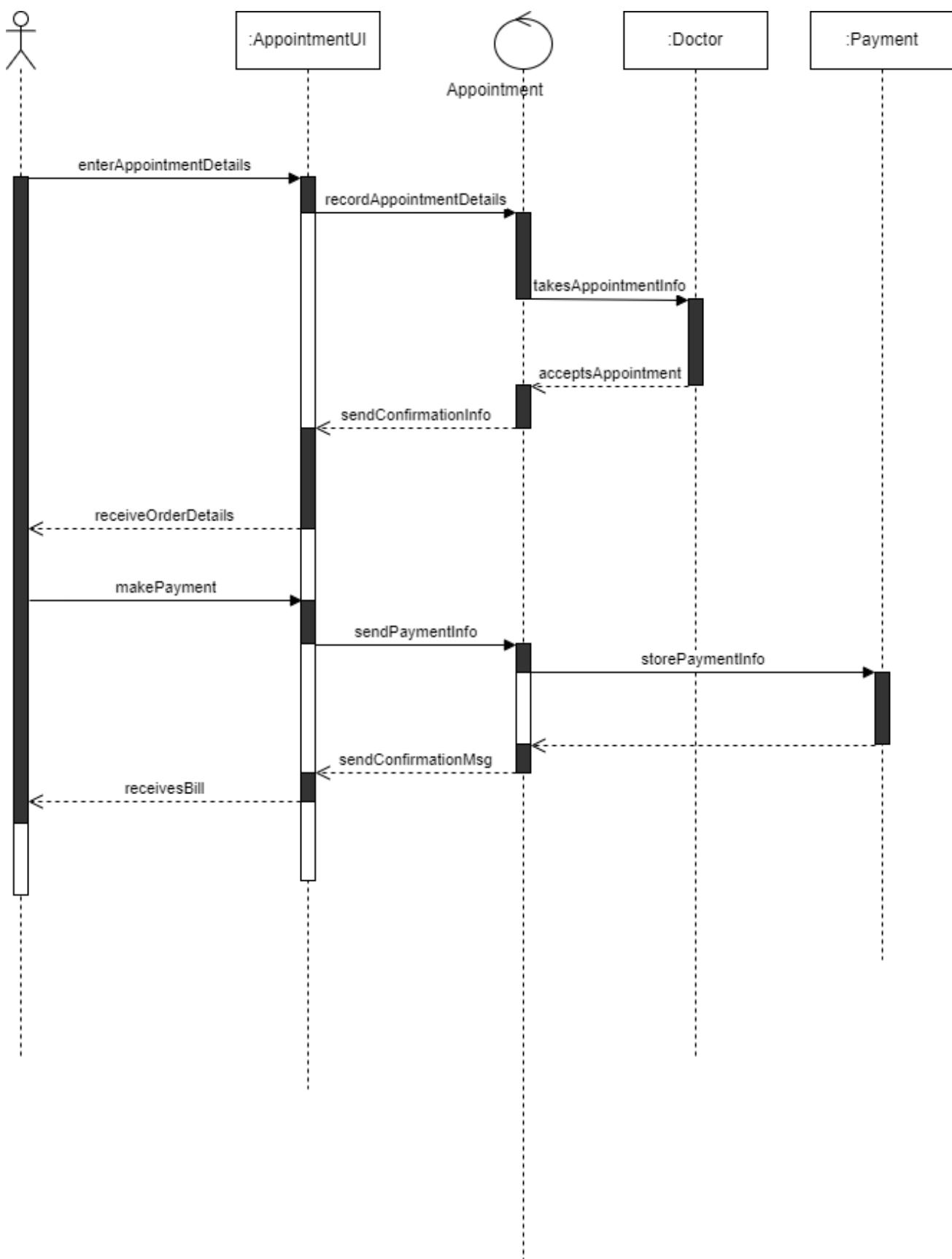


Figure 20 sequence diagram appointment

- **Collaboration diagram**

Collaboration diagram is an illustration of the interaction and relationships between objects in a system.

- Appointment collaboration diagram

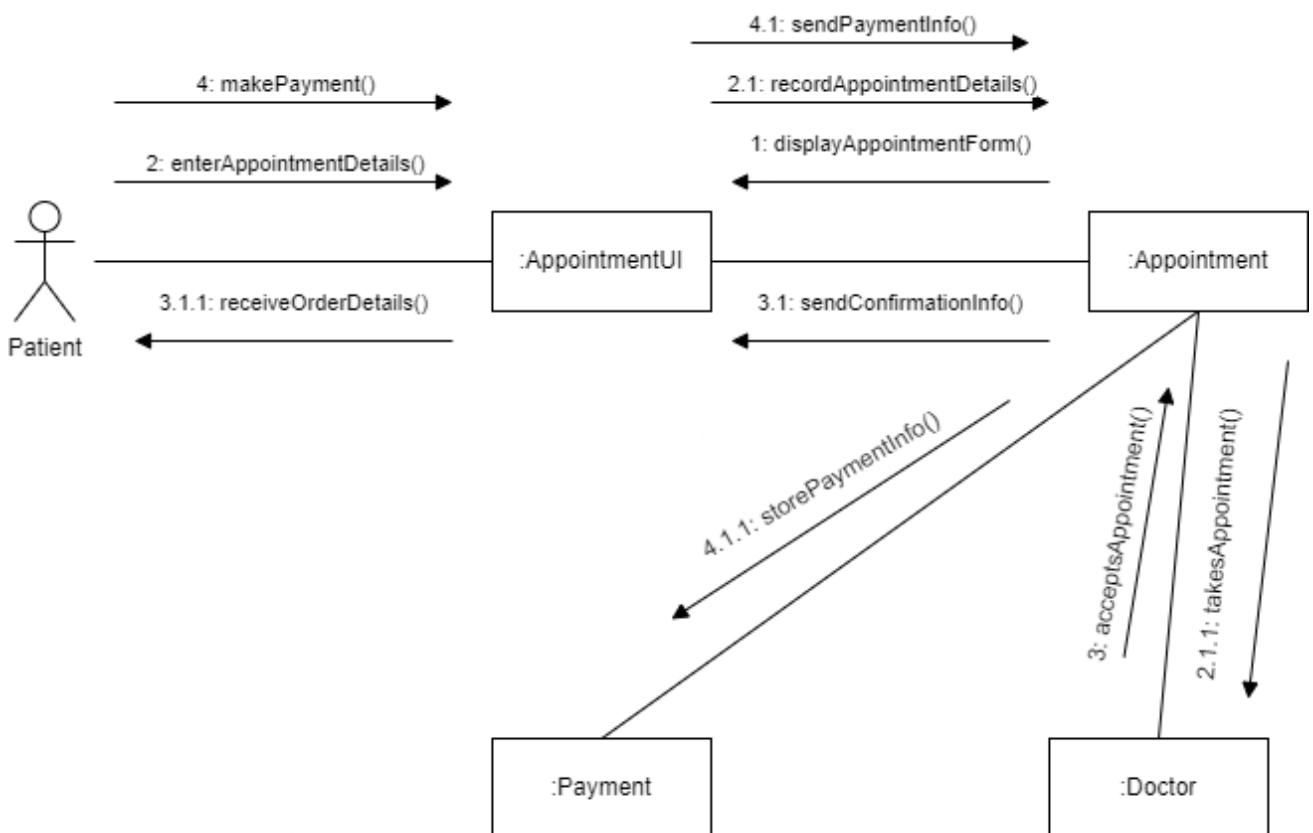


Figure 21 Appointment collaboration diagram

- Register collaboration diagram

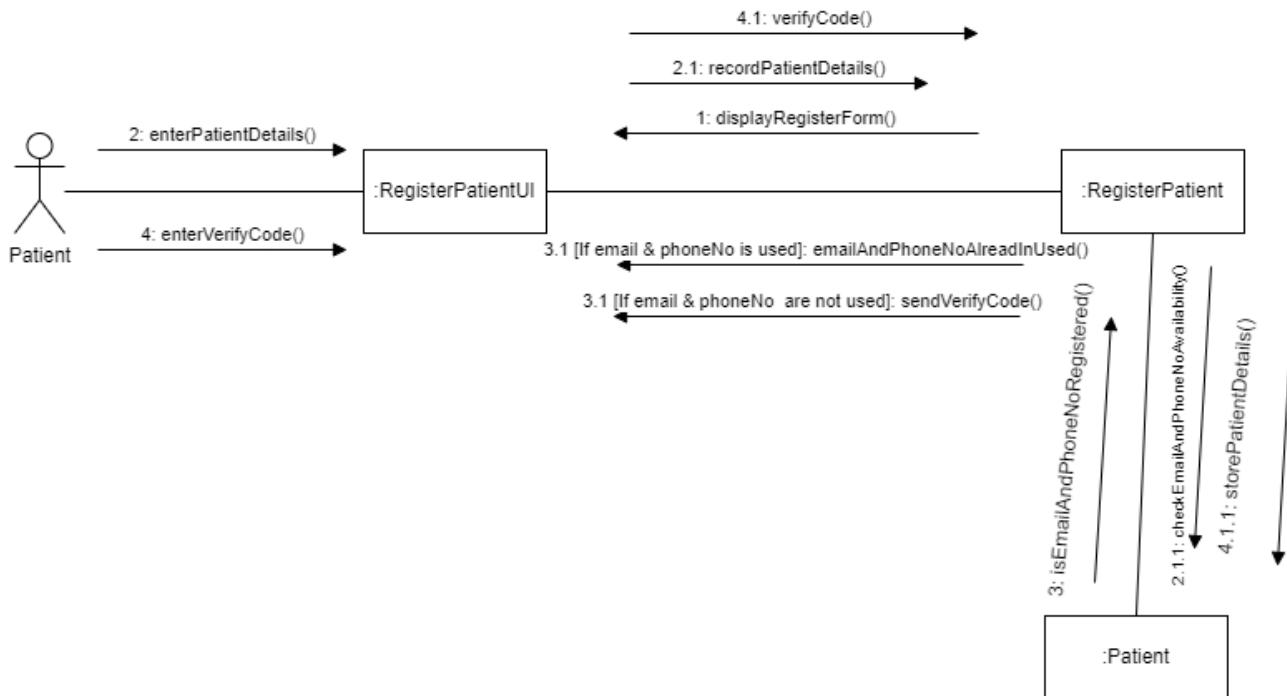


Figure 22 Register collaboration diagram

### - Data flow diagram DFD

Data flow diagram (dfd) is the flow of data in a system which is visualized in the diagram.

- Data flow diagram DFD 0

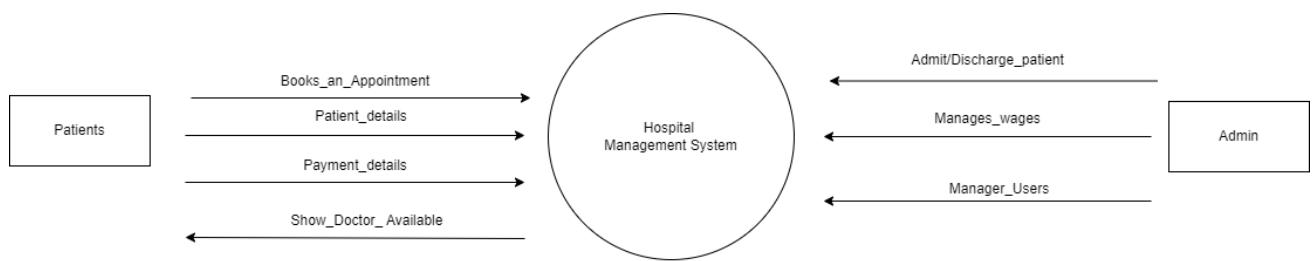


Figure 23 DFD-0

- Data flow diagram DFD 1

Register patient

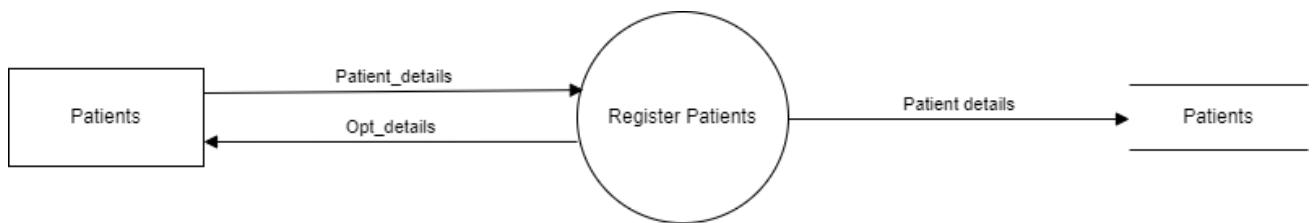


Figure 24 DFD 1 register patient

### Appointment

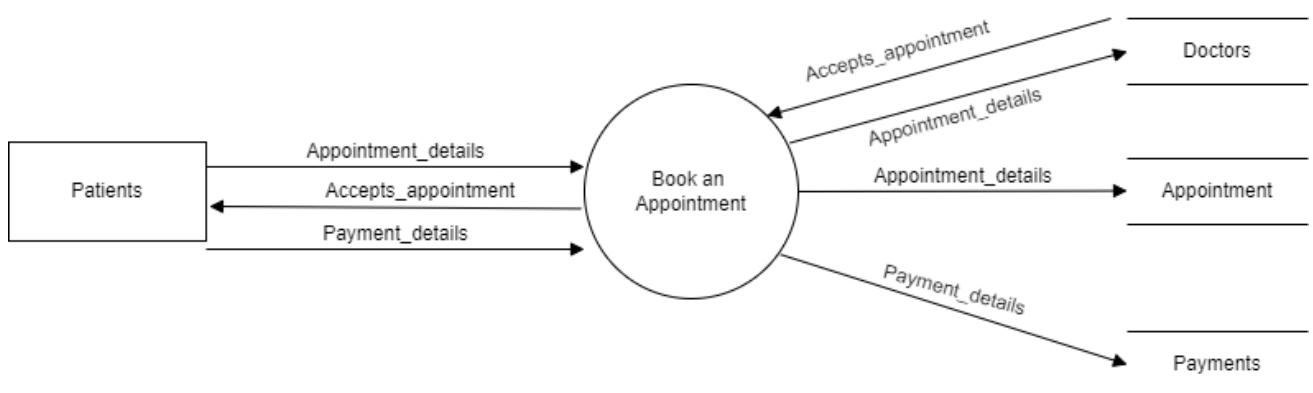


Figure 25 DFD appointment

### Login

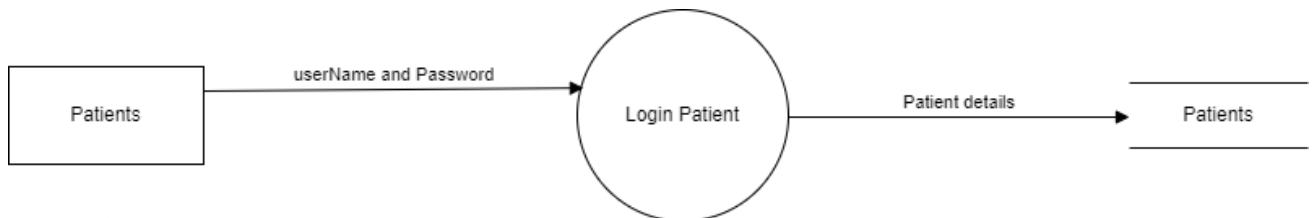
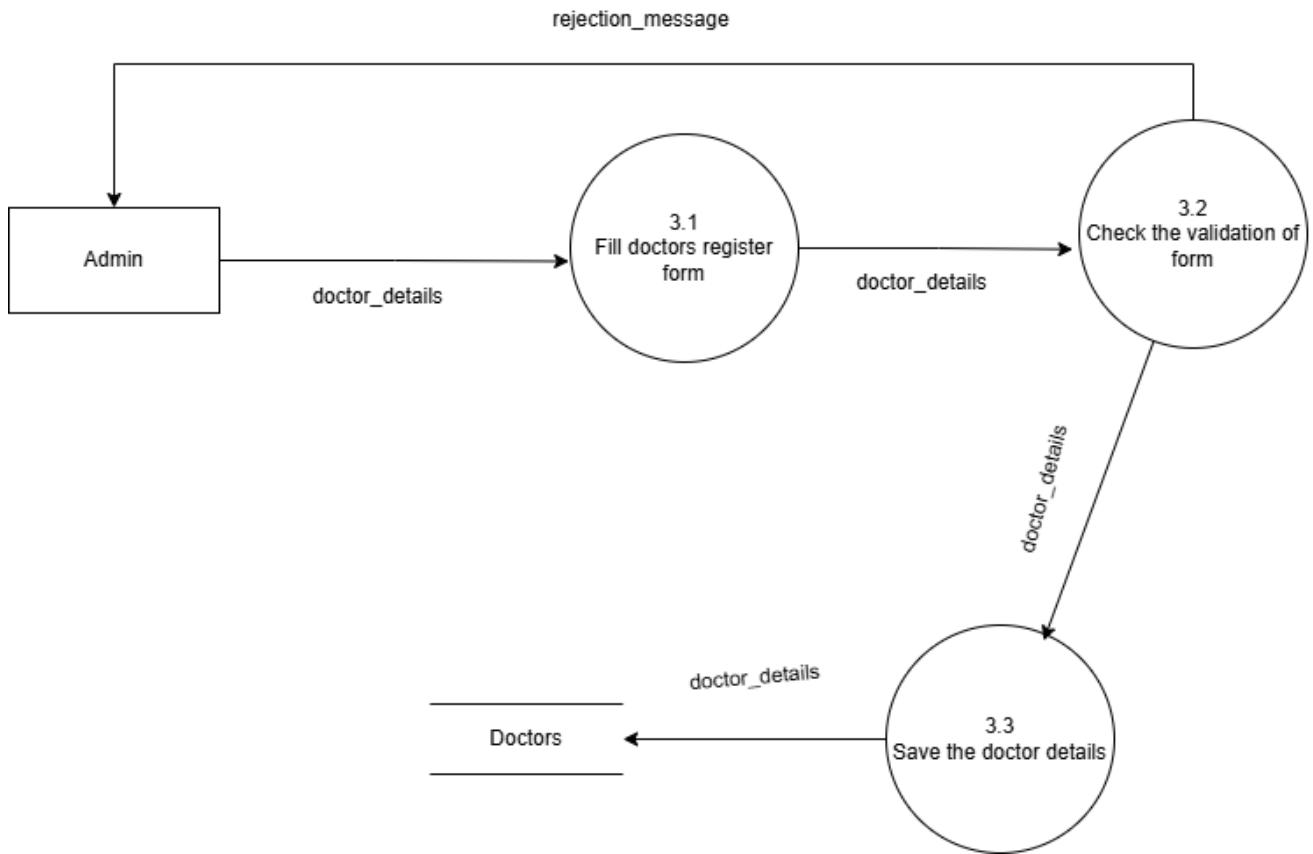


Figure 26 dfd 1 login

- **Data Flow Diagram Level 2**

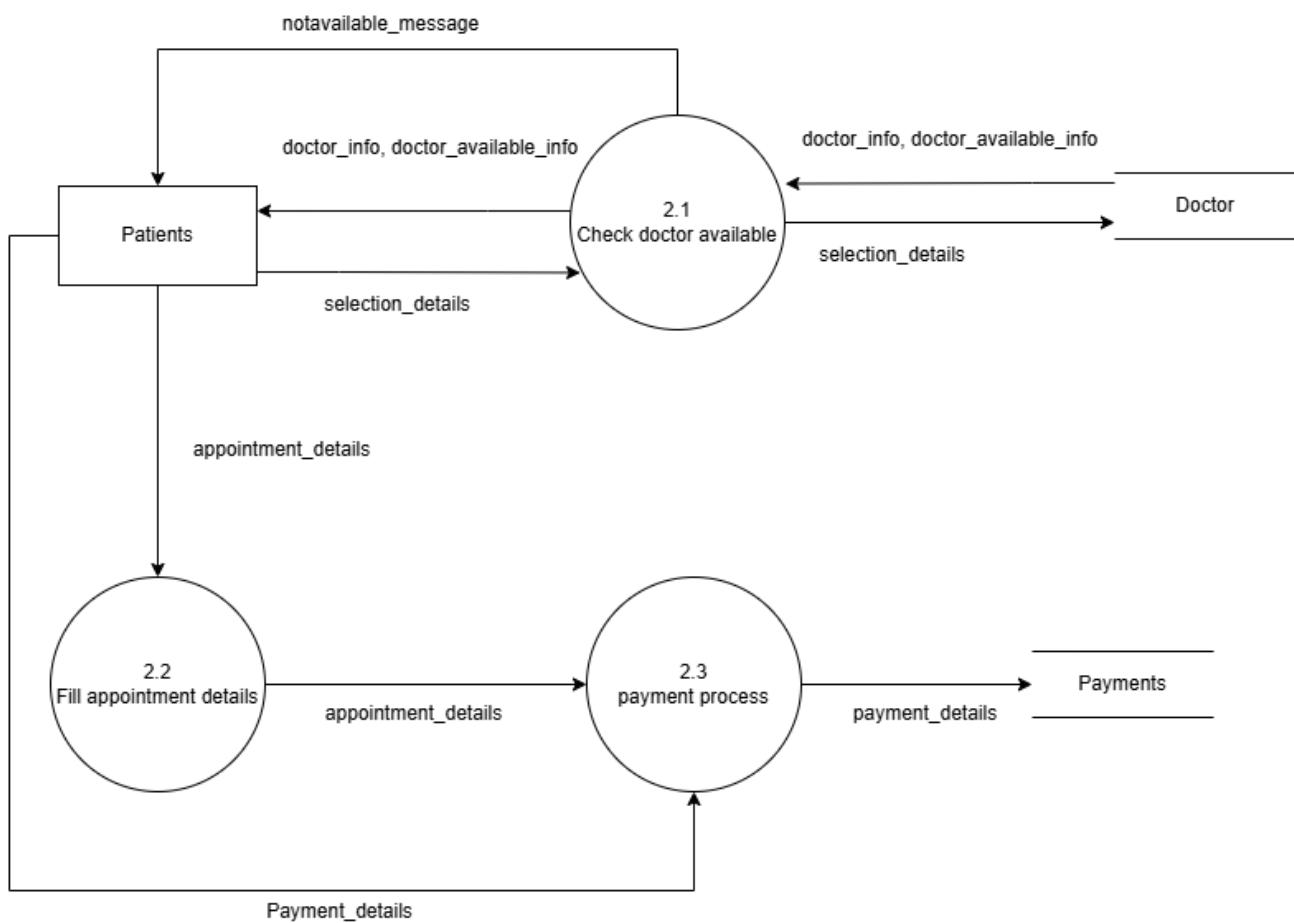
Data Flow Diagram level 2 is further more detailed visualization of dfd level 1.

### Data flow diagram level 2 of Register Doctor:



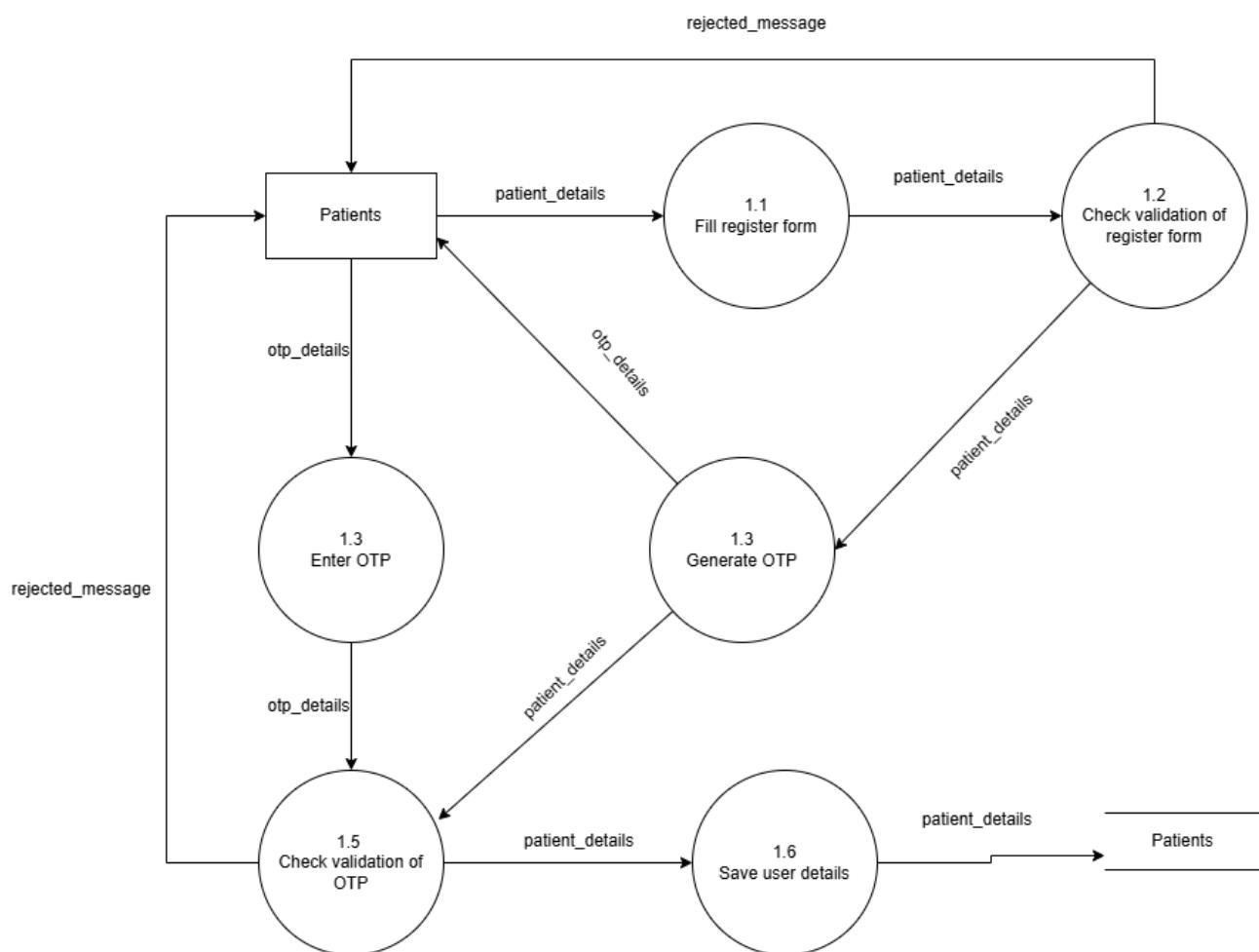
27DFD 2 of Register Customer

### Appointment Booking :



28DFD-02 Appointmnent booking

**Register patient:**



29 DFD 2 of register patient

## Wireframe

Wireframe is a layout or structure of a website.

- **Login wireframe**



The wireframe shows a login page for 'LifeEasy'. At the top center is the 'LifeEasy' logo. Below it is a 'Sign in' button. There are two input fields: one for 'Email or mobile phone number' and another for 'Your password'. A large rounded rectangular button labeled 'Log in' spans both fields. Below the 'Log in' button is a small note: 'By continuing, you agree to the Terms of use and Privacy Policy.' To the right of the note is a 'Forgot your password' link. At the bottom of the page is a horizontal navigation bar with links for 'Help Center', 'Terms of Service', 'Privacy Policy', and the copyright notice '@2022yanliudesign'.

Figure 30 Login Wireframe

- **Doctor list page**

The wireframe illustrates the layout of the LifeEasy mobile application. At the top, there is a navigation bar with the brand name "LifeEasy" on the left and five menu items: "About us", "Services", "Our Doctors", "Profile", and a button labeled "Request Appointment". Below the navigation bar is a grid of four identical doctor profile cards. Each card features a circular placeholder for a doctor's photo, followed by the doctor's name (Dr. Ram Gurung), title (General Physician | Endocrinology), and OPD schedule (Sun - Fri : 3 pm to 8 pm (Lalitpur) / Wed : 10:30 am to 2 pm (Bhaktapur)). Below the schedule are three circular buttons labeled "Clinic Visit", "Virtual", and "5 Years in practice". A decorative swoosh graphic is positioned above the newsletter sign-up section. This section contains a text field for "Email Address" and a "Sign Up" button.

**Doctor Profile Details:**

- Dr. Ram Gurung**
- General Physician | Endocrinology
- OPD Schedule: Sun - Fri : 3 pm to 8 pm (Lalitpur)  
Wed : 10:30 am to 2 pm (Bhaktapur)
- Clinic Visit   Virtual   5 Years in practice

**Newsletter Sign-up:**

Get the latest Health wellness tips and discussions, delivered straight to your inbox.

Email Address

**Branding:**

LifeE  
asv

- **Register wireframe**

The wireframe illustrates a registration form for the 'LifeEasy' application. The interface is divided into two main sections: a large left panel and a smaller right panel.

**Left Panel:** This panel contains the 'LifeEasy' logo at the top. Below it is a large, empty rectangular area, likely a placeholder for a background image or a main content section.

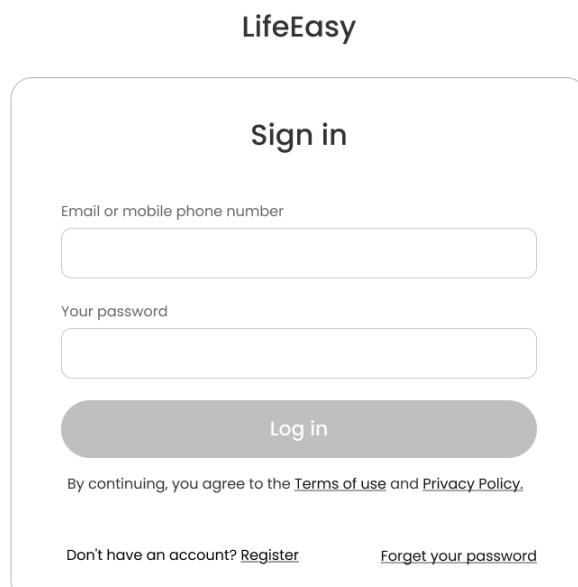
**Right Panel:**

- Create an account:** The title 'Create an account' is displayed prominently.
- Links:** A link 'Already have an Account? Log in' is located above the input fields.
- Input Fields:** The form includes five input fields:
  - Full Name:** A text input field.
  - User name:** A text input field.
  - Email address:** A text input field.
  - Date of Birth:** A text input field.
  - Password:** A text input field with a note below it stating: 'Use 8 or more characters with a mix of letters, numbers & symbols'.
- Buttons:** A primary button labeled 'Create an account' and a secondary link 'Already have an Account? Log in'.

Figure 31 Registration wireframe

## 8. Prototype

- **Login page**

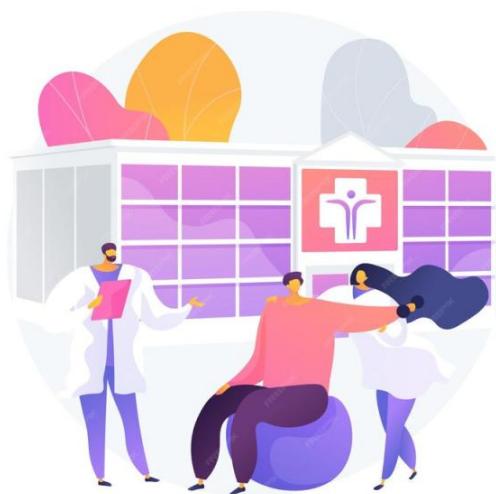


The image shows a wireframe prototype of the LifeEasy sign-in page. At the top center, the "LifeEasy" logo is displayed. Below it, the word "Sign in" is centered above two input fields. The first input field is labeled "Email or mobile phone number" and the second is labeled "Your password". A large, rounded rectangular button below the inputs is labeled "Log in". Underneath the "Log in" button, a small note states: "By continuing, you agree to the [Terms of use](#) and [Privacy Policy](#)". At the bottom of the form, there are two links: "Don't have an account? [Register](#)" and "Forgot your password".

Help Center   Terms of Service   Privacy Policy   @2022yanliudesign

Figure 32 Login page

- **Registration page**

The logo for LifeEasy, featuring the brand name in a bold, black, sans-serif font.

### Create an account

Already have an Account? [Log in](#)

Full Name

User name

Email address

Date of Birth

Password

Use 8 or more characters with a mix of letters, numbers & symbols

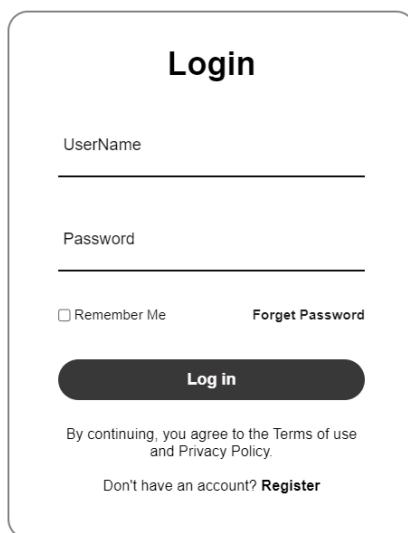
[Create an account](#)

Already have an Account? [Log in](#)

Figure 33 Registration page

## 9. Front-end development

- Login page



The image shows a wireframe-style representation of a login page. The page has a rounded rectangular border. At the top center, the word "Login" is displayed in a bold, sans-serif font. Below it, there are two input fields: "UserName" and "Password", each preceded by its respective label and followed by a horizontal line for text entry. Underneath these fields are two buttons: a small checkbox labeled "Remember Me" and a link labeled "Forgot Password". At the bottom center is a large, dark grey rounded rectangular button with the word "Log in" in white. Below this button, a small note states: "By continuing, you agree to the Terms of use and Privacy Policy." To the right of this note is another link labeled "Register".

Figure 34 Front-End login page

- **Database Design (Data Dictionary)**

A data dictionary is a collection of names definitions and attributes about data elements that are being used in database. It describes the meaning and purpose of data.

- **User entity table data dictionary**

Column	Type	Constraint	Description
Id	INT	Pk, AUTO_INCREMENT	User id
Fullname	Varchar(255)	Not null	Full name of
Username	Vharchar (255)	Not null	Username
Dateofbirth	Date	Notnul	Date of birth
Contact	Varchar (15)	Not null	Contact number
Email	Varchar (255)	Not null, unique	Email address
Password	Varchar(255)	Not null	Hashed password
role	Enum	Not null, default 'user'	Role : user, admin, doctor
Created_At	Timestamp	Default current_times	Timestamp when user was created

Table 2 user entity data dictionary

- **Doctors entity table data dictionary**

<b>Column</b>	<b>Type</b>	<b>Constraints</b>	<b>Description</b>
id	INT	PK, AUTO_INCREMENT	Doctor ID
user_id	INT	FK (users.id), NOT NULL	Associated user ID
license_number	VARCHAR(255)	NOT NULL, UNIQUE	Medical license number
specialization	VARCHAR(255)	NOT NULL	Medical specialization
certification_path	VARCHAR(255)	NOT NULL	Path to certification file
id_proof_path	VARCHAR(255)	NOT NULL	Path to ID proof file
Total_income	DECIMAL(12,2)	DEFAULT 0.00	Total earnings
verification_status	ENUM	DEFAULT 'pending'	Account status: pending, approved, rejected
verification_notes	TEXT		Admin notes during verification
verification_date	DATETIME		Date verified
profile_picture	VARCHAR(255)		Path to profile picture
about	TEXT		Bio or doctor description
opd_schedule	JSON		Doctor OPD schedule in JSON format
created_at	TIMESTAMP	DEFAULT CURRENT_TIMESTAMP	Created timestamp

<b>Column</b>	<b>Type</b>	<b>Constraints</b>	<b>Description</b>
updated_at	TIMESTAMP	Auto-updated	Last updated timestamp

*Table 3 Doctors entity dictionary*

### - Doctor\_availability entity table data dictionary

Column	Type	Constraints	Description
id	INT	PK, AUTO_INCREMENT	Record ID
doctor_id	INT	FK (doctors.id), NOT NULL	Doctor ID
day_of_week	VARCHAR(9)	NOT NULL	Day (e.g. Monday)
start_time	TIME	NOT NULL	Start time
end_time	TIME	NOT NULL	End time
slot_duration	INT	DEFAULT 10	Slot length in minutes
is_available	BOOLEAN	DEFAULT 1	If available on this day

*Table 4 doctor\_availability entity dictionary*

### Appointments entity table data dictionary

<b>Column</b>	<b>Type</b>	<b>Constraints</b>	<b>Description</b>
id	INT	PK, AUTO_INCREMENT	Appointment ID
patient_id	INT	FK (users.id), NOT NULL	ID of the patient
doctor_id	INT	FK (doctors.id), NOT NULL	ID of the doctor
appointment_time	TIME	NOT NULL	Time of appointment
appointment_date	DATE	NOT NULL	Date of appointment
reason	VARCHAR(255)		Reason for visit

Column	Type	Constraints	Description
notes	TEXT		Additional notes
token_number	VARCHAR(25)	UNIQUE	Generated token number
expires_at	DATETIME		Expiry time for appointment
is_used	BOOLEAN	DEFAULT false	Has appointment been used
qr_token	VARCHAR(512)	UNIQUE	Secure QR token for verification
status	ENUM	DEFAULT 'pending'	Status: pending, confirmed, etc.
created_at	TIMESTAMP	DEFAULT CURRENT_TIMESTAMP	Timestamp of creation

Table 5 appointments entity data dictionary

### - Token\_logs entity table data dictionary

Column	Type	Constraints	Description
id	INT	PK, AUTO_INCREMENT	Log ID
appointment_id	INT	FK (appointments.id)	Associated appointment
token_number	VARCHAR(25)	NOT NULL	Token scanned

Column	Type	Constraints	Description
scanned_at	TIMESTAMP	DEFAULT CURRENT_TIMESTAMP	When token was scanned
is_valid	BOOLEAN	DEFAULT true	Whether the token was valid

*Table 6 token\_logs entity dat a dictionary*

### - Staff entity table data dictionary

Column	Type	Constraints	Description
id	INT	PK, AUTO_INCREMENT	Staff ID
full_name	VARCHAR(100)	NOT NULL	Full name
address	VARCHAR(255)	NOT NULL	Address
email	VARCHAR(100)	UNIQUE, NOT NULL	Email address
role	ENUM	NOT NULL	'staff' or 'nurse'
department	VARCHAR(50)	NOT NULL	Department
shift	VARCHAR(20)	NOT NULL	Assigned shift
specialization	VARCHAR(100)		Staff specialization
contact_number	VARCHAR(20)	NOT NULL	Phone number

*Table 7 staff entity data dictionary*

### MedialHistory entity table data dictionary

Column	Type	Description
id	INT	PK, AUTO_INCREMENT
patient_id	INT	FK (patient.id), NOT NULL
recorded_by_user_id	INT	FK (users.id), NOT NULL
blood_pressure	VARCHAR(20)	Blood pressure
medication	TEXT	Medications
allergies	TEXT	Allergies
weight, height	DECIMAL(5,2)	Body measurements
medical_condition	TEXT	Medical condition details
diagnosis, treatment	TEXT	Diagnosis and treatment plans
report_name	VARCHAR(255)	Report file name
report_path	VARCHAR(255)	File storage path
report_date, type	VARCHAR(255)	Date and type of report
report_notes	VARCHAR(255)	Notes on report

Table 8 medialHistory entity data dictionary

## Patient entity table data dictionary

Column	Type	Constraints	Description
id	INT	PK, AUTO_INCREMENT	Patient ID
user_id	INT	FK (users.id), UNIQUE	User ID linked to patient
patient_code	VARCHAR(255)	UNIQUE, NOT NULL	Custom patient code
gender	ENUM		Gender

Column	Type	Constraints	Description
blood_group	VARCHAR(10)		Blood type
address	VARCHAR(255)		Address
contact_number	VARCHAR(20)		Contact phone
emergency_contact_name	VARCHAR(100)		Emergency contact name
emergency_contact_number	VARCHAR(20)		Emergency contact number

*Table 9 patient entity table*

## medicalHistory entity table data dictionary

Column	Type	Description
id	INT	PK, AUTO_INCREMENT
patient_id	INT	FK (patient.id), NOT NULL
recorded_by_user_id	INT	FK (users.id), NOT NULL
blood_pressure	VARCHAR(20)	Blood pressure
medication	TEXT	Medications
allergies	TEXT	Allergies
weight, height	DECIMAL(5,2)	Body measurements
medical_condition	TEXT	Medical condition details
diagnosis, treatment	TEXT	Diagnosis and treatment plans
report_name	VARCHAR(255)	Report file name
report_path	VARCHAR(255)	File storage path
report_date, type	VARCHAR(255)	Date and type of report
report_notes	VARCHAR(255)	Notes on report

*Table 10 medical hospital entity table data .*

## Auto\_salary entity table data dictionary

Column	Type	Description
id	INT	PK, AUTO_INCREMENT
doctor_id	INT	FK (doctors.id), UNIQUE
base_salary	DECIMAL(12,2)	Base monthly salary
auto_generate	BOOLEAN	Whether salary is auto-generated
payment_frequency	ENUM	'monthly' or 'bi-weekly'
standard_deductions	JSON	Default deductions

Table 11 auto\_salary entity data disttionary

## **Salary\_payments entity table data disctionalry**

Column	Type	Description
doctor_id	INT	FK (doctors.id)
gross_amount	DECIMAL(12,2)	Total salary before deductions
total_deductions	DECIMAL(12,2)	Total deductions
net_amount	DECIMAL(12,2)	Auto-calculated (gross - deductions)
status	ENUM	Approval status
deduction_details	JSON	Deductions in JSON

*Table 12 salary\_payment*

## **Deduction\_types entity table data disctionary**

Column	Type	Description
name	VARCHAR(255)	Unique name
calculation_type	ENUM	'percentage' or 'fixed'
default_value	DECIMAL(12,2)	Default deduction value

*Table 13 deduction\_types entity data disctionary*

## **Qualifications entry table data disctionary**

Column	Type	Description
qualification	VARCHAR(255)	Degree or certification name
institution	VARCHAR(255)	Name of institution
year	VARCHAR(4)	Year of passing

*Table 14 qualification entity data disctionary*

## **experience entity tables data disctionary.**

Column	Type	Description
position	VARCHAR(255)	Job title
institute	VARCHAR(255)	Hospital or company name
duration	VARCHAR(50)	Duration of employment

*Table 15 experience entity tables disctionary*

## **Experience entity tables data disctionary**

Column	Type	Description
bed_number	VARCHAR(50)	Unique bed number
room_number	VARCHAR(50)	Room number
status	ENUM	available, occupied, maintenance
room_type	ENUM	general, private, ward
patient_id	INT	FK (patient.id)
assigned_by	INT	FK (users.id) – who assigned the bed

Table 16 Experience entity tables data disctionary

- **Implementation**

This section has the static ui design of the final year project. This section also contains brief notes

- **User panel**

- ..1. Home page screen**

When user open the app user will be sent to a landing page of the app.

Our bodies are our gardens  
– our wills are our gardeners.




**Who we are**

We are a trusted healthcare provider, dedicated to delivering high-quality care through our advanced hospital management system. Our skilled medical professionals use state-of-the-art facilities and technology to treat patients of all ages, both in-person and online.

We focus on prevention, proper care, and patient education to ensure the well-being of our patients and help them maintain a healthy life.

35 Home page

## ..2. Doctors list page

This page contains list of doctor that are available in the hospital. User can select any doctor for their appointment.

**LifeEasy**

[homes](#) [Doctors](#) [Login](#) [Sign Up](#)

### Our Medical Specialists



**Dr. MAAYA GURUNG**  
Specialization: bone/thairoid12  
Contact: 1212121214

[View Profile](#)



**Dr. frankhan**  
Specialization: brain master  
Contact: 1212121212

[View Profile](#)



**Dr. TupakanGurung**  
Specialization: Gastroenterologists  
Contact: 1212121211

[View Profile](#)

36 Doctors list page

### ..3. My Medical History page

This my medical history page contains all the medical history of the patient. Doctor add the patients medical report in the medical history.

**Medical History**

**Recorded At:** 4/29/2025, 11:00:46 PM

**Blood Pressure:** 190

**Medication:** sugar

**Allergies:** seeds

**Weight:** 70.00 kg

**Height:** 160.00 cm

**Medical Condition:** none

**Diagnosis:** thyroid

**Treatment:** medical

**Notes:** none

**Report:** book1.jpg

**Report File:** [View Report](#)

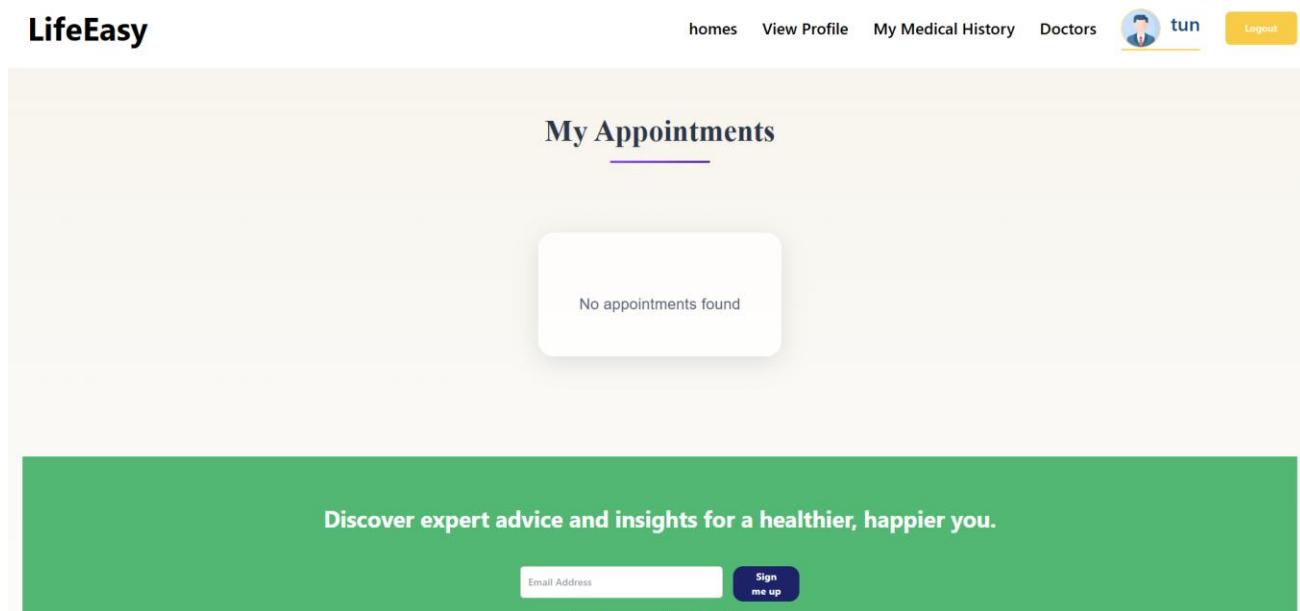
**View Report**

**Recorded At:** 4/24/2025, 6:36:39 PM

37 m medical history page

### ..4. My appointments page

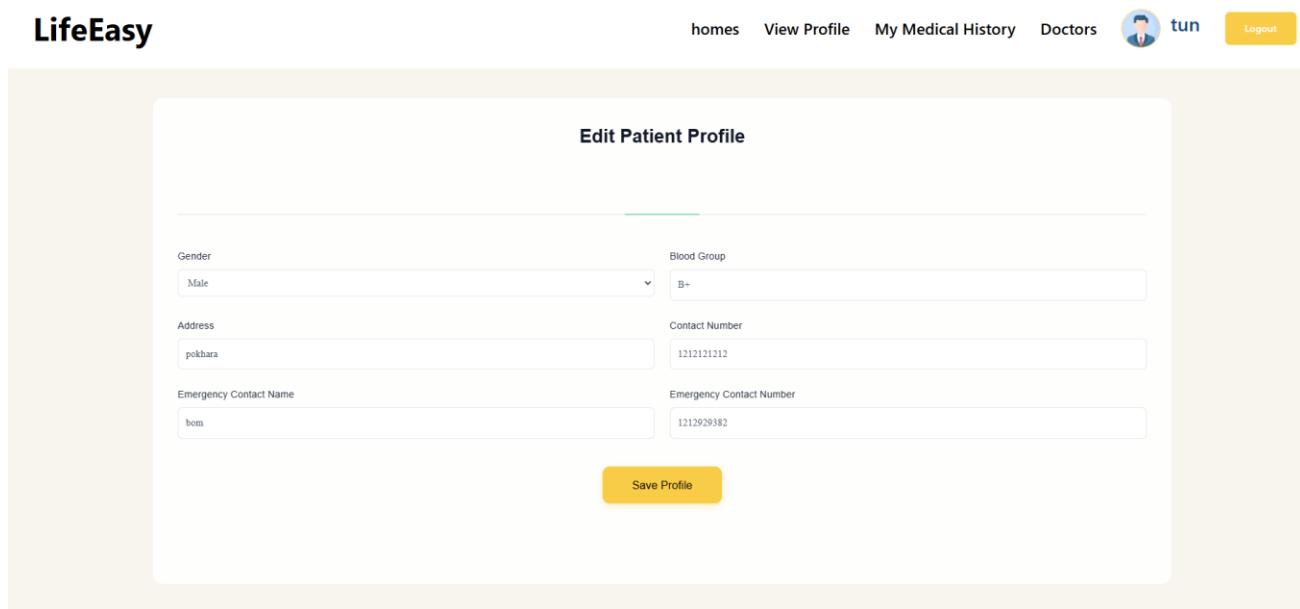
This page contains all the upcoming, completed and rejected appointment in this page. User can see their old appointments.



38 home screen page

## ..5. Edit patient profile page

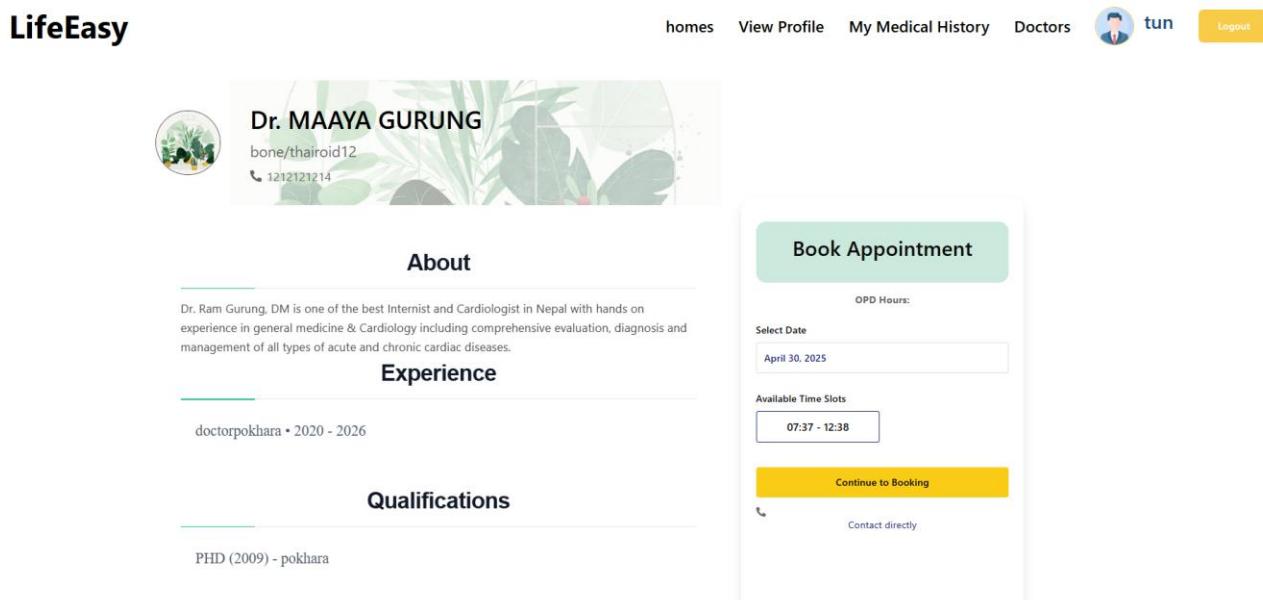
This page contain all the details information that user can add or edit accordingly.



39edit profile page

## .6. Doctors profile page

User click one doctor and make the appointment by selecting the date and time .



The screenshot shows a doctor's profile page. At the top, there is a navigation bar with links for 'homes', 'View Profile', 'My Medical History', 'Doctors', and a user icon labeled 'tun'. Below the navigation bar, the doctor's name 'Dr. MAAYA GURUNG' is displayed, along with their specialization 'bone/thairoid12' and contact number '1232121214'. A green decorative banner with tropical leaves is visible behind the doctor's name. On the left side of the page, there are three sections: 'About', 'Experience', and 'Qualifications'. The 'About' section contains a brief bio about Dr. Ram Gurung. The 'Experience' section lists 'doctorpokhara • 2020 - 2026'. The 'Qualifications' section lists 'PHD (2009) - pokhara'. On the right side, there is a 'Book Appointment' button. Below it, a form allows users to select a date ('Select Date: April 30, 2025') and a time slot ('Available Time Slots: 07:37 - 12:38'). A yellow 'Continue to Booking' button is at the bottom of the form.

40doctors profile page

## .7. User entering appointment detail page

In this page user enters their reason to visit with doctor.

### Appointment Details

Date: 4/30/2025

Time Slot: 07:37 - 12:38

Reason for Visit:

Additional Notes:

**Confirm Appointment**

41 appointment detail page

### ..8. Users home screen after make an appointment

### My Appointments

**Dr. MAAYA GURUNG**

Specialization: bone/thairoid12

Date: 2025-04-30

Time: 07:37

Reason: back pain

Notes: heavy pain

Status: Pending

Discover expert advice and insights for a healthier, happier you.

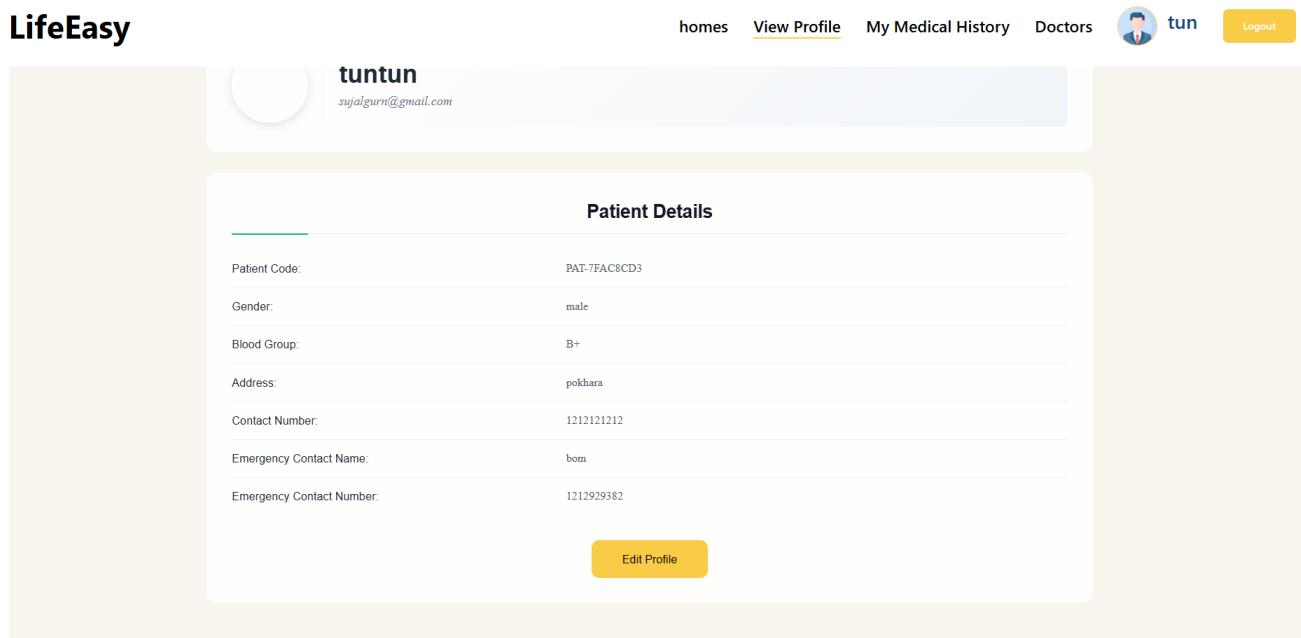
Email Address

Sign

42 userhomescreen appiontemtns

### ..9. View profile page

This page contains users profile details. User can edit their profile by clicking edit profile button



The screenshot shows a user profile for "tuntun" (sujalgurn@gmail.com). The profile includes a placeholder circular profile picture. The navigation bar at the top has links for "homes", "View Profile" (which is underlined), "My Medical History", "Doctors", and a user icon labeled "tun". There is also a "Logout" button.

<b>Patient Details</b>	
Patient Code:	PAT-7FAC8CD3
Gender:	male
Blood Group:	B+
Address:	pokhara
Contact Number:	1212121212
Emergency Contact Name:	bom
Emergency Contact Number:	1212929382

**Edit Profile**

43 patients details pge

## - Doctors panel

### ..1. Doctors dashboard page

This page contain all the necessary details and graph real time report.

The screenshot shows the 'Doctor Dashboard' for Dr. Smith. On the left is a sidebar with icons for Dashboard, Appointments, Patients, Availability, Add Medical History, Medical History, Doctor Profile, and Edit Doctor Profile. The main area has a header 'Welcome Dr. Smith'. It includes four cards: 'Total Patients 245', 'Upcoming Appts 12', 'Monthly Earnings \$12500', and 'Completed (Month) 18'. Below these is a 'Earnings Overview' bar chart showing revenue for Jan, Feb, and Mar. To the right is a 'Pending Appointments' section with a table showing no pending, confirmed, or completed appointments. At the bottom are sections for 'Alerts & Notifications' (Low stock of Painkillers, Annual conference next week, 2 pending prescriptions) and 'Quick Actions' (New Prescription, Add Patient, Schedule Time Off, View Reports). A user icon at the bottom left indicates 'Dr.'.

44 doctors dashboard page

## ..2. Doctor edit profile page

In this page doctor can edit their profile page and add new details

The screenshot shows the 'Edit Profile - Dr. MAAYA GURUNG' page. The sidebar is identical to the dashboard. The main area has a 'Profile Information' section with fields for Full Name (MAAYA GURUNG), Specialization (bone/thairid12), and Contact (1212121214). Below it is a 'Profile Picture URL' field containing a link to a watercolor illustration. The 'About' section contains a bio: 'Dr. Ram Gurung, DM is one of the best Internist and Cardiologist in Nepal with hands on experience in general medicine & Cardiology including comprehensive evaluation, diagnosis and management of all types of acute and chronic cardiac diseases.' The 'Qualifications' section lists PHD, pokhara, and 2009.

45 edit doctor page

### ..3. Appointments page

This appointment page contains all the pending, accepted and rejected appointment are stored and doctor approve or rejects the appointments.

The screenshot shows the 'My Appointments' section of the LifeEasy Doctor application. On the left, there is a sidebar with various navigation options: Dashboard, Appointments (which is selected and highlighted in yellow), Patients, Availability, Add Medical History, Medical History, Doctor Profile, and Edit Doctor Profile. The main content area is titled 'My Appointments' and shows a list of 'Pending Appointments'. A single appointment is listed with the following details: Patient: tuntun, Date: 4/30/2025, Time: 07:37:00, Reason: back pain. There is a 'Confirm/Reject' button next to the appointment entry.

46 appointment page

### ..4. Availability page

In this page doctor adds their available time and doctor can edit or delete their hospital available time.

The screenshot shows the 'Availability' page of the LifeEasy Doctor application. The sidebar on the left includes: Dashboard, Appointments, Patients, Availability (selected and highlighted in yellow), Add Medical History, Medical History, Doctor Profile, and Edit Doctor Profile. The main content area is titled 'Availability' and features a 'Manage Availability' section. It includes a 'Select Day' dropdown menu, two date input fields, and a green 'Add' button. Below this, there is a table titled 'Your Schedule' with four rows of available times: Monday: 00:02 - 23:21, Thursday: 09:14 - 12:14, Tuesday: 08:08 - 21:08, and Wednesday: 07:37 - 12:38. Each row has an 'Edit' button and a 'Delete' button to its right.

47 manage available page

## ..5. Doctors profile page

In this page it contains doctors profile page

**About**

Dr. Ram Gurung, DM is one of the best Internist and Cardiologist in Nepal with hands on experience in general medicine & Cardiology including comprehensive evaluation, diagnosis and management of all types of acute and chronic cardiac diseases.

**Experience**

- doctor  
pokhara • 2020 - 2026

**Qualifications**

- PHD (2009) - pokhara

**Book Appointment**

OPD Hours:

Select Date

Choose available date

Continue to Booking

Contact directly

48 doctor view their profile page

## ..6. Add medical history

In this page doctor can add medical information of the patient and also upload the medical report there.

**Doctor Dashboard**

**Add Medical History**

Patient ID: 1

Blood Pressure:	Medication:
Allergies:	Weight (kg):
Height (cm):	Medical Condition:
Diagnosis:	Treatment:
Notes:	Report Date: mm/dd/yyyy
Report Type:	Report Notes:

Upload Report:

**Add Medical History**

49 add medical history page

## ..7. Medical history page

In this page doctor can view all the medical history of the patients without need of any physical paper.

The screenshot shows the 'Doctor Dashboard' interface. On the left is a sidebar with navigation links: Dashboard, Appointments, Patients, Availability, Add Medical History, Medical History (which is selected and highlighted in blue), Doctor Profile, and Edit Doctor Profile. The main content area is titled 'Medical History'. It displays a single record with the following details:

- Recorded At:** 4/29/2025, 11:00:46 PM
- Blood Pressure:** 190
- Medication:** sugar
- Allergies:** seeds
- Weight:** 70.00 kg
- Height:** 160.00 cm
- Medical Condition:** none
- Diagnosis:** thyroid
- Treatment:** medical
- Notes:** none
- Report:** book1.jpg
- Report File:** [View Report](#)

A green button at the bottom right of the card says 'View Report'.

50 medical history page

## ..8. Medical history page

Doctor able to view patient report and other information .

The screenshot shows the 'Medical History' records page. On the left is a sidebar with navigation links: Dashboard, Appointments, Patients, Availability, History (which is selected and highlighted in blue), Add Medical History, Doctor Profile, and Edit Doctor Profile. The main content area is titled 'Medical History'. It displays a table titled 'Medical History Records' with the following data:

Patient ID	Blood Pressure	Weight	Height	Medication	Allergies	Report	Actions
1	190	70.00	160.00	sugar	seeds	book1.jpg	<button>Edit</button>
1	234	67.00	170.00	sugar	sunflower	20230110_124253 (2).jpg	<button>Edit</button>
1	122	59.00	167.00	sugar	sunflower	scott.jpg	<button>Edit</button>

A green button at the top right of the table says 'Add Record'.

## ..9. Patients page

This page contains all the patients that are in the hospital using the software to view reports make appointments.

The screenshot shows the 'Patients' section of the LifeEasy Doctor application. On the left is a sidebar with navigation links: Dashboard, Appointments, Patients (selected), Availability, Add Medical History, Medical History, Doctor Profile, and Edit Doctor Profile. The main area has a search bar at the top labeled 'Search patients...'. Below it is a table with columns: NAME, EMAIL, CONTACT, STATUS, and ACTIONS. The table contains five rows of patient data:

NAME	EMAIL	CONTACT	STATUS	ACTIONS
tuntun	sujalgurn@gmail.com	1212121212	Active	Add Medical History View History
SangamThapa	swengami26@gmail.com	9806695488	Active	Add Medical History View History
SujalGurung	mayaagr4976@gmail.com	0123456789	Active	Add Medical History View History
SujalGurung	sujal.gurung.a22@icp.edu.np	1234567893	Active	Add Medical History View History
SujalGurung	jacito88@gmail.com	1234567892	Active	Add Medical History View History

51 patients view page

## - Admin panel

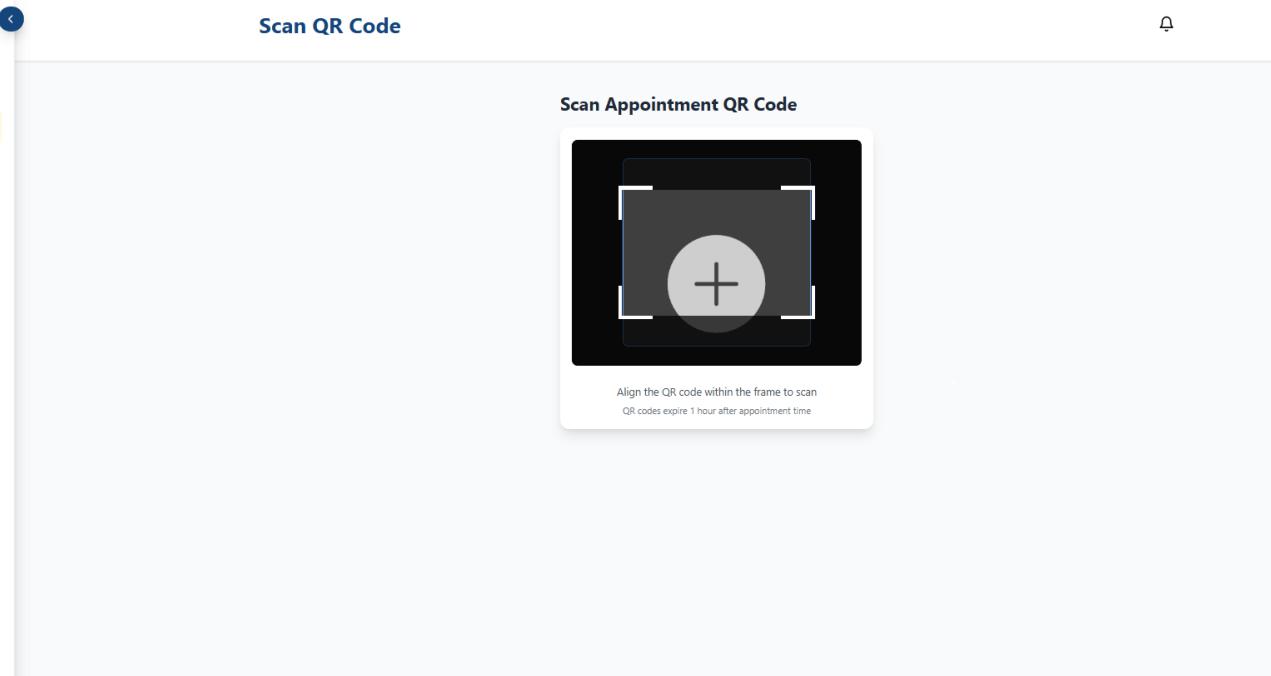
### ..1. Admin dashboard

In this admin dashboard page admin gets the real time report of number of appointment, total no of doctors, total doctors availability and etc.. this helps admin to be up-to-date.

The screenshot shows the 'Admin Dashboard' of the LifeEasy Admin application. On the left is a sidebar with navigation links: Dashboard (selected), Scan QR, Doctors, Availability, Patients, Staff, Salary Approval, Salary History, and Initial Salary. The main area has a title 'Admin Dashboard' and four summary boxes: 'Total Appointments' (2), 'Total Patients' (0), 'Total Doctors' (3), and 'Total Availability' (4). Below these is a chart titled 'Appointment Trends (Last 6 Months)' showing a green bar from April to May. A callout box on the chart indicates 'April 2025 Appointments: 1'. The chart has a y-axis from 0 to 1 and an x-axis with 'Apr' and 'May'.

## ..2. Scan qr page

In this page when patient visits the hospital. Patients should verify the appointment details when qr is scan appointment become complete. Appointment is verified.



52qr scan page

## ..3. Doctors page

In this page it contains all the doctors detail and list of doctors and pending doctors.

**Manage Doctors**

Failed to load pending verifications ×

**Pending Verifications**

No pending verifications found

**Registered Doctors**

Doctor	Specialization	License	Status	Actions
MAAYA GURUNG gurung.sujal87@gmail.com	bone/thairoid12	12345644	Approved	<span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>
frankhan ww@gmail.com	brain master	90009	Approved	<span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>
TuphanGurung gurungtuphan999@gmail.com	Gastroenterologists	879737892	Approved	<span style="color: blue;">Edit</span> <span style="color: red;">Delete</span>

53 mange doctors page

#### ..4. Edit doctors info

**Manage Doctors**

Failed to load pending verifications ×

**Pending Verifications**

**Edit Doctor Details**

Fullname	MAAYA GURUNG
Email	gurung.sujal87@gmail.com
Specialization	bone/thairoid12
License Number	12345644

Cancel Save Changes

**Registered Doctors**

54edit doctor page s

## ..5. Patient management page

In this page doctor edits views patients profile page.

The screenshot shows a web-based patient management system. At the top, there is a search bar labeled "Search patients...". Below it is a table with the following data:

Name	Email	Contact	Status	Actions
tuntun	sujalgurm@gmail.com	1212121212	Active	Edit Add History
SangamThapa	swngam26@gmail.com	9806695488	Active	Edit Add History
SujalGurung	mayagrg4976@gmail.com	0123456789	Active	Edit Add History
SujalGurung	sujal.gurung.a22@icp.edu.np	1234567893	Active	Edit Add History
SujalGurung	jacxto88@gmail.com	1234567892	Active	Edit Add History

55 patient management system

## ..6. Staff page

In this page new staffs are added and edit and delete are provide accordingly. Staffs are adding two diff role nurse and staffs.

**Staff Management**

The screenshot shows a web-based staff management system. At the top, there is a search bar labeled "Search staff...". Below it is a form titled "Add New Staff Member" with fields for "FULL NAME \*", "EMAIL \*", "DEPARTMENT \*", "CONTACT NUMBER \*", "ROLE \*", and "SHIFT \*". The "ROLE" field is set to "General Staff" and the "SHIFT" field is set to "Morning (8AM - 4PM)". A blue button labeled "Add Staff" with a plus sign is at the bottom of the form. Below the form is a table with columns: NAME, ROLE, DEPARTMENT, SHIFT, CONTACT, and ACTIONS. One row is visible in the table, showing "tuntun" in the NAME column, "staff" in the ROLE column, "cleaner" in the DEPARTMENT column, "Morning" in the SHIFT column, "1212121212" in the CONTACT column, and edit and delete icons in the ACTIONS column.

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
tuntun	staff	cleaner	Morning	1212121212	

56staff management system

## ..7. Pending salary approvals page

In this page automated invoice is generated when admin has to approve before sending to the employees or edit it. Invoice is generated every month.

The screenshot shows a web-based application interface for managing employee salaries. At the top, there's a header bar with a left arrow icon, the text "Pending Approvals", and a right arrow icon. Below this is a sub-header "Pending Salary Approvals". The main content area displays a card for an employee named "MAAYA GURUNG". Inside the card, the gross salary is listed as ₹69695.00 (Gross). A section titled "Deductions" shows a single deduction entry for "tax" amounting to 555. Below this, the total deductions are listed as ₹555.00 and the net salary as ₹69140.00. At the bottom right of the card is a yellow button labeled "Approve Salary".

57salary approval page

## ..8. Initial salary config page

In this page salary is assign to the new doctors.

**Initial Salary Configuration**

**Salary Configuration**

The screenshot shows a configuration page for salary settings. It includes fields for selecting a doctor (dropdown menu with options MAAYA GURUNG, Select Doctor, frankhan, TuphanGurung), setting payment frequency (Monthly dropdown), adding deductions (Name, Value, Fixed buttons), and specifying the next payment date (mm/dd/yyyy input field). A 'Save' button is at the bottom right.

Doctor  
MAAYA GURUNG  
Select Doctor  
MAAYA GURUNG  
frankhan  
TuphanGurung

Payment Frequency  
Monthly

Deductions

Name Value Fixed

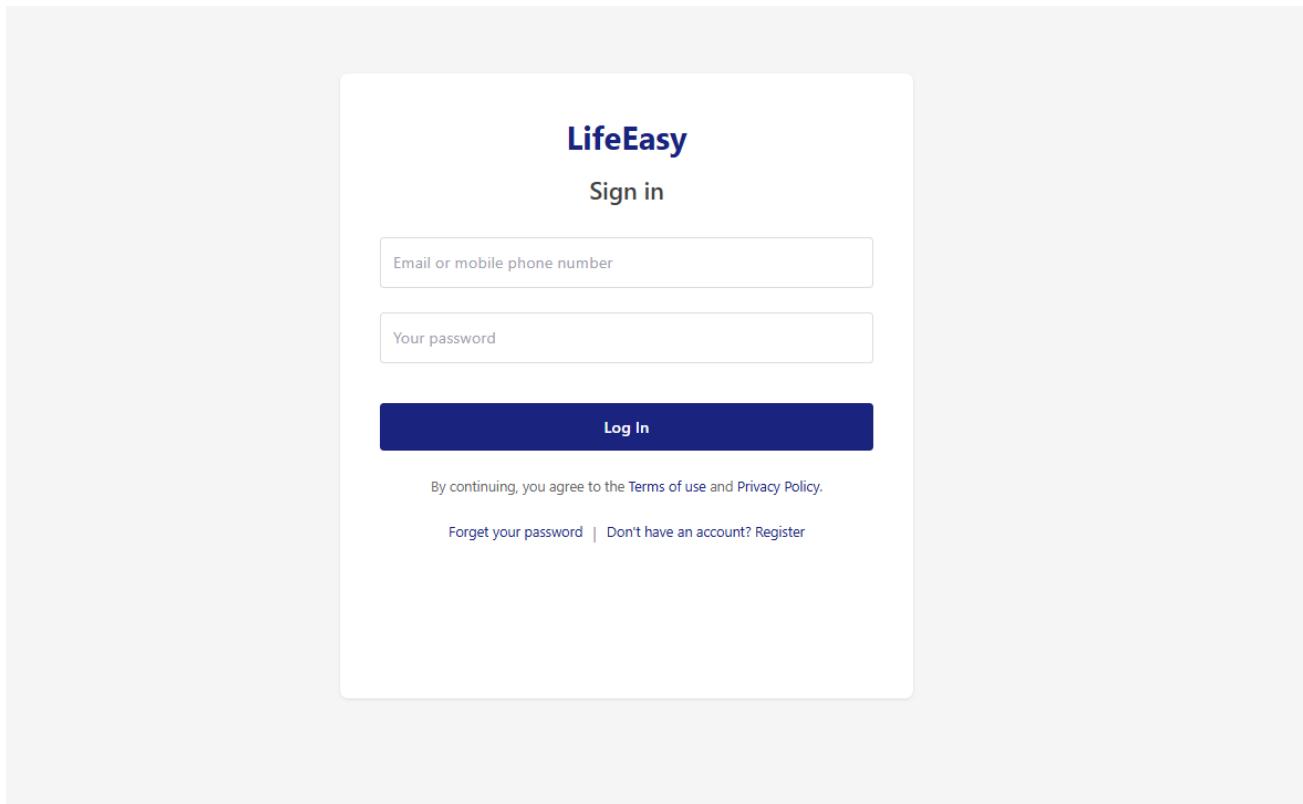
Add Deduction

Next Payment Date  
mm/dd/yyyy

Save

58 salary config page

- Login page



59login page

- **Register page**

 A screenshot of the LifeEasy user registration page. The page features a large circular illustration on the left showing a doctor in a white coat interacting with a patient on a purple exercise ball, set against a background of stylized leaves in yellow, pink, and green. To the right of the illustration, the text "Create an account" is displayed in bold. Below this, there is a link "Already have an Account? [Log In](#)". The registration form consists of several input fields: "Full Name" (with a placeholder "John Doe"), "Username" (placeholder "johndoe123"), "Date of Birth" (placeholder "mm/dd/yyyy" with a calendar icon), "Contact No" (placeholder "9876543210"), "Email Address" (placeholder "john.doe@example.com"), and "Password" (placeholder "password123"). At the bottom of the form is a large blue "Create an Account" button. Below the button, there is a link "Already have an account? [Login](#)".

60user registration page

- Doctors register page

**Doctor Registration**



Full Name

User Name

Date of Birth  
 mm/dd/yyyy

Contact No  
 Enter your contact number

Email Address

Password

Medical License Number

Specialization

Medical Certification  
 Choose File | No file chosen

Government ID Proof  
 Choose File | No file chosen

[Register as Doctor](#)

Already have an account? [Login](#)

61doctor registration page

## • Sustainability

LifeEasy is developed to make sustainability as its core and aims to create long term value in the healthcare industry, and build trust among the patients and the environment. LifeEasy made their system digitalized which improves the workflow of the hospital, reduces paper based operations. And also keeping the environment eco friendly. LifeEasy also ensures operation to work smoothly even if the hospital is during high demand period. LifeEasy promotes operational sustainability by making workflow smooth and minimizing overload on staffs and administrative.

## Business plan

LifeEasy is a hospital management system which is based on web base. LifeEasy is designed to digitize and streamline hospital operations through digital platform.

- Value proposition: LifeEasy delivers secure solution to replace outdated manual systems.
- Admin dashboard- hospital admin can manage patients appointment, details, doctors manage staffs, salary disbursements.
- Patient- patient can register and make appointment, view prescriptions, upload medical report and track appointments.
- Doctor portal- doctor approves patients appointments, doctor add medical history and send to you.
- KYC verification- when doctor is registering doctor has to add their KYC form and ID cards.

Target market : Life Easy first targets medium size hospitals.

And private clinics.

Revenue streams: 1 one time installation and modification, premium features, subscription based licensing.

Marketing- B2B outreach business to business, LinkedIn and referral incentives.

## Business rules

The LifeEasy is a hospital management system (HMS), and LifeEasy aims to make patient's booking appointment with the doctor smoothly without any obstacles while staying at home. And get the doctor patients report online which make less paper work which mean less hassle to fine reports. By digitalizing the system It will make the business scalable. web-based application which make LifeEasy access to everyone.

LifeEasy has the system that integrate with platform that auto mates the hospital managements system. This business plan focuses on delivering value to the healthcare sector.

For patients: online registration with secure operations help in preventing patients data leak, and profile management while patient and doctor can add the medical report while minimizing paper works

During user registration user must provide real info

The user-interface has minimal looks which make user to navigate links easily and has online appointment scheduling with real time availability of the doctor and get email verification qr scan when you visit hospital.

Patients has access to the their medical records and billing invoices.

For hospital staff and admins :

lifeEasy's system has centralized database which manages and stores data of patients ,

appointments , staffs , and billing.

The system has role based access for the doctors and staff to perform CRUD operations on doctors project data, patients data, available time .

Real time monitoring data analytic of the system or business.

Doctor having ability to accept or reject the appointments.

- **Testing**

Software testing is the process of evaluating and verifying that software product is running without any problem and runs in every condition meeting the requirements and functions as expected. The complete testing includes identifying errors and bugs that can cause problems in future and effect the software performance. Testing is a crucial in the software development to ensure that application function well and meet user/clients expectations.

- - **User panel testing**

#### **..1. Test case 1:**

Test case ID	1
Objective	Users login form validates correctly.
Expected result	Show message according to the field
Actual Result	Message according to field is shown successfully
Status	Successful.

Table 17Unit test message according to empty field

A circular illustration featuring a doctor in a white coat and a patient sitting on a purple bean bag chair. They are in front of a modern building with large windows and a red cross logo. Large, colorful leaves (yellow, pink, blue) are floating around the scene.

Create an account

Already have an Account? [Log In](#)

Full Name

Please enter a valid Full name.

Username

Username should be 3-15 characters and can include letters, numbers, and underscores.

Date of Birth  mm/dd/yyyy

Date of birth must be in YYYY-MM-DD format.

Contact No

Contact number should be 10 digits.

Email Address

Please enter a valid email address.

Password

Password is required.

[Create an Account](#)

Figure 62 Unit test message according to empty field

Test case ID	2
Objective	When adding data in full name field message should remove
Expected result	Message should remove
Actual Result	The message is removed successfully
Status	Successful.

Table 18 Unit test first name message removed



**Create an account**

Already have an Account? [Log In](#)

Full Name

Username

Username should be 3-15 characters and can include letters, numbers, and underscores.

Date of Birth  
 \*  
Date of birth must be in YYYY-MM-DD format.

Contact No

Contact number should be 10 digits.

Email Address

Please enter a valid email address.

Password

Password is required.

**Create an Account**

Figure 63Unit test first name message removed

Test case ID	3
Objective	Second name message should remove after entering data
Expected result	Message should remove
Actual Result	The message is removed successfully
Status	Successful.

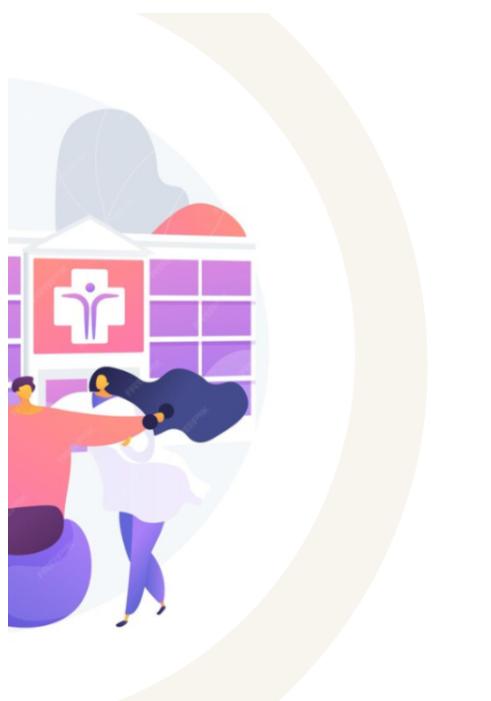
Table 19Unit test second name message removed



Figure 64Unit test second name message removed

Test case ID	4
Objective	Date message should remove after entering date
Expected result	Date Message should remove
Actual Result	The message is removed successfully
Status	Successful.

Table 20 unit test Date message should remove after entering date



[Create an account](#)

Already have an Account? [Log In](#)

Full Name

Username

Date of Birth

Contact No  
  
Contact number should be 10 digits.

Email Address  
  
Please enter a valid email address.

Password  
  
Password is required.

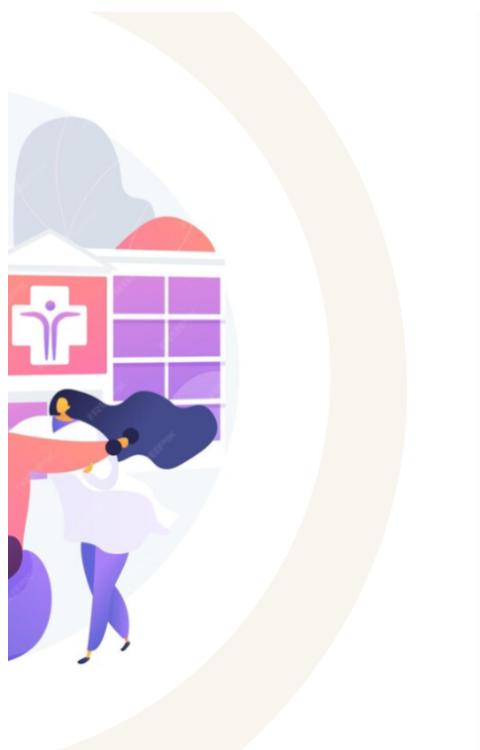
[Create an Account](#)

Already have an account? [Login](#)

Figure 65 unit test Date message should remove after entering date

Test case ID	5
Objective	Contact no message should remove after entering data
Expected result	Contact no Message should remove
Actual Result	The message is removed successfully
Status	Successful.

Table 21 unit test Contact no message should removed after entering data



### Create an account

Already have an Account? [Log In](#)

Full Name	<input type="text" value="Sujalgurung"/>
Username	<input type="text" value="sujalgurung"/>
Date of Birth	<input type="text" value="12/11/2001"/> <input type="button" value="X"/>
Contact No	<input type="text" value="0123456789"/>
Email Address	<input type="text"/> <small>Please enter a valid email address.</small>
Password	<input type="password"/> <small>Password is required.</small>
<a href="#" style="background-color: #004a89; color: white; padding: 5px 10px; text-decoration: none;">Create an Account</a>	

Already have an account? [Login](#)

Table 22 unit test Contact no message should removed after entering data

Test case ID	6
Objective	When email wrong format is entered message should show
Expected result	Email format Message should show
Actual Result	The message is showing successfully
Status	Successful.

Table 23 unit test Wrong email format message should show



### Create an account

Already have an Account? [Log In](#)

Full Name

SujalGurung

Username

sujalgurung

Date of Birth

12/11/2001

Contact No

0123456789

Email Address

mayagrg49@gmail.com

! Please include an '@' in the email address. 'mayagrg49@gmail.com' is missing an '@'.

Password

Password is required.

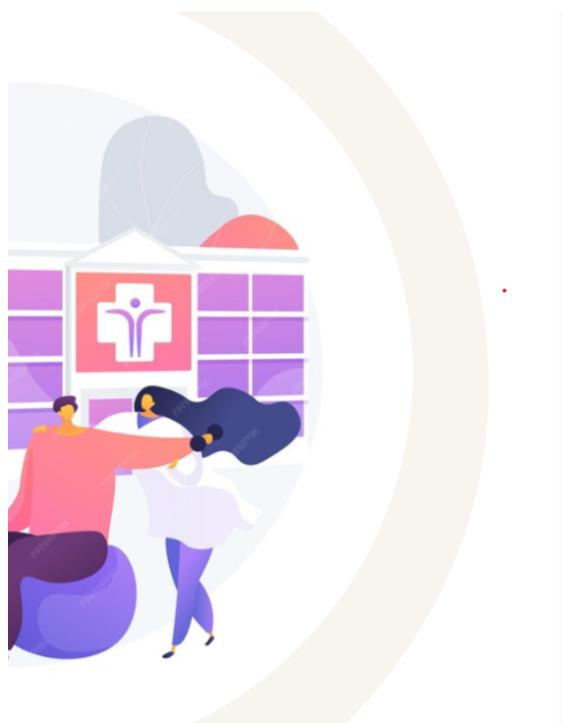
[Create an Account](#)

Already have an account? [Login](#)

Table 24 unit test email format message shown

Test case ID	7
Objective	Email message should remove after entering correct email
Expected result	Email Message should remove
Actual Result	The message is removed successfully
Status	Successful.

Table 25 unit test email message should remove after enter email



### Create an account

Already have an Account? [Log In](#)

Full Name

Username

Date of Birth

(dd/mm/yyyy)

Contact No

Email Address

Password

Password is required.

[Create an Account](#)

Already have an account? [Login](#)

Figure 66unit test email message should remove after enter email

Test case ID	8
Objective	password message should remove after entering password
Expected result	Password Message should remove
Actual Result	The message is removed successfully
Status	Successful.

Table 26unit test password message should remove after entering password



A registration form with the following fields:

- Full Name:** (Input field) - Error message: "Please enter a valid Full name."
- Username:** sujalgurung
- Date of Birth:** 02/13/2001
- Contact No:** 1234567891
- Email Address:** gurung.sujal87@gmail.com
- Password:** (Input field showing four dots)

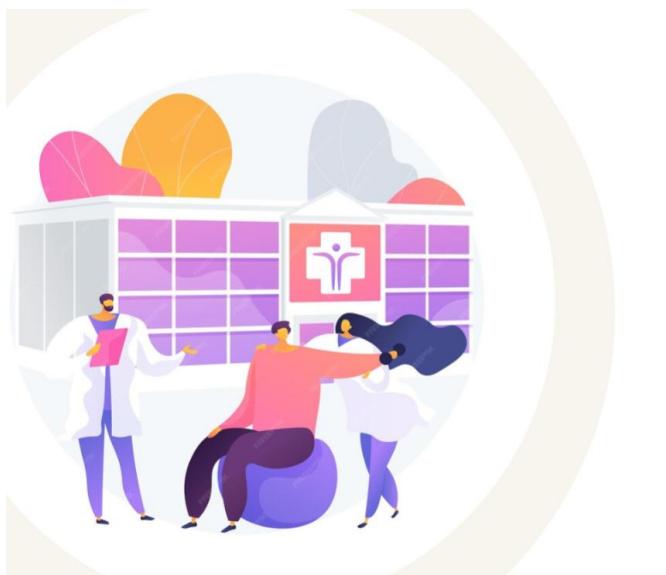
**Create an Account** button

Already have an account? [Login](#)

Figure 67 unit test password message should remove after entering password

Test case ID	9
Objective	Phone number should show message that it should be 10 digits
Expected result	Phone number should show message that it should be 10 digits
Actual Result	Phone number shown message it should be 10 digits
Status	Successful.

Table 27 unit test phone number message should show



### Create an account

Already have an Account? [Log in](#)

Full Name	SujalGurung
Username	sujalgurung
Date of Birth	02/12/2001
Contact No	12345
Contact number should be 10 digits.	
Email Address	<small>Please enter a valid email address.</small>
Password	<small>Password is required.</small>

[Create an Account](#)

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

Table 28 unit test phone number message should show

Test case ID	10
Objective	After clicking create account, redirected to the verification page. Email verification otp code should be sent to the email
Expected result	Redirected to the verification page where otp code is required. And email should be sent to the mail
Actual Result	Redirected to the verification page and email was sent in the mail
Status	Successful.

Table 29 integration test successful form submission

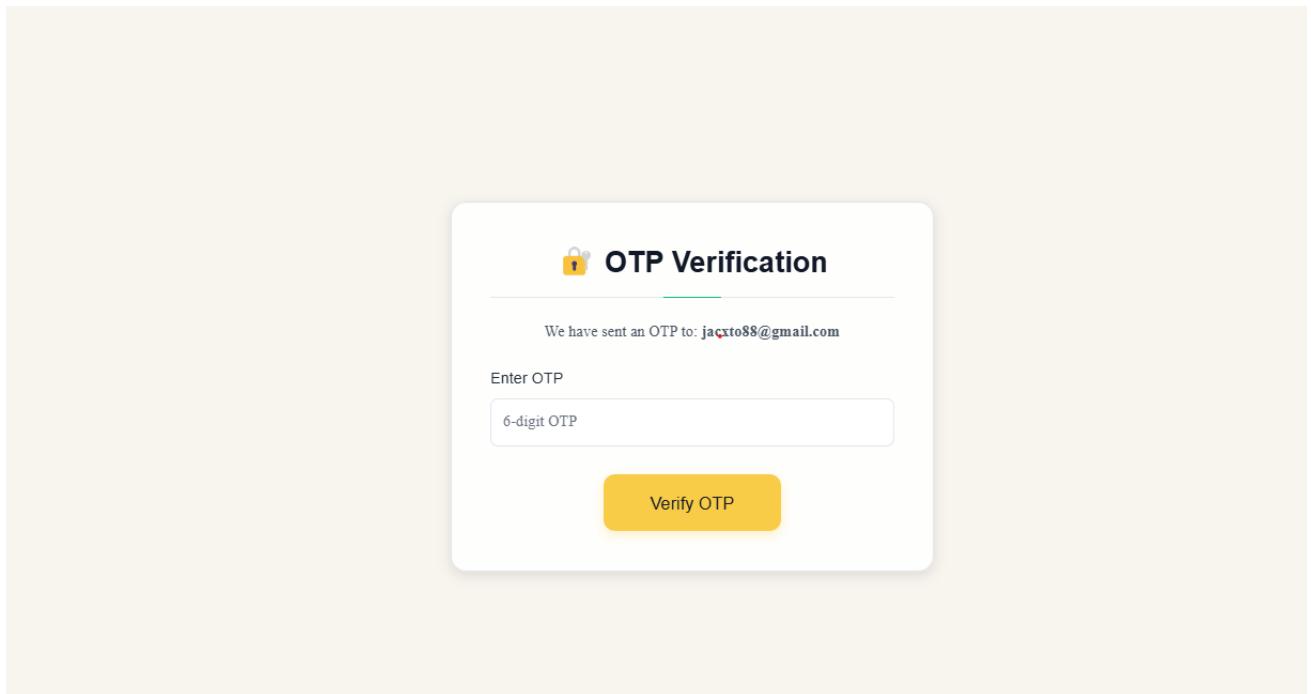


Figure 68 integration test opt email verification

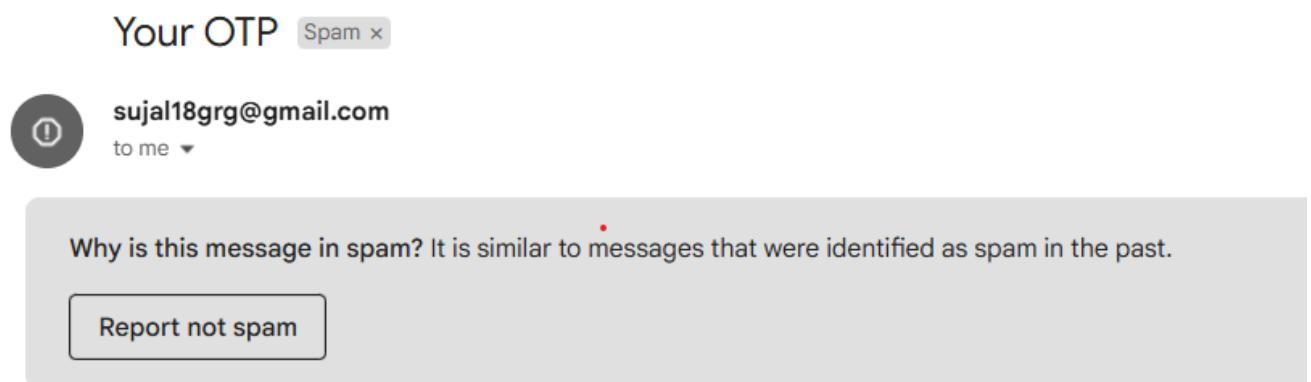


Figure 69 Intergration test otp email received

Test case ID	11
Objective	After entering otp code in the form, email will be verify and redirect to the login page

Expected result	Email should be verified after entering otp and successfully redirect to login page
Actual Result	Email is verified and redirected to login page
Status	Successful.

Table 30 integration test verified email

result Grid									
Filter Rows: <input type="checkbox"/> Edit:    Export/Import:   Wrap Cell Content: <input type="checkbox"/>									
	id	fullname	username	dateofbirth	contact	email	password	role	otp
1	tuntun	tun	1920-01-08	1212121212		sujalgurn@gmail.com	\$2b\$10\$uJGAjHa4v7Rk4q.xg.14beg4EigSbrv8n...	user	HULL
2	AdminLife	admin01	2014-11-03	0987654311		admin@fe.com	\$2b\$10\$yvRxR.3LNIEHtqQg1.RuWeROAaby6sL...	admin	HULL
3	sujal	sujal	2003-02-12	1212121212		gurung.sujal87@gmail.com	\$2b\$10\$ySb4PS3dsFt4.cgyZV5XuXeA08p5IGm...	doctor	HULL
4	SangamThapa	DumDum	2008-02-07	9806695488		swngam26@gmail.com	\$2b\$10\$IPzx8/Iraa.YGFWrKgnEuThlZ0JlrN3X...	user	HULL
5	frankhan	faran	1990-08-07	1212121212		vv@gmail.com	\$2b\$10\$tn31SJN/fuIxhqf7ff.2G9V0o76z2...	doctor	HULL
6	TuphanGurung	tuphan	2003-02-04	1212121211		gurungtuphan999@gmail.com	\$2b\$10\$awzuuZT2osIw9Dap16RLMOreSDDsSKo...	doctor	HULL
7	SujalGurung	sujalgurung	2001-12-11	0123456789		mayaagr4976@gmail.com	\$2b\$10\$IRj3wihUebN4pCwnCrxjObVrzq/uv15...	user	842492
8	SujalGurung	sujalgurung	2001-02-14	1234567893		sujal.gurung.a22@icp.edu.np	\$2b\$10\$QRJrzEiQ2ksxvRH01I42eR7x4JlnRy...	user	432167
9	SujalGurung	sujalgrg	2001-05-12	1234567892		jacxto88@gmail.com	\$2b\$10\$Qb/GsXDoaJWxbuLLRNdNecnH6Z9k7...	user	HULL
HULL	HULL	HULL	HULL	HULL		HULL	HULL	HULL	HULL

Figure 70 integration test email verified

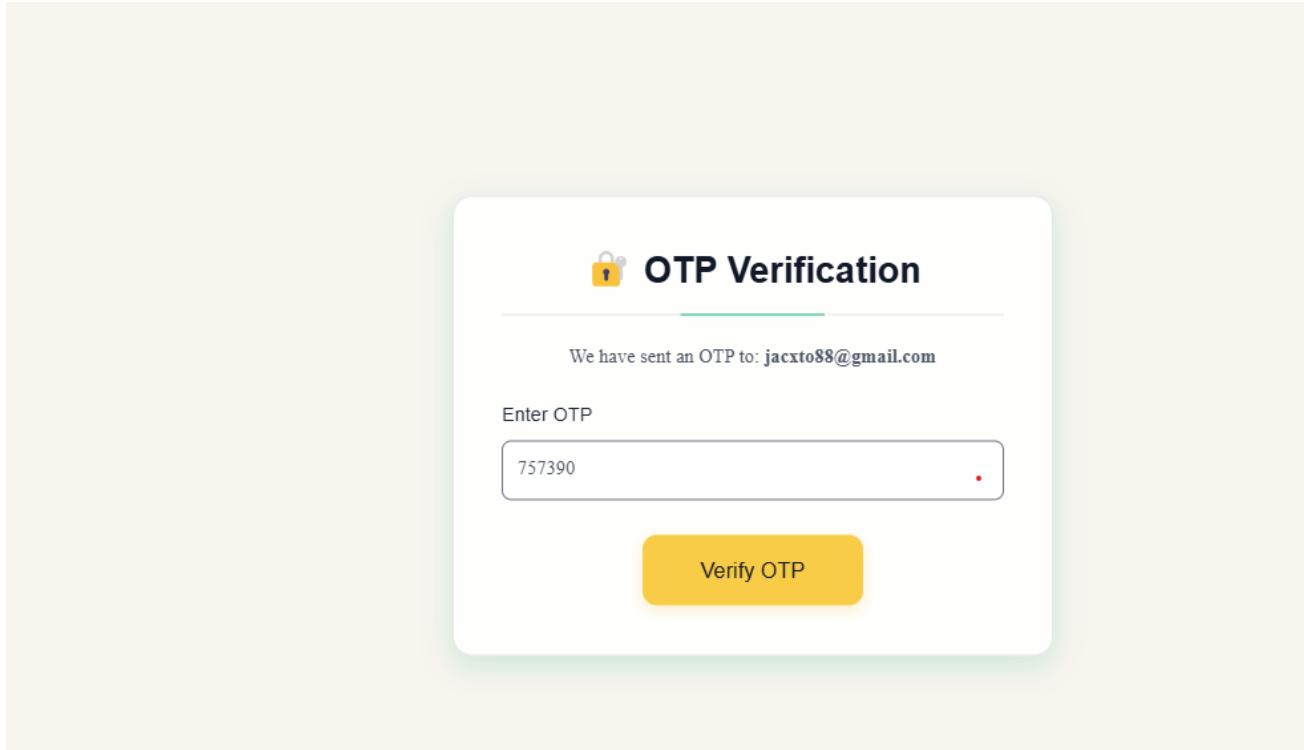


Figure 71 integration test entering otp code

Test case ID	12
Objective	If the otp code is expired, and tried to enter the code it should show the message failed
Expected result	If expired otp code is entered, failed message should show
Actual Result	Message is showing successfully
Status	Successful.

Table 31unit test expired otp code enter message shown

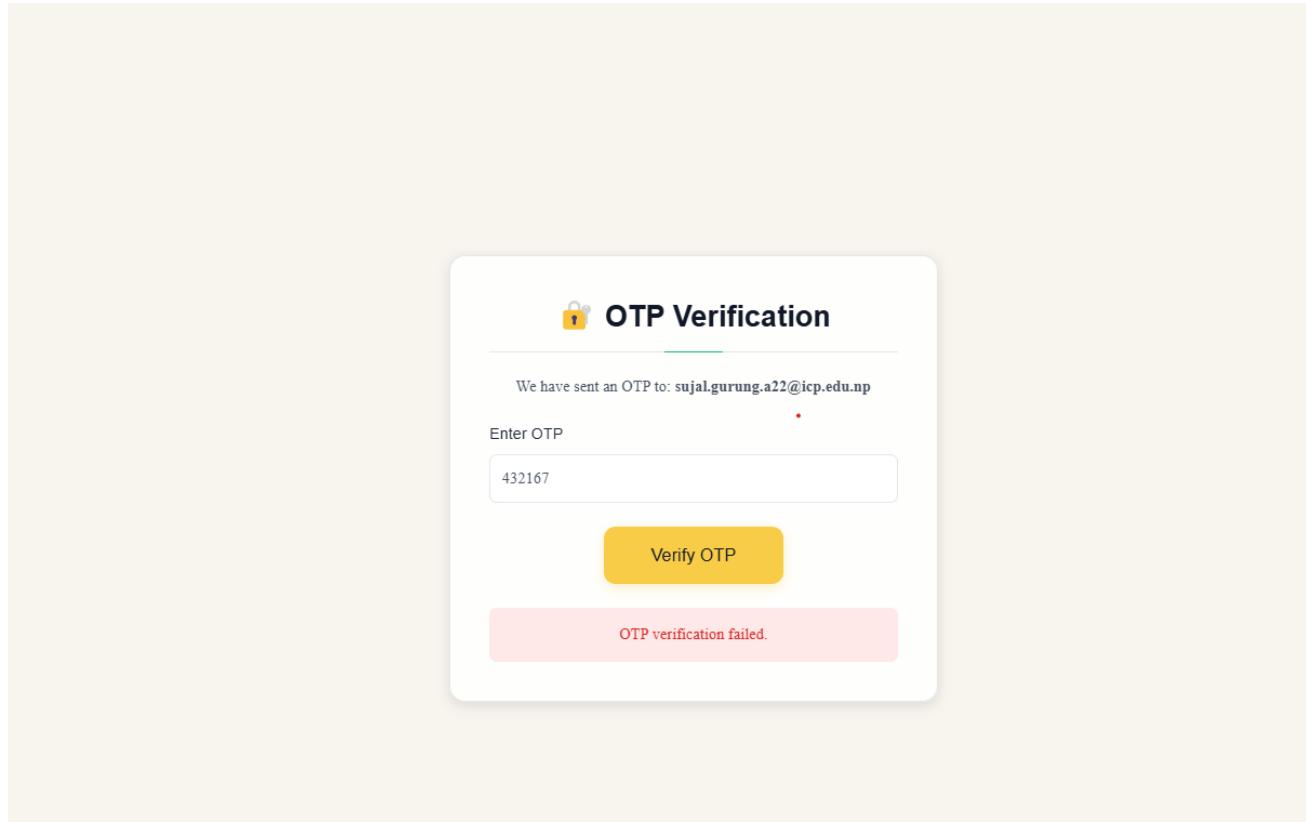
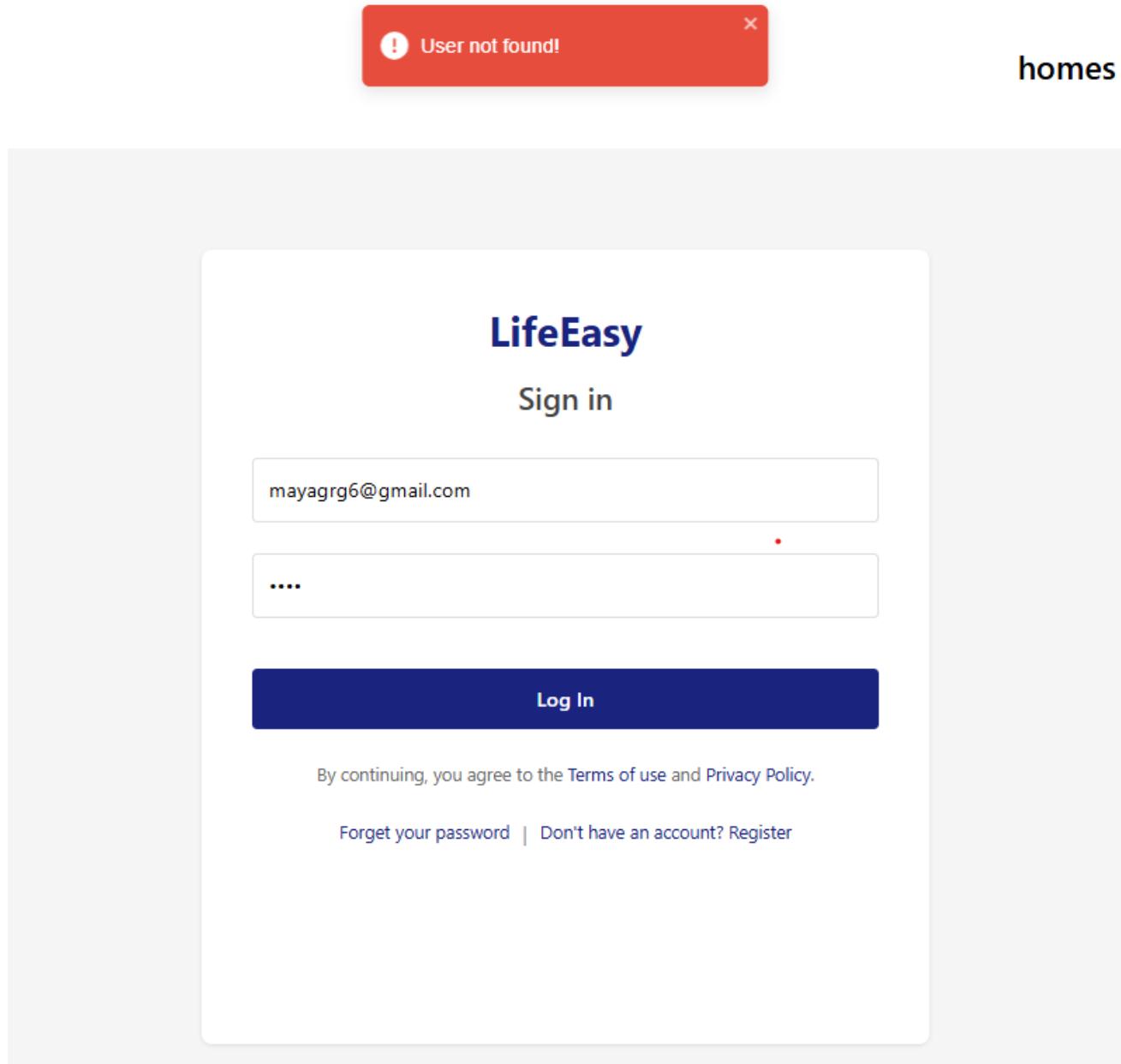


Figure 72 unit test expired otp code enter message shown

Test case ID	13
Objective	The incorrect credentials should not be logged in and message should show
Expected result	Message should appear due to incorrect credentials
Actual Result	Message appeared
Status	Successful.

Table 32 incorrect credentials should not login



*Figure 73 invalid incorrect credentials should not login*

Test case ID	14
Objective	After successful login user is redirected to the user home page.
Expected result	User should redirect to the user home screen after login.
Actual Result	User is redirected to the user home screen
Status	Successful.

*Table 33 unit test successfull login*

The screenshot shows a mobile-style login interface for 'LifeEasy'. At the top center is the 'LifeEasy' logo. Below it is the text 'Sign in'. There are two input fields: the first contains the email 'jacxto88@gmail.com' and the second contains the password '....'. Both fields have a red asterisk (\*) indicating they are required. Below the inputs is a large blue 'Log In' button. Underneath the button, a small note says 'By continuing, you agree to the [Terms of use](#) and [Privacy Policy](#)'. At the bottom of the screen, there are links for 'Forgot your password?' and 'Don't have an account? Register'.

*Figure 74 login form*

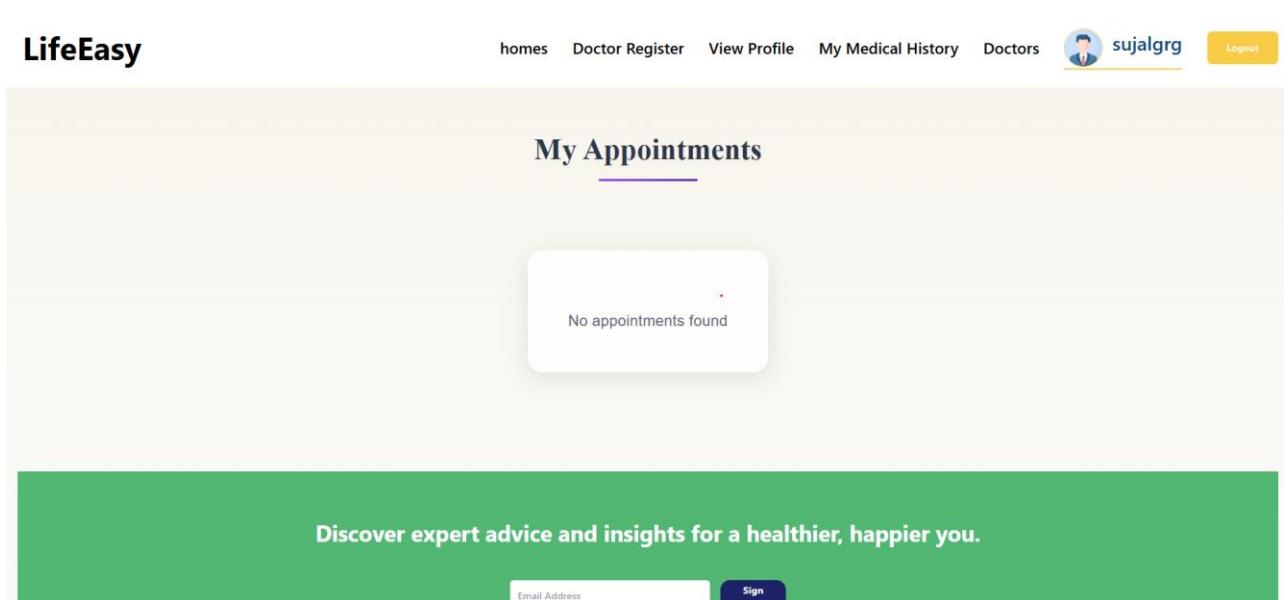


Figure 75 UI test successful redirect to the user home screen

Test case ID	15
Objective	Registering with the already used email, message
Expected result	User should redirect to the user home screen after login.
Actual Result	User is redirected to the user home screen
Status	Successful.

Table 34 end to end point test register with used email

Create an account

Already have an Account? [Log in](#)

Full Name  
sujal

Username  
sujalgurn

Date of Birth  
05/15/2990

Contact No  
1231241556

Email Address  
sujal.gurung.a22@icp.edu.np

Password  
...

[Create an Account](#)

Already have an account? [Login](#)

Figure 76 end to end point test register with used email

Test case ID	16
Objective	User can update their details by clicking on edit button.
Expected result	User view profile and after adding their other details, user profile should be updated.
Actual Result	User details update are shown in users profile.
Status	Successful.

Table 35 integration test user profile update

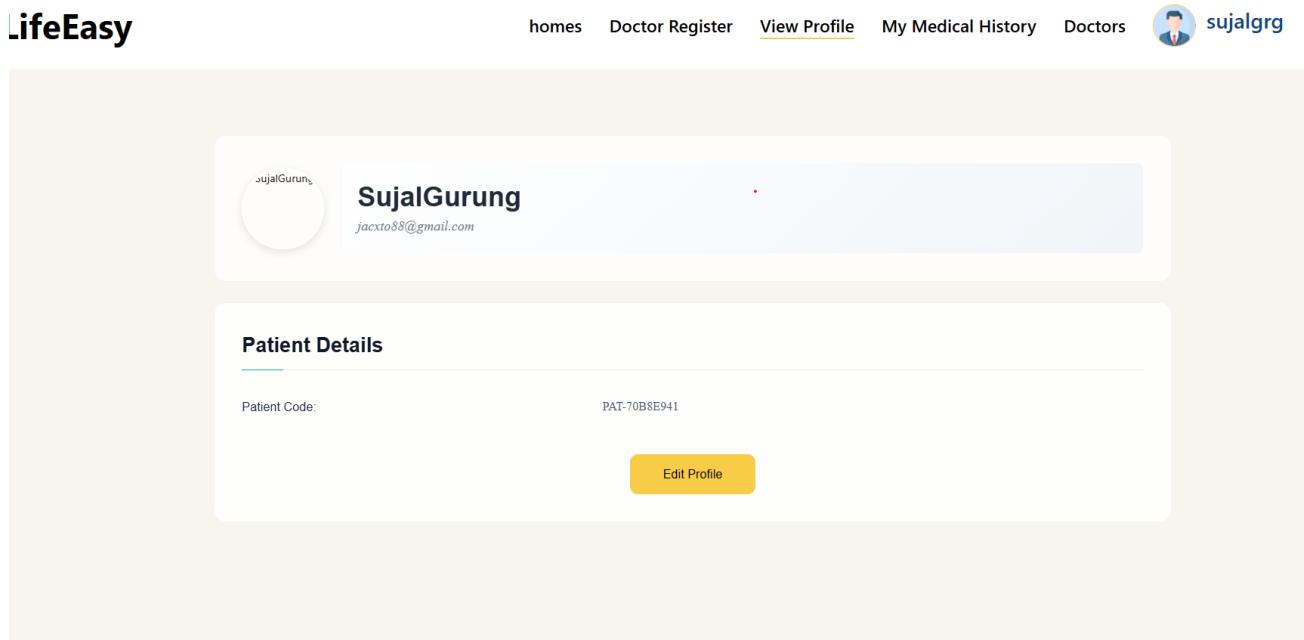


Figure 77 integration test user profile update

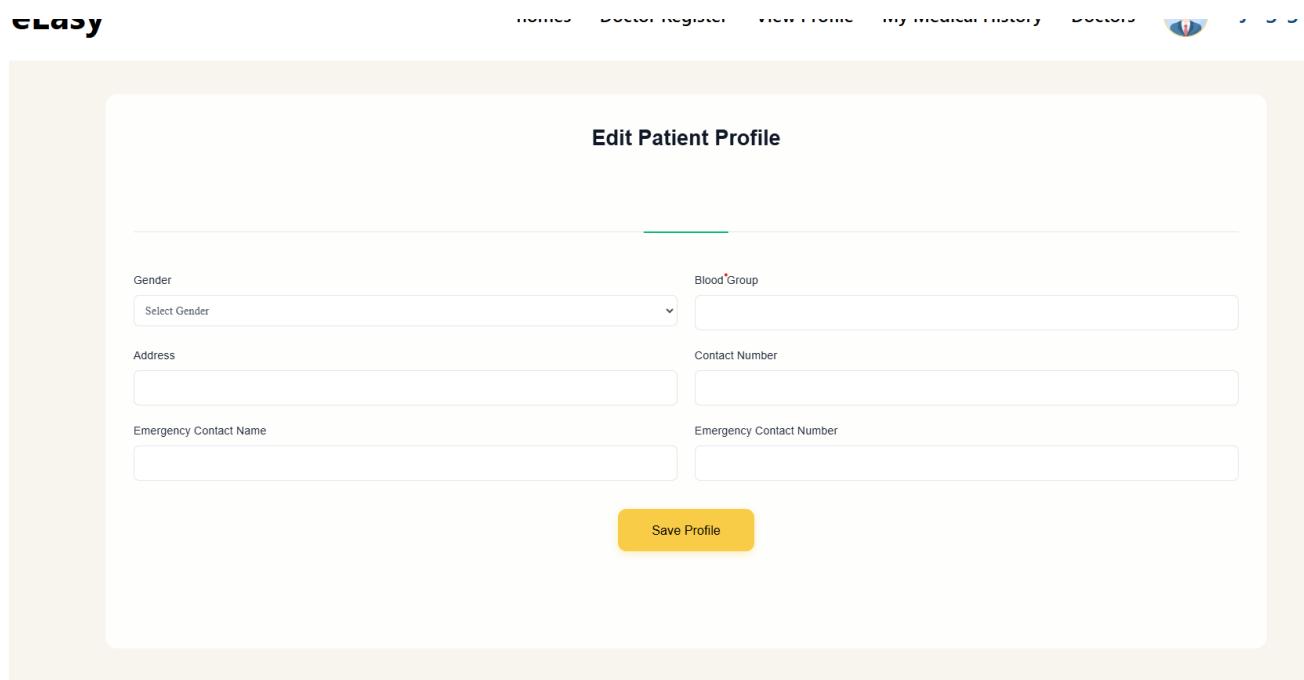


Figure 78 integration test user profile update

**Edit Patient Profile**

Gender	Blood Group
Male	B
Address	Contact Number
pokhara	1212121212
Emergency Contact Name	Emergency Contact Number
ram	1212929382

**Save Profile**

Figure 79 integration test user profile update

asy

homes Doctor Register **View Profile** My Medical History Doctors

SujalGurung  
jacxto88@gmail.com

**Patient Details**

Patient Code:	PAT-70B8E941
Gender:	male
Blood Group:	B
Address:	pokhara
Contact Number:	1212121212
Emergency Contact Name:	ram
Emergency Contact Number:	1212929382

**Edit Profile**

Figure 80 integration test user profile updated successful

Test case ID	18
Objective	User can update their edit by clicking on edit button.
Expected result	User view profile and after edit their other details, user profile should be updated.
Actual Result	User details update are shown in users profile.
Status	Successful.

*Table 36intergration test user edit there profile*

**Edit Patient Profile**

---

Gender

Blood Group

---

Address

Contact Number

---

Emergency Contact Name

Emergency Contact Number

*Figure 81intergration test user edit there profile*

Table 37 Integration test user edit there profile successful

The screenshot shows a mobile application interface. At the top, there is a circular profile picture placeholder. Next to it, the name "SujalGurung" is displayed in bold black font, followed by the email address "jacxto88@gmail.com". Below this header, the title "Patient Details" is centered in bold black font. Underneath, there is a list of patient information in a table format:

Patient Code:	PAT-70B8E941
Gender:	male
Blood Group:	c
Address:	syangja
Contact Number:	95595854
Emergency Contact Name:	ram gurung
Emergency Contact Number:	1212929382

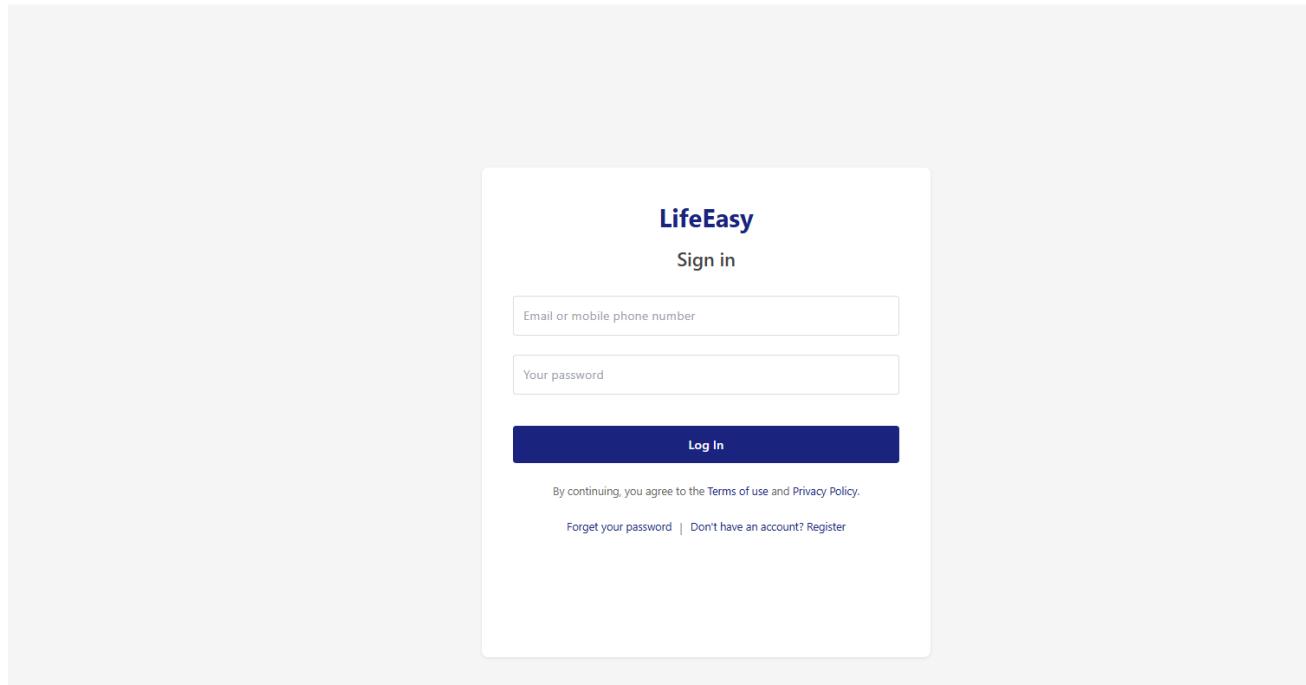
At the bottom right of the form area, there is a yellow button with the text "Edit Profile" in white.

Test case ID	19
Objective	User logout , user should redirect to the login page
Expected result	User logout, user should redirect to the login page
Actual Result	User got redirect to the login page after clicking logout
Status	Successful.

Table 38 unit test layout action

**asy**

homes Doctor Register Doctor



*Figure 82unit test user logout*

Test case ID	20
Objective	User selects a doctor and select the date available with time, after clicking continue to booking button user get redirect to the appointment details page. Enters necessary details and books an appointment. Patient get in pending page.
Expected result	User selects a doctor and select the date available with time, after clicking continue to booking button user get redirect to the appointment details page. Enters necessary details and books an appointment. Patient get in pending page.
Actual Result	User makes appointment with necessary detail. And gets redirect to pending page. Doctor have to approve it .

Status	Successful.
--------	-------------

Table 39unit test user makes appointment and redirect to pending page

The screenshot shows the LifeEasy app interface. At the top, there's a navigation bar with links: homes, Doctor Register, View Profile, My Medical History, Doctors, and a user icon labeled 'sujalgrg'. Below this is a doctor profile card for 'Dr. sujal' (bone), featuring a green circular icon with a plant, the name 'Dr. sujal', 'bone', and a phone number '1212121212'. To the right is a 'Book Appointment' button. Below the profile, sections for 'About', 'Experience', and 'Qualifications' are visible. The 'About' section contains a brief bio. The 'Experience' section lists 'doctor' and 'pokhara • 2020 - 2026'. The 'Qualifications' section lists 'mbbs (2022) - pokhara'. To the right of the profile, a 'Book Appointment' form is displayed with fields for 'OPD Hours', 'Select Date' (with placeholder 'Choose available date'), and a large yellow 'Continue to Booking' button. Below the booking form is a 'Contact directly' link.

Figure 83unit test user select doctor profile

This screenshot shows the same doctor profile for 'Dr. sujal' (bone). The 'About', 'Experience', and 'Qualifications' sections are identical to the previous screenshot. To the right is a 'Book Appointment' form. The 'Select Date' field is populated with 'May 1, 2025'. Below it is a calendar for May 2025, showing the days from 27 to 31. The date 'May 1, 2025' is highlighted in blue. The 'Available Time' field shows '09:14'. A yellow callout box highlights the date selection area.

Figure 84 uinit test user select date

## Appointment Details

Date: 5/1/2025

Time Slot: 09:14 - 12:14

Reason for Visit:  
daily check up

Additional Notes:  
back pain

**Confirm Appointment**

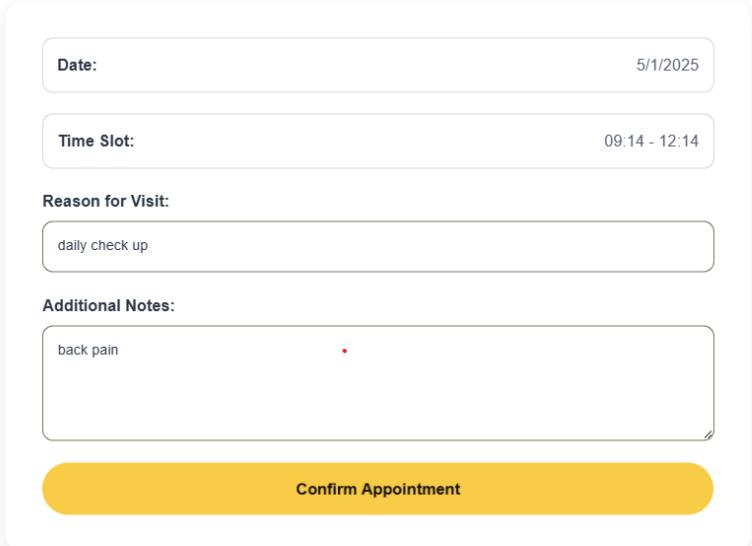


Figure 85unit test user files necessary details

## Appointment Request Submitted!

Appointment ID:  
Date: May 1, 2025  
Time: 09:14  
Status: Pending Approval  
Your request will be reviewed by the doctor  
You'll receive confirmation via email once approved  
Check your appointments dashboard for updates  
[Go to Dashboard](#)

Figure 86unit test user makes appointment and redirect to pending page

Test case ID	21
Objective	After user books appointment. Appointment detail is seen in appointments page of the users. and appointment saved with pending status
Expected result	User redirects to homescreen, there user can see upcoming booked appointment status pending
Actual Result	User sees their appointment with status pending .
Status	Successful.

Table 40unit test check users upcomming appointments.

The screenshot shows the homepage of the LifeEasy app. At the top, there is a navigation bar with links for 'homes', 'Doctor Register', 'View Profile', 'My Medical History', 'Doctors', and a user profile icon labeled 'sujalgrg'. Below the navigation bar, there is a large green banner with the text 'Discover expert advice and insights for a healthier, happier you.' In the center, there is a card for 'Dr. sujal' with the following details:

- Name:** Dr. sujal
- Specialization:** bone
- Date:** 2025-05-01
- Time:** 09:14
- Reason:** daily check up
- Notes:** back pain
- Status:** Pending

Below this card, there is a section titled 'My Appointments' which lists several upcoming appointments for Dr. sujal, all marked as 'Pending'.

Figure 87 appointment is saved as pending in home page

ID	Patient ID	Doctor ID	Appointment Date	Appointment Time	Reason	Notes	Token Number	Expires At	Is Used	QR Token	Status	Created At
1	4	1	2025-05-01	09:14:00	Teeth Gone	help Needed	TKN-001-20250501-0001	2025-04-30 10:14:00	1	eyJhbGciOiJUzI1NiIsInR5cCI6IkpXVCJ9.eyJhbGvA... NULL	completed	2025-04-24T10:14:00Z
2	1	1	2025-04-29	08:08:00	ragg	pain	NULL	2025-04-28 01:23:19	0	NULL	cancelled	2025-04-27T01:23:19Z
3	1	1	2025-04-29	08:08:00	fwef	asdf	NULL	2025-04-28 01:27:41	0	NULL	cancelled	2025-04-27T01:27:41Z
4	1	1	2025-04-29	08:08:00	wef	sdf	NULL	2025-04-28 01:31:08	0	NULL	pending	2025-04-27T01:31:08Z
5	1	1	2025-04-29	08:08:00	sdf	sdv	NULL	2025-04-28 01:39:16	0	NULL	pending	2025-04-27T01:39:16Z
6	1	1	2025-04-29	08:08:00	asdif	asdf	TKN-001-20250429-0001	2025-04-28 23:44:42	0	eyJhbGciOiJUzI1NiIsInR5cCI6IkpXVCJ9.eyJhbGvA... NULL	confirmed	2025-04-27T23:44:42Z
7	1	1	2025-04-29	08:08:00	wet	wefw	TKN-001-20250429-0002	2025-04-29 00:20:58	0	eyJhbGciOiJUzI1NiIsInR5cCI6IkpXVCJ9.eyJhbGvA... NULL	confirmed	2025-04-27T00:20:58Z
8	1	1	2025-04-28	00:02:00	weg	dgweg	TKN-001-20250428-0001	2025-04-29 00:22:15	0	eyJhbGciOiJUzI1NiIsInR5cCI6IkpXVCJ9.eyJhbGvA... NULL	confirmed	2025-04-27T00:22:15Z
9	1	1	2025-04-28	00:02:00	red	red	TKN-001-20250428-0002	2025-04-28 19:02:45	0	eyJhbGciOiJUzI1NiIsInR5cCI6IkpXVCJ9.eyJhbGvA... NULL	confirmed	2025-04-27T19:02:45Z
10	1	1	2025-04-28	00:02:00	ssdfw	wef	TKN-001-20250428-0003	2025-04-28 19:16:01	0	eyJhbGciOiJUzI1NiIsInR5cCI6IkpXVCJ9.eyJhbGvA... NULL	confirmed	2025-04-27T19:16:01Z
11	9	1	2025-05-01	09:14:00	daily check...	back pain	NULL	2025-04-29 23:13:08	0	NULL	pending	2025-04-29T09:14:00Z

*Figure 88appointment saved as pending status*

Test case ID	22
Objective	After the approved by the doctor user receives. Email as a verification.
Expected result	After doctor approves the appointment. User will receive an email
Actual Result	User receives email about the successful.
Status	Successful.

- **Doctor Panel Testing**

- ..1. Doctor Login Test Cases**

Test case ID	23
Objective	If doctor logs in with correct credentials. Doctor get login
Expected result	Doctor logs in and redirect to the dashboard.
Actual Result	Doctors get loged in and redirects to dashboard
Status	Successful.

Table 41ntefration test doctor login redirect to dashboard

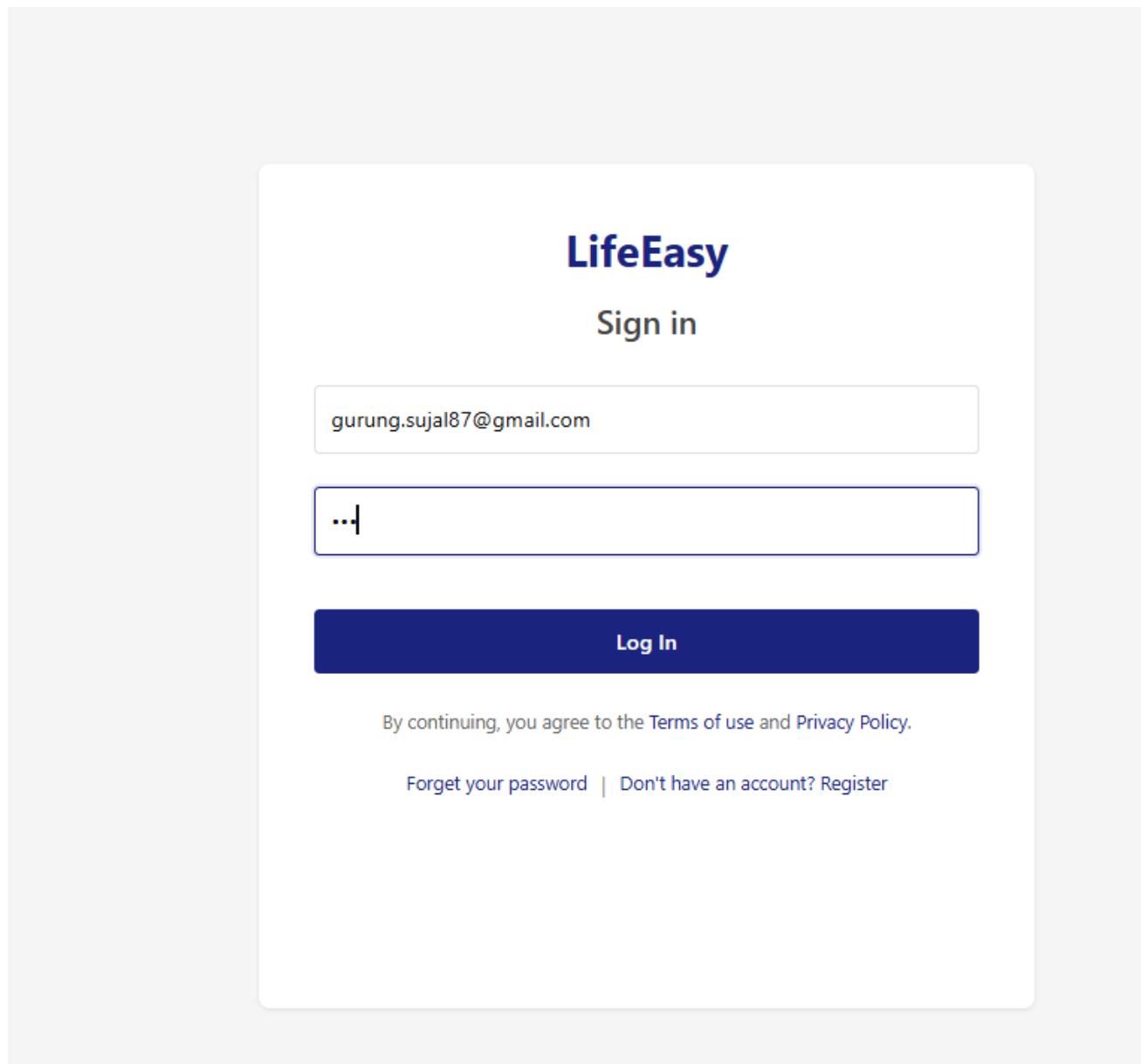


Figure 89 integrated test doctor login

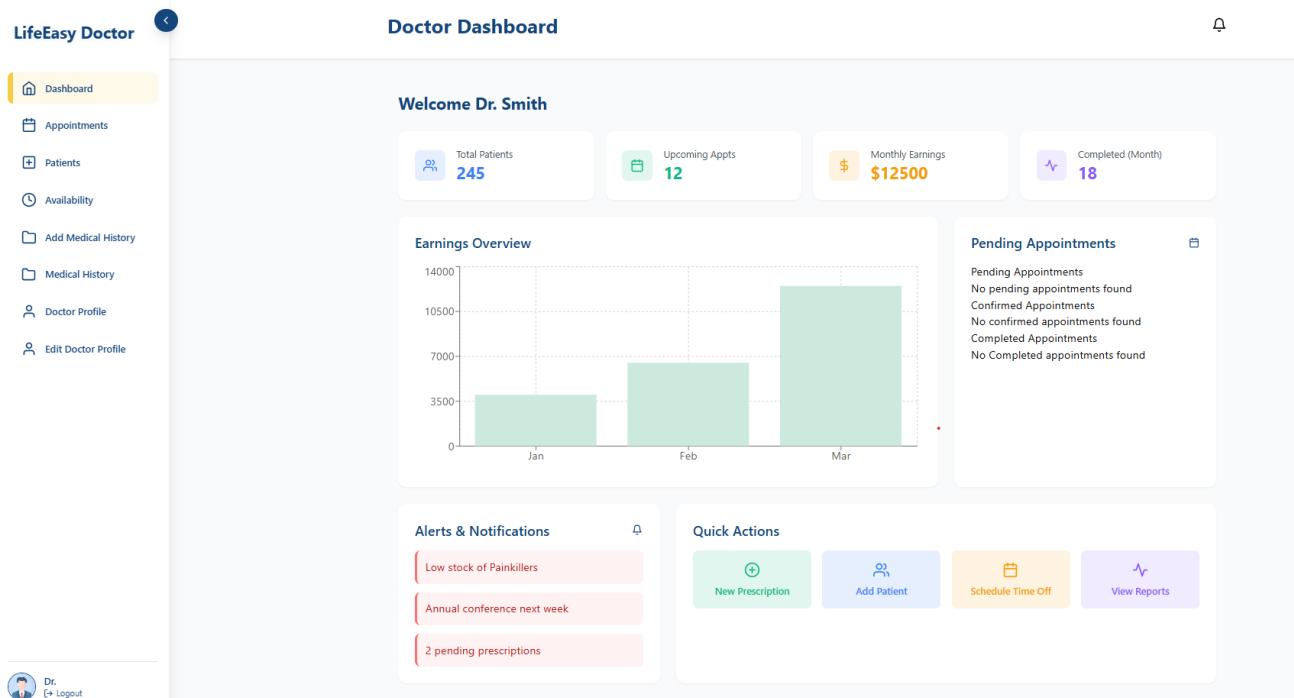


Figure 90 integration redirected successful

Test case ID	24
Objective	If doctors navigate to appointments all the appointment booked to visit that doctor are fetched.
Expected result	When doctor navigate to appointment page all appointments are fetched properly
Actual Result	all the appointments are fetched from the database.
Status	Successful.

Table 42integration test fetched appointments in appointments page

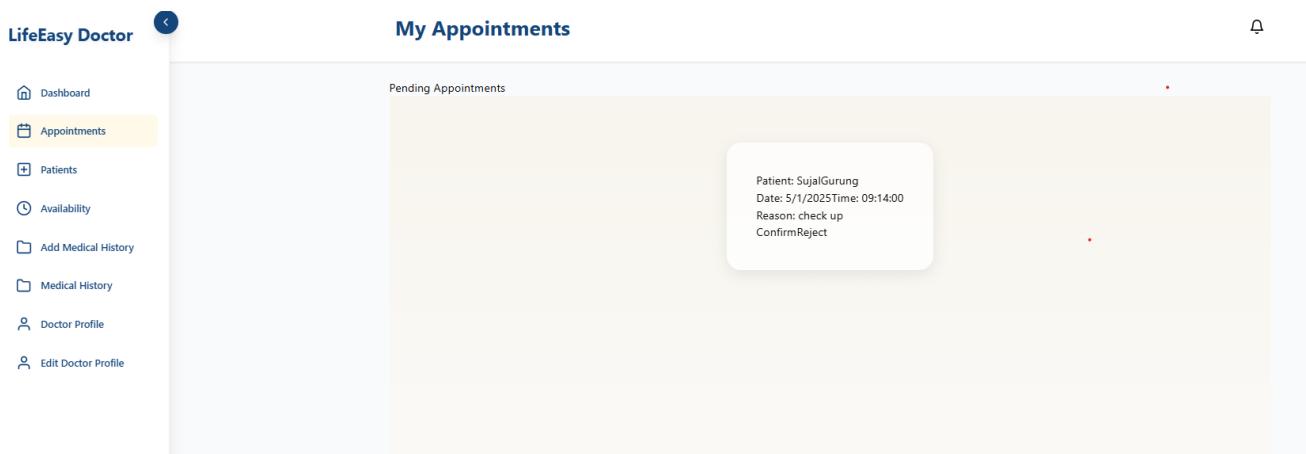


Figure 91 integration test fetched appointments in appointments page

Test case ID	25
Objective	If doctors navigate to patients all the patients with their reports will show
Expected result	When doctor click on patients page and redirect to the patients page all the patients registered as a patient will fetched
Actual Result	all the patient are fetched from the database.
Status	Successful.

Table 43 intergration test fectch patients

LifeEasy Doctor

# Patients

Search patients...

Name	Email	Contact	Status	Actions
tuntun	sujalgum@gmail.com	1212121212	Active	<a href="#">Add Medical History</a> <a href="#">View History</a>
SangamThapa	swngam26@gmail.com	9806695488	Active	<a href="#">Add Medical History</a> <a href="#">View History</a>
Sujalgurung	mayaogr4976@gmail.com	0123456789	Active	<a href="#">Add Medical History</a> <a href="#">View History</a>
SujalGurung	sujal.gurung.a22@icp.edu.np	1234567893	Active	<a href="#">Add Medical History</a> <a href="#">View History</a>
SujalGurung	jacxto88@gmail.com	1234567892	Active	<a href="#">Add Medical History</a> <a href="#">View History</a>

*Figure 92 intregation all patients are fetched*

Test case ID	26
Objective	To add or view the patients medical history click on view history to view the history.
Expected result	When doctor click on view history, doctor will get redirect to medical history page .all previous data are fetched.
Actual Result	All the patients medical history report are fectched..
Status	Successful.

*Table 44Integration test fetched all the patients expensive navi*

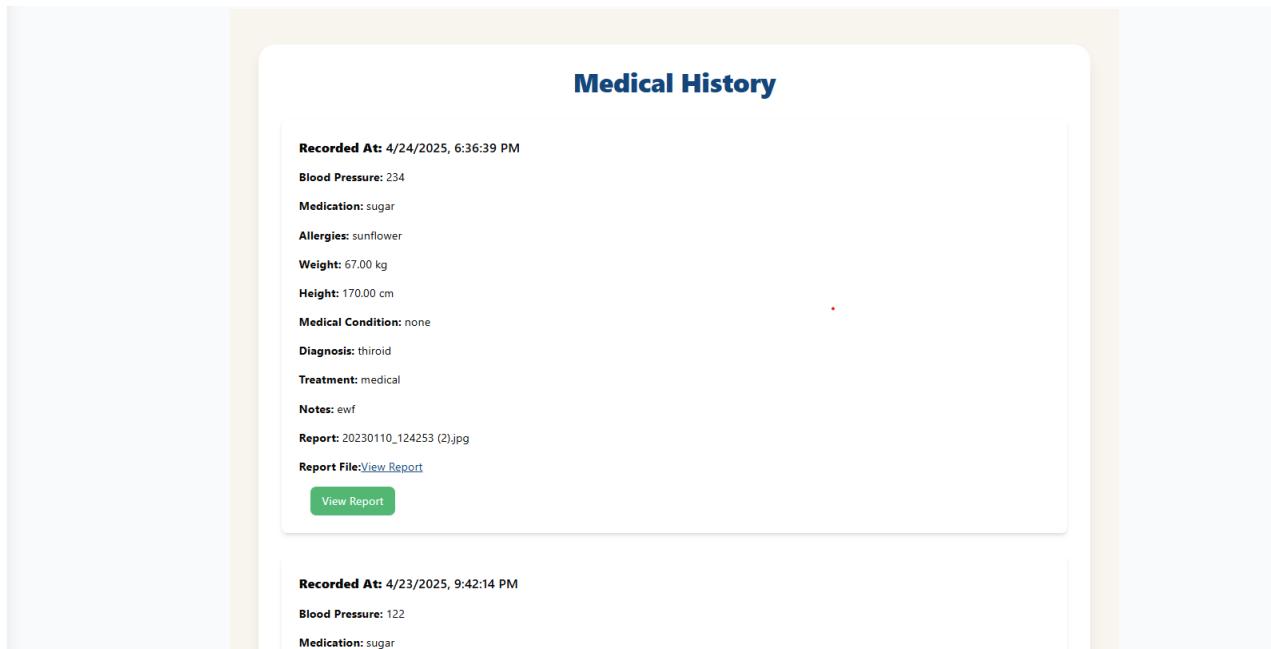


Figure 93intregation patients reoports are fetched

Table 45intregation test doctors add medical history

Test case ID	27
Objective	To add or view the patients medical history click on add medical history.
Expected result	When doctor click on add medical history. It will be save on database
Actual Result	Doctor adds the reports and is saved to the database and patients profile
Status	Successful.

Figure 94 integrated test patients medical history is saveFigure 95Figure 96

Patients					
<input type="text"/> Search patients...					
NAME	EMAIL	CONTACT	STATUS	ACTIONS	
 tuntun	sujalgurn@gmail.com	1212121212	<span>Active</span>	<a href="#">Add Medical History</a>	<a href="#">View History</a>
 SangamThapa	swngam26@gmail.com	9806695488	<span>Active</span>	<a href="#">Add Medical History</a>	<a href="#">View History</a>
 SujalGurung	mayaagrg4976@gmail.com	0123456789	<span>Active</span>	<a href="#">Add Medical History</a>	<a href="#">View History</a>
 SujalGurung	sujal.gurung.a22@icp.edu.np	1234567893	<span>Active</span>	<a href="#">Add Medical History</a>	<a href="#">View History</a>
 SujalGurung	jacxto88@gmail.com	1234567892	<span>Active</span>	<a href="#">Add Medical History</a>	<a href="#">View History</a>

### Add Medical History

Patient ID: 1

Blood Pressure:	Medication:
<input type="text" value="190"/>	<input type="text" value="sugar"/>
Allergies:	Weight (kg):
<input type="text" value="seeds"/>	<input type="text" value="70"/>
Height (cm):	Medical Condition:
<input type="text" value="160"/>	<input type="text" value="none"/>
Diagnosis:	Treatment:
<input type="text" value="thiroid"/>	<input type="text" value="medical"/>
Notes:	Report Date:
<input type="text" value="none"/>	<input type="text" value="04/29/2025"/> <input type="button" value=""/>
Report Type:	Report Notes:
<input type="text" value="x ray"/>	<input type="text" value="none ray"/>

Upload Report:

Figure 97unit test add all info

## Medical History

**Recorded At:** 4/29/2025, 11:00:46 PM

**Blood Pressure:** 190

**Medication:** sugar

**Allergies:** seeds

**Weight:** 70.00 kg

**Height:** 160.00 cm

**Medical Condition:** none

**Diagnosis:** thyroid

**Treatment:** medical

**Notes:** none

**Report:** book1.jpg

**Report File:** [View Report](#)

[View Report](#)

---

**Recorded At:** 4/24/2025, 6:36:39 PM

**Blood Pressure:** 234

Figure 98ui test medical history is saved

Test case ID	28
Objective	When user view their medical history. All the medical history will fetched from database
Expected result	Patient click on medical history , all the medical history are fetched from the database
Actual Result	Medical history are fetched.
Status	Successful.

Table 46integrated test patients are fectch

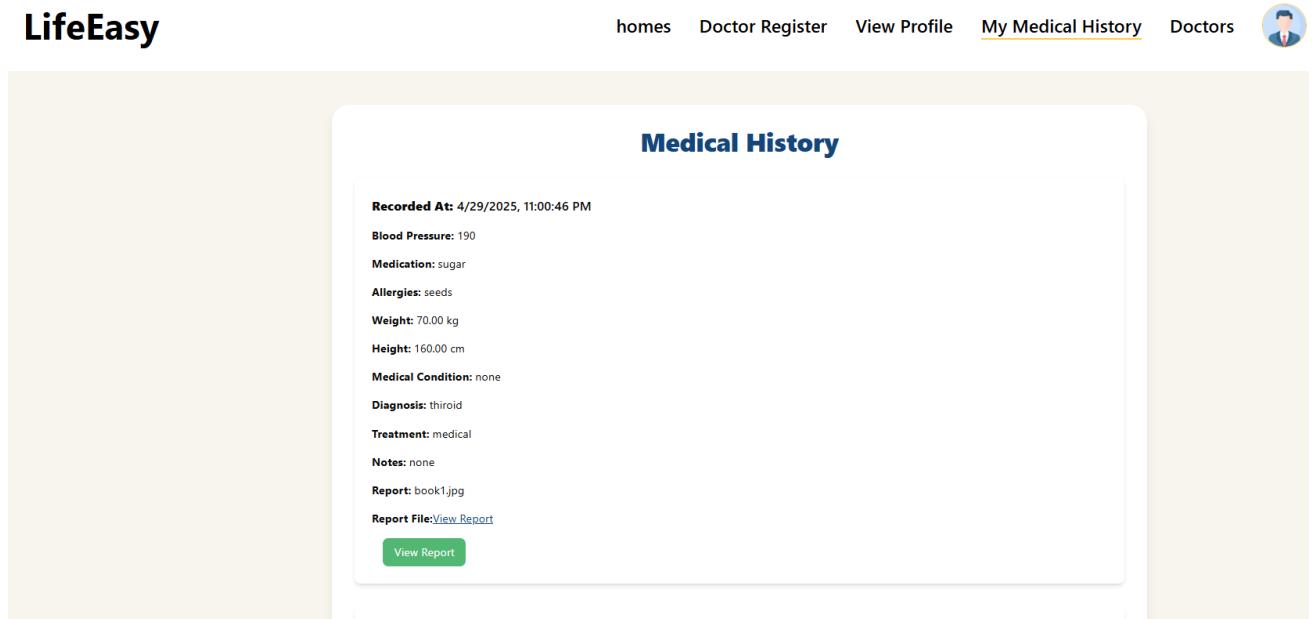


Figure 99intregation test 31integrated test patients naivare and medical history are fectch

Test case ID	29
Objective	When doctor register all the fields are required if try to submit with empty field.
Expected result	When doctor register all the fields are required if try to submit with empty field.
Actual Result	All the messages are showing .
Status	Successful.

Table 47UNIT test message showing



Doctor Registration

Full Name

Full name is required

User Name

Username is required

Date of Birth  mm/dd/yyyy

Date of birth is required

Contact No

Contact number is required

Email Address

Email is required

Password

Password is required

Medical License Number

License number is required

Specialization

Specialization is required

Medical Certification  Choose File No file chosen

Certification file is required

Government ID Proof  Choose File No file chosen

Figure 100unit test field required message shown

Test case ID	30
Objective	Doctor filling all the info and submitting. Doctor will redirect to the pending page. And data is sent to admin manage doctors page Admin have to approve it.
Expected result	Doctor fills all info and successfully register as a doctor
Actual Result	Doctor is successfully registered.
Status	Successful.

Figure 101integration test doctor registertion success

LifeEasy

homes Doctor Register Doctors Login Sign Up

**DOCTOR REGISTRATION**



Full Name

User Name

Date of Birth

Contact No

Email Address

Password

Medical License Number

Specialization

Medical Certification

Government ID Proof

**Register as Doctor**

Already have an account? [Login](#)

Figure 102 integration doctor register success

2	AdminLife	admin01	2014-11-03	0987654311	admin@life.com	\$2b\$10\$svfRKR,3LNEIHIqQgL/RuWeROAsby6sL...	admin	NULL	NULL	2025-04-23 15:25:17
3	sujal	sujal	2003-02-12	1212121212	gurung.sujal87@gmail.com	\$2b\$10\$vSb4PS3dlsFt4.cgyZV5XuXeA08p5IGm...	doctor	NULL	NULL	2025-04-23 15:28:10
4	SangamThapa	DumDum	2008-02-07	9806695488	swngam26@gmail.com	\$2b\$10\$rp2x8/Iraa.YGFWRKgnEuThilZ0JlvrN3X...	user	NULL	NULL	2025-04-24 02:26:02
5	frankhan	faran	1990-08-07	1212121212	ww@gmail.com	\$2b\$10\$tn315JT/N/fuIxhqfz7ff.269WoO762i...	doctor	NULL	NULL	2025-04-25 04:54:17
6	TuphanGurung	tuphan	2003-02-04	1212121211	gurungtuphan999@gmail.com	\$2b\$10\$awzuuZT2oIw90Cap16RLMOrsSDDsSKo...	doctor	NULL	NULL	2025-04-28 21:30:00

Figure 103 integration test registered success

Test case ID	31
Objective	Doctor add there available time so that patients can make appointment update there time
Expected result	Doctor navigate in availability page, there in manage availability page add there time and day and click on add. The available time will be added
Actual Result	Doctor is successfully registered.
Status	Successful.

Table 48 integration test manage availability time

## Availability

The screenshot shows a 'Manage Availability' page. At the top, there are input fields for 'Wednesday' (dropdown), '07:37 AM' (time), and '12:38 PM' (time), followed by a green 'Add' button. Below this is a section titled 'Your Schedule' listing three entries: 'Monday: 00:02 - 23:21', 'Thursday: 09:14 - 12:14', and 'Tuesday: 08:08 - 21:08'. Each entry has 'Edit' and 'Delete' links.

Figure 104 integration test manage availability time

The screenshot shows the same 'Manage Availability' page as above, but with a yellow success message at the top stating 'Availability added successfully'. The 'Your Schedule' section now includes a new entry: 'Wednesday: 07:37 - 12:38', in addition to the existing Monday, Thursday, and Tuesday entries. Each entry still has 'Edit' and 'Delete' links.

Figure 105 integration test manage availability time added successful

Table 49 unit test message shown

Test case ID	32
--------------	----

Objective	If available time is added empty field, message should show
Expected result	When doctor add without any info message should show.
Actual Result	Message is successfully shown.
Status	Successful.

The screenshot shows a web-based application titled "Manage Availability". At the top, there is a yellow banner with the text "All fields are required.". Below the banner is a form with four input fields: "Select Day" (with a dropdown arrow), two time pickers ("--:-- --" and "--:-- --"), and a green "Add" button. To the right of the second time picker is a red asterisk (\*) indicating it is a required field. Below the form is a section titled "Your Schedule" which lists four scheduled times with "Edit" and "Delete" links:

- Monday: 00:02 - 23:21
- Thursday: 09:14 - 12:14
- Tuesday: 08:08 - 21:08
- Wednesday: 07:37 - 12:38

Figure 106 unit test messages are shown

Test case ID	33
Objective	Availability time should be edited and time and days are edited accordingly to the field changed
Expected result	By clicking on edit button doctor change the time and days accordingly

Actual Result	Doctors available time is edited successfully
Status	Successful.

**Manage Availability**

The screenshot shows a user interface for managing doctor availability. At the top, there are input fields for 'Monday' (selected), start time '12:02 AM', end time '11:21 PM', and a green 'Update' button. Below this is a section titled 'Your Schedule' with a red asterisk indicating it's required. It lists four days with their respective availability ranges and edit/delete buttons. The 'Edit' and 'Delete' buttons are blue and red respectively. The 'Delete' buttons for Monday, Thursday, Tuesday, and Wednesday are highlighted in red, while the 'Edit' button for Monday is blue.

Day	Availability Range	Edit	Delete
Monday	00:02 - 23:21	<a href="#">Edit</a>	<a href="#">Delete</a>
Thursday	09:14 - 12:14	<a href="#">Edit</a>	<a href="#">Delete</a>
Tuesday	08:08 - 21:08	<a href="#">Edit</a>	<a href="#">Delete</a>
Wednesday	07:37 - 12:38	<a href="#">Edit</a>	<a href="#">Delete</a>

Figure 107intregation test edit available time

**Manage Availability**

This screenshot is identical to Figure 107, showing the 'Manage Availability' interface with the same input fields, schedule table, and red-highlighted delete buttons for Monday, Thursday, Tuesday, and Wednesday.

Day	Availability Range	Edit	Delete
Monday	00:02 - 23:21	<a href="#">Edit</a>	<a href="#">Delete</a>
Thursday	09:14 - 12:14	<a href="#">Edit</a>	<a href="#">Delete</a>
Tuesday	08:08 - 21:08	<a href="#">Edit</a>	<a href="#">Delete</a>
Wednesday	07:37 - 12:38	<a href="#">Edit</a>	<a href="#">Delete</a>

Figure 108integration test edit available time



Test case ID	34
Objective	Doctor can edit their details in doctor page by clicking on edit doctor profile and add data
Expected result	By clicking on edit button doctor change their profile data accordingly
Actual Result	Doctor change the info and edit the profile
Status	Successful.

Table 50 integrate test edit profile

The screenshot shows a web-based profile editing interface for 'Dr. sujal'. At the top, it says 'Edit Profile - Dr. sujal'. Below that, there's a section for 'Profile Information' with three input fields: 'Full Name' (containing 'sujal'), 'Specialization' (containing 'bone'), and 'Contact' (containing '1212121212'). Under 'Profile Picture URL', there's a text input containing a link to a watercolor botanical illustration. In the 'About' section, there's a text area with the following content: 'Dr. Ram Gurung, DM is one of the best Internist and Cardiologist in Nepal with hands on experience in general medicine & Cardiology including comprehensive evaluation, diagnosis and management of all types of acute and chronic cardiac diseases.' Below this, there's a section for 'Qualifications' with two input fields containing 'mbbs' and 'pokhara'. At the bottom right, there's a placeholder for a digital signature.

Figure 109 integrate edit doctors profile

## Edit Profile - Dr. sujal gurung

### Profile Information

Full Name	Specialization	Contact
sujal gurung	bone/thairoid	1212121214

Profile Picture URL

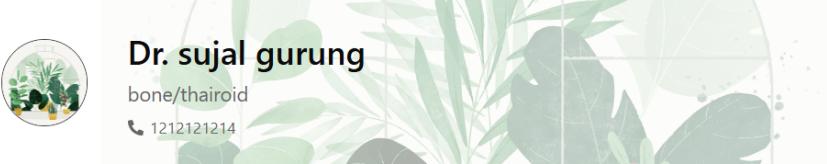
[https://img.freepik.com/free-vector/watercolor-botanical-garden-illustration\\_52683-109700.jpg?t=st=1745831775~exp=1745835375~hmac=03745c2ad0e24f150](https://img.freepik.com/free-vector/watercolor-botanical-garden-illustration_52683-109700.jpg?t=st=1745831775~exp=1745835375~hmac=03745c2ad0e24f150)

About

Dr. Ram Gurung, DM is one of the best Internist and Cardiologist in Nepal with hands on experience in general medicine & Cardiology including comprehensive evaluation, diagnosis and management of all types of acute and chronic cardiac diseases.

### Qualifications

Figure 110 integrate test doctor test



**Dr. sujal gurung**  
bone/thairoid  
1212121214

### About

Dr. Ram Gurung, DM is one of the best Internist and Cardiologist in Nepal with hands on experience in general medicine & Cardiology including comprehensive evaluation, diagnosis and management of all types of acute and chronic cardiac diseases.

### Experience

- doctor  
pokhara • 2020 - 2026

### Qualifications

- mbbs (2022) - pokhara

### Book Appointment

OPD Hours:

Select Date

Choose available date

[Continue to Booking](#)

[Contact directly](#)

Figure 111 integrate test doctor test

Test case ID	35
Objective	Doctor can add their qualification and experience or remove from the profile
Expected result	By clicking on edit button doctor change their profile data accordingly adding and deleting the data
Actual Result	Doctor change the info and edit the profile
Status	Successful.

*Table 51 integrated test add or remove there experience or qualification*

The screenshot shows a user interface for managing professional qualifications and experience. At the top, there is a section titled "Qualifications" containing three input fields: "mbbs", "pokhara", and "2022". Below these fields is a blue "Remove" button. To the right of the "Qualifications" section, there is a small red circular icon with a dot. Below the "Qualifications" section, there is a list item preceded by a black bullet point. This list item contains three input fields: "Qualification", "Institution", and "Year". At the bottom of this list item is a blue "Add" button. At the very bottom of the interface, there is a section titled "Experience" which is currently empty.

*Figure 112 integrated test add or remove there experience or qualification*

## About

Dr. Ram Gurung, DM is one of the best Internist and Cardiologist in Nepal with hands on experience in general medicine & Cardiology including comprehensive evaluation, diagnosis and management of all types of acute and chronic cardiac diseases.

## Experience

- doctor
- pokhara • 2020 - 2026

## Qualifications

- mbbs (2022) - pokhara
- PHD (2009) - pokhara

*Figure 113c integrated test add or remove there experience or qualification*

The screenshot displays a user interface for managing professional experience and qualifications. At the top, there is a list of three entries:

- mbbs
- pokhara
- 2022

Below this list is a blue "Remove" button.

Below the "Remove" button, there is another list of three entries:

- PHD
- pokhara
- 2009

Below this list is a blue "Remove" button.

At the bottom of the interface, there is a section labeled with a bullet point (•) containing three input fields:

- Qualification
- Institution
- Year

Below these fields is a blue "Add" button.

Figure 114 integrated test add or remove there experience or qualification successful

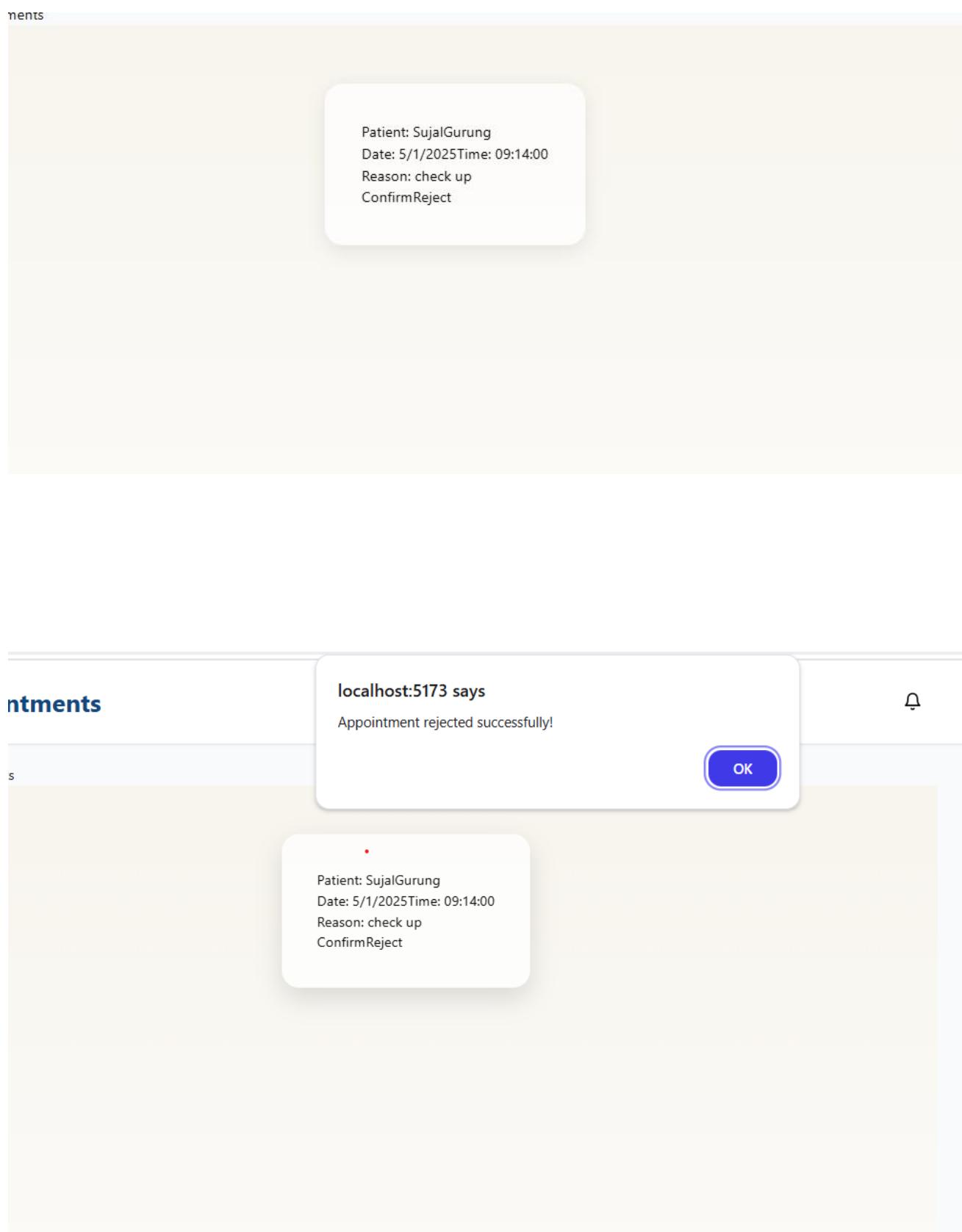
The screenshot shows a user interface for managing qualifications and experience. In the 'Qualifications' section, there are three entries: 'PHD', 'pokhara', and '2009'. Each entry has a 'Remove' button to its right. Below this is a form for adding new qualifications, with fields for 'Qualification', 'Institution', and 'Year', and an 'Add' button. In the 'Experience' section, there is a single entry: 'Experience'.

Figure 115 remove the mbbs success.

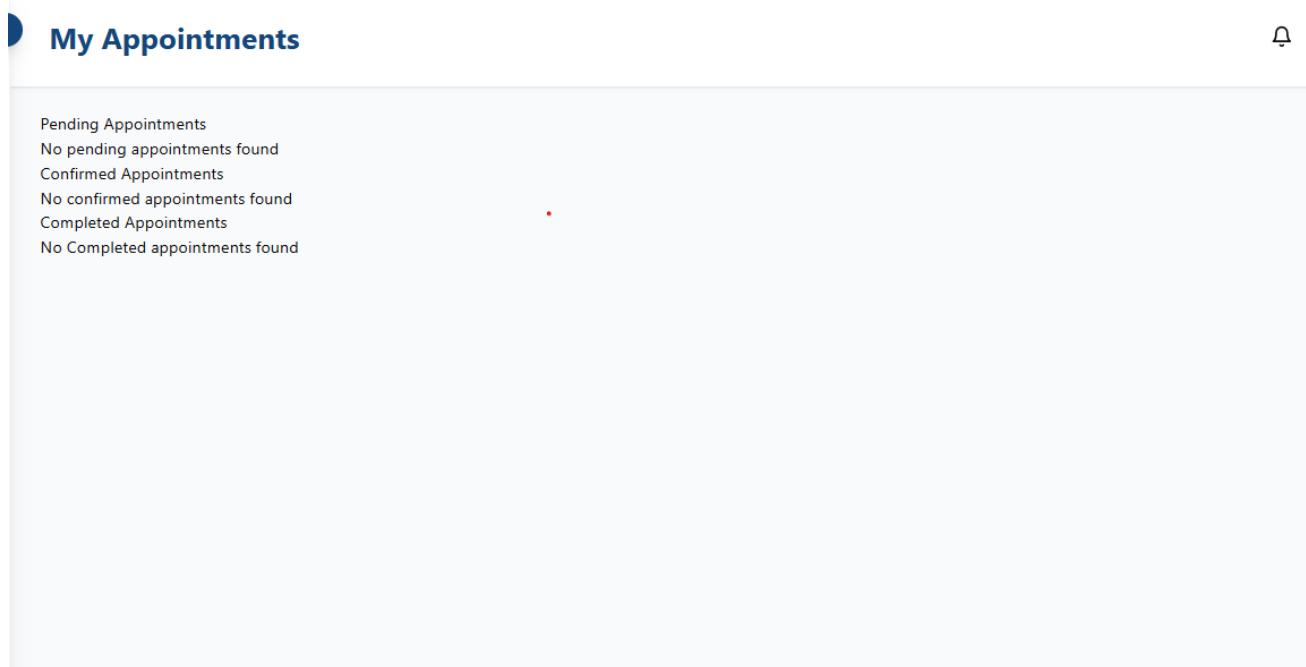
Test case ID	35
Objective	Doctor can reject the appointment and show message
Expected result	Doctor rejects the appointment and show messages
Actual Result	Doctor change the info and edit the profile
Status	Successful.

Table 52 intregation test reject appointments

Figure 116ui test reject appointment



*Equation 1 integration test reject shows*



*Figure 117ui test rejected successfully*

Test case ID	36
Objective	When user navigate to userhome fetches appoinmet details. User get the status of the appoinmet
Expected result	Doctor rejects the appointment and show messages
Actual Result	When user navigates the shows appointment details
Status	Successful.

*Table 5387unit test view user home, appointment details*

The screenshot shows a user profile for "sujalgrg" with a blue profile icon. The main title is "My Appointments". A single appointment is listed for "Dr. sujal gurung" on May 1, 2025, at 09:14, with a reason of "check up" and notes about "back pain". The status is marked as "Cancelled".

Figure 118 UI test appoinmnet fetches detail successfully

### - Admin pane testing

Test case ID	37
Objective	Admin add new employess like staff or nurse by filling info.
Expected result	Admin navigate to staff page where new staff are added and saved in database show there.
Actual Result	Admin fill all the necessary information about the staff to register and click on add staff button, successfully adds staff.
Status	Successful.

Table 54 intergation testin add staff

Q Search staff...

### Add New Staff Member

FULL NAME *	rakhi	EMAIL *	rakhi@gmail.com
DEPARTMENT *	emergency	CONTACT NUMBER *	1212121212
ROLE *	Nurse	SHIFT *	Evening (4PM - 12AM)
SPECIALIZATION	nursing		
<b>Add Staff</b>			

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
tuntun	staff	cleaner	Morning	1212121212	

Figure 119 intergation staff adding new staffs

The screenshot shows a web-based application interface for managing staff members. At the top left is a search bar labeled "Search staff...". Below it is a form titled "Add New Staff Member" with fields for "FULL NAME \*", "EMAIL \*", "DEPARTMENT \*", "CONTACT NUMBER \*", "ROLE \*", and "SHIFT \*". The "ROLE" field has "General Staff" selected, and the "SHIFT" field has "Morning (8AM - 4PM)". A success message "Staff member added successfully!" is displayed below the form. To the right of the form is a table listing staff members with columns for NAME, ROLE, DEPARTMENT, SHIFT, CONTACT, and ACTIONS (edit and delete icons). Two entries are listed: "rakhi" (nurse, emergency, Evening, 1212121212) and "tuntun" (staff, cleaner, Morning, 1212121212).

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhi	nurse	emergency	Evening	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

Figure 120 intregation test adding new staff successful

Test case ID	38
Objective	When admin tries to add the staffs without entering the data it should show the message
Expected result	When admin clicks the add staff button without filling details it should show message
Actual Result	Successfully showed messages if done wrong
Status	Successful.

Table 55until test admin and show rmesages without details

Add New Staff Member

FULL NAME *	EMAIL *
<input type="text"/>	<input type="text"/>
DEPARTMENT *	CONTACT NUMBER *
<input type="text"/> ! Please fill out this field.	<input type="text"/>
ROLE *	SHIFT *
<input type="text"/> General Staff	<input type="text"/> Morning (8AM - 4PM)
<a href="#">Add Staff</a>	

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhi	nurse	emergency	Evening	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

Figure 121 unit test admin add staff show message without details

Test case ID	39
Objective	When admin adding staffs there are two different roles and when we select nurse specialization appears/
Expected result	When admin is adding staffs there are two different roles and when we select the nurse specialization appears for the nurse
Actual Result	After selecting nurse specialization appears
Status	Successful.

Table 56unit test selecting nurse. specialization appearance

**Add New Staff Member**

FULL NAME *	EMAIL *
<input type="text"/>	<input type="text"/>
DEPARTMENT *	CONTACT NUMBER *
<input type="text"/>	<input type="text"/>
ROLE *	SHIFT *
<input type="text" value="General Staff"/>	<input type="text" value="Morning (8AM - 4PM)"/>
<b>⊕ Add Staff</b>	

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhi	nurse	emergency	Evening	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

Figure 122unit test selecting nurse. specialization appearance

**Add New Staff Member**

FULL NAME *	EMAIL *
<input type="text"/>	<input type="text"/>
DEPARTMENT *	CONTACT NUMBER *
<input type="text"/>	<input type="text"/>
ROLE *	SHIFT *
<input type="text" value="Nurse"/>	<input type="text" value="Morning (8AM - 4PM)"/>
SPECIALIZATION	
<input type="text"/>	
<input type="button" value="Add Staff"/>	

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhi	nurse	emergency	Evening	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

Figure 123unit test selecting nurse. specialization appearce

Test case ID	40
Objective	When admin navigate to staff page , there admin should have access to edit the staff details
Expected result	Admin navigate to staff page to edit the existing add users. and show success message
Actual Result	Adim edits staffs information successfully
Status	Successful.

Table 57 intregation test editinting staffes

Figure 124intregation test editinting staffes

The screenshot shows a web-based application interface for managing staff members. At the top, there is a header bar with several icons. Below the header, the main content area is divided into two sections: a form for adding new staff and a list of existing staff.

**Add New Staff Member Form:**

- FULL NAME \***: Text input field.
- EMAIL \***: Text input field.
- DEPARTMENT \***: Text input field.
- CONTACT NUMBER \***: Text input field.
- ROLE \***: A dropdown menu currently set to "Nurse".
- SHIFT \***: A dropdown menu currently set to "Morning (8AM - 4PM)".
- SPECIALIZATION**: Text input field.

**Action Buttons:**

- A blue button labeled "Add Staff" with a plus sign icon.

**List of Staff Members:**

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhi	nurse	emergency	Evening	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

**Form for Editing Staff Member:**

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhigurung	Nurse	emergency pages	Morning	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

Figure 125intregation test editinting staffs

The screenshot shows a web-based application for managing staff members. At the top, there is a search bar labeled "Search staff...". Below it, a form titled "Add New Staff Member" contains fields for "FULL NAME \*", "EMAIL \*", "DEPARTMENT \*", "CONTACT NUMBER \*", "ROLE \*", "SHIFT \*", and "SPECIALIZATION". The "ROLE" field has a dropdown menu showing "Nurse". The "SHIFT" field has a dropdown menu showing "Morning (8AM - 4PM)". A success message "Staff member updated successfully!" is displayed next to a "Add Staff" button. Below the form is a table listing staff members:

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhigurung	nurse	emergency pages	Morning	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

Figure 126intregation test editing staffes successfully

Test case ID	41
Objective	When admin has ability to delete the staff details .
Expected result	Admin navigates to stagg and esuser
Actual Result	Admin successfully delete it
Status	Successful.

*Table 58intredation test delete staff*

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhigurung	nurse	emergency pages	Morning	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

Figure 127 integration w

The screenshot shows the Staff Management application interface. On the left, there is a search bar labeled "Search staff...". Below it, a form titled "Add New Staff Member" contains fields for "FULL NAME \*", "EMAIL \*", "DEPARTMENT \*", "CONTACT NUMBER \*", "ROLE \*", and "SHIFT \*". The "ROLE" dropdown is set to "Nurse" and the "SHIFT" dropdown is set to "Morning (8AM - 4PM)". A "SPECIALIZATION" field is also present. At the bottom of this form, there is a button labeled "Add Staff" with a plus sign icon and a success message: "Staff member updated successfully!". To the right of this form, a modal dialog box is displayed with the title "localhost:5173 says" and the message "Are you sure you want to delete this staff member?". It contains two buttons: "OK" (highlighted in blue) and "Cancel". At the bottom of the main page area, there is a table with the same data as Figure 127.

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
rakhigurung	nurse	emergency pages	Morning	1212121212	
tuntun	staff	cleaner	Morning	1212121212	

Figure 128 integrationt test staff deleted successfull

**Add New Staff Member**

FULL NAME *	EMAIL *
<input type="text"/>	<input type="text"/>
DEPARTMENT *	CONTACT NUMBER *
<input type="text"/>	<input type="text"/>
ROLE *	SHIFT *
<input type="text" value="Nurse"/>	<input type="text" value="Morning (8AM - 4PM)"/>
SPECIALIZATION <input type="text"/>	

Add Staff
Staff member deleted successfully!

NAME	ROLE	DEPARTMENT	SHIFT	CONTACT	ACTIONS
tuntun	staff	cleaner	Morning	1212121212	

Test case ID	42
Objective	When doctor register admin has to verify the new doctors email so that doctor can login
Expected result	When doctor registers the mail is sent to the admin and admin approves the design and then doctor receives mails
Actual Result	Admin successfully delete it
Status	Successful.

Table 59approving doctors

Table 60 integrated test approve

**Manage Doctors**

**Pending Verifications**

Doctor	License	Specialization	Documents	Actions
TuphanGurung gurungtuphan999@gmail.com		Gastroenterologists	Certification ID Proof	<span>Approve</span> <span>Reject</span>

**Registered Doctors**

Doctor	Specialization	License	Status	Actions
sujal gurung.sujal87@gmail.com	bone	123456	Approved	<span>Edit</span> <span>Reject</span>
frankhan ww@gmail.com	brain master	90009	Approved	<span>Edit</span> <span>Reject</span>

Table 61 admin

**Pending Verifications**

No pending verifications found

**Registered Doctors**

Doctor	Specialization	License	Status	Actions
sujal gurung.sujal87@gmail.com	bone	123456	Approved	<span>Edit</span> <span>Reject</span>
frankhan ww@gmail.com	brain master	90009	Approved	<span>Edit</span> <span>Reject</span>
TuphanGurung gurungtuphan999@gmail.com	Gastroenterologists	879737892	Approved	<span>Edit</span> <span>Reject</span>

Table 62 UI test succesfull approves

Test case ID	42
Objective	When user try to view doctors page . show message , restricted.
Expected result	When unregistered user check the doctor profile . restricted type message should show in win
Actual Result	Successfully show information :
Status	Successful.



Test case ID	42
Objective	in the doctors page there are registered doctors and admin can edit the details.

Expected result	When admin visits doctor page and in the registered doctors are shown and click on edit to edit the data of the doctors.
Actual Result	Admin edits the doctor profile succeeded .
Status	Successful.

Table 63 integrated test edit doctor

Registered Doctors				
Doctor	Specialization	License	Status	Actions
sujal gurung gurung.sujal87@gmail.com	bone/thairoid	123456	Approved	
frankhan www@gmail.com	brain master	90009	Approved	
TuphanGurung gurungtuphan999@gmail.com	Gastroenterologists	879737892	Approved	

Figure 129 integrated test edit doctors

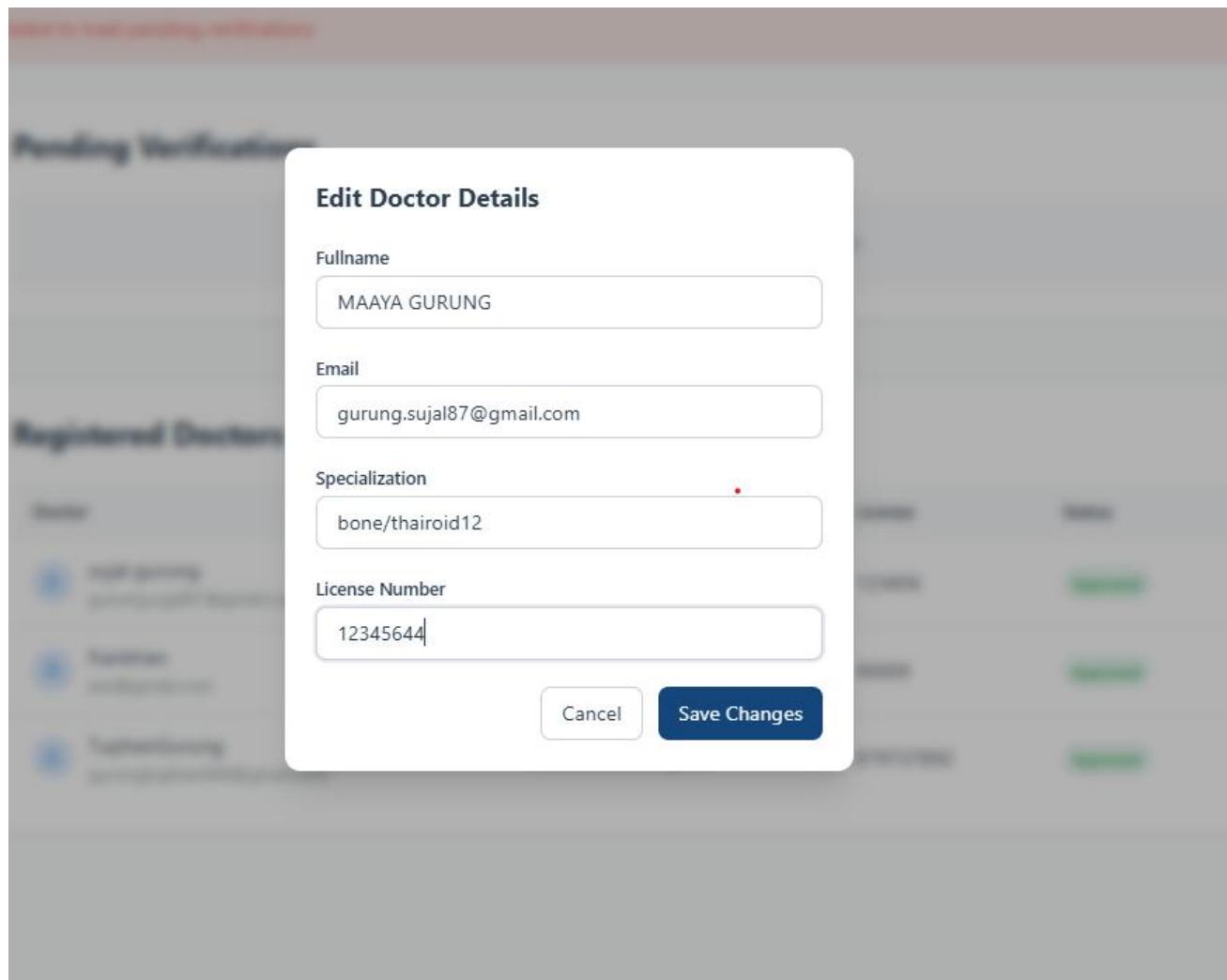


Figure 130 integrated dre not

Registered Doctors					
Doctor	Specialization	License	Status	Actions	
 MAAYA GURUNG gurung.sujal87@gmail.com	bone/thairoid12	12345644	Approved		
 frankhan ww@gmail.com	brain master	90009	Approved		
 TuphanGurung gurungtuphan999@gmail.com	Gastroenterologists	879737892	Approved		

Test case ID	43
--------------	----

Objective	admin assign salaries to doctor and staffs
Expected result	Admin select the doctor and then fill the info salary and selects that date and click on save
Actual Result	Admin give salary to the doctor
Status	Successful.

Figure 131 integrate test assign salary

Doctor  
sujal

Base Salary  
696965

Payment Frequency  
Monthly

**Deductions**

tax	255
Fixed	▼

Add Deduction

Next Payment Date  
04/29/2025

**Save**

Figure 132 fills the form

A screenshot of a UI test form. At the top right, a modal window displays the message "localhost:5173 says" followed by "Salary configuration saved successfully!" with an "OK" button. Below the modal, there are input fields for "Doctor" (containing "sujal"), "Base Salary" (containing "696965"), and "Payment Frequency" (containing "Monthly").

Figure 133 ui test form is submitted successfully

A screenshot of a salary approval interface titled "Pending Salary Approvals". It shows a summary for "sujal" with a gross salary of ₹69695.00 (Gross). Below this, under "Deductions", there is a field for "tax" with a value of 555. Further down, it shows "Total Deductions: ₹555.00" and "Net Salary: ₹69140.00". A yellow "Approve Salary" button is located at the bottom right.

Figure 134 interagted test complete ui

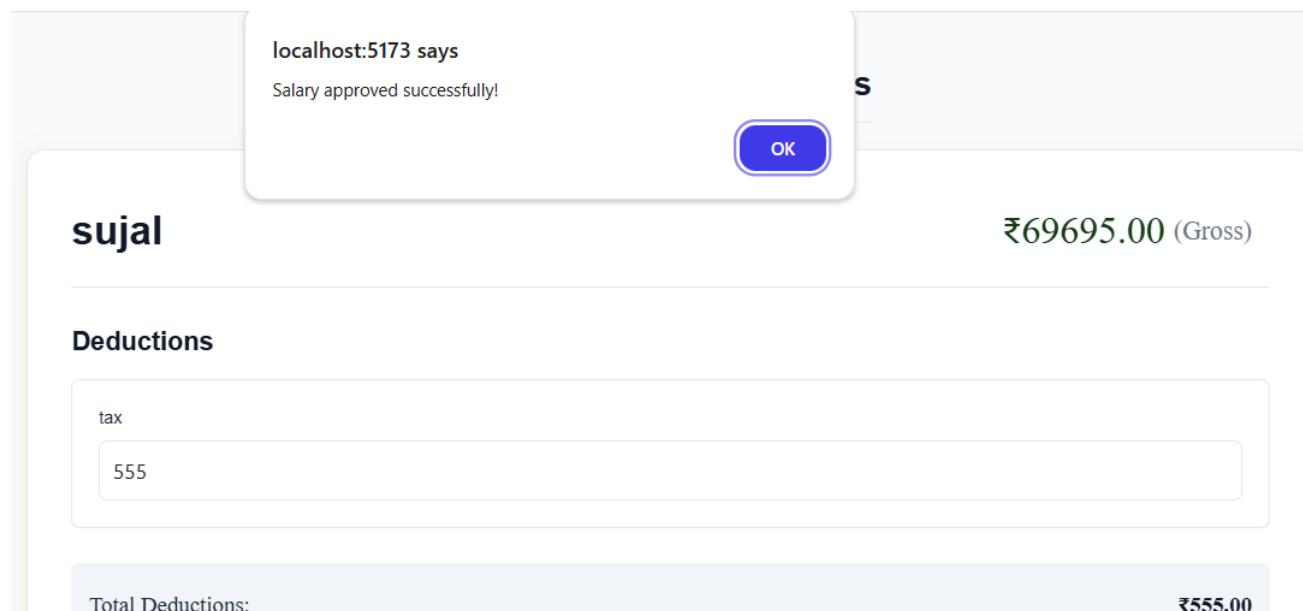


Figure 135 salary approved successfully msg

Test case ID	44
Objective	Admin select configuration there is dropdown which contains doctors name when clicking form should be open
Expected result	Admin select dropdown should work and show doctors name.
Actual Result	Admin select the dropdown and do it one time
Status	Successful.

*Figure 136unit testing dropdown*

**Initial Salary Configuration**

The screenshot shows a web-based application interface. At the top center, the title "Salary Configuration" is displayed in bold black font. Below the title, there is a form field with a label "Doctor" above it. Inside the form, there is a text input box containing the placeholder text "Select Doctor". To the right of the input box is a small downward-pointing arrow, indicating it is a dropdown menu. The entire form is contained within a light gray rounded rectangular box.

*Figure 137dropwodin*

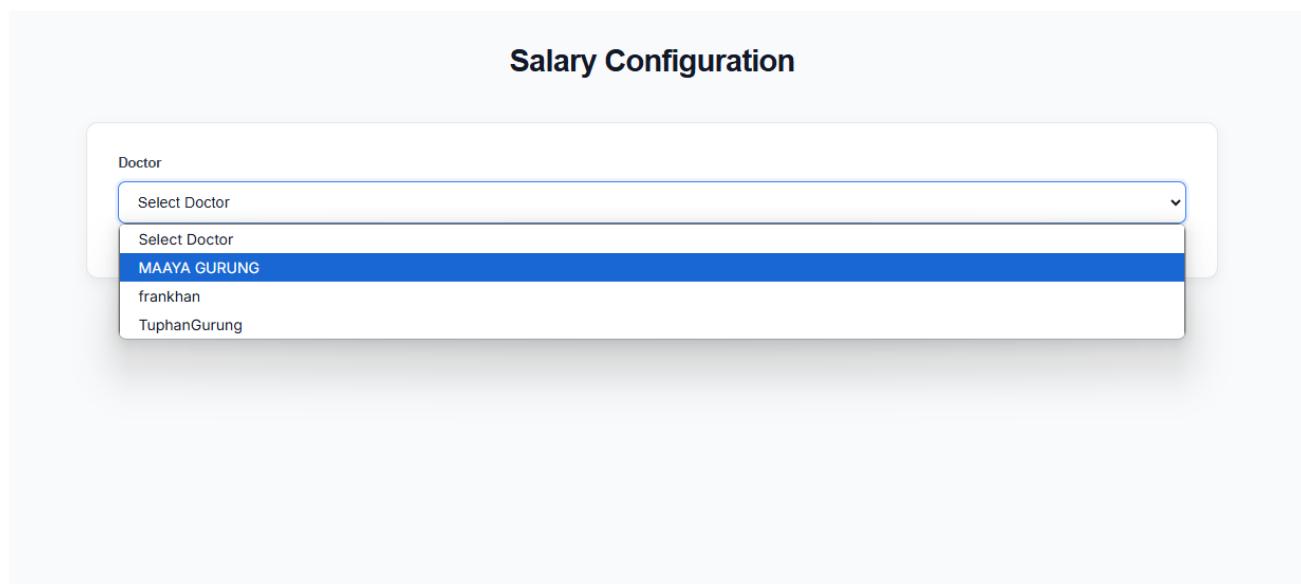


Figure 138select dorp down

Test case ID	45
Objective	In admin dashboard graph show no of appointment made
Expected result	Admin select dashboard and hover around
Actual Result	Admin select dashboard
Status	Successful.

Table 64ui test dashboard admin

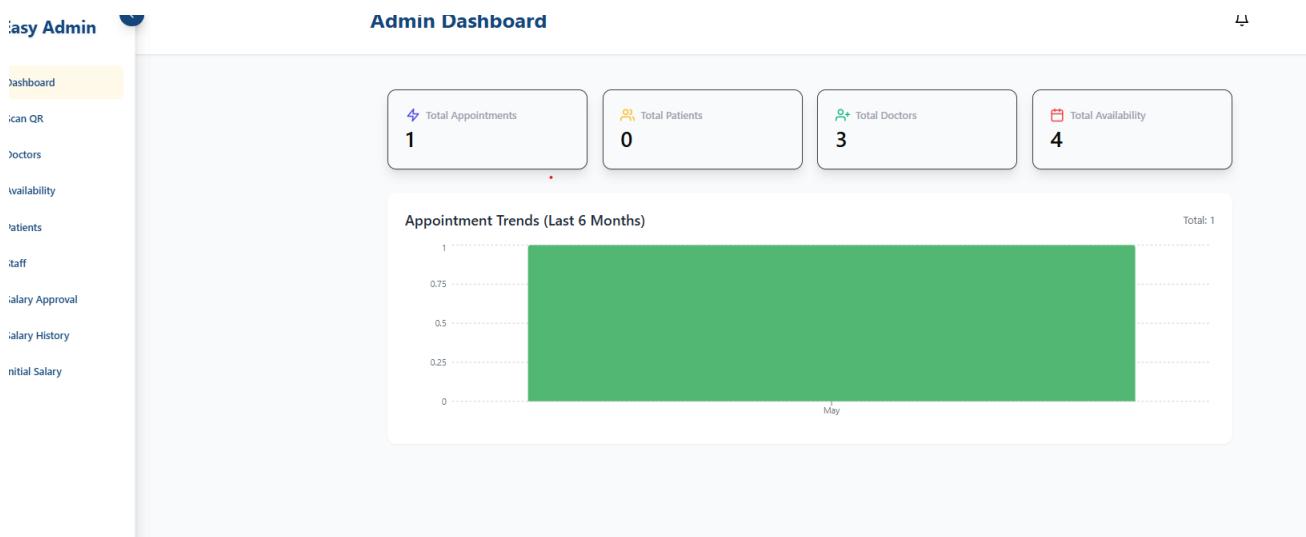


Figure 139ui test dashboard

Test case ID	46
Objective	Doctor tries to visit admin dashboard but get error because of authentication and protected routes
Expected result	Doctor visit admin dashboard but get 404 page not found
Actual Result	Doctor visit dashboard but get unauthorized access so it blocked doctor no access
Status	Successful.

Figure 140UI test authentication test



Figure 141UI test

Test case ID	47
Objective	As a doctor logout , after log out user redirect to login page
Expected result	Doctor redirect to login page after logout
Actual Result	Doctor get redirect to login page
Status	Successful.

Table 65logout testing ui

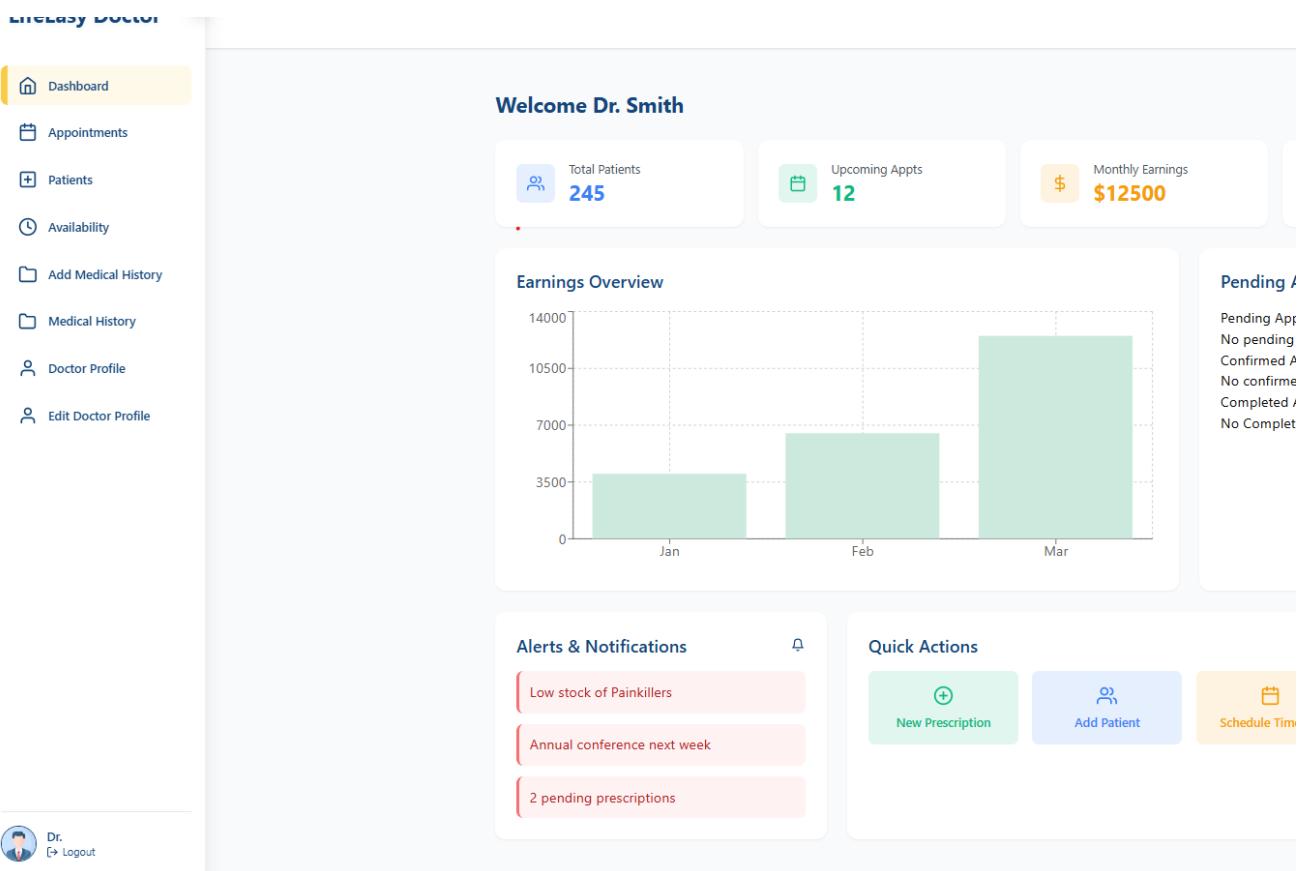


Table 66ui testing dashboard

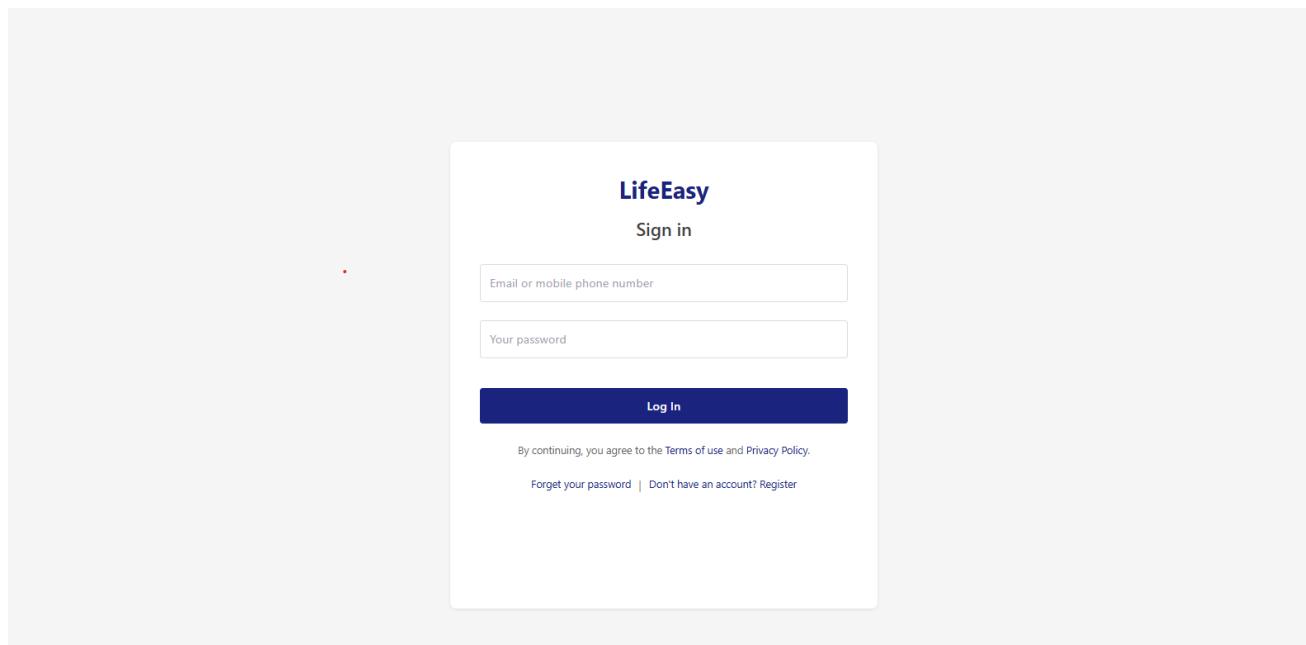


Figure 142ui testing logoin redirect to login page

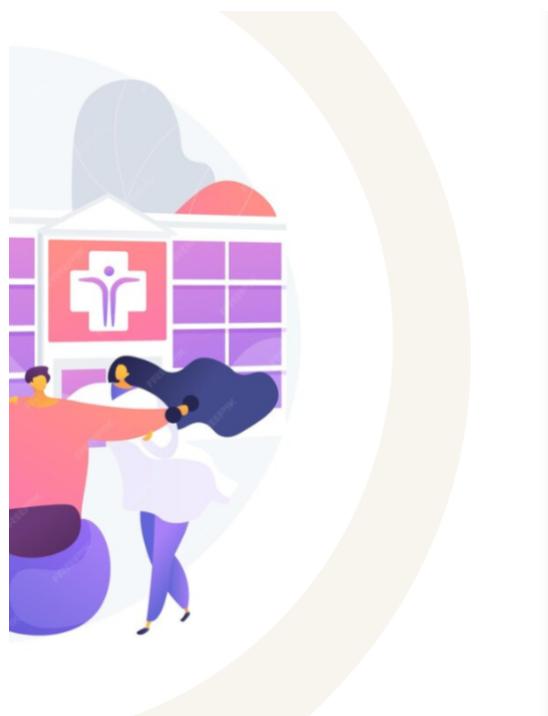
Test case ID	48
Objective	In the registration form if mail is already user, click on login link bellow button tr redirect to the login page.
Expected result	User get redirect to login page from users page
Actual Result	user get redirect to login page
Status	Successful.

143ui

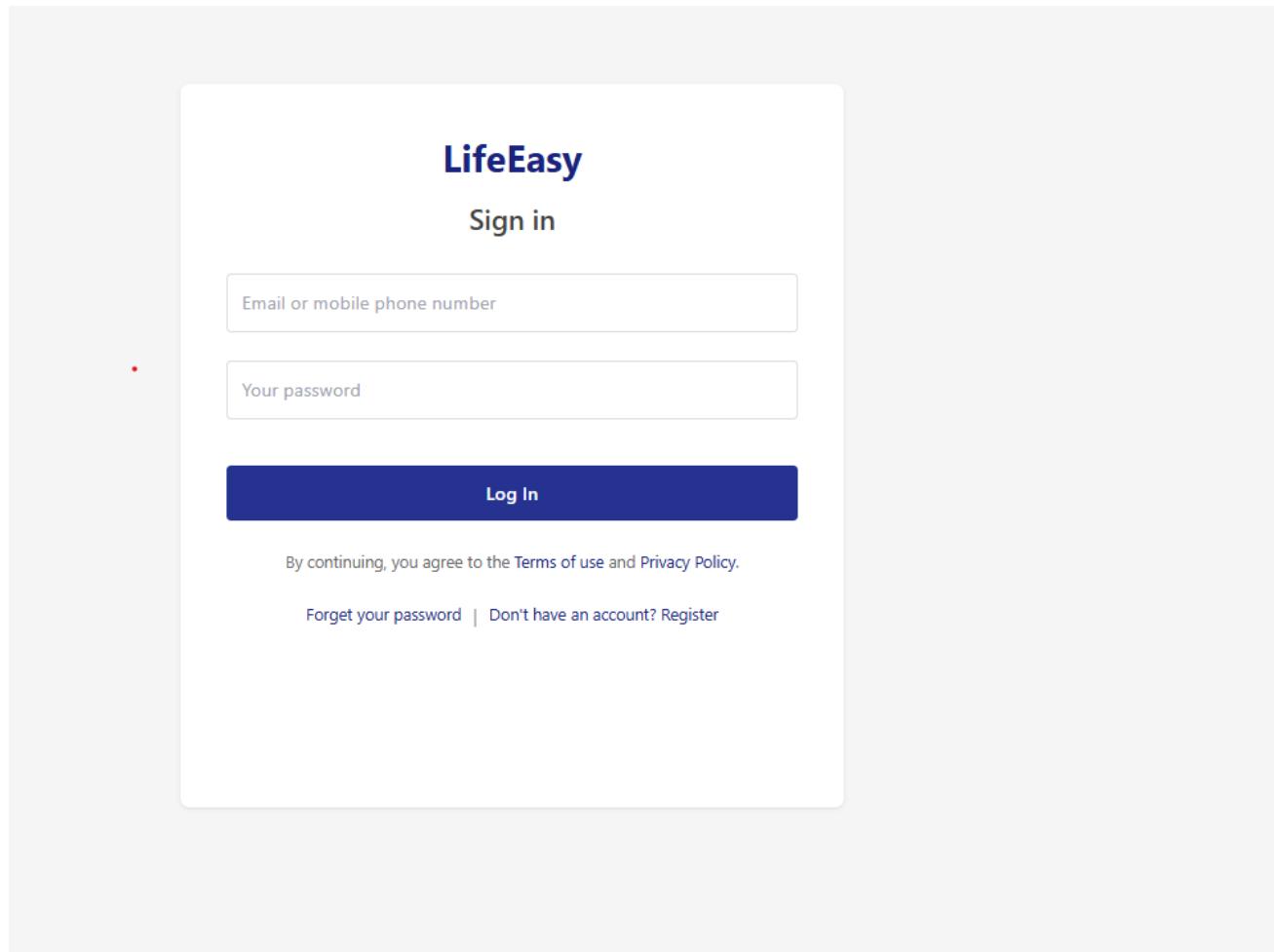
test

lgoin

Figure 144ui test redited



The image shows a user interface for creating an account. At the top right, it says "Create an account". Below that, there's a link "Already have an Account? [Log In](#)". The form consists of several input fields: "Full Name" (text input), "Username" (text input), "Date of Birth" (text input with placeholder "mm/dd/yyyy" and a calendar icon), "Contact No" (text input with a red asterisk), "Email Address" (text input), and "Password" (text input). At the bottom right is a blue button labeled "Create an Account". At the very bottom center, there's a small link "Already have an account? [Login](#)".



Test case ID	49
Objective	In the login page all field is required to fill if not it will show messages
Expected result	User submits with entering data in login form. And show messages
Actual Result	Show messages
Status	Successful.

145unit test login

146unit test login etst

Table 67intefration test form submit and success

Test case ID	50
Objective	After filing every data in the form the data should be stored in database
Expected result	User data should be stored in database
Actual Result	Data are stored in database successfully

Status	Successful.
--------	-------------

```
SELECT * FROM users
```

List Grid										
	fullname	username	dateofbirth	contact	email	password	role	otp	otpExpires	created_at
	tuntun	tun	1920-01-08	1212121212	sujalgurn@gmail.com	\$2b\$10\$uJGAjHa4v7fk4q.xg.14beg4Eig5brvBn...	user	NULL	NULL	2025-04-23 15:16:25
	AdminLife	admin01	2014-11-03	0987654311	admin@life.com	\$2b\$10\$vRxR..3LNEHtQgl.RuWErOAsby6sL...	admin	NULL	NULL	2025-04-23 15:25:17
	sujal	sujal	2003-02-12	1212121212	gurung.sujal87@gmail.com	\$2b\$10\$vSb4PS3dsFt4.cgyZV5xuXeA08p5IGm...	doctor	NULL	NULL	2025-04-23 15:28:10
	SangamThapa	DumDum	2008-02-07	9806695488	swingam26@gmail.com	\$2b\$10\$1Pzx8/tra.vYGFWrKgnEuThilZ0JlvN3X...	user	NULL	NULL	2025-04-24 02:26:02
	frankhan	faran	1990-08-07	1212121212	ww@gmail.com	\$2b\$10\$tN3L5JT/N/vUJxhfg7ff.2G9W0o762z...	doctor	NULL	NULL	2025-04-25 04:54:17
	TuphanGurung	tuphan	2003-02-04	1212121211	gurungtuphan999@gmail.com	\$2b\$10\$awzuuZT2osIW9DepI6RLM0reSDDsSkO...	doctor	NULL	NULL	2025-04-28 21:30:00
	SujalGurung	sujalgurung	2001-12-11	0123456789	mayagrg4976@gmail.com	\$2b\$10\$IRj3wIHuebN4pCwnCRxjObVrzq/uv1S...	user	842492	2025-04-29 12:27:16	2025-04-29 12:17:15
	SujalGurung	sujalgurung	2001-02-14	1234567893	sujal.gurung.a22@icp.edu.np	\$2b\$10\$QRuZEIQzlsxVRh01142eR7x4JMhRy...	user	432167	2025-04-29 13:06:29	2025-04-29 12:56:28
	SujalGurung	sujalgrg	2001-05-12	1234567892	jacxt088@gmail.com	\$2b\$10\$Qb/GsXD0aUWxbuLRLNdNechH629k...	user	NULL	NULL	2025-04-29 13:15:03
147	Integration test data stored in database									

Test case ID	51
Objective	Every registration the password is stored using bcrypt function
Expected result	Password should be bcrypt form
Actual Result	Password is in bcrypt form
Status	Successful.

Table 68 Integration test password bcrypt form

Result Grid											
	id	fullname	username	dateofbirth	contact	email	password	role	otp	otpExpires	created_at
▶	1	tuntun	tun	1920-01-08	1212121212	sujalgurn@gmail.com	\$2b\$10\$uJGAjHa4v7RK4q.xg.14beg4EigSbrvBn...	user	NULL	NULL	2025-04-23 15:16:23
	2	AdminLife	admin01	2014-11-03	0987654311	admin@life.com	\$2b\$10\$vRXR.3lNEIHtQql.RuWeROAsby6sL...	admin	NULL	NULL	2025-04-23 15:25:13
	3	sujal	sujal	2003-02-12	1212121212	gurung.sujal87@gmail.com	\$2b\$10\$vSb4PS3dsFt4.cgyZV5XuXeA08p5IGm...	doctor	NULL	NULL	2025-04-23 15:28:23

148integration test password bcryp form

## Further work

SNo	Task	Comment	Date
1	Implement register/login	Login/register task is still in progress and will be completed by 20th jan	January 20, 2025
2	Appointment and admin panel	Patient can book an appointment and get notification.	February 30, 2025
3	Notification system, medical record and admit patient	Patients get notifications and patients medical record are stored where doctor can view it.	March 29, 2025
4	Billing , payment and bed manage	Invoice are generated, patients bills can be save in patients database.	April 30, 2025

Table 69 further work

I should complete all the task on time and develop proper project test them properly and create report accordingly.

The issues my LifeEasy hospital management system might face are:

- Legal issues:

Hospitals have the most sensitive data of patients, doctors and others. This system must make strong privacy laws like Nepal Electronic transactions act or privacy act. Because of the very sensitive data hospital management system handles there must be extra security to keep data secure.

- Patient consent:

Legal obligation to obtain records informed data before collection of patients or sharing of patients data.

- Liabilities for errors:

This system generates incorrect prescriptions appointments or report of the hospital and the developer or hospital could face major problems or legal actions.

- Medical record retention laws :

Hospital are required by laws to store medical records for some period of time and system required for long term and secure architecture to achieve capabilities.

Technical issues:

Data and security and encryption: without any strong encryption data in transit or exposed the breaches.

System downtime:

If the system crashes or is running down time it could delay emergency care

Social issues:

Digital literacy :

Some patients might be old that they could not understand the modern things or people might not understand the language English that might be issue there.

Trust and adoption:

Some users may mistrust digital system because increasing frauds going on in the techworld.

Job risk :

With digital automation it might take the peoples job with they were doing.

Economic issues:

Implementation cost: initial cost of the development and deploying , testing , and designing can be high price for the small hospitals or clinics

Training cost: staffs and doctors need training which may cost time and money and some people might not even want to try it.

Licensing fees : using database, or online cloud service and license cost may be too much for the smaller hospitals.

## Conclusion:

In the journey on developing this final year project I have a lot of confusion with my project and uncertainty. In initial phase I had lack of direction and lack of idea the hospital

management system works. And I lack knowledge about the project but did have some ideas and that ideas were failing with every research I was doing. The after careful consideration of the technology, and real world applicability , the final year project was chosen based on technology I wanted to learn and problem I wanted to solve . that how I chose the project .

After successfully choosing the project I had a lot of mix challenges and achievements – some days were hassle for me to tackle the confusion and problems faced. While others were filled with unforeseen obstacles. With no experience I was moving ahead while trying to learn a lot from the others and gaining Knowledge. New concepts were learned, and some skills were interesting. Sometime while doing research and people question about the project I doubt my self I could do it because I had no idea how the hospital management system works and after getting questions that I haven't thought about hit hard . but I did learned something . I faced problem because I didn't have that software to examin all did was blindly work search on internet and research that when I found the power of researching it is a very great skill to learn. I was getting some ideas. I did get best guidance from teachers and supervisors. Their guidance, based on years of experience help us to get new ideas. Special thanks to Sandip dhakal sir he gave his insight into the system and designing and researching . have learning mindset are what he thought us.

In the end while completing and developing the project I learned a lot about he system of the softeware how data flow and many more. Yet I did tried my best to complete my project . I was to much in confusion about the system but yet did my project and the experience has not yes prepared us for professional work but also solve the problem we face.

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