
Software Requirements Specification

for

EasyCare Hospital Management System

Version 2.0 approved

**Prepared by Hassan Hisham, Nadder Ragi, Aziz Koura, Hla el Sakka,
Yahia Diab, Youssef Ahmed, Mohamed Gamal**

ESLSCA University

15 June 2023

Introduction :

1.1 Purpose :

The SRS is an agreement document between the client and the Software developer. Purpose of the EasyCare hospital management system is to streamline and digitalise day-to-day operations of hospitals. This includes patient check-in, appointment schedules, patient medical records, complete employee records, room bookings, patient bills, and lab sampling and result generating. book appointment, view appointments, generate bill, view patient details/ medical record, room bookings, prescription, pharmacy, admin-employee-pantient, view staff details (shifts, salary, name).

1.1.1 Accuracy

We'll make sure the data entered into the database and the software are accurate.

1.1.2 Clarity

The SRS is where we can find what the user wants in the software

1.1.3 Completeness

All of the requirements listed in the user-specified business requirements documentation are included in the software requirement specification.

1.1.4 Consistency

The document is written in a clear way from the beginning of the document till the end. To help the reader to understand.

1.1.5 Prioritizations of requirements

The demands will be fully met in accordance with priority and preference.

1.1.6 Verifiability

The client is able to verify if all the agreed functions of the software is well delivered and the software is able to meet the project requirements.

1.1.7 Modifiability

The requirements written in the SRS can be edited when the software developer and the client agree on some modifications.

1.2 Document Conventions

The EasyCare hospital management system SRS appears to have followed a specific typographical convention by using the Arial font at size 11. However, it is unlikely that this font choice has any special significance or meaning beyond being a clear and easy-to-read font. Also by using align (justify) and spacing 1.5 between lines to make the font more clear.

Regarding the prioritization of requirements, it is possible that higher-level requirements have been assumed to be inherited by detailed requirements. However, this assumption may not always be explicitly stated in the SRS, and it's possible that each requirement statement has its own priority assigned to it. Therefore, it's important to carefully review the SRS documentation to understand the specific conventions and assumptions used in the document.

1.3 Intended Audience and Reading Suggestions

The intended audience of this SRS document is primarily the client and other employees like manager Manager and Receptionist, consultants and System Operators of the EasyCare hospital management system

The SRS document can be used in any situation involving the project's requirements and the chosen solutions. The document would ultimately give readers a clear understanding of the system that is developing.

1.4 Product scope

To make your data more secure and protected, hospitals must get over the manual system to handle the hospital process. The manual system is based on files and papers that can easily be in danger of losing these papers, getting caught by fire or any natural disasters

because they will be located in a place where all the files contain the history of patients and their data.

The manual system is very complicated and demands a lot of effort by employees to store the files and to classify them. So that's why we have to change the method of storing data at our hospital to be more organized and easy to get specific data. By using a standalone application, it will make the management of the major functions of the Hospital more easier and the data will be more secure and protected.

This standalone application will be able to handle the everyday basics process that happen during the day like booking appointments, view appointments, generate bill, room booking, view staff details.

In the standalone application we can find each patient history without spending time searching for the patient's file in all the files stored manually. It won't matter if the patient will stay in the hospital overnight or he will leave in the same day, all will be recorded and stored in the database with the medical prescription details so whenever the same patient visits the hospital.

Booking appointments won't be a long process, by visiting the easycare application you can decide whenever your appointment is without having to call the call-center or the receptionist. It is an easier and faster way for the patient.

Generating bills, doctors and nurses will be able to add bills for each patient and the patient is able to view his due payments and make the payment using the application. The bills will be written in a detailed way to make the patient understand what those bills are for.

Room booking, by using the application you have the access to book a room in the hospital for patients who must stay in the hospital overnight.

View staff details, patients can see which doctor to book an appointment with, and the admin can check for all the details employees like names and salaries.

The standalone application goal is to make these procedures easier and faster to avoid any bad experience for customers and to improve the trust between the hospital and the

customers. Data will be saved in a secured place to avoid any natural disaster or human mistakes.

The primary objective of the SRS is for everyone involved to comprehend and have a general understanding of how and what will happen in the system. ER, User Case diagrams, and GUIs that are easy for anyone to understand are used. finally how the interfaces look. to be aware of any potential new hires the client might be required to make once the system is put into place.

2. Overall Description

2.1 Product perspective

By enhancing reliability, efficiency, and performance, the fully automated hospital management system that will be created through this project will eliminate the disadvantages associated with the manual system. The use of a database to store patient, employee, stock, and other information will enable simple data access, retrieval, manipulation, and search. The system's security will be improved by the access restrictions provided by access privilege levels. The system will enable simultaneous access and convenient management of the medical center's operations.

2.2 Product Functions

Appointments

- Patient book their appointments
- Doctors can track their schedule
- By booking an appointment it will show on the schedule that it is booked.

Generate bill

- Doctors and update staff update the bill
- Patient view the bills
- Patient make payments

Room booking

- Staff can book a room

2.3 User classes and characteristics

Staff

Staff have the most access to the system, they are enabled to manage any happening activity to supply service to customers

Key functions

- Update role.
- Update employment status.
- View schedule.
- Assign to department.
- Update shifts.

Doctor :

Doctors are able to check their schedules, inform staff about patients' reports.

Key functions

- Update availability.
- Generate report.
- Prescribe medication.
- View schedule.
- Assign to department

Patient :

Key functions

- Book appointment.
- View appointments.

- Update insurance details.

2.4 Operating environment

Software requirements

- Windows 7 or above operating system
- JRE 1.8
- MySQL server

Hardware Requirements

- Core i5 processor
- 4GB Ram
- 20GB of hard disk space in terminal machines
- 1TB hard disk space in Server Machine

2.5 Design and Implementation Constraints

- Records can only be deleted by the Administrator.
- To access any record, users must first log into the system.
- Should use less RAM and processing power.
- The Database is secured with a password
- The administrator is the only one who has full access to the system.

2.6 Project Documentation

SLC Phase	Documentation	Intended Activities
<ul style="list-style-type: none"> • Requirement Gathering • Scope-Setting • Specification 	SRS , includes: <ul style="list-style-type: none"> • Precise software specifications • Client Software agreement 	Provide exactly what is included within EasyCare, including functions and operations agreed on by the client.
Software Design	SDD , includes: <ul style="list-style-type: none"> • Activity diagram • Class diagram • Sequence diagram • Database schema • Description of each diagram 	Provide technical documentation on the complete architecture and functions of the software
Software Testing	Scenario Testing Documentation	Provide the customer with any and all scenarios possible when using the EasyCare software, and proving the software functions well in all scenarios
Manuals	<ul style="list-style-type: none"> • User Manuals • Warranty • Software Requirements • Troubleshooting Documents 	Provide the user with reference documents to help with any upcoming problem the software may face.

--	--	--

2.7 User Documentation

The user documentation includes:

- Warranty information
- Complete user manuals
- System Software Hardware Requirements
- Troubleshooting guides

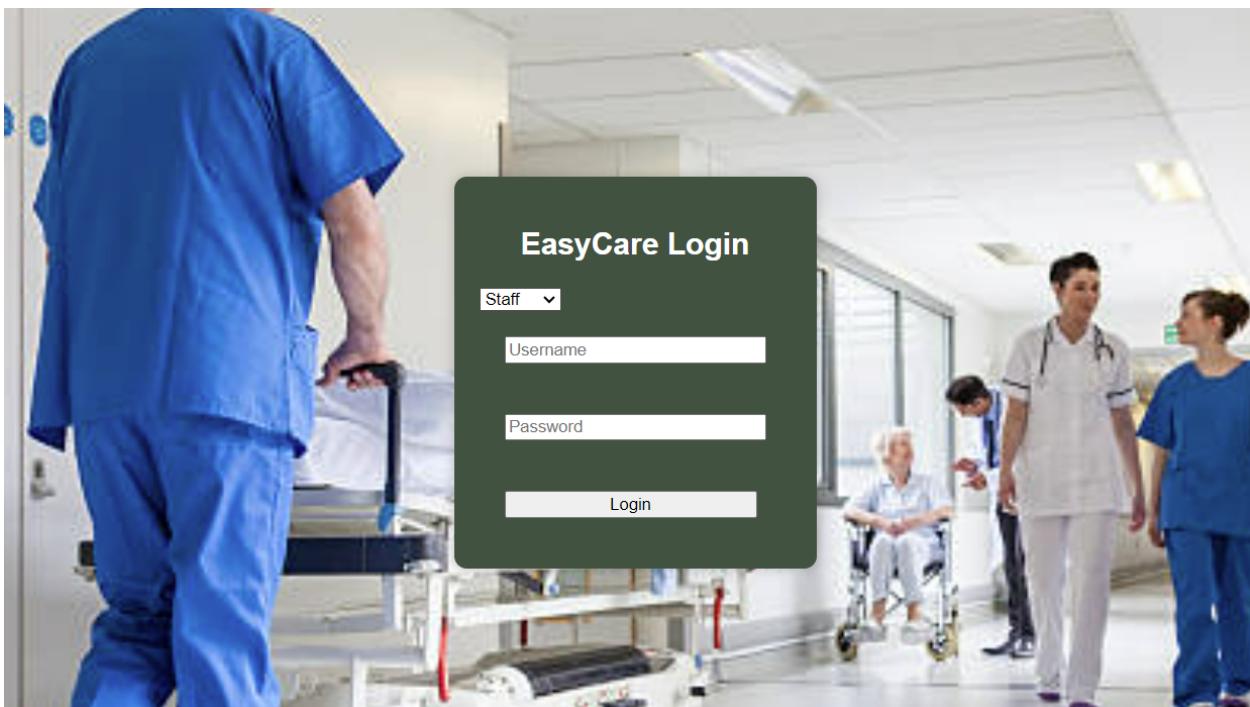
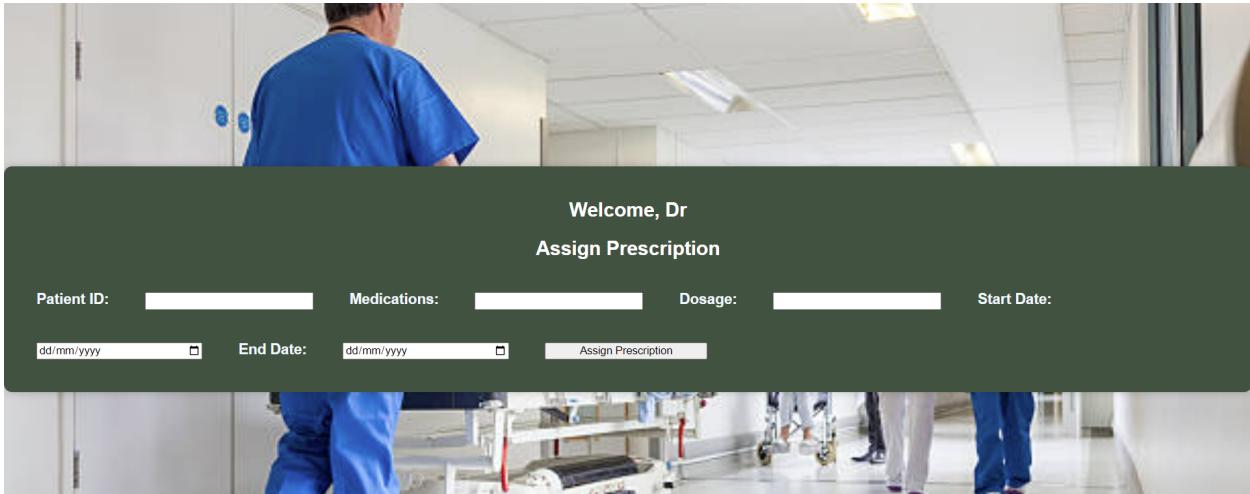
The booklet of the mentioned user documentation is delivered with the software in order to ease the use of the EasyCare software for employees of all levels. The detailed manuals will guide the user on the proper use of the system, and the other documents will help the user navigate through common problems in order to independently solve them.

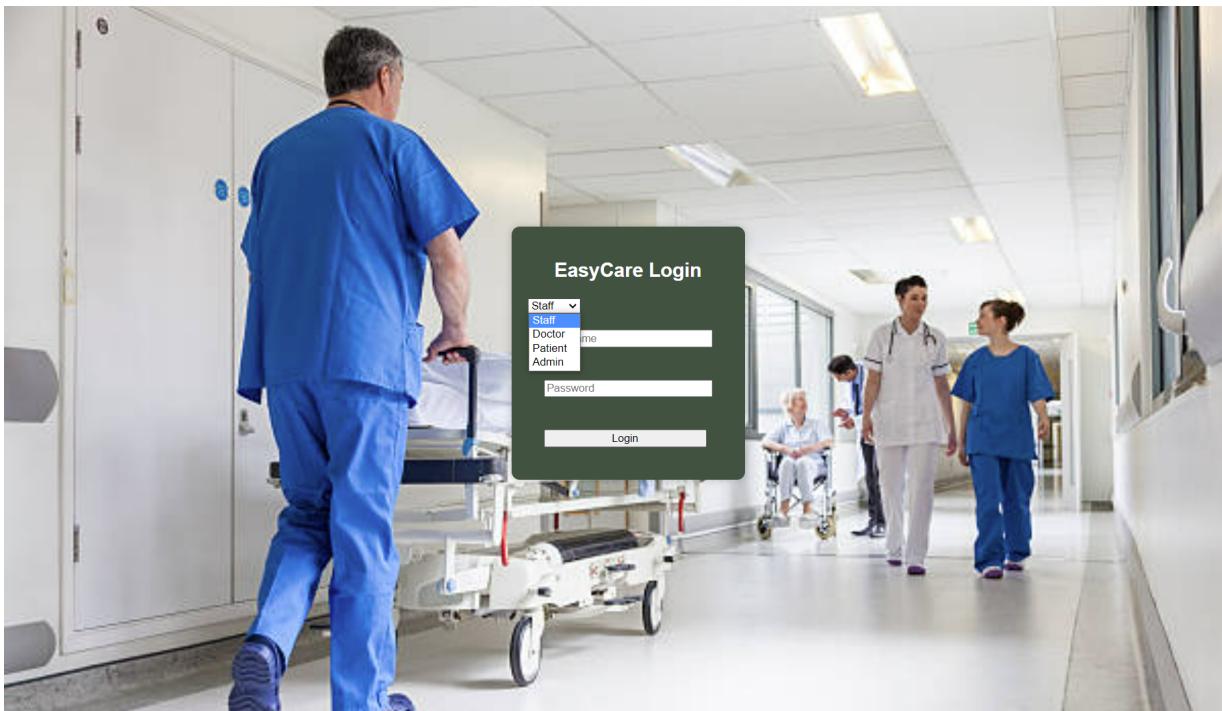
2.8 Assumptions and Dependencies

- Employees must be given unique ID's and Passwords
- Hospital servers have to meet certain specifications for cybersecurity
- After records are uploaded online, they will only be accessible through EasyCare
- A certified admin must be appointed by the hospital's IT department

3. External Interface Requirements

3.1 User Interfaces





EasyCare Hospital Admin / Staff Patient Board

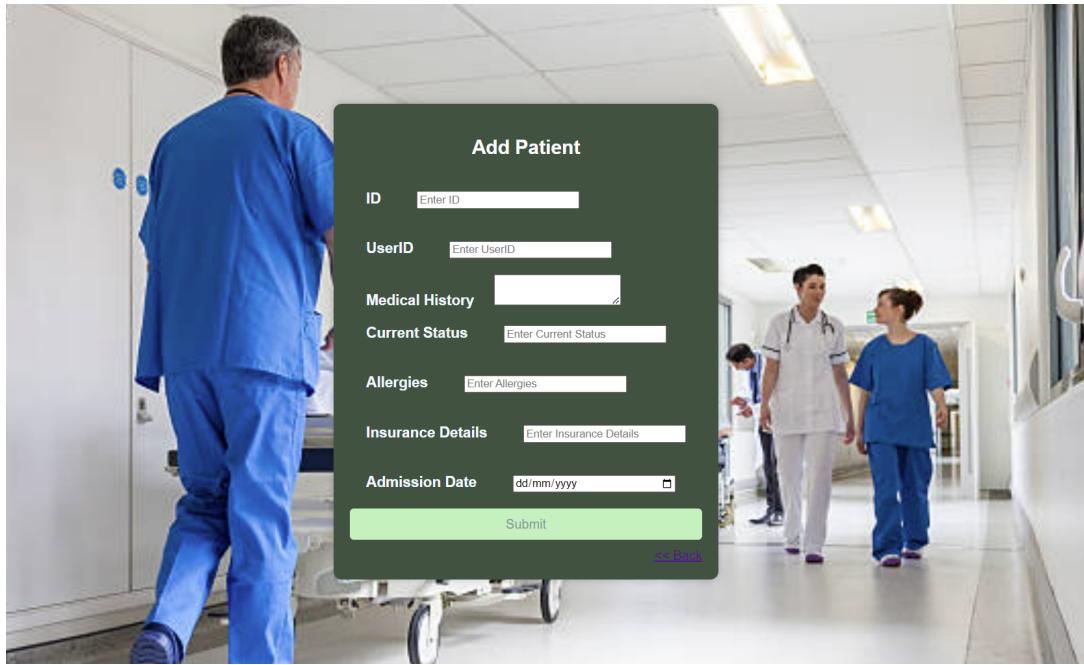
Add New

User ID	Medical History	Current Status	Allergies	Admission Date	
1	none	enrolled	sugar	2023-06-13	Edit Delete
0	asfas	safasf	asfasf	2313-12-12	Edit Delete

Doctor ID:

Appointment Date:

Appointment Time:



3.2 PC Specifications

EasyCare will run on provided enterprise laptops and official hospital computers.

Minimum hardware requirements:

- Intel Core i5 Processor
- 4GB RAM
- 20GB Free Space
- 15 mbit/s Internet Connection
- Windows 10 Home

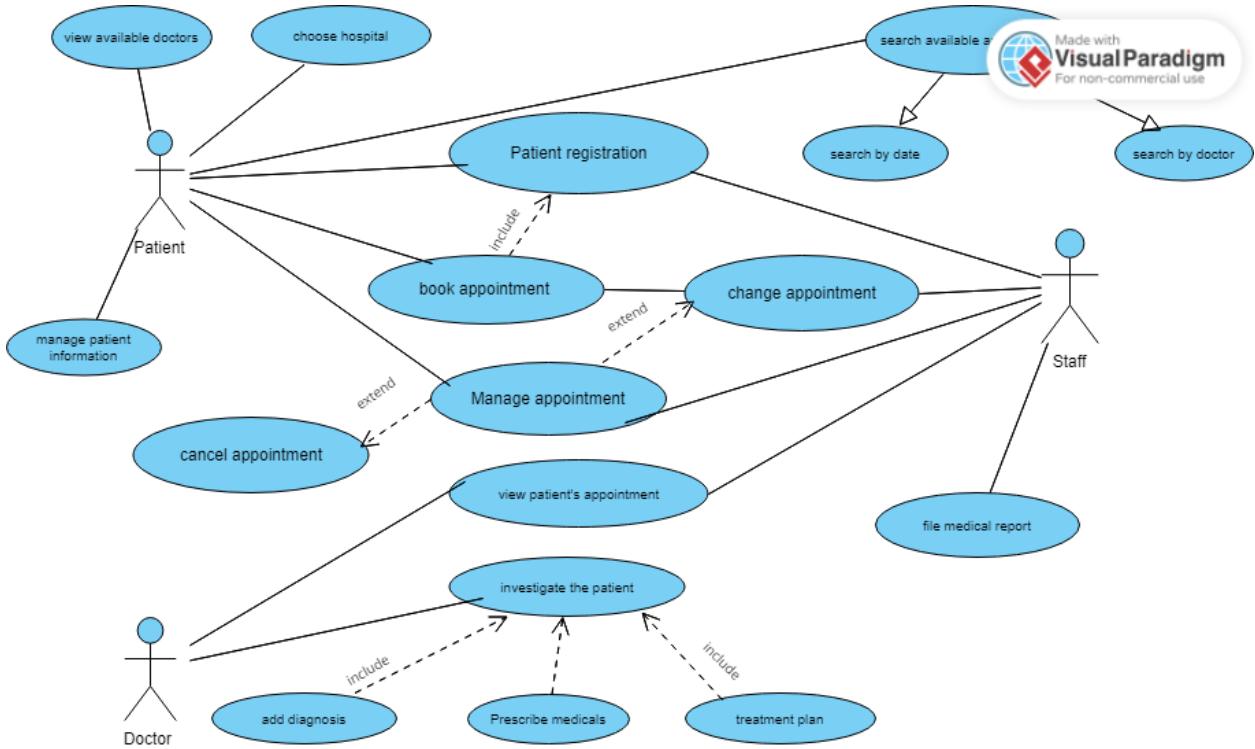
Recommended specifications:

- Intel Core i7 Processor
- 8GB Ram
- 20GB SSD

- 30 mbit/s Internet Connection
- Windows 10 Pro

4. System Features

4.1 Use Case Diagram



4.2 Detailed Functional Features

The EasyCare Hospital Management System has functional requirements organized by system features, which include patient management, doctor management, appointment management, billing, room management, reporting and analytics. The system provides services such as registering new patients, updating patient information, scheduling appointments, managing hospital inventory, creating bills, generating financial reports, and exporting reports to various formats. The system allows users to efficiently manage hospital operations by providing various functionalities.

4.2.1 Patient Invoice Generation

4.2.1.1 Description

This function eases the process of patients getting their invoice promptly and accurately.

4.2.1.2 Stimulus/Response Sequences

- Patient requests invoice by patient_id and credentials
- Invoice is sent through e-mail in PDF format and shown on-screen.

4.2.1.3 Functional Requirements

- The system should allow patients to request their invoice by providing their patient_id and appropriate credentials.
- The system should verify the provided patient_id and credentials to ensure the request is valid.
- The system should generate an invoice in PDF format.
- The system should send the generated invoice to the patient via email.
- The system should display the invoice on the screen for immediate viewing.
- The generated invoice should contain accurate and up-to-date information regarding the patient's charges and services received.
- The system should ensure the confidentiality and security of patient information during the invoice generation and delivery process.

4.2.2 Patient Appointment Booking

4.2.2.1 Description

This function allows patients to choose from a list of specialized doctors to choose the medical professional they want to book, along with cost and date.

4.2.2.2 Stimulus/Response Sequences

- Patient selects “Book Appointment” after entering credentials and patient_ID
- In response, all doctors stored in database are shown in list form for patient to choose from
- Patient chooses doctor by Name
- Patient books appointment and is notified of appointment details

4.2.2.3 Functional Requirements

- The system should provide a list of specialized doctors along with their availability, cost, and other relevant details.
- The system should allow patients to select a preferred doctor from the provided list.
- The system should enable patients to choose a convenient date for the appointment.
- The system should facilitate the booking process by confirming the selected doctor, date, and cost, and scheduling the appointment accordingly.
- The system should maintain a record of the booked appointments and provide necessary notifications or reminders to the patients.

4.2.3 Patient Medical Record Viewing

4.2.3.1 Description

This function allows patients to view their medical records stored within EasyCare’s database easily and quickly.

4.2.3.2 Stimulus/Response Sequences

- Patient selects “View Medical Record” after entering credentials and patient_ID

- In response, EasyCare requests ID verification
- Patient chooses the format of the medical record, including PDF and RTF
- E-mail is sent to patient with their medical record in the specified format

4.2.3.3 Functional Requirements

- Patients can access their medical records by entering credentials (username and password) and patient_ID.
- The system verifies the provided credentials and patient_ID for security and authorization.
- Multiple viewing formats for medical records are available, such as PDF and RTF.
- The system generates the selected medical record format (e.g., PDF) and sends it to the patient via email.
- Patient information confidentiality and privacy are strictly maintained during the entire process.

4.2.4 Doctor Appointment Viewing

4.2.4.1 Description

This function allows doctors to view their appointment schedule and at a glance know what appointments they have upcoming, and the patient details.

4.2.4.2 Stimulus/Response Sequences

- Doctor selects “View Appointment Schedule”
- In response, EasyCare requests ID verification
- Doctor is shown a calendar with dots marked on each day signifying booked appointments

- Upon clicking on the dotted days, the doctor gets a full schedule of the appointments booked that day in PDF form.

4.2.4.3 Functional Requirements

- To ensure security, the system requires doctors to verify their identity using suitable ID verification methods.
- The system presents a calendar to doctors, highlighting booked appointments with dots on each corresponding day.
- Doctors can click on the marked days to view a comprehensive schedule of appointments for that specific day.
- The system offers the detailed schedule in PDF format, facilitating convenient viewing and printing for doctors.

4.2.5 Staff Salary Display

4.2.5.1 Description

This function allows staff members to check their salary and whether or not it was dispensed, or deducted from

4.2.5.2 Stimulus/Response Sequences

- Staff member selects “View Salary Information”
- In response, EasyCare requests ID verification
- Staff member is shown their salary history in an interactive schedule mini-app
- Upon clicking on each month, the staff member gets information on dispensed date, deductions, and bonuses.

4.2.5.3 Functional Requirements

- System allows staff members to access salary information.

- EasyCare prompts staff members to verify their identity through appropriate ID verification methods (Government ID)
- System displays the staff member's salary history in an interactive schedule mini-app.
- System allows staff members to click on each month to view detailed information about their salary, including dispensed dates, deductions, and bonuses.

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- EasyCare should have a swift response time no matter the operating environment. For example, a patient's data should be available at a maximum of 2 seconds after a doctor clicks on it
- The system must handle a large amount of users at once, with the ceiling value being the amount of registered staff, doctors, and patients combined.
- EasyCare must be available at all times for doctors, staff, and patients alike. This includes minimal downtime and scheduled maintenance being notified to all users.

5.2 Security Requirements

- EasyCare uses 2 Factor Authentication for all user log-ins to increase security
- The system's entire database is encrypted and cannot be exported
- The hospital's servers must be inspected by a security expert prior to the installation of EasyCare

6. Business Rules

- Employees are not allowed access to EasyCare after working hours
- All data entered must be thoroughly validated for accuracy
- Maintain consistency with patient details and staff inputs
- Provide mechanisms for customers to provide feedback
- Provide a robust tunnel for customer service
- Build a reliable data pipeline for future data entries