



PATIENTS & HEALTH RECORDS MANAGEMENT APPLICATION

Department of Computer Science & Information Technology

Final Year Project

By

Group I

Khethelo Ndhlala 201807411

Lethabo Masubelele 201802787

Hlengeni Mashabane 201804698

Helena Ntokola 201802102

Nokwanda Shiba 201811728

Supervisor name: Ms Ntsoka Mathiba

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SYSTEM VISION DOCUMENT

PROBLEM STATEMENT

With the emergence of COVID-19, life has become different in some way and our health is affected differently. So having to visit the clinic or hospital in these times is somewhat scary and risky. Students sometimes go to the clinic and/or hospital on campus not knowing if the doctor is available which is wasting time for the students. It is important that when students should be able to make appointments, get their appointments approved and be able to check and verify on that day of appointment if the health professional to assist will be available before the student could go to the clinic. It is also important for students to access information about all the different health professionals available at the two healthcare facilities (clinic and hospital). There should also be effective communication between the patients and the health professionals, where health professionals can provide healthcare advice online. Additionally, it would be good to have an online platform where patient details are captured, updated, can be accessed by any other health professional, and allow the patient to also access their own health record. The online platform would eliminate a lot of paperwork, delays, missing of files, and inconsistencies found when using paper-based files. In a nutshell, the system will help in controlling hospital operations such as patient detail, appointment booking, payments, prescriptions, diagnosis, and administrations among other health related information for the clinic and the hospital.

The system will be a web-based or a computer application that can be accessed in different devices including mobile smart phones and tablets.

Aim

The aim of the project is to develop a software system that will help to effectively administer and manage information about patients and health professionals.

Objective

To achieve the aim of the project, the team intends to do the following:

1. Gather all the system requirements (functional and non-functional requirements)

2. Create analysis and design models.
3. Review, code, and test to develop a quality software product.

SYSTEM CAPABILITIES

The patient and health records management application should be capable of:

- Capturing, storing, and updating information about patients.
- Capturing and storing information about health professionals
- Capturing and storing information about diagnosis
- Capturing and storing information about prescription
- Capturing and storing information about payment records
- Capturing and storing information about appointment schedules.

SYSTEM BENEFITS

The system will provide the following benefits to its stakeholders:

- Maintain correct and current information about patients and their health-related information, as a result eliminating paperwork and improving in the quality of information.
- Maintain correct and up-to date information about health professionals, as a result eliminating paperwork and improving the service provided to patients and quality of information.
- Effective scheduling of appointments online, as a result reducing the stress and time of long queues

Improve or increase communication between patients and health professionals by allowing health professionals to share health related advice online, thereby improving access to the healthcare facility at any time.

Data security and correct data retrieval made possible.

Increase nurses work speed.

Easy access to patient data with correct patient history

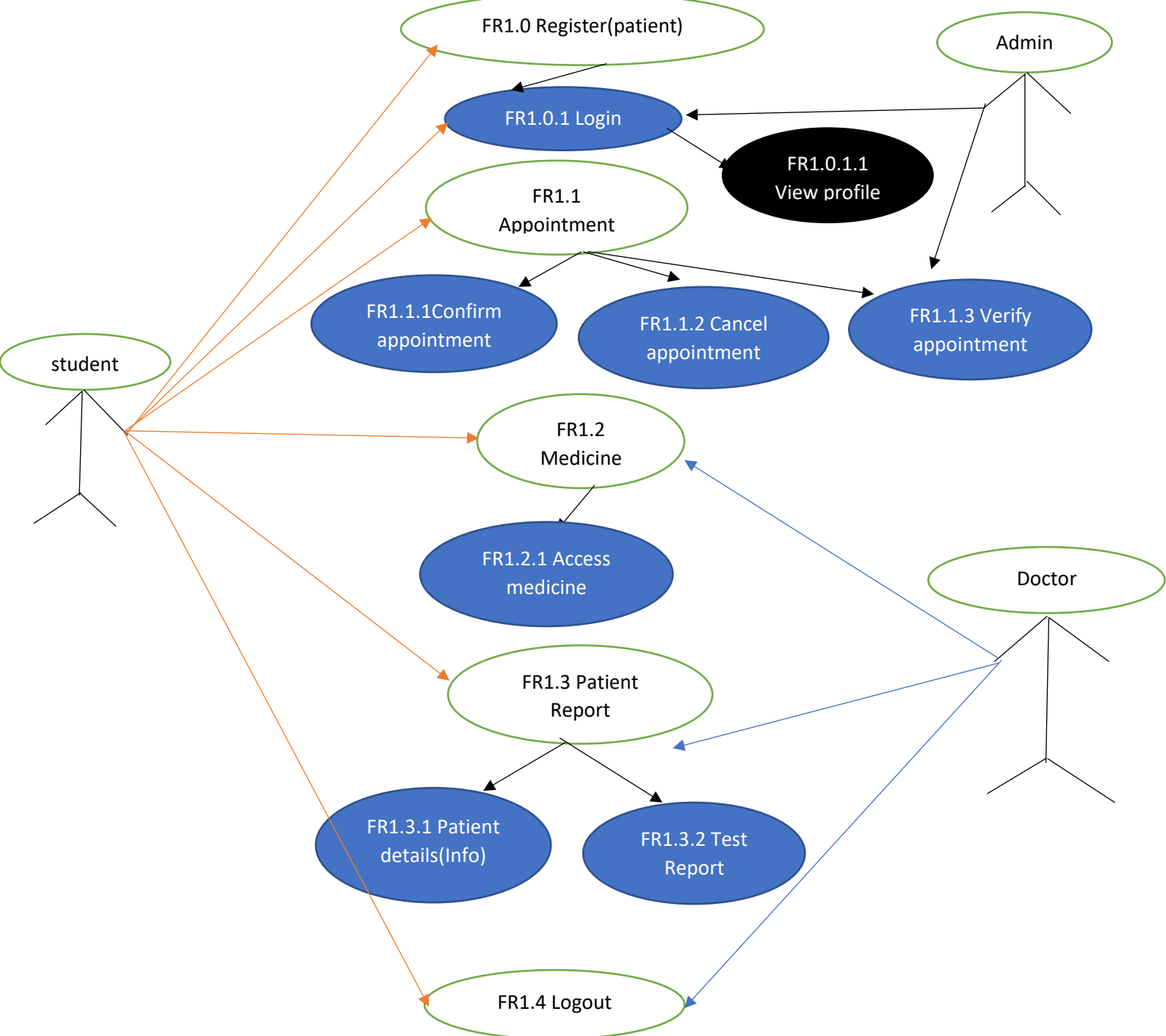
Improved patient care made possible.

Improve patients experience concerning their health care.

REQUIREMENTS SPECIFICATION DOCUMENT:

FUNCTIONAL REQUIREMENTS(FR)

USE CASE DIAGRAM



Narrative Description

Admin

- Signup their account. Then Login (No approval Required).
- Can register/view/approve/reject/delete doctor (approve those doctors who applied for job in their hospital).
- Can admit/view/approve/reject/discharge patient (discharge patient when treatment is done).
- Can Generate/Download Invoice pdf (Generate Invoice according to medicine cost, room charge, doctor charge and other charge).
- Can view/book/approve Appointment (approve those appointments which is requested by patient).

Doctor

- Apply for job in hospital. Then Login (Approval required by hospital admin, then only doctor can login).
- Can only view their patient details (symptoms, name, mobile) assigned to that doctor by admin.
- Can view their discharged (by admin) patient list.
- Can view their Appointments, booked by admin.
- Can delete their Appointment when doctor attended their appointment.

Patient

- Create account for admit in hospital. Then Login (Approval required by hospital admin, then only patient can login).
- Can view assigned doctor's details like (specialization, mobile, address).
- Can view their booked appointment status (pending/confirmed by admin).
- Can book appointments. (Approval required by admin)
- Can view/download Invoice pdf (Only when that patient is discharged by admin).

Platform

The application will be developed using Frontend Libraries (HTML, CSS, JavaScript & React.js) to enable the creation of a web-based application.

The application will connect to the server side (Backend) using PHP, Python to store and retrieve data from a MySQL database.

Authentication will be through existing LDAP installations.

- **FR1.0 User Registration** - If a user wants to use the application, they must first register/ sign-up, then they will be able to login.
- **FR1.0.1 User Login (Admin, Patient, Doctor)**
- **FR1.1 Book Appointments**
- **FR1.1.1-FR1.1.13** - Admit/view/approve/reject/discharge patient
- **FR1.2 Medicine**-access medicine
- **FR1.3 Patient** - View list of available doctors
- **FR1.4 Logout**

Non-Functional Requirements

Performance Requirements

- The application should load and be usable within 5 seconds
- The application should update the interface on interaction within 3 seconds
- The database should be normalized to prevent redundant data and improve performance
- The database should be distributed to prevent outages
- The application works best with fast and stable internet connection.

Safety Requirements

- The application requires login for every session.
- Databases should use sharding to be redundant to prevent loss of data.
- Backups of the databases should be done hourly and be kept for one week.

Reliability / Availability requirements

- Available 24/7/365.

Usability requirements

- The app is responsive for different devices or screens size
- All content clear and visible.

Maintainability requirements

- Software will have updates.

Environment

- The app will only be accessible to the SMU community.

Constraints

- Some people have internet issues.
- Late appointments (checkup) when the doctor is occupied, which lead to further damage or even death.
- Time – it might take time for a person to book appointment since a lot of people will be booking at the same time.

Glossary

Reliability – the quality of being trustworthy or of performing consistently well,

Functional requirements - define the basic system behaviour. Essentially, they are what the system does or must not do.

Non-functional requirement - is a specification that describes the system's operation capabilities and constraints.

Availability – able to be used or obtained.

Maintainability – the degree of facility with which an equipment or system is capable of being retained in, or restored to, serviceable operation.

Sharding – is the method of splitting and storing a single logical dataset in multiple databases.