Software Requirements Specification

Version 1.1

October 2, 2019

Doctor-Patient Portal

Lucas Simpson
Ngan Tran
Anthony Nguyen
Ryan Vo

1. Introduction

1.1 Purpose

One of the main issues that many doctors and patients face is communication. There have been many times in which a patient needed help from a doctor, but has no good way to contact them or to let them know in advance any sort of changes to their body. There's also been instances of doctors needing to contact patients in order to remind them of medications/treatments or to tell them that there's been a change in them. Therefore, the creation of a portal for both patients and doctors to use would be immensely useful for them.

We choose the doctor patient portal to be our project since it's convenient for doctors and patients. First, it is an environmentally friendly way to keep track of our medical records digitally rather than physically, which also lowers the risk of losing important documents. With the portal, both doctors and patients can have access to the patient's medical records and prescriptions. Besides, sometimes it's difficult to reach our doctors, and the portal can be an easy way to communicate between doctors and patients. On top of that, patients can easily schedule a doctor appointment using the portal, and doctors can also manage their working schedule however they want.

1.2 Scope

Doctors - The doctors need to have access to all of their patients' medical records and their contact information. In addition, the doctor needs to have a schedule which shows their current appointments with their patients and other activities which need to be scheduled. There should also be a method for the doctor to block out certain times to prevent patients from scheduling appointments during that time. Finally, the doctor should have access to references they may need to consult and an easy way to store recommendations for other doctors or specialists which can be accessed by their patients.

Patients - The patient needs to have access to their individual medical records and have the ability to edit their contact information. In addition, a schedule should be available which shows their past appointments with the doctor and any future appointments which may be scheduled. The patient should also be able to view their doctor's schedule in order to schedule an appointment through the system.

Administrator - The administrator needs to have the ability to create doctor and patient accounts and manage both types of accounts.

1.3 Definitions, Acronyms, Abbreviations

1.4 Reference Documents

1.5 Overview

The rest of the document is organized as follows: section 2 and its sub-sections will provide a description over the application. Section 3 will describe the requirements that the application will fulfill. At the end of the documents will have section 4 and 5, containing the appendices and index respectively

2. Overall Descriptions

The doctor-patient portal provides an efficient way of communication between doctors and patients. Additionally, patients can use the portal to schedule or cancel their appointments, and doctors can also view and adjust their work schedule effectively. On top of that, the portal is an archive storing patient medical records and prescriptions, which both doctors and patients can keep track of.

2.1 Product Perspective

The doctor-patient portal is a new way of communicating between doctors and patients. Patients can schedule their doctor's appointments without the hassle of calling and confirming with the clinic. Additionally, the portal is an eco-friendly way for patients to keep track of important medical records and prescriptions.

2.2 Product Functions

Doctors can schedule or cancel appointments, and they can adjust doctors' work schedule. Additionally, they can view their current appointments with patients. Doctors can also message patients to remind them of their appointments or other activities such as blood testing, MRI scans, etc. On top of that, they can view patients' medical records as well as prescriptions.

On the other hand, patients can schedule appointments based on doctor's schedule. Additionally, patients can view their current and future appointments with doctors, and they can message doctors when needed. They can also view their medical records and prescriptions on the portal.

Finally, an administrator is the one who can view, add or remove doctors and patients in the system. An admin can also view doctors' work schedules and their current appointments.

2.3 User characteristics

Adult patients who are very busy with their lives and work, but need to schedule a doctor's appointment consistently. For example, ideal patients who need this software are pregnant women, diabetic patients or patients with thyroid goiters, etc. Besides, doctors can design their own flexible and efficient work schedules, so they can work at different clinics.

2.4 Constraints

Since medical records are confidential, security is an important characteristic of the software. Thus, doctors and patients will need usernames and passwords to access the portal. Additionally, time and resources are other constraints for this program since we're college students. Therefore, this software's GUI will be very simple, and security matters will not be focused in this software.

2.5 Operating environment

The Doctor-Patient Portal will be operated on a web page connected to a SQL database hosted on a DigitalOcean droplet.

2.6 Assumptions and dependencies

For the doctor and patient portal, we’ll assume that this program will be perfectly safe from any security attacks, so no countermeasures will be provided. Additionally, we’ll assume that only adult patients have access to this program.

3. Specific Requirements

3.1 External interface

3.1.1 *User interfaces*

The user will interact with the system via any web browser.

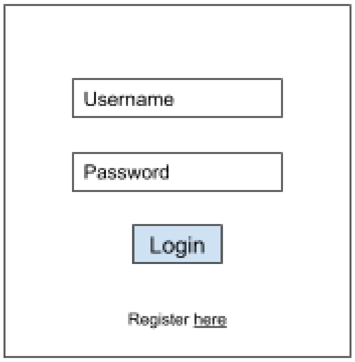

Figure 1 - Login Page

The user will initially land on the login page where they are prompted to enter their username and password to login or register their profile.

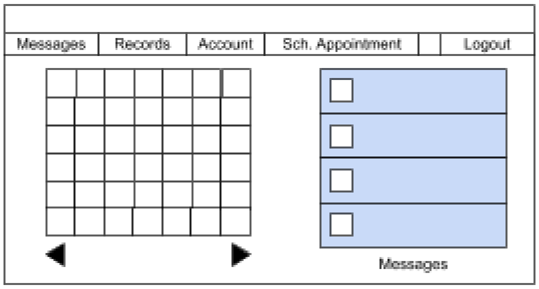

Figure 2 - Patient Dashboard

If the user is a patient, they will land on the patient dashboard where they can view their primary doctor's calendar, messages, and click on the tabs to view messages, view their records, and view/edit their account, and logout.

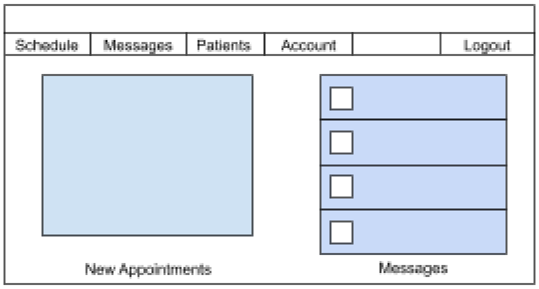

Figure 3 - Doctor Dashboard

If the user is a doctor, they will land on the doctor dashboard where they can view new patient messages, approve new patient appointments, and click on the tabs to update their schedule, view all messages, look at their patients, view/edit their account, and logout.

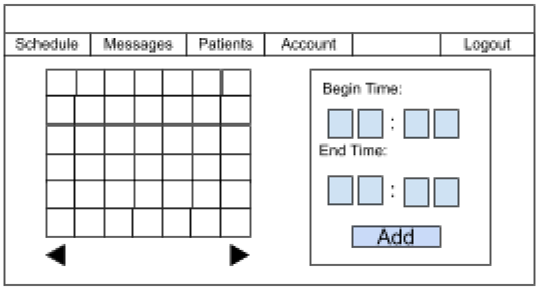

Figure 4 - Doctor Schedule View / Patient Appointment Schedule

Doctor's calendar view, where they can click a day on the calendar view to bring it up on an edit box on the right hand side.

Also the patient’s appointment scheduling view, where similarly they can choose a day and schedule a time for an appointment.

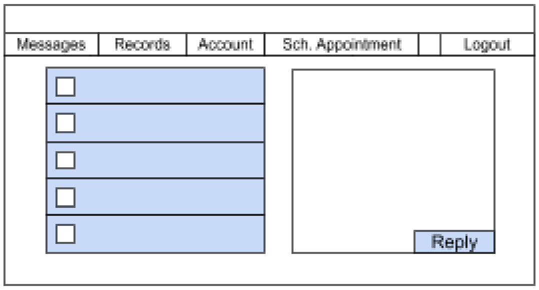

Figure 5 - Messages View

Message page where the user (any user type) can view and reply to messages.

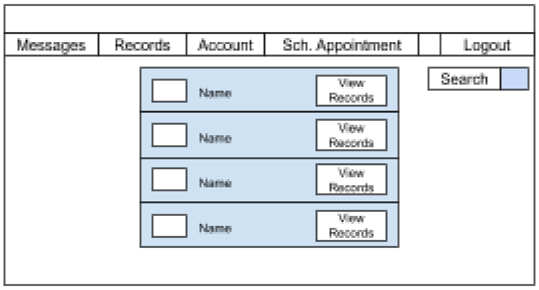

Figure 6 - Patient List

Doctors can view their patients, search for their patients, and access their patients’ records.

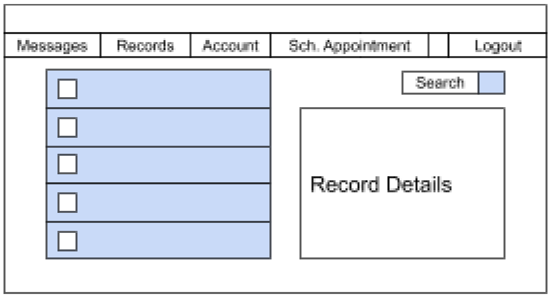

Figure 7 - Patient Records

Doctors and patients can search for patient records and view patient record details via record click.

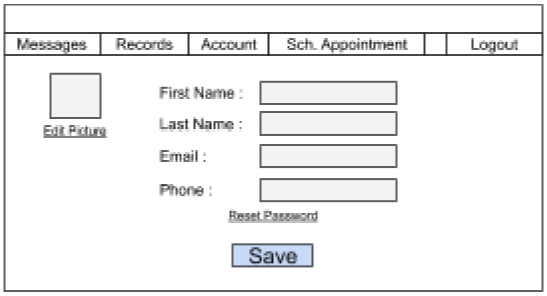

Figure 8 - Account View/Edit

Doctors and patients can view and edit their account details on this page.

3.1.2 *Hardware interfaces*

All hardware interacting with the system should possess the ability to connect to the internet to transfer and receive data on the website.

3.1.3 *Software interfaces*

N/A (currently)

3.1.4 *Communication interfaces*

The Doctor-Patient portal system will connect and transfer data over the internet using HTTP protocols.

3.2 Functional requirements

The system will mark users based on their user-status and user interaction and interfaces with the website will be based on this user-status and respond accordingly.

3.2.1 *Functional Requirement 1*

ID: FR1

TITLE: Account Creation

DESC: User will register for their account creation.

SCENARIO: Patient

Patient-user will enter valid user personal information, new login credentials, and is prompted to fill out survey for medical preferences/information.

SCENARIO: Doctor

Doctor-user will enter valid user information, and new login credentials.

3.2.2 *Functional Requirement 2*

ID: FR2

TITLE: User Login

DESC: User enters valid Username and Password credentials, which are checked against database values, and granted website access if validated.

3.2.3 *Functional Requirement 3*

ID: FR3

TITLE: User Dashboard

DESC: After login, user will land on their respective dashboard.

FEATURE: User can interact with dashboard based on their user-status

SENARIO: Doctor Dashboard

Doctor-users are able to interact with their calendar, messages, and patient records.

SENARIO: Patient Dashboard

Patient-users are able to view their doctor's calendar, message their doctor, schedule an appointment, and view their own records.

3.2.4 *Functional Requirement 4*

ID: FR4

FEATURE: Viewing/Updating Doctor Calendar

SCENARIO: Doctor

The doctor-user will be able to access their calendar by clicking the 'Calendar' tab on the top menu. On the calendar form, the doctor-user can click the calendar edit button or a specific day on the calendar view to update/add a timeslot to the calendar.

SCENARIO: Patient

The patient-user can view their primary doctor's schedule from the patient dashboard via a calendar view.

3.2.5 *Functional Requirement 5*

ID: FR5

FEATURE: Viewing/Replying to messages

SCENARIO: Viewing/Replying to message

Both the doctor and patient-users can view messages via the message tab on the top menu. The doctor-user has a message view box on the doctor dashboard as well. The user can reply to a message by clicking the message box, typing their reply, and clicking the send button.

3.2.6 *Functional Requirement 6*

ID: FR6

FEATURE: Scheduling Appointment

Patient-users can schedule an appointment with their doctor by clicking on the 'Schedule a visit' tab on the top menu and filling out the schedule form. Their doctor can confirm the scheduling, which will automatically update the doctor's schedule and notify the patient of the confirmation.

3.2.7 *Functional Requirement 7*

ID: FR7

FEATURE: Viewing patient records

Both the doctor and patient can access records via the 'Patient records' tab on the top menu. A list of records will be displayed on the records screen. A record can be clicked on to bring up a more detailed page of the record. The record list can be filtered based on date on both sides, and by name on the doctor's side.

3.2.8 *Functional Requirement 8*

ID: FR8

FEATURE: Admin user account creation

Admin has the ability to create both patient and doctor accounts.

3.2.9 *Functional Requirement 9*

ID : FR9

FEATURE: Admin user account editing

Admin has the ability to edit user account details, such as editing password, email, etc.

3.3 Performance requirements

The main requirement the app must accomplish is to allow doctors and patients to communicate with each other online. Other requirements would be to allow patients and doctors to schedule appointments with each other, and for patients to update their own medical information, while doctors are able to access time in real time.

3.4 Design constraints

The application will be programmed in c++.

3.5 Other requirements

4. Appendices

ID	Dependencies	Description	Motivation	Release #
FR1	-	User account creation	Account creation is required for users to have application access credentials.	1
FR2	FR1	User account login	User account needs to be validated before user can access site.	1
FR3	FR2	User dependent dashboard	Doctors and patients have different functionalities, this is reflected in the dashboards.	1
FR4	FR2	Doctor calendar view/update	Patients can use this information to find an appropriate time to contact their doctor.	1
FR5	FR2	Message viewing/replying	Quick and easy communication between doctor and patient.	1
FR6	FR2	Appointment scheduling	Quick and easy appointment scheduling.	1
FR7	FR2	User record viewing	Quick and easy record access.	1
FR8	-	Creating doctor/patient account via admin	For users having trouble with account creation	2
FR9	-	Updating doctor/patient account via admin	For users having trouble with updating account	2

5. Index