

Software Requirement Specification

Group members	Kabita Chand
	Kyle Luchsinger
	Nima Behboudi
	Bilal Othman
	Fredy Bashizi Balibuno
	Sriram Sathvik Vangipurpau

1. Project Description

Our project aims to develop a comprehensive medical application that simplifies healthcare management for patients and providers. The application will offer features such as easy appointment scheduling, prescription management, and tracking medical history.

2. Functional Requirements

FR01	Making/Canceling/Changing an Appointment the software must enable customers and providers to manipulate their appointments
FR02	Providers are able to create a new prescription for a patient, edit an existing prescription to adapt to changing needs, and delete a prescription when no longer needed. Patients can refill prescriptions when refills are needed.
FR03	Allowing providers to create and edit medical history for a patient, also allowing them to delete or remove patient history. Allow patients/their guardians to view medical history.

3. Non-Functional Requirements

NFR01	Appointment updates/cancellations go through the same day the request was made.
NFR02	Patient history and information is only accessible to the patient and their healthcare provider.

4. Use Case Specification

<< Select **three** functional requirements and describe them in detail using use cases.>>

UC01 Name:	Making/Canceling/Changing an Appointment
Description:	The software allows the user to make an appointment with a care provider, change an appointment based on changing needs, and cancel an appointment if circumstances arise.
Actor:	Patient/Provider
Entry condition:	Actor selects the option "Edit Appointments"
Basic path:	<ol style="list-style-type: none"> The system presents the actor with a list of appointments and a button to schedule a new appointment [PRO01]. <ul style="list-style-type: none"> - Back (to previous page) - Search Appointments - New Appointment - [List of appointments in chronological order] The actor selects "New Appointment" [A01][A02] System presents a screen asking for input: [PRO01] <ol style="list-style-type: none"> Back (to previous page) Location (Editable) Doctor (Editable) Date (Editable) [E01] Time (Editable) [E01] Reason for Visit (Editable) Confirm Appointment Actor selects "Confirm Appointment" [E02] Actor is taken to the confirmation screen and receives a confirmation email detailing their appointment. Patient history updated. Actor is prompted with the "Home" button to return to the home screen.

Alternative paths:	<p>[A01] The actor selects “Search Appointments”</p> <ol style="list-style-type: none"> 1. The actor inputs parameters. The search bar checks the “Reason for Visit” variable <ul style="list-style-type: none"> - Search Bar (Editable) - Time Range (Editable) [E01] - Search 2. Actor clicks the “Search” button and a curated list based on parameters is generated. 3. Merge with [A02] <p>[A02] The actor selects the appointment they want to edit.</p> <ol style="list-style-type: none"> 1. Actor is presented with appointment information, a confirm edit button, and a cancel appointment button [PRO01] <ol style="list-style-type: none"> a. Back (to previous page) b. Location (Editable) c. Doctor (Editable) d. Date (Editable) [E01] e. Time (Editable) [E01] f. Reason for Visit (Editable) g. Confirm Edit h. Cancel Appointment 2. Actor edits information and selects “Confirm Edit” [BR03][A03][E02][E03] 3. Actor is taken to the confirmation screen and receives a confirmation email detailing their appointment. Patient history updated. 4. Actor is prompted with the “Home” button to return to the home screen. <p>[A03] Actor selects “Cancel Appointment”</p> <ol style="list-style-type: none"> 1. Actor is prompted “Are you sure?” [BR01][E03] <ol style="list-style-type: none"> a. YES b. NO 2. Actor selects “YES” [A04] 3. Actor is taken to the confirmation screen and receives a confirmation email detailing their cancellation. Patient history updated.
---------------------------	--

	<div>4. Actor (Patient) receives refund if services were prepaid [BR02]</div> <div>5. Actor is prompted with the “Home” button to return to the home screen.</div> <div>[A04] Actor selects “NO”</div> <div>1. Actor is taken back to appointment information [A02]</div>																														
Exception paths:	<div>[E01] Actor selects invalid date/time.</div> <div>1. Prompt the actor to input another date/time.</div> <div>[E02] Actor’s session times out as they leave the screen for more than 30 minutes without activity.</div> <div>1. Take the actor to the home screen.</div> <div>[E03] Appointment that’s being altered is less than 24 hours away</div> <div>1. Alert the user that they cannot alter the appointment and return to the appointment information screen.</div>																														
Business Rules:	<div>[BR01] Patients must cancel an appointment 24 hours prior to the day of the appointment.</div> <div>[BR02] If a patient has pre-paid for services and cancels at least 24 hours in advance, they are eligible for full refund.</div> <div>[BR03] Patients must make appointment edits at least 24 hours in advance.</div>																														
Data description	<table><tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr><tr><td>Location</td><td>String</td><td>100</td><td>-</td><td></td></tr><tr><td>Doctor</td><td>String</td><td>50</td><td>-</td><td></td></tr><tr><td>Date</td><td>String</td><td>10</td><td>MM/DD/YYYY</td><td></td></tr><tr><td>Time</td><td>String</td><td>5</td><td>XX:XX</td><td></td></tr><tr><td>Reason for Visit</td><td>String</td><td>100</td><td>-</td><td></td></tr></table>	Name	Type	Length	Mask		Location	String	100	-		Doctor	String	50	-		Date	String	10	MM/DD/YYYY		Time	String	5	XX:XX		Reason for Visit	String	100	-	
Name	Type	Length	Mask																												
Location	String	100	-																												
Doctor	String	50	-																												
Date	String	10	MM/DD/YYYY																												
Time	String	5	XX:XX																												
Reason for Visit	String	100	-																												
Prototype:	[PRO01]																														



Location
123 Green St., Richmond, VA

Doctor
Haley Lewis

Date Time
MM/DD/YYYY 24:00

Reason for visit:
Timmy hurt :(

CONFIRM



Location

Eye of Newt

Doctor

Eye of Newt

Date

MM/DD/YYYY

Time

00:00

Reasons for visit

Timmy is hurt :(

Confirm

UC02 Name:	Creating/Refilling/Canceling/Updating a Prescription
Description:	The software allows a user to request a refill for their prescription. It also allows a doctor to create a prescription for a patient, update dosage/medication type, and cancel a prescription for a patient.
Actor:	Patient/Provider
Entry condition:	Actor selects the option "Edit Prescriptions"
Basic path:	<ol style="list-style-type: none"> The system presents the actor with a list of current prescriptions, and if actor is a Provider, a button to add/cancel a prescription <ol style="list-style-type: none"> Add Prescription (PROVIDER) Cancel Prescription (PROVIDER) [List of Prescriptions - Alphabetical Order] Actor (PATIENT) selects a prescription from the list. [A01][A02][A03] Actor is prompted with prescription information <ol style="list-style-type: none"> Back (to previous page) Medication Name [E01] Dosage Frequency Pharmacy [E02] REFILL Actor selects "REFILL" [E03][BR01] Actor is taken to a confirmation screen and receives a confirmation email detailing refill. Patient history updated. Actor is prompted with the "Home" button to return to the home screen.
Alternative paths:	[A01] Actor selects "Add Prescription" <ol style="list-style-type: none"> Actor is prompted for input: [PRO01] <ol style="list-style-type: none"> Back (to previous page) Medication Name (Editable) [E01] Dosage (Editable) [E04] Frequency (Editable) Pharmacy (Editable) [E02] Refill Frequency (Editable - Dropdown List)

	<ul style="list-style-type: none">g. Confirm Prescription2. Actor selects "Confirm Prescription"3. Actor and Patient receive confirmation email, and prescription is added to list and sent for a First Fill at the listed pharmacy. Patient history updated.4. Actor is prompted with the "Home" button to return to the home screen. <p>[A02] Actor selects "Cancel Prescription"</p> <ul style="list-style-type: none">1. Actor is prompted to select which prescription they want to cancel from the list.<ul style="list-style-type: none">a. Back (to previous page)b. [List of Prescriptions - Alphabetical Order]2. Actor is prompted "Are you sure you want to cancel?"<ul style="list-style-type: none">a. YESb. No3. Actor selects "YES" [A04]4. Actor is taken to a confirmation screen and both the actor and patient receive a confirmation email detailing the cancellation of the prescription. Patient history updated.5. Actor is prompted with the "Home" button to return to the home screen. <p>[A03] Actor (PROVIDER) selects a prescription from the list.</p> <ul style="list-style-type: none">1. Actor is prompted for input: [PRO01]<ul style="list-style-type: none">a. Back (to previous page)b. Medication Name (NON-EDITABLE) [BR02]c. Dosage (Editable) [E04]d. Frequency (Editable)e. Pharmacy (Editable) [E02]f. Refill Frequency (Editable - Dropdown List)g. Confirm Edit2. Actor selects "Confirm Edit"3. Actor is taken to a confirmation screen and both the actor and patient receive a confirmation email detailing the edit of the prescription. Patient history updated.
--	---

	<div>4. Actor is prompted with the “Home” button to return to the home screen.</div> <div>[A04] Actor selects “NO”</div> <div>1. Actor is taken back to the prescriptions list.</div>																														
Exception paths:	<div>[E01] Medication does not exist</div> <div>1. Alert user and prompt for input again.</div> <div>[E02] Pharmacy does not exist</div> <div>1. Alert user and prompt for input again.</div> <div>[E03] Not enough time has passed to pass the “Refill Frequency”.</div> <div>1. Notify actor, return actor to prescription information.</div> <div>[E04] Invalid dosage amount, non-positive, decimal</div> <div>1. Prompt the user to enter another dosage amount.</div>																														
Business Rules:	<div>[BR01] If the medication is requested earlier than the doctor’s given period, it will require a valid reason or a report will be filed.</div> <div>[BR02] If a new medication is being used, a new prescription must be made, the old prescription must be canceled if applicable.</div>																														
Data description	<table><thead><tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr></thead><tbody><tr><td>RX Name</td><td>String</td><td>25</td><td>-</td><td></td></tr><tr><td>Dosage (mg/ml)</td><td>Double</td><td>32</td><td>-</td><td></td></tr><tr><td>Frequency</td><td>String</td><td>50</td><td>-</td><td></td></tr><tr><td>Pharmacy</td><td>String</td><td>50</td><td>-</td><td></td></tr><tr><td>Refill Frequency</td><td>String</td><td>15</td><td><div>- Semimonthly</div><div>- Monthly</div><div>- Bimonthly</div></td><td></td></tr></tbody></table>	Name	Type	Length	Mask		RX Name	String	25	-		Dosage (mg/ml)	Double	32	-		Frequency	String	50	-		Pharmacy	String	50	-		Refill Frequency	String	15	<div>- Semimonthly</div> <div>- Monthly</div> <div>- Bimonthly</div>	
Name	Type	Length	Mask																												
RX Name	String	25	-																												
Dosage (mg/ml)	Double	32	-																												
Frequency	String	50	-																												
Pharmacy	String	50	-																												
Refill Frequency	String	15	<div>- Semimonthly</div> <div>- Monthly</div> <div>- Bimonthly</div>																												
Prototype:	[PRO01]																														

←

Medication Name

Eye of Newt

Dosage

20 mg/mL

Frequency

Every Night

Pharmacy

123 Green St., Richmond, Va

Refill Frequency


Monthly

Semi-monthly

Monthly

Bimonthly

Confirm Edit

	<div style="border: 1px solid #0056b3; padding: 10px;">  <div> <p>Medication Name</p> <div style="background-color: #0056b3; color: white; padding: 2px 10px; display: inline-block;">Eye of Newt</div> </div> <p>Dosage</p> <div style="display: flex; align-items: center;"> <div style="background-color: #0056b3; color: white; padding: 2px 10px; margin-right: 5px;">20</div> mg/ml </div> <p>Frequency</p> <div style="background-color: #0056b3; color: white; padding: 2px 10px; display: inline-block;">Every Night</div> <p>Pharmacy</p> <div style="background-color: #0056b3; color: white; padding: 2px 10px; display: inline-block;">123 Green Ft. Richmond, VA</div> <p>Refill Frequency</p> <div style="border: 1px solid #0056b3; padding: 2px;"> <div style="background-color: #0056b3; color: white; padding: 2px 10px; display: inline-block;">Monthly ▼</div> <div style="background-color: #0056b3; color: white; padding: 2px 10px; display: inline-block;">Semimonthly</div> <div style="background-color: #0056b3; color: white; padding: 2px 10px; display: inline-block;">Monthly</div> <div style="background-color: #0056b3; color: white; padding: 2px 10px; display: inline-block;">Bimonthly</div> </div> <div style="background-color: #0056b3; color: white; padding: 2px 10px; display: inline-block; margin-top: 10px;">Confirm Edit</div> </div>
--	--

UC03 Name:	Creating/Altering/Deleting Patient Medical History
Description:	Allowing a healthcare provider to create a medical history for a new patient, update a patient's history, and potentially delete a patient's history in extraneous circumstances.
Actor:	Provider
Entry condition:	Actor selects the option "Edit Patient's Medical History"
Basic path:	<ol style="list-style-type: none"> 1. The system presents the actor with the options to add a patient, delete a patient, or edit an existing patient's history. <ol style="list-style-type: none"> a. Back (to previous page) b. Add Patient c. Search for Patient

	<ol style="list-style-type: none"> 2. Actor selects “Add Patient” [A01][A02] 3. System prompts for patient information: [PRO01] <ol style="list-style-type: none"> a. Back (to previous page) b. Name (Editable) c. Sex (Male/Female) d. Gender (Editable) e. Insurance Information f. Contact Information (Email, Phone) g. Guardians (People besides provider/patient who can access medical records) [BR02] h. Medical Conditions (Editable List or N/A) i. Confirm Patient 4. Actor selects “Confirm Patient” 5. Actor is taken to a confirmation screen and both the actor and patient receive a confirmation email detailing the creation of the patient history. Patient History started. 6. Actor is prompted with the “Home” button to return to the home screen.
Alternative paths:	[A01] Actor selects “Search for Patient” <ol style="list-style-type: none"> 1. Actor is prompted for a password. [E02][BR01] 2. Actor is prompted by system for input: <ol style="list-style-type: none"> a. Name (Editable) b. Search 3. Actor selects “Search” 4. List of patients with that name is presented to the actor, general patient info is also presented to differentiate patients (Sex, age, etc.) 5. Actor selects the patient, patient information and history is shown: [PRO01] <ol style="list-style-type: none"> a. Back (to previous page) b. Name (Editable) c. Gender (Male/Female) d. Insurance Information e. Contact Information (Email, Phone) f. Guardians (People besides provider/patient who can access medical records) [BR02]

	<ul style="list-style-type: none">g. Medical Conditions (Editable List or N/A)h. Notes (Editable)i. Medical History (Editable)j. Undok. Confirm Editsl. Delete Patient <ul style="list-style-type: none">6. Actor edit/adds information then selects “Confirm Edits” [A02][A04]7. Actor is prompted with “Are you sure you want to save these changes?” [BR03]<ul style="list-style-type: none">a. YESb. NO8. Actor selects “YES”. [A03]9. Changes are saved, and the actor is taken back to the patient information page.10. For one week after the changes, selecting the undo button reverts the patient history to the previous iteration. After that week the previous iteration is deleted. [BR04] <p>[A02] Actor selects “Delete Patient”</p> <ul style="list-style-type: none">1. Actor is prompted for a password again. [E02][BR01]2. Actor is prompted with “Are you sure you want to delete this patient?” [BR03]<ul style="list-style-type: none">a. YESb. NO3. Actor selects “YES” [A03]4. Actor receives a confirmation email that patient history will be deleted in ONE WEEK. Patient history has text input at the top: “PATIENT FILE WILL BE DELETED ON _____. SELECT UNDO TO CANCEL DELETION”. [BR04]5. Changes are saved, and the actor is taken back to the patient information page. <p>[A03] Actor selects “NO”</p> <ul style="list-style-type: none">1. Actor is taken back to patient information. <p>[A04] Patient selects “Undo”</p>
--	--

	<div>1. Patient history is reverted back to the previous iteration, and any cancel requests are removed. [E03]</div> <div>2. Changes are saved, and the actor is taken back to the patient information page.</div>																				
Exception paths:	<div>[E01] No Patient matching that query</div> <div>1. Alert the actor and prompt for input again.</div> <div>[E02] Incorrect password</div> <div>1. Alert user to try again, if incorrect password is input three times, lock user out of the program.</div> <div>[E03] Over one week has passed, there is nothing to undo.</div> <div>1. Return the actor to the patient information screen.</div>																				
Business Rules:	<div>[BR01]</div> <div>1. Only authorized individuals can edit or view the patient files. This constitutes that a provider has some kind of “Admin” password.</div> <div>[BR02]</div> <div>1. The patient or their legal guardian has the right to view the said files at any time and any location.</div> <div>[BR03]</div> <div>1. Deleting or modifying any patient information must have a double-check, where the user has to verify their choice.</div> <div>[BR04]</div> <div>1. To prevent data loss, providers are able to “undo” a change or deletion in the case of a mistake or accident.</div>																				
Data description	<table><tr><th>Name</th><th>Type</th><th>Length</th><th>Mask</th><th></th></tr><tr><td>Name</td><td>String</td><td>50</td><td>-</td><td></td></tr><tr><td>Gender</td><td>String</td><td>6</td><td>- Male - Female</td><td></td></tr><tr><td>Insurance</td><td>String</td><td>200</td><td>-</td><td></td></tr></table>	Name	Type	Length	Mask		Name	String	50	-		Gender	String	6	- Male - Female		Insurance	String	200	-	
Name	Type	Length	Mask																		
Name	String	50	-																		
Gender	String	6	- Male - Female																		
Insurance	String	200	-																		

Email	String	50	XXXXXX@XXX.XXX	
Phone	String	12	XXX-XXX-XXXX	
Guardians	String[]	50/Entry	Maximum 5 Guardians	
Medical Conditions	String[]	100/Entry	-	
Notes	String[]	200/Entry	-	
Medical History	String[]	500/Entry	-	

[PRO01]

Name

John Doop

Gender

Male ▼

Male

Female

Insurance information

xx-xxxx-xx

Blue Cross

Contact Information

Email xxx@xx.com

Phone (xxx)xxx-xxxx

Guardians

Mom – xxx.xxx.xxx

Lives with patient

Medical Conditions

Peanut allergy

Claustrophobia

⊕ Add Condition

Recent Notes

• [Handwritten note 1]

• [Handwritten note 2]

• [Handwritten note 3]

[Handwritten note 4]

[Handwritten note 5]

[Handwritten note 6]

[Handwritten note 7]

[Handwritten note 8]

Undo

Confirm

Delete Patient

--	--