



COMSATS University Islamabad (CUI)

**Software Requirement Specification
(SRS DOCUMENT)**

for

BreathEX

Version 1.0

By

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Comments (by committee) *include the ones given at scope time both in doc and presentation	Action Taken

Supervised by
Supervisor's Name

Signature_____

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1. Introduction

1.1 Purpose

The product that we are going to built is BreathEx, which will help the patient to detect diseases like tuberculosis,covid, pneumonia by scanning x-rays of the patient using ML. There are various other functionalities in our application such as chatbot,infobox, medicine reminder, application feedback, ,prescription,report generation and management. This application will be helpful for both patient and doctor in order to manage patients record and help the doctor in curing the disease(tuberculosis, pneumonia, covid). Image processing and x-rays detection will be the prime focus of our work.

1.2 Scope

The application would be designed to analyze chest X-rays to detect signs of TB, COVID-19, and pneumonia. The application would use machine learning algorithms, such as deep learning and computer vision, to accurately diagnose the diseases based on the features identified in the X-rays. The application would be trained on a large dataset of chest X-rays, annotated with ground truth labels, to increase its accuracy in detecting the diseases. The application could be integrated with existing healthcare systems to support healthcare professionals in making prompt and accurate diagnoses. The application would have an intuitive user interface for healthcare professionals to easily access and use the system. The application would generate reports that provide information on the diagnosis, including visualizations of the X-rays and the results of the analysis. The application would be validated using appropriate metrics, such as sensitivity, specificity, and accuracy, to ensure its accuracy in detecting TB, COVID-19, and pneumonia. First of all user(patient) enter the system by login into the system. The system will display list of all the diseases available in the system. After that user(patient) can select a disease to detect. Then system will display result of detection and display a report of disease with which user is suffering from. These reports will assist the doctors in proceeding the treatment of the patient. Then system will recommend medical suggestion to user for cure of disease for time being. User(patient) can also set alarms for taking medicine at specific time and days. The system can detect three major diseases which include covid 19 ,pneumonia, tuberculosis . Tuberculosis is detected with the analysis on x-rays which can achieved through ML by gathering datasets of different patients. The system is also capable of detecting COVID by analyzing X-rays of patients through ML. The system will give optimal result.

1.3 Modules

Module 1.3.1: Patient Profile Management

FE-1:-This module will allow patients to perform all the tasks related to their profiles such as giving his/her basic information which include id, name, address, phone number, birthdate, blood group.

FE-2:-This module will allow patient to select doctor from list of doctor available in system .

Module 1.3.2: Doctor Profile Management

FE-1:-This module will allow the doctor to login to system by providing his login credentials.

FE-2:- This module will allow doctor to manage his profile by providing his/her basic information and perform all the tasks related to their profiles

Module 1.3.3: Admin

FE-1:- This module will handle number of patients and can access patient id like edit, remove, update etc.

FE-2:- This module will handle number of doctor and can access doctor id like edit, remove, update etc

FE-3:- This module will handle patient name and disease with which he/she is suffering from.

Module 1.3.4: COVID Detection

FE-1: Analyze the x-ray of the patients.

FE-2: Detecting and identifying covid by matching the x-ray of the patient with the x-ray present in the datasets through ml.

FE-3: Generate the report of a patient suffering from covid and send it to doctor.

Module 1.3.5: Tuberculosis Detection

FE-1: Analyze the x-ray of the patients.

FE-2: Detecting and identifying tuberculosis by matching the x-ray of the patient with the x-ray present in the datasets through ml.

FE-3: Generate the report of a patient suffering from tuberculosis and send it to doctor.

Module 1.3.6: Pneumonia Detection

FE-1: Analyze the x-ray of the patients.

FE-2: Detecting and identifying pneumonia by matching the x-ray of the patient with the x-ray present in the datasets through ml.

FE-3: Generate the report of a patient suffering from pneumonia and send to doctor.

Module 1.3.7: Chabot

FE-1: Allow patient to send messages to the system which is an AI providing disease consultation.

FE-2: Allow the patient to give all the answers to his/her queries on the breath-related disease.

Module 1.3.8: Info box

FE-1: Give info about a breath-related disease like symptoms, precautions, cure, and suggestions.

Module 1.3.9: App Feedback

FE-1:-This module will allow doctor to give feedback about application performance.

FE-2: This module will allow patient to give feedback about application performance.

Module 1.3.10: Medicine Reminder:

FE-1:-Patient can set alarms for desired medicines at specific time and days.

Module 1.3.11 Prescription:

FE-1: Doctor can upload the prescription after seeing the report

FE-2:Patient can view uploaded Prescription

Module 1.3.12: Report generation and Management

FE-1: Generate a full fledged report depending on the outcome of Machine Learning techniques used on the x-ray scan

FE-2: This module will also manage all the reports that include uploading the report on the respective patient profile.

1.4 Overview

The purpose of this document is to provide a comprehensive system specification and functionality. A graphical representation of the user's and the system's perspectives, respectively, are provided in the use case and system context diagram for the project overview. In addition, an event response table, detailed use cases, and functional requirements provide the comprehensive details. Non-functional needs are further explained in this document; standards, both qualitative and quantitative, and requirements for external interfaces.

2. Overall Description

This section presents a high-level overview of the product and the environment in which it will be used, the anticipated users, and known constraints, assumptions, and dependencies.

2.1 Product Perspective

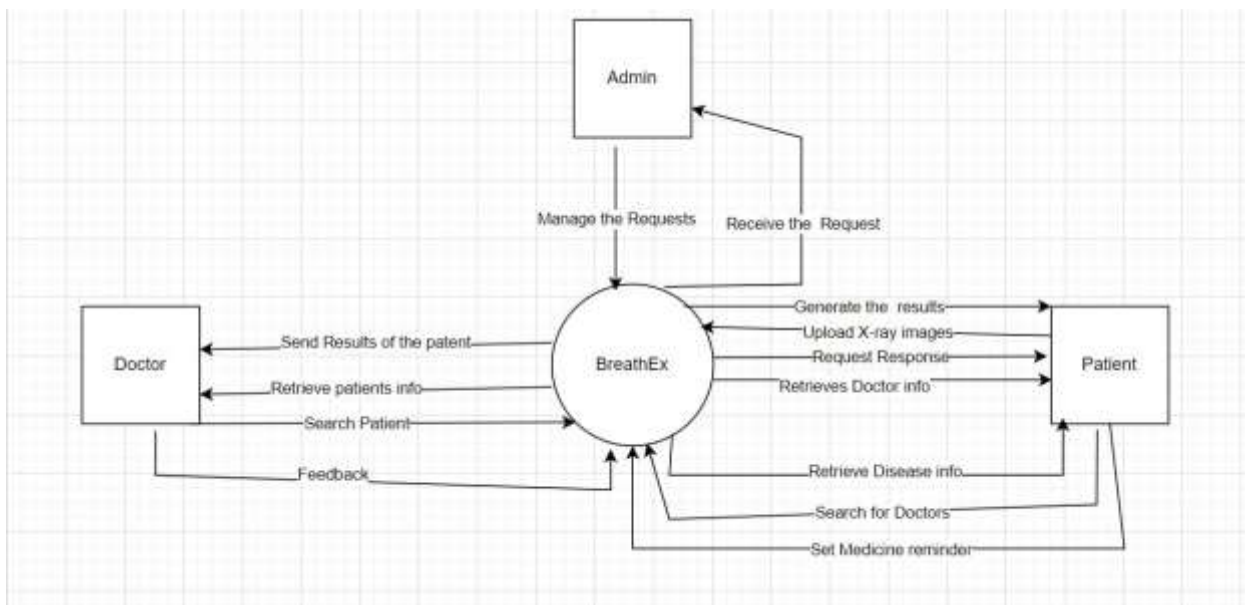


Figure 1: Context Diagram

2.2 User classes and characteristics

Table 1 Shows user classes and characteristic for BreathEx

User class	Description
Patient	A patient is a person who can check if he/she is suffering from COVID,TB or Pnuemonia by viewing the result of detection. Patient can also set medicine reminder to take medicines at specified intervals.Patient can detect COVID,TB and pneumonia by using this application.Patient can view the prescription which he receives from doctor.Patient must upload his x-ray report and images in order to detect disease.Patient can also give feedback about application like if he/she is satisfied with the application and provide rating. Patient can also view diagnose result.
Doctor	Doctor job is to edit patient profile and view patient profile.Doctor can also write prescription corresponding to patient report which he receives when patient detect any disease. Doctor can also provide feedback about application like if he/she is satisfied with the application and provide rating. Doctor can also view diagnose result.
Admin	Admin's job is to verifying and managing requests from the doctors and students for their account creation. The admin will also be responsible for his profile management like view and delete profile.The admin have also access to view doctor and patient profile like no of patients his medical history etc.

2.3 Operating Environment

OE-1: The BreathEx system shall operate with IOS device

OE-1:The BreathEx system shall operate with android device.

OE-1:The BreathEx system shall use mongodb database.

2.4 Design and Implementation Constraints

CON-1: The system shall use the current corporate standard mongodb/firebase database engine

CON-2: The mobile app frontend shall be built using Flutter.

CON-3: The mobile app frontend shall be built using node js.

CON-3: All textual data used by the application shall be stored in the form of XML files.

3. Requirement Identifying Technique

3.1 Use Case Diagrams:

3.1.1 Patient Usecase Diagram:



Fig 1: Patient Usecase

3.2.2 Admin Usecase Diagram:

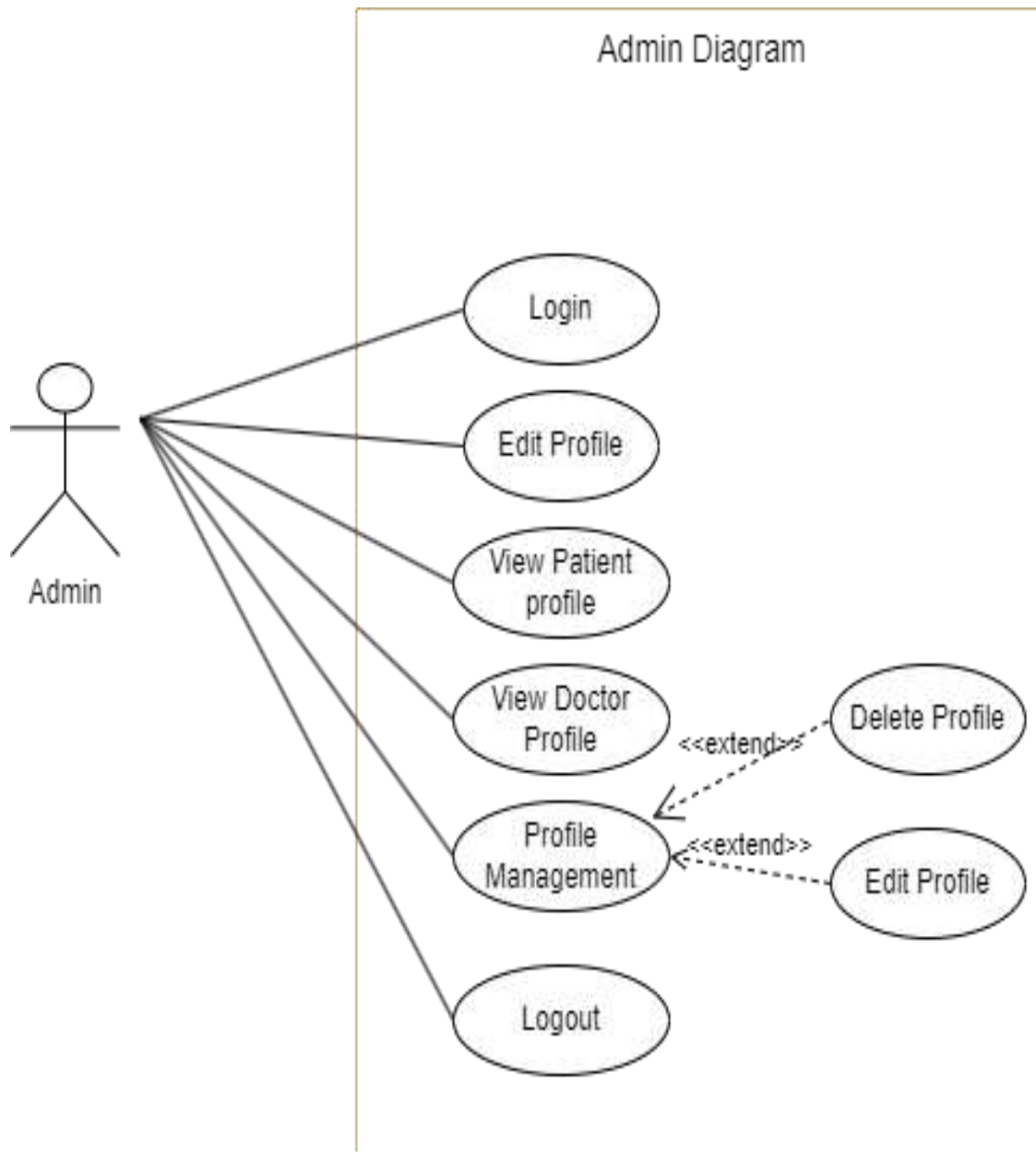


Fig 2: Admin Usecase

3.1.2 Doctor Usecase Diagram:

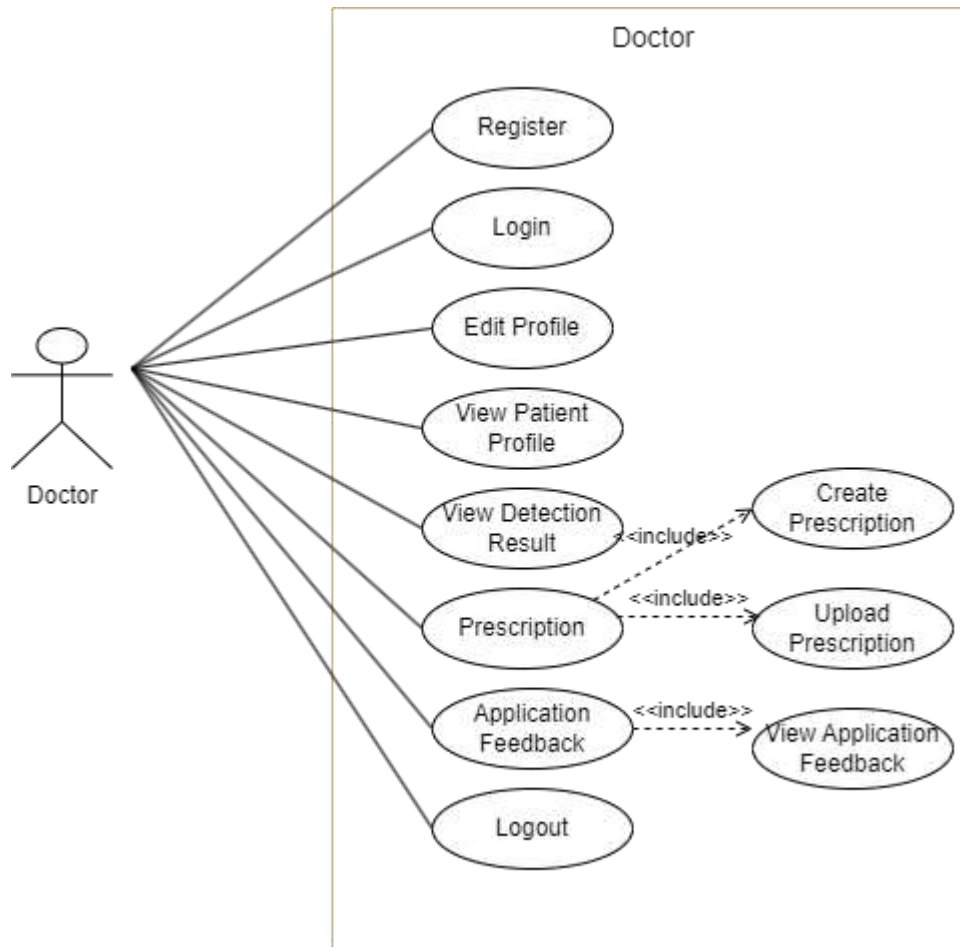


Fig 3: Doctor Usecase

3.2 Detailed Use case:

3.2.1 Admin:

AUC-1: Login

In this use case, the admin logs in to the system to access its features.

Actors:	Primary Actors: Admin
Trigger:	Admin enters the login credentials i.e. username/email and password and presses enter.
Preconditions:	PRE-1: Admin is connected to internet. PRE-2: Admin have valid login credentials.
Postconditions:	POST-1: Admin logs into the system successfully. POST-2: The administrator has access to the various app features.
Normal Flow:	1.0 Login 1. Admin navigates to login page and enters his/her email/username and password. 2. System validates admin login's credentials. 3. If the login credentials are valid, system logs the admin into the system and redirect them to their dashboard.
Alternative Flows:	a) In step 1 of normal flow if login details entered by the admin are invalid: 1. System displays an error message. 2. Admin corrects the details. 3. Admin is logged into the system successfully.
Exceptions:	N/A
Business Rules	N/A
Assumptions:	N/A

Table 1: Login Use Case

AUC-2: Edit Profile

In this use case admin edit his profile information.

Actors:	Primary Actors: Admin
Trigger:	Admin indicates that he/she wants to edit his/her profile and taps the application icon on the mobile device.
Preconditions:	PRE-1: Admin is connected to the internet. PRE-2: Admin is logged into the system and has an existing profile.
Postconditions:	POST-1: Admin edits his/her profile information. POST-2: Admin profile information is updated in the database and displayed on their profile page. POST-3: The system generates log of the admin's profile changes

Normal Flow:	1.0 Edit Profile 1. Admin navigates to their profile page. 2. Admin selects the “Edit profile” button. 3. Admin makes changes to their profile (e.g. name,email,profile picture). 4. Admin saves the changes. 5: System confirms that the profile information has been updated successfully. 6. Admin is redirected back to their profile page with the updated information.
Alternative Flows:	a) If in the step 4 of normal admin decides not to save changes and Tap on the “Cancel” button then: 1. System return the admin to their profile Screen without updating any information
Exceptions:	1.0. E1 System validates the changes that are being made and updates the database. 2.0. E2 System authenticates the valid information is being entered by the admin.
Business Rules	N/A
Assumptions:	N/A

Table 2: Edit Profile Usecase

AUC-3: View Patient Profile

In this usecase system allows admin to view the registered profile patient

Actors:	Primary Actors: Admin
Trigger:	Admin indicates that he/she wants to view patient profile.
Preconditions:	PRE-1: Admin is connected to internet. PRE-2: Admin has logged into the system.
Postconditions:	POST-1: Admin can view the profile of patients.
Normal Flow:	1.0 View Patient Profile 1. Admin taps on view patient profile. 2. Admin navigates to patient profile. 3. Admin views the patient medical record, disease and detection results,treatments etc. 4.Admin also views patient personal information 5. Admin logs out of the system
Alternative Flows:	N/A
Exceptions:	N/A
Business Rules	N/A
Assumptions:	N/A

Table 3: View Patient Profile UseCase

AUC-4: View Doctor Profile

The usecase enables an admin to view a profile of a doctor. The user can search for the doctor by name or specialty and then view the doctor's profile.

Actors:	Primary Actors: Admin
Trigger:	Admin indicates that he/she wants to view doctor profile.
Preconditions:	PRE-1: Admin is connected to internet. PRE-2: Admin has logged into the system.
Postconditions:	POST-1: The admin has successfully viewed the doctor's profile. POST-2: The system has recorded the admin's action.
Normal Flow:	1.0 View Doctor's Profile 1. Admin navigates to the "Search Doctors" page. 2. The admin enters the name or specialty of the doctor they wish to view. 3. System displays a list of doctors matching the search criteria. 4. Admin selects the desired doctor from the list. 5. System displays the doctor's profile, which includes their name, specialty, education, experience, and contact information. 6. The admin views the doctor profile. 7. The admin logs out of the system.
Alternative Flows:	a) If the admin enters an invalid search query then: 1. System displays error message. 2. Admin corrects the search query. 3. System displays doctor profile. 4. Admin views doctor profile.
Exceptions:	1.0 E1 If the system is not accessible or functional, the user is unable to view the doctor's profile 2.0 E2 If the user does not have the necessary permission to view doctor profiles, the system denies access and displays an error message.
Business Rules	BR-1: The admin can only view the profile of registered doctors. BR-2: The admin must be logged in to the system to view a doctor's profile.
Assumptions:	1. The admin has a reliable internet connection. 2. The system is accessible and functional. 3. The admin has the necessary permissions to view doctor profiles.

Table 4: View Doctor Profile Use Case

AUC-5 Profile Management

In this usecase, an admin can edit and delete the profile of a user i.e. Doctor and patient.

Actors:	Primary Actors: Admin
Trigger:	Admin wants to manage the profile of patient. Admin wants to manage the profile of doctor.
Preconditions:	PRE-1: Admin is connected to internet. PRE-2: Admin is logged into the system. PRE-3: Admin has necessary permission to manage doctor and patient profile.

Postconditions:	POST-1: Admin can edit the profile of the patient and doctor. POST-2: Admin can delete the profile of the patient and doctor.
Normal Flow:	1.0 Profile management 1. Admin navigates to profile management page. 2. Admin taps on manage patient profile option. 3. Admin searches for the profile of patient. 5. System displays the results. 6. Admin can view the profile of patient. 7. Admin can edit the patient's profile. 8. Admin can delete the patient's profile. 9. Admin returns to the home page. b) For doctor 1. Admin navigates to profile management page. 2. Admin taps on manage doctor profile option. 3. Admin searches for profile of doctor. 5. System displays the result. 6. Admin can view the profile of doctor. 7. Admin can edit the doctor's profile. 8. Admin can delete the doctor's profile. 9. Admin returns to the home page.
Alternative Flows:	a) If the admin enter invalid information while editing doctor and patient profile then: 1. System displays an error message. 2. System prompts administrator to try again. 3. Admin corrects the information 4. System updates the patient and doctor profile
Exceptions:	1.0.E1 If the system is not accessible or functional, the administrator is unable to manage patient and doctor profile
Business Rules	BR-1: The admin must be login to system to use profile management feature
Assumptions:	N/A

Table 5: Profile Management Use Case

AUC-6: Logout

In this usecase admin can logout from the system

Use Case ID:	AUC-6
Actors:	Primary Actors: Admin
Trigger:	Admin wants to logout from the system.
Preconditions:	PRE-1: Admin is connected to internet. PRE-2: Admin has logged into the system.
Postconditions:	POST-1: Changes made into his/her account are saved. POST-2: Admin is logged out from the system.
Normal Flow:	1.0 Logout 1. Admin taps on "Logout" option. 2. System displays the message of confirmation to log out.

	3. Admin taps on “Yes” option. 4. Changes are saved. 5. Admin is logged out of system and no longer access to their account until they log in again.
Alternative Flows:	1. Admin taps on the “Logout” option. 2. System displays the message that the changes made by the patient should be saved or not. 3. Admin taps on “Yes” option. 4. Changes are saved. 5. Admin is logged out of system and no longer access to their account until they log in again..
Exceptions:	E0 In the step 3 of alternative flow: 1. Admin taps on “No” option. 2. Changes are not saved by the system. 3. Admin logs out.
Business Rules	N/A
Assumptions:	N/A

Table 6: Logout Use Case

3.3.2 Doctor

DUC-1: Register

In this use case, the doctor enters the information required by the system to create an account.

Actors:	Primary Actors: Doctor
Trigger:	Doctor indicates that he/she wants to register to use app features.
Preconditions:	PRE-1: Doctor is connected to internet. PRE-2: Doctor has active and valid email address and password.
Postconditions:	POST-1: Doctor’s information will be verified. POST-2: Doctor receives confirmation message and access to the account.
Normal Flow:	1.0 Register 1. Doctor enters name. 2. Doctor enters the email address. 3. Doctor enters his/her clinic address. 4. Doctor enters the phone number. 5. Doctor enters username. 6. Doctor enters the password. 7. Doctor re-enters the password to confirm. 8. System checks availability of username. 9. System authenticates. 10. Account Registered Successfully.
Alternative Flows:	In step 2 of normal flow if email entered by the doctor is invalid then: 1. The System checks the email. 2. System will prompt doctor to correct the email.

	3. Doctor corrects the email. 4. Account registered successfully. In step 4 of normal flow if the username entered by the doctor is already existing then: 1. The system checks the username. 2. System will prompt doctor to enter a unique username. 3. Doctor re-enters the username. 4. Account registered successfully.
Exceptions:	N/A
Business Rules	The Doctor's information should be kept strictly confidential and secure
Assumptions:	N/A

Table 7: Register Account UseCase

DUC-2: Edit Profile

In this usecase doctor logs into his/her account and edit his/her profile information.

Actors:	Primary Actors: Doctor
Trigger:	Doctor enters login credentials i.e., username/email and password etc. and presses enter.
Preconditions:	PRE-1: Doctor is connected to internet. PRE-2: Doctor has already a registered account.
Postconditions:	POST-1: Doctor successfully logs into the system. POST-2: Doctor edit his/her account information.
Normal Flow:	1.0 Edit Profile 1. Doctor is logged into his/her profile successfully. 2. System validates the details of doctor. 3. Doctor taps on “Edit Profile” option. 4. Doctor edits his/her account information. 5. Doctor taps on “submit” button. 6. System updates the profile of doctor.
Alternative Flows:	In step 4 of normal flow if doctor enter : 1. Doctor makes the desired changes to their profile information. 2. Doctor attempts to change their email address, but it is already associated with another account. 3. The system displays an error message informing the doctor that the email address is already in use and prompts them to enter a different email address. 4. Doctor enters a new email address and confirms the changes. 5. The system updates the doctor's profile information and displays a confirmation message.
Exceptions:	System validates the changes that are being made and updates the database. System authenticates the valid information is being entered by the doctor.
Business Rules	BR-1: Only those who have a registered account should be allowed to edit their account information. BR-2: User can not edit his/her username.
Assumptions:	N/A

Table 8: Edit Profile Usecase

DUC 3: View Patient Profile

In this usecase doctor log in into his/her account and can view the profile of patient

Actors:	Primary Actors: Doctor
Trigger:	Doctor wants to view the patient's profile.
Preconditions:	PRE-1: Doctor has active internet connection. PRE-2: Patient's account must be registered in the system
Postconditions:	POST-1: Doctor can see the profile of patient.
Normal Flow:	1.0 View Patient Profile 1. Doctor logs in to the system. 2. Doctor's profile is authenticated by system. 3. Doctor taps on the "view patient profile". 4. Patient's profile information is visible to the doctor
Alternative Flows:	1.1. In step 2 of normal flow if the doctor is already logged in: 1. Doctor can view the profile of patient by searching his/her name.
Exceptions:	N/A.
Business Rules	N/A
Assumptions:	N/A

Table 9: View Patient Profile Usecase

DUC-4: View Detection result

In this usecase doctor uploads the x-ray of patient and view the results generated by system.

Actors:	Primary Actors: Doctor
Trigger:	Doctor wants to view the detection result of disease detected by patient.
Preconditions:	PRE-1: Doctor has active internet connection. PRE-2: Doctor is logged into the system. PRE-3: X-ray image is successfully uploaded to the system. PRE-4: The detection process must have been completed.
Postconditions:	POST-1: Doctor can view the results of the detection process.
Normal Flow:	1.0 View Detection Result 1. The doctor navigates to the "View Detection Result" page. 2. Doctor selects the view detection result . 3. The system retrieves the results from database and displays them to doctor. 4. Doctor can view the results and analyze them as needed.
Alternative Flows:	N/A
Exceptions:	1.0 E1 If the detection process fails then: 1.1. An error message will be displayed. 2.0 E2 If the doctor doesnot have necessary permission then: 1.2. An access denied message will be displayed. 3.0 E3 If the result are not available or outdated then:

	1.3. A notification will be displayed to inform the user.
Business Rules	BR-1: The doctor must have the necessary permission to view the results. BR-2: The results must be up to date.
Assumptions:	N/A

Table 10: View Detection result Usecase

DUC- 5: Create Prescription

In this usecase doctor creates prescription for the patient

Actors:	Primary Actors: Doctor
Trigger:	Doctor indicates that he/she wants to create prescription
Preconditions:	PRE-1: Doctor is connected to internet. PRE-2: Doctor is logged into the system. PRE-3: Patient has send the x-ray report to doctor as a result of detection. PRE-4: The doctor has knowledge of the patient's medical history and current condition.
Postconditions:	POST-1: Prescription is recorded in the patient's medical record. POST-2: The patient receives the medication as prescribed.
Normal Flow:	1.0 Create Prescription 1. Doctor taps on "Create prescription" option 2. Doctor selects the pateint's medical record from the system. 3. Doctor views the patient's medical history and current condition. 4. The doctor selects the medication to be prescribed and enters the required dosage, frequency, and route of administration. 5. The doctor verifies that the prescription contains all required information. 6. The doctor writes the prescription.
Alternative Flows:	a) If the prescription is missing required information, then: 1. Doctor is prompted to enter the missing information. 2. Doctor enter missing information. 3. Doctor writes the prescription. b) If the prescription contains incorrect information, then: 1. System prompt the doctor to correct it. 2. Doctor corrects the prescription. 3. Doctor writes the prescription.
Exceptions:	N/A.
Business Rules	N/A
Assumptions:	N/A

Table 11: Create Prescription Usecase

DUC-6: Upload Prescription

In this usecase doctor logs in into his/her account uploads prescription for the patient.

Actors:	Primary Actors: Doctor
----------------	------------------------

Trigger:	Doctor indicates that he/she wants to upload prescription.
Preconditions:	PRE-1: Doctor has active internet connection. PRE-2: Doctor is logged into the system. PRE-3: Patient has send the x-ray report to doctor as a result of detection.
Postconditions:	POST-1: Prescription is sent to the patient. POST-2: Patient is notified.
Normal Flow:	1.0 Upload Prescription 1. Doctor creates prescription. 3. Doctor saves the data. 4. Doctor uploads it to the patient's profile. 5. Doctor is notified by the confirmation message. 6. Patient is notified about the prescription. 7. Doctor redirects to the home display.
Alternative Flows:	N/A
Exceptions:	N/A.
Business Rules	N/A
Assumptions:	N/A

Table 12: Upload Prescription Usecase

DUC-7: Give Application Feedback

In this usecase doctor logs in into his/her account and provide feedback about application

Actors:	Primary Actors: Doctor
Trigger:	Doctor indicates that he/she wants to give feedback about application.
Preconditions:	PRE-1: Doctor has active internet connection. PRE-2: Doctor is logged into the system. PRE-3: Doctor must have an active application to provide feedback on
Postconditions:	POST-1: The doctor's feedback is recorded in the system and can be viewed by the application owner. POST-2: The doctor will receive a confirmation message that their feedback was received
Normal Flow:	1.0 Give Application Feedback 1. Doctor write feedback about application performance. 2. Doctor taps on "submit feedback" option. 3. The doctor's feedback is recorded in the system and can be viewed by the application owner. 4. The doctor will receive a confirmation message that their feedback was received.
Alternative Flows:	N/A
Exceptions:	E0 In step 1 of normal flow if the doctor has already submitted irrelevant feedback then: 1. System will display an error message. 2. System will prompt doctor to provide feedback relevant to the application.

	<p>E1 In step 2 of normal flow if the feedback contain profanity and offensive language then:</p> <ol style="list-style-type: none"> 1 System will display error message. 2 System will prompt doctor to edit the feedback. <p>E2 In step 2 of normal flow if the feedback is unrelated to application then:</p> <ol style="list-style-type: none"> 1. System will display error message. 1. System will prompt doctor to provide relevant feedback to application.
Business Rules	<p>BR-1: Feedback can only be submitted once per user per application.</p> <p>BR-2: Feedback must be at least 50 characters long.</p> <p>BR-3: Profanity and offensive language will not be tolerated in the feedback.</p> <p>BR-4: Feedback must relate to the application only.</p>
Assumptions:	<ol style="list-style-type: none"> 1 It is assumed that the doctor has provided honest and accurate feedback. 2 It is assumed that the doctor will provide feedback that is relevant to the application only. 3 It is assumed that the doctor will enter feedback that is constructive and helpful.

Table 13: Give Application Feedback Usecase

DUC-8: View Application Feedback

In this usecase doctor logs in into his/her account and can view feedback about the system.

Actors:	Primary Actors: Doctor
Trigger:	Doctor indicates that he/she wants to view application feedback.
Preconditions:	<p>PRE-1: Doctor has a registered account.</p> <p>PRE-2: Doctor is logged in.</p>
Postconditions:	POST-1: Doctor view feedback about the application
Normal Flow:	<p>1.0 View Application Feedback</p> <ol style="list-style-type: none"> 1. Doctor taps on feedback option. 2. System displays a text filed. 3. Doctor types his/her reviews. 4. Doctor submits the reviews. 5. Doctor can view the feedback he/she provided
Alternative Flows:	N/A
Exceptions:	N/A
Business Rules	N/A
Assumptions:	Doctor is satisfied with the service and leaves good review/feedback about the system.

Table 14: View Application Feedback Usecase

DUC-9: Logout

In this usecase doctor can logout from the system

Actors:	Primary Actors: Doctor
Trigger:	Doctor wants to logout from the system.
Preconditions:	PRE-1: Doctor is logged into the system. PRE-2: Doctor has active internet connection.
Postconditions:	POST-1: Changes made by doctor in his/her account are saved. POST-2: Doctor is logged out from the system
Normal Flow:	1.0 Logout 1. Doctor taps on “Logout” option. 2. System prompts the message of confirmation to log out. 3. Doctor taps on “Yes” option. 4. Doctor is logged out successfully.
Alternative Flows:	1. Doctor taps on “Logout” option. 2. System prompts the message that the changes made by the doctor should be saved or not. 3. Doctor taps on “Yes” option. 4. Changes are saved 5. Doctor is logged out successfully.
Exceptions:	E0 In the step 3 of alternate flow: 1. Doctor taps on “No” option. 2. Changes are not saved by the system. 3. Doctor logs out.
Business Rules	N/A
Assumptions:	N/A

Table 15: Logout Account Usecase

1.3.3 Patient

PUC-1: Register

In this usecase for creating an account, the patient will enter the information requested by the system

Actors:	Primary Actors: Patient
Trigger:	Patient taps on “Register” button.
Preconditions:	PRE-1: Patient has active internet connection. PRE-2: Patient has a active email/patient_id and password.
Postconditions:	POST-1: Patient’s information will be verified. POST-2: Patent receives confirmation message and access to the account.
Normal Flow:	1.0 Register 1. Patient enters name. 2. Patient enters email address. 3. Patient enters the phone number. 4. Patient enters the username. 5. Patient enters a password. 6. Patient re-enters the password to confirm.

	7. System checks availability of username. 8. System authenticates. 9. Account registered successfully.
Alternative Flows:	a) In step 2 of normal flow if email/patient_id entered by the patient is invalid then: <ol style="list-style-type: none"> 1. System checks the email. 2. System checks the email. 3. System will prompt patient to correct email. 4. Patient corrects the email. 5. System authenticates. 6. Account registered successfully. b) In step 5 of normal flow if the password entered by the patient is invalid then: <ol style="list-style-type: none"> 1. System will prompt patient to correct password. 2. System will prompt patient to enter a unique password. 3. Patient re-enters the password. 4. System authenticates. 5. Account registered successfully.
Exceptions:	N/A
Business Rules	BR-1: Patient's information should be kept strictly confidential and secure.
Assumptions:	N/A

Table 16: Register Account Usecase

PUC-2: Login

In this usecase patient login and access the system features

Actors:	Primary Actors: Patient
Trigger:	Patient wants to login to system.
Preconditions:	PRE-1: Patient has active internet connection. PRE-2: Patient has already a registered account.
Postconditions:	POST-1: Patient logs into the system successfully. POST-2: Patient accesses the different app functionalities.
Normal Flow:	1.0 Login <ol style="list-style-type: none"> 1. Patient enters patient_id and password. 2. System checks for detail of patient. 3. Patient taps on "Login" option 4. Patient is logged in successfully.
Alternative Flows:	a) In step 1 of normal flow if login details entered by the patient are invalid: <ol style="list-style-type: none"> 1. System prompts the error message. 2. Patient corrects the details. 3. Patient is logged into the system successfully.
Exceptions:	<ol style="list-style-type: none"> 1. System checks for an email in first step of the normal flow 2. Password authentication in the system's database. E1 If the email address is accurate but the password is incorrect then: <ol style="list-style-type: none"> 1. System will prompt the patient to enter the password again. E2 If the password entered by the patient is correct but the email address is invalid then: <ol style="list-style-type: none"> 1. System asks the patient to provide a valid email address.

	E3 If the system does not recognize both the email address and the password, then: 1. Patient is required to re-enter both.
Business Rules	BR-1: Only those patients who have a registered account should be allowed to use the system's features.
Assumptions:	N/A

Table 17: Login Account Usecase

PUC-3: Edit profile

In this usecase patient log into his/her account and taps on edit profile option to enter his/her profile information.

Actors:	Primary Actors: Patient
Trigger:	Patient indicates that he/she wants to edit his/her profile.
Pre-conditions:	PRE-1. Patient has an active internet connection. PRE-2. Patient is logged in into their account.
Post-conditions:	POST-2: Patient edits the account information. POST-2: Changes in patient profile are saved.
Normal Flow:	1.1 Edit Profile 1. Patient taps on edit profile button. 2. Patient profile information will be displayed where all the fields will be editable. 3. Patient makes changes. 4. Patients taps on save changes button. 5. Confirm changes dialog box appear. 6. Patient taps on yes option. 7. The system saves the changes and a profile updated message is displayed.
Alternative Flows:	In step 3 of normal flow if doctor enter : 1. Doctor makes the desired changes to their profile information. 2. Doctor attempts to change their email address, but it is already associated with another account. 3. The system displays an error message informing the doctor that the email address is already in use and prompts them to enter a different email address. 4. Doctor enters a new email address and confirms the changes. The system updates the doctor's profile information and displays a confirmation message.
Exceptions:	1.0. E1 Doctor/Student enters invalid information and taps on submit. 1. Invalid credentials please enter again dialogue box will be displayed. 2. Doctor/Student enters valid information and taps on submit button. 3. Resume form step 6 of normal flow.
Business Rules	1. Only those patients who have a registered account should be allowed to edit their account information. 2. Patient cannot edit his/her username.
Assumptions:	N/A

Table 18: Edit Profile Usecase

PUC-4: Covid Detection

In this usecase patient logs into his/her account, taps on the COVID detection option to check if they have COVID positive or not and level of disease .

Actors:	Primary Actors: Patient
Trigger:	Patient wants to use Covid detection from dashboard.
Preconditions:	PRE-1: Patient is logged in. PRE-2: Patient has active internet connection.
Postconditions:	POST-1. System will display result of COVID detection along with report to patient and send one copy of report to doctor.
Normal Flow:	1.0 COVID Detection 1. Patient taps on the COVID detection option. 2. Patient provide his/her x-ray image and x-ray report by uploading. 3. Patient taps on the detect disease option. 4. System analyzes the patient's data and determines if they are at risk for COVID through ML. 5. System displays that is a patient is Covid positive or not. 6. System shows at which level of Covid patient is.
Alternative Flows:	1.1 if the patient is identified as being at risk for COVID 1. System displays then a recommendation for the patient to seek professional medicine advice. 2. Patient can choose to follow the recommendation or ignore it and continue using the system.
Exceptions:	1.0. E1 In step 4 of normal flow ,if the system encounters an error while analyzing the patient's responses: 1. System displays an error message and prompts user to try again. 2.0 E2 In step 2 of normal flow, if the patient x-ray image is not matched with the image in the dataset stored in database of system: 1. System displays error message and prompts the user to try again.
Business Rules	BR-1: Patient must upload image and x-ray report. BR-2: Patient's risk level is determined based on their response. BR-3: The symptom checker is not a substitute for professional medical advice. BR-4: Patient can only have one account at a time.
Assumptions:	1. Patient is using the symptom checker for informational purpose only. 2. Patient understands that the symptom checker is not a medical diagnosis. 3. System is able to produce optimal result of detection.

Table 19: Covid Detection

PUC-5: TB Dectection

In this usecase patient logs into his/her account, taps on the TB detection option to check if they have Tb positive or negative and level of disease.

Actors:	Primary Actors: Patient
Trigger:	Patient wants to detect TB option from dashboard.
Preconditions:	PRE-1: Patient is logged in. PRE-2: Patient has active internet connection.
Postconditions:	POST-1. System will display result of TB detection along with report to patient and send one copy of report to doctor.
Normal Flow:	1.0 Tuberculosis Detection 1. Patient taps on the TB detection option. 2. Patient provide his/her x-ray image and x-ray report by uploading. 3. Patient taps on the detect disease option. 4. System analyzes the patient's data and determines if they are at risk for TB through ML. 5. System displays a message showing if the patient is suffering from tb or not. 6. System shows at which level of TB patient is.
Alternative Flows:	1.1 If the patient is identified as being at risk for TB 1. System displays a recommendation for the patient to seek professional medicine advice. 2. Patient can choose to follow the recommendation or ignore it and continue using the system.
Exceptions:	1.0. E1 In step 4 of normal flow ,if the system encounters an error while analyzing the patient's responses: 1. System displays an error message and prompts user to try again. 2.0 E2 In step 2 of normal flow, if the patient x-ray image is not matched with the image in the dataset stored in database of system: 1. System displays error message and prompts the user to try again.
Business Rules	BR-1: Patient must upload x-ray image and x-ray report. BR-2: Patient's risk level is determined based on their response. BR-3: The symptom checker is not a substitute for professional medical advice. BR-4: Patient can only have one account at a time.
Assumptions:	1. Patient is using the symptom checker for informational purpose only. 2. Patient understands that the symptom checker is not a medical diagnosis. 3. System is able to produce optimal result of detection.

Table 20: TB Detection Usecase

PUC-6: Pneumonia Detection

In this usecase patient logs into his/her account taps on the pneumonia detection option to check if they have pneumonia positive or negative and level of disease .

Actors:	Primary Actors: Patient
Trigger:	Patient wants to detect pneumonia from dashboard.
Preconditions:	PRE-1: Patient is logged in. PRE-2: Patient has active internet connection.
Postconditions:	POST-1. System will display result of pneumonia detection along with report to patient and send one copy of report to doctor.
Normal Flow:	1.0 Pneumonia Detection 1. Patient taps on the pneumonia detection option. 2. Patient provide his/her x-ray image and x-ray report by uploading. 3. Patient taps on the detect disease option. 4. System analyzes the patient's data and determines if they are at risk for TB through ML. 5. System displays a message showing if the patient is suffering from tb or not. 6. System shows at which level of pneumonia patient is.
Alternative Flows:	1.1 If the patient is identified as being at risk for pneumonia 1. System displays a recommendation for the patient to seek professional medicine advice. 2. Patient can choose to follow the recommendation or ignore it and continue using the system.
Exceptions:	1.0. E1 In step 4 of normal flow ,if the system encounters an error while analyzing the patient's responses: 1. System displays an error message and prompts user to try again. 2.0 E2 In step 2 of normal flow, if the patient image is not matched with the image in the dataset stored in database of system: 1. System displays error message and prompts the user to try again.
Business Rules	BR-1: Patient must upload x-ray image and x-ray report. BR-2: Patient's risk level is determined based on their response. BR-3: The symptom checker is not a substitute for professional medical advice. BR-4: Patient can only have one account at a time.
Assumptions:	1. Patient is using the symptom checker for informational purpose only. 2. Patient understands that the symptom checker is not a medical diagnosis. 3. System is able to produce optimal result of detection.

Table 21: Pneumonia Detection Usecase

PUC-7: Medicine reminder

In this usecase patient logs into his/her account, taps on the medicine reminder option to set reminders for taking medications at specified times

Actors:	Primary Actors: Patient, System
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Trigger:	Patient wants to send medicine reminder for taking medicine.
Preconditions:	PRE-1: Patient is logged in. PRE-2: Patient has a valid account and has added medication information to their profile. PRE-3: Patient has active internet connection.
Postconditions:	POST-1: Patient receives reminders at specified times to take their medication.
Normal Flow:	1.0 Medicine Reminder 1. Patient opens the Medicine reminder option. 2. System displays a list of medication previously entered by the patient. 3. Patient selects a medication to set reminder for taking medicine at specified times. 4. System prompts patient to enter a reminder time for the selected medication. 5. Patient enters a reminder time. 6. System confirms the reminder has been set.
Alternative Flows:	1.1 If patient is not logged in then: 1. Patient log in into the system. 2. Patient opens the Medicine reminder option. 3. System displays a list of medication previously entered by the patient. 4. Patient selects a medication to set reminder for taking medicine at specified times. 5. System prompts patient to enter a reminder time for the selected medication. 6. Patient enters a reminder time. 7. System confirms the reminder has been set.
Exceptions:	1.0. E1 In step 5 of normal flow ,if the patient enter an invalid reminder time: 1. System displays an error message and prompts patient to enter a valid time. 2. System resumes form step 3 of normal flow.
Business Rules	BR-1: System must provide accurate medication information. BR-2: Patient must set reminder times for each medication. BR-3: System must accurately set reminders at specified times.
Assumptions:	1. User has valid account. 2. System is able to send reminders accurately.

Table 22: Medicine Reminder Usecase

PUC-8: View Prescription

In this usecase patient logs into his/her account to view the prescription which he/she receives from doctor.

Actors:	Primary Actors: Patient
Trigger:	Patient wants to view prescription received from doctor.
Preconditions:	PRE-1: Patient has active internet connection. PRE-2: Patient has already registered an account. PRE-3: Patient is logged in to the system.
Postconditions:	POST-1: Patient can view the prescription.
Normal Flow:	1.0 View Prescription 1. Patient receives notification of prescription sent by the doctor. 2. Patient selects the “view prescription” option. 3. System displays the prescription to the patient.

Exceptions:	N/A
Business Rules	N/A
Assumptions:	N/A

Table 23: View Prescription Usecase

PUC-9: Upload X-ray image:

In this usecase patient uploads the x-ray image of patient through the system to detect the disease

Use Case Name:	Upload x-ray image
Actors:	Primary Actors: Patient
Trigger:	Patient wants to upload x ray image to detect disease.
Preconditions:	PRE-1: Patient has already a registered account. PRE-2: Patient has active internet connection.
Postconditions:	POST-1: Patient's x-ray image is uploaded to the system.
Normal Flow:	1.0 Upload X-ray image 1. Patient log in into the system 2. Patient taps on "Upload image" option. 3. System will enable patient to choose file to upload. 4. Patient taps and chooses the file. 5. File is uploaded successfully. 6. System prompts the confirmation message.
Alternative Flows:	a) In step 1 of normal flow if patient is not logged in: 1. Patient logs into the system. 2. Patient taps on "Upload image" option. 3. System will enable patient to choose file to upload. 4. Doctor taps and chooses wrong file. 5. File is uploaded successfully. 6. Patient removes the image file. 7. System continuous from the second step of normal flow.
Exceptions:	E0 In the second step of normal flow if patient chooses incompatible image file type, then : 1. System displays the error message
Business Rules	BR-1: System shall be able to upload jpg,jpeg and png image formats.
Assumptions:	N/A

Table 25: Upload X-ray image Usecase

PUC-10: View Detection Result

In this usecase patient uploads the x-ray of patient and view the results generated by system.

Actors:	Primary Actors: Patient
Trigger:	Patient wants to view the detection result of disease detected by patient.
Preconditions:	PRE-1: Patient has active internet connection. PRE-2: Patient is logged into the system. PRE-3: X-ray image is successfully uploaded to the system.

	PRE-4: The detection process must have been completed.
Postconditions:	POST-1: Patient can view the results of the detection process.
Normal Flow:	1.0 View Detection Result 1. The doctor navigates to the “View Detection Result” page. 2. Patient selects the view detection result . 3. The system retrieves the results from database and displays them to patient. 4. Patient can view the results and download them as needed.
Alternative Flows:	N/A
Exceptions:	4.0 E1 If the detection process fails then: 1.4. An error message will be displayed. 5.0 E2 If the doctor doesnot have necessary permission then: 1.5. An access denied message will be displayed. 6.0 E3 If the result are not available or outdated then: 1.6. A notification will be displayed to inform the user.
Business Rules	BR-1: The patient must have the necessary permission to view the results. BR-2: The results must be up to date.
Assumptions:	N/A

Table 26: View Detection Result Usecase

PUC-11: Give Application Feedback

In this usecase patient logs in into his/her account and provide feedback about application

Actors:	Primary Actors: Doctor
Trigger:	Patient indicates that he/she wants to give feedback about application.
Preconditions:	PRE-1: Patient has active internet connection. PRE-2: Patient is logged into the system. PRE-3: Patient must have an active application to provide feedback on
Postconditions:	POST-1: The patient's feedback is recorded in the system and can be viewed by the application owner. POST-2: The patient will receive a confirmation message that their feedback was received
Normal Flow:	1.0 Give Application Feedback 2. Doctor write feedback about application performance. 3. The patient's feedback is recorded in the system and can be viewed by the application owner. 4. The patient will receive a confirmation message that their feedback was received.
Alternative Flows:	N/A
Exceptions:	E0 In step 2 of normal flow if the patient has already submitted the irrelevant feedback then: 3. System will display an error message. 4. System will prompt patient to provide feedback relevant to the application.

	<p>E1 In step 2 of normal flow if the feedback contain profanity and offensive language then:</p> <ol style="list-style-type: none"> 3 System will display error message. 4 System will prompt patient to edit the feedback. <p>E2 In step 2 of normal flow if the feedback is unrelated to application then:</p> <ol style="list-style-type: none"> 1. System will display error message. 2. System will prompt doctor to provide relevant feedback to application.
Business Rules	<p>BR-1: Feedback can only be submitted once per user per application.</p> <p>BR-2: Feedback must be at least 50 characters long.</p> <p>BR-3: Profanity and offensive language will not be tolerated in the feedback.</p> <p>BR-4: Feedback must relate to the application only.</p>
Assumptions:	<ol style="list-style-type: none"> 4 It is assumed that the patient has provided honest and accurate feedback. 5 It is assumed that the patient will provide feedback that is relevant to the application only. 6 It is assumed that the patient will enter feedback that is constructive and helpful.

Table 27: Give Application Feedback Usecase

PUC-12: View Application Feedback

In this usecase patient logs in into his/her account and can view feedback about the system.

Actors:	Primary Actors: Patient
Trigger:	Patient indicates that he/she wants to view application feedback.
Preconditions:	<p>PRE-1: Patient has a registered account.</p> <p>PRE-2: Patient is logged in.</p>
Postconditions:	POST-1: Patient view feedback about th application
Normal Flow:	<p>1.0 View Application Feedback</p> <ol style="list-style-type: none"> 1. Patient taps on feedback option. 2. System displays a text filed. 3. Patient types his/her reviews. 4. Patient submits the reviews. 5. Patient can view the feedback he/she provided
Alternative Flows:	N/A
Exceptions:	N/A
Business Rules	N/A
Assumptions:	Patient is satisfied with the service and leaves good review/feedback about the system.

Table 28: View Application Feedback Usecase

PUC-13: Logout

In this usecase patient can logout from the system

Actors:	Primary Actors: Doctor
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Trigger:	Doctor wants to logout from the system.
Preconditions:	PRE-1: Patient is logged into the system. PRE-2: Patient has active internet connection.
Postconditions:	POST-1: Changes made by patient in his/her account are saved. POST-2: Patient is logged out from the system
Normal Flow:	1.0 Logout 1. Patient taps on “Logout” option. 2. System prompts the message of confirmation to log out. 3. Patient taps on “Yes” option. 4. Patient is logged out successfully.
Alternative Flows:	1. Patient taps on “Logout” option. 2. System prompts the message that the changes made by the patient should be saved or not. 3. Patient taps on “Yes” option. 4. Changes are saved 5. Patient is logged out successfully.
Exceptions:	E0 In the step 3 of alternate flow: 1. Patient taps on “No” option. 2. Changes are not saved by the system. 3. Patient logs out.
Business Rules	N/A
Assumptions:	N/A

Table 29: Logout Usecase

3.4 Event Response Table

Event	System State	Response
ER1: Upload X-rays	Waiting state	Image is uploaded successfully
ER:2 Image Preprocessing	System upload the image to the database of the patient	Image will be clear for the processing of diagnoses
ER:3 1. Detection of covid-19 2. Detection of TB 3. Detection of Pneumonia	Detection is being done	<ul style="list-style-type: none"> System will detect the disease System will detect the level of Covid ,TB and Pneumonia
ER:4 Report Generation	System is detecting the diseases	<ul style="list-style-type: none"> System generate the report on the basis of disease detection

		<ul style="list-style-type: none"> Report is uploaded on the patient profile
ER-5 Chabot	System is answering the patients	<ul style="list-style-type: none"> System is given answer of patient query related to the breath diseases
ER-6 Voice to Text Converter	Converting the sound to words	<ul style="list-style-type: none"> System will detect the sound and convert it in to speech

4 Functional Requirements

4.1 Registration

Table 1 : Description of FR-1

Identifier	FR-1
Title	<Register>
Requirement	System shall allow the user the register
Source	User
Rationale	To allow the user to register his/her account
Business Rules (if required)	User should be assigned a unique username .
Dependencies	None
Priority	High

Table 2 : Description of FR-2

Identifier	FR-2
Title	<Account.Register.UserName>
Requirement	System shall allow the user to enter username for the registration
Source	User

Rationale	To allow the user to enter unique name so that his/her data can be saved against his/her unique username.
Business Rules (if required)	None
Dependencies	None
Priority	High

Table 3 : Description of FR-3

Identifier	FR-3
Title	<Account.Register.ChoosePassword>
Requirement	System shall allow the user to make password for the registration
Source	User
Rationale	To register the user
Business Rules (if required)	None
Dependencies	None
Priority	High

Table : Description of FR-4

Identifier	FR-4
Title	<Account.Register.ConfirmPassword>
Requirement	The system shall allow the user to re-enter his/her password.
Source	User
Rationale	To confirm the password
Business Rules (if required)	None
Dependencies	None
Priority	High

Table 5 : Description of FR-5

Identifier	FR-5
Title	<Account.Register.Email>
Requirement	The system will allow the user to enter his/her email.
Source	User
Rationale	To register the user
Business Rules (if required)	None
Dependencies	None
Priority	Low

Table 6 : Description of FR-6

Identifier	FR-6
Title	<Account.Register.PhoneNo>
Requirement	The system shall allow the user to enter his/her phone no.
Source	User
Rationale	For contact purpose.
Business Rules (if required)	None
Dependencies	None
Priority	High

Table 7 : Description of FR-7

Identifier	FR-7
Title	<Account.Register.Address>
Requirement	The system shall allow the doctor to enter his/her clinic address
Source	Doctor
Rationale	To locate the clinic

Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table 8 : Description of FR-8

Identifier	FR-8
Title	<Account.Register.UserRole>
Requirement	User shall be able to select his/her role in the system
Source	User
Rationale	Allowing the user to select his/her role correct
Business Rules (if required)	None
Dependencies	None
Priority	High

Table 9 : Description of FR-9

Identifier	FR-9
Title	<Account.Register.Submit>
Requirement	The system shall allow the user to submit his/her account details
Source	User
Rationale	To register patient's account.
Business Rules (if required)	None
Dependencies	None
Priority	High

Table 9: Description of FR-10

Identifier	FR-10
Title	<Account.Register.Error.MisingField>
Requirement	The system shall display an error message if the user misses any input field.
Source	User
Rationale	All the fields are required to collect the patient data.
Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table 10: Description of FR-11

Identifier	FR-11
Title	<Account.Register.Error.MismatchPassword>
Requirement	The system display error message for the mismatch between password field and re-enter password field
Source	User
Rationale	To confirm the password of user
Business Rules (if required)	None
Dependencies	None
Priority	High

Table 11 : Description of FR-12

Identifier	FR-12
Title	<Account.Register.Error.Username>
Requirement	The system shall display error message, if the user is not unique.
Source	User
Rationale	To keep the user notified about the registration process.

Business Rules (if required)	Username shall be unique
Dependencies	None
Priority	Medium

Table 12 : Description of FR-13

Identifier	FR-13
Title	<Login>
Requirement	User shall be able to login to the system
Source	User
Rationale	Allowing the user to access the system
Business Rules (if required)	Only those who are register to the system should be allowed to use the features
Dependencies	FR-1
Priority	Medium

Table : Description of FR-14

Identifier	FR-14
Title	<Login.UserRole>
Requirement	User shall be able to choose his/her role in the system
Source	User
Rationale	Allowing the user to select his/her role correctly.
Business Rules (if required)	Role the user should be the as he was registered in the system
Dependencies	FR-1,FR-8
Priority	High

Table : Description of FR-15

Identifier	FR-15
Title	<Login.Authenticate>
Requirement	System shall authenticate the user before login
Source	User
Rationale	To authenticate the data entered correctly
Business Rules (if required)	System shall authenticate the user every time when he/she gets logged in.
Dependencies	None
Priority	High

Table : Description of FR-16

Identifier	FR-16
Title	<Login.Authenticate.Successful>
Requirement	After authenticating the credential, System shall give the access to the user
Source	User
Rationale	To inform the user about the status of login.
Business Rules (if required)	None
Dependencies	FR-15
Priority	Medium

Table : Description of FR-17

Identifier	FR-17
Title	<Login.Authenticate.SaveData>
Requirement	System shall allow the user to save his/her login data.
Source	User
Rationale	To reduce the number of logins for the user.

Business Rules (if required)	None
Dependencies	FR-12,FR-15
Priority	Medium

Table : Description of FR-18

Identifier	FR-18
Title	<Login.Authenticate.Error.Message>
Requirement	System shall display error message if user enters wrong credentials or misses any information
Source	User
Rationale	To let the user notified
Business Rules (if required)	None
Dependencies	FR-15
Priority	Medium

Table : Description of FR-19

Identifier	FR-19
Title	<Login.Authenticate.Error.UserRole>
Requirement	System shall display the error message if the user logs in to the wrong user role.
Source	User
Rationale	To get notified
Business Rules (if required)	None
Dependencies	FR-14
Priority	Medium

Table : Description of FR-20

Identifier	FR-20
Title	<Login.Authenticate.Error.Register>
Requirement	If an unregistered user logs in to the system , System shall display error message.
Source	User
Rationale	To give guidance to the user to register first
Business Rules (if required)	None
Dependencies	FR-1
Priority	High

Table : Description of FR-21

Identifier	FR-21
Title	<Login.Authenticate.Error.InvalidUsername>
Requirement	If the user enters invalid username ,the system will generate an error message.
Source	User
Rationale	To update the user that he/she has invalid username.
Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table : Description of FR-22

Identifier	FR-22
Title	<Login.Authenticate.Error.WrongPassword>
Requirement	If the user enter the wrong, system will generate an error message
Source	User
Rationale	To update the user to enter the correct password

Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table : Description of FR-23

Identifier	FR-23
Title	<Login.Authenticate.Error.ForgetPassword>
Requirement	System shall allow the user to recover the password.
Source	User
Rationale	To allow the user ,recover his/her password
Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table : Description of FR-24

Identifier	FR-24
Title	<Account. Logout>
Requirement	System shall allow the user to logout for the account
Source	User
Rationale	To logout the user from the account
Business Rules (if required)	None
Dependencies	FR-24
Priority	Medium

Table : Description of FR-25

Identifier	FR-25
Title	<Account.logout.ConfirmationMessage>
Requirement	System shall allow confirm the user that he/she want to logout from the system
Source	User
Rationale	For user's confirmation
Business Rules (if required)	None
Dependencies	FR-24
Priority	Medium

4.2 PATIENT Profile

Table : Description of FR-26

Identifier	FR-26
Title	<Profile. Edit>
Requirement	Patient shall be able to edit his profile
Source	Patient
Rationale	To allow the patient to update his information
Business Rules (if required)	None
Dependencies	FR-1
Priority	Medium

Table : Description of FR-27

Identifier	FR-27
Title	<Profile.Edit.ViewInfo>
Requirement	System will display the information about the patients

Source	Patient
Rationale	To modify patient's profile
Business Rules (if required)	Patient can change anything but he cannot change his name ,when the registration is done
Dependencies	FR-26
Priority	Medium

Table : Description of FR-28

Identifier	FR-28
Title	< Profile.edit.update >
Requirement	Patient shall tap on to the information he/she wants to edit.
Source	Patient
Rationale	Moldable for the patient
Business Rules (if required)	None
Dependencies	Fr-27
Priority	Medium

Table : Description of FR-29

Identifier	FR-29
Title	<Profile.Edit.SaveUpdate>
Requirement	Patient shall save all the changes made by patient himself/herself.
Source	Patient
Rationale	To update the information in the database
Business Rules (if required)	None
Dependencies	FR-28
Priority	Medium

Table : Description of FR-30

Identifier	FR-30
Title	<Profile.Edit.SaveUpdate>
Requirement	System shall save the changes which patient has done
Source	Patient
Rationale	To update the information in database
Business Rules (if required)	None
Dependencies	FR-29
Priority	Medium

Table : Description of FR-31

Identifier	FR-31
Title	<profile.Edit.Redirect>
Requirement	System shall link the patient to the main menu after saving the changes
Source	Patient
Rationale	To reflect the consistent flow of the system
Business Rules (if required)	None
Dependencies	Fr-30
Priority	Medium

Table : Description of FR-32

Identifier	FR-32
Title	<DoctorProfile.Search>
Requirement	System shall display the profile of specific doctor that patient searched for
Source	Patient
Rationale	To keep patient and doctor connected

Business Rules (if required)	
Dependencies	FR-1
Priority	Medium

Table : Description of FR-33

Identifier	FR-33
Title	<DoctorProfile.search.username>
Requirement	System shall show the profile of the doctor with matching username.
Source	Patient
Rationale	To reduce to effort of the Patients
Business Rules (if required)	None
Dependencies	Fr-32
Priority	Medium

Table : Description of FR-34

Identifier	FR-34
Title	<PatientProfile.search.Error.Username>
Requirement	System shall show error to patient if he enters wrong username
Source	Patient
Rationale	Help the patient to know the terms and conditions of the system
Business Rules (if required)	None
Dependencies	Fr-33
Priority	Medium

Table : Description of FR-35

Identifier	FR-35
Title	<DoctorProfile.search.Error.NotPresent>
Requirement	System shall show the message that the user does not exist in the system
Source	Doctor
Rationale	Help the patient to know the terms and conditions of the system
Business Rules (if required)	None
Dependencies	Fr-34
Priority	Medium

Table : Description of FR-36

Identifier	FR-36
Title	<PatientProfile.view>
Requirement	System will show the doctor profile to the patient
Source	Doctor
Rationale	To allow the doctor in order to connect with the patient
Business Rules (if required)	None
Dependencies	FR-1
Priority	Medium

Table : Description of FR-37

Identifier	FR-37
Title	<DoctorProfile.View.List>
Requirement	The patient shall see the list of doctor which he/she has to select
Source	Patient
Rationale	To keep the record of the Doctor

Business Rules (if required)	None
Dependencies	Fr-1
Priority	Medium

Table: Description of FR-38

Identifier	FR-38
Title	< DoctorProfile.View.List .detail>
Requirement	The patient shall see the detail of the doctor when he taps
Source	Patient
Rationale	To keep the patient aware of the detail about the patient
Business Rules (if required)	None
Dependencies	Fr-37
Priority	Medium

Table : Description of FR-39

Identifier	FR-39
Title	< DoctorProfile.View.List. Select >
Requirement	The system will allow the patient to select doctor
Source	Doctor
Rationale	Allow the patient to select the doctor
Business Rules (if required)	None
Dependencies	Fr-38
Priority	Medium

Table : Description of FR-40

Identifier	FR-40
Title	< DoctorProfile.View.List.Select.Sucessful >
Requirement	The system will display a message that doctor is selected successfully
Source	Patient
Rationale	To keep the patient updated about the action
Business Rules (if required)	None
Dependencies	Fr-39
Priority	Medium

Table : Description of FR-41

Identifier	FR-41
Title	< DoctorProfile.View.List. Select.Sucessful.Redirect >
Requirement	The system will redirect the patient to the menu screen
Source	Patient
Rationale	To maintain the system flow
Business Rules (if required)	None
Dependencies	Fr-40
Priority	Medium

4.2.1 Upload X-ray Image

Table : Description of FR-42

Identifier	FR-42
Title	<TB.Upload.Image >
Requirement	Patient shall be able to upload the X-rays image for the detection of Tb

Source	Patient
Rationale	To detect the Tuberculosis and level of the tuberculosis
Business Rules (if required)	System shall be able to upload Jpeg,jpg and png formats files
Dependencies	Fr-1
Priority	High

Table : Description of FR-43

Identifier	FR-43
Title	< Covid.Upload.Image >
Requirement	Patient shall be able to upload the X-rays image for the detection of Covid-19
Source	Patient
Rationale	To detect the Tuberculosis and level of the Covid-19
Business Rules (if required)	System shall be able to upload Jpeg,jpg and png formats files
Dependencies	Fr-1
Priority	High

Table : Description of FR-44

Identifier	FR-44
Title	< Pneumonia .Upload. Image.>
Requirement	Patient shall be able to upload the X-rays image for the detection of pneumonia
Source	Patient
Rationale	To detect the pneumonia and level of the pneumonia
Business Rules (if required)	System shall be able to upload Jpeg,jpg and png formats files
Dependencies	Fr-1
Priority	High

Table : Description of FR-45

Identifier	FR-45
Title	<Upload.Image.AttachFile>
Requirement	Patient shall be able to choose the file be tap on to it
Source	Patient
Rationale	Allowing the patient to attach files
Business Rules (if required)	System shall be able to upload Jpeg,jpg and png formats files
Dependencies	FR-44
Priority	High

Table : Description of FR-46

Identifier	FR-46
Title	<Upload.image.BrowseImageGallary>
Requirement	System shall display a file Browser option
Source	Patient
Rationale	Patient can upload image
Business Rules (if required)	System shall be able to upload Jpeg,jpg and png formats files
Dependencies	FR-45
Priority	Medium

Table : Description of FR-47

Identifier	FR-47
Title	<UploadImage.ChooseFile>
Requirement	Patient will be able to choose the file by taping on the file
Source	Patient
Rationale	Allow the patient to attach the file in mobile files

Business Rules (if required)	System shall be able to upload jpeg, peg and png image formats
Dependencies	FR-46
Priority	Medium

Table : Description of FR-48

Identifier	FR-48
Title	<Image.uploaded.Successful>
Requirement	System shall display a message to the patient when file is uploaded
Source	Patient
Rationale	To let the patent know that image is upload successfully
Business Rules (if required)	None
Dependencies	Fr-47
Priority	

Table : Description of FR-49

Identifier	FR-49
Title	<Image.uploaded.Error>
Requirement	System shall display a message to the patient when image is not uploaded
Source	Patient
Rationale	To let the patent know that image is not upload
Business Rules (if required)	None
Dependencies	Fr-47
Priority	Medium

Table : Description of FR-50

Identifier	FR-50
Title	<Image.uploaded.CLEAR>
Requirement	Patient shall be able to clear the file he has attached
Source	Patient
Rationale	To change the file patient has chosen
Business Rules (if required)	None
Dependencies	Fr-47
Priority	Medium

Table : Description of FR-51

Identifier	FR-51
Title	<ReportGenration>
Requirement	System shall display the report and send the copy of the report to the doctor
Source	Patient
Rationale	To let the Patient and doctor know about the patients Detection results
Business Rules (if required)	None
Dependencies	Fr-44,45,46
Priority	High

4.2.2 Submit feedback of patient

Table : Description of FR-52

Identifier	FR-52
Title	<Submit. Feedback>
Requirement	System allow that patient to give and view his feedback about the system

Source	Patient
Rationale	To make the system that give better user experience to the patient
Business Rules (if required)	None
Dependencies	FR-1
Priority	Medium

Table : Description of FR-53

Identifier	FR-53
Title	<Submit.Feedback.Display>
Requirement	System shall display all the users feedback including His own in the the review screen
Source	Patient
Rationale	To let the patient determine the type on review and rating given by other user
Business Rules (if required)	None
Dependencies	Fr-52
Priority	Medium

Table : Description of FR-54

Identifier	FR-54
Title	<Submit.feedback.Display.Textbox>
Requirement	System shall allow the user to write his own feedback on the app performance
Source	Patient
Rationale	To let the patient to give his/her option on the application work
Business Rules (if required)	None
Dependencies	Fr-53
Priority	Medium

Table : Description of FR-55

Identifier	FR-55
Title	<Submit.Feedback.Display. Post>
Requirement	System shall allow the patient to post his written feedback to be displayed on the reviews screen
Source	Patient
Rationale	To let the patient to post his feedback
Business Rules (if required)	None
Dependencies	Fr-54
Priority	Medium

Table : Description of FR-56

Identifier	FR-56
Title	<Submit.Feedback.Succefully.Posted>
Requirement	System shall display a message to the patient when post is successfully posted
Source	Patient
Rationale	To let the patient know that feedback is posted successfully
Business Rules (if required)	None
Dependencies	Fr-55
Priority	Medium

4.3 Doctors frs

Table : Description of FR-57

Identifier	FR-57
Title	<Doctor. Edit>
Requirement	Doctor shall be able to edit his profile

Source	Doctor
Rationale	To allow the doctor to update his information
Business Rules (if required)	None
Dependencies	FR-1
Priority	Medium

Table : Description of FR-58

Identifier	FR-58
Title	<Doctor.Edit.ViewInfo>
Requirement	System will display the information about the doctor
Source	Doctor
Rationale	To modify doctor's profile
Business Rules (if required)	Patient can change anything but he cannot change his name ,when the registration is done
Dependencies	FR-57
Priority	Medium

Table 33 : Description of FR-59

Identifier	FR-59
Title	< Doctor.edit.update >
Requirement	Patient shall tap on to the information he/she wants to edit.
Source	Doctor
Rationale	Moldable for the doctor
Business Rules (if required)	None
Dependencies	Fr-58
Priority	Medium

Table : Description of FR-60

Identifier	FR-60
Title	< Profile.Edit.SaveUpdate>
Requirement	System shall save the changes which doctor has done
Source	Doctor
Rationale	To update the information in database
Business Rules (if required)	None
Dependencies	FR-59
Priority	Medium

Table : Description of FR-61

Identifier	FR-61
Title	<profile.Edit.Redirect>
Requirement	System shall link the doctor to the main menu after saving the changes
Source	Doctor
Rationale	To reflect the consistent flow of the system
Business Rules (if required)	None
Dependencies	Fr-60
Priority	Medium

4.3.1 Search:**Table : Description of FR-62**

Identifier	FR-62
Title	<PatientProfile.search>
Requirement	System shall show the profile of the patient which he/she is finding
Source	Doctor
Rationale	To keep doctor and patient connected/linked

Business Rules (if required)	None
Dependencies	Fr-1
Priority	Medium

Table : Description of FR-63

Identifier	FR-63
Title	<PatientProfile.search. Username>
Requirement	System shall show the profile of the patient with matching username.
Source	Doctor
Rationale	To reduce to effort of the doctor
Business Rules (if required)	None
Dependencies	Fr-27
Priority	Medium

Table : Description of FR-64

Identifier	FR-64
Title	<PatientProfile.search.Error.Username>
Requirement	System shall show error to doctor if he enters wrong username
Source	Doctor
Rationale	Help the doctor to know the terms and conditions of the system
Business Rules (if required)	None
Dependencies	Fr-63
Priority	Medium

Table : Description of FR-65

Identifier	FR-65
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Title	<PatientProfile.search.Error.NotPresent>
Requirement	System shall show the message that the user doesn't exist in the system
Source	Doctor
Rationale	Help the doctor to know the terms and conditions of the system
Business Rules (if required)	None
Dependencies	Fr-64
Priority	Medium

Table : Description of FR-66

Identifier	FR-66
Title	<PatientProfile.view>
Requirement	System will show the patients profile to the doctor
Source	Doctor
Rationale	To allow the doctor in order to connect with the patient
Business Rules (if required)	None
Dependencies	FR-1
Priority	Medium

Table : Description of FR-67

Identifier	FR-67
Title	<PatientProfile.View.List>
Requirement	The doctor shall see the list of patient with the reports
Source	Doctor
Rationale	To keep the record of the patient
Business Rules (if required)	Nine

Dependencies	Fr-1
Priority	Medium

Table : Description of FR-68

Identifier	FR-68
Title	< PatentProfile.View.List .report>
Requirement	The doctor shall see the report of patient he taped
Source	Doctor
Rationale	To keep the doctor aware of the detail
Business Rules (if required)	None
Dependencies	Fr-67
Priority	Medium

Table : Description of FR-69

Identifier	FR-69
Title	< PatentProfile.View.List. Report. Prescription>
Requirement	The doctor shall prescription of the report after viewing the report
Source	Doctor
Rationale	To keep take prescription of the doctor
Business Rules (if required)	None
Dependencies	Fr-68
Priority	Medium

Table : Description of FR-70

Identifier	FR-70
Title	< PatentProfile.View.List .Report.Prescription.submit >
Requirement	The system will allow the doctor submit the Prescription he has written for the doctor
Source	Doctor
Rationale	To give prescription to the patient
Business Rules (if required)	None
Dependencies	Fr-69
Priority	Medium

Table : Description of FR-71

Identifier	FR-71
Title	< PatentProfile.View.List .Report.Prescription.Error.MissingField >
Requirement	The system shall display error message if the Doctor Misses an input field
Source	Doctor
Rationale	This input field are required to give the prescription according to the report
Business Rules (if required)	None
Dependencies	Fr-70
Priority	Medium

4.3.2 Feed back for doctor

Table : Description of FR-72

Identifier	FR-72
Title	<Submit. Feedback>
Requirement	System allow that Doctor to give and view his feedback about the system

Source	Doctor
Rationale	To make the system that give better user experience to the Doctor
Business Rules (if required)	None
Dependencies	FR-1
Priority	Medium

Table : Description of FR-73

Identifier	FR-73
Title	<Submit.Feedback.Display>
Requirement	System shall display all the users feedback including His own in the the review screen
Source	Doctor
Rationale	To let the Doctor determine the type on review and rating given by other user
Business Rules (if required)	None
Dependencies	Fr-72
Priority	Medium

Table : Description of FR-74

Identifier	FR-74
Title	<Submit.feedback.Display.Textbox>
Requirement	System shall allow the user to write his own feedback on the app performance
Source	Doctor
Rationale	To let the doctor to give his/her option on the application work
Business Rules (if required)	None
Dependencies	Fr-73
Priority	Medium

Table : Description of FR-75

Identifier	FR-75
Title	<Submit.Feedback.Display. Post>
Requirement	System shall allow the doctor to post his written feedback to be displayed on the reviews screen
Source	Doctor
Rationale	To let the Doctor to post his feedback
Business Rules (if required)	None
Dependencies	Fr-74
Priority	Medium

Table : Description of FR-76

Identifier	FR-76
Title	<Submit.Feedback.Succesfully.Posted>
Requirement	System shall display a message to the Doctor when post is successfully posted
Source	Doctor
Rationale	To let the Doctor know that feedback is posted successfully
Business Rules (if required)	None
Dependencies	Fr-75
Priority	Medium

4.4 Admin profile

Table : Description of FR-77

Identifier	FR-77
Title	< DoctorProfile.View>
Requirement	Admin can see/view the doctors profile

Source	Admin
Rationale	Admin can easily connect /link with doctor
Business Rules (if required)	None
Dependencies	FR-1
Priority	Medium

Table : Description of FR-78

Identifier	FR-78
Title	< Doctor.Profile.View.List>
Requirement	The system will display the list of doctor enrolled in the system
Source	Admin
Rationale	To keep records of the doctor
Business Rules (if required)	None
Dependencies	FR-77
Priority	Medium

Table : Description of FR-79

Identifier	FR-79
Title	< Doctor.Profile.View.Detail>
Requirement	System shall allow the admin to view the doctor profile in detail by Taping on it.
Source	Admin
Rationale	To keep the admin update about doctors enrolled
Business Rules (if required)	None
Dependencies	FR-78
Priority	Medium

Table : Description of FR-80

Identifier	FR-80
Title	< PatientsProfile.View>
Requirement	Admin can see/view the patient profile
Source	Admin
Rationale	Admin can easily connect /link with patients
Business Rules (if required)	None
Dependencies	FR-1
Priority	Medium

Table : Description of FR-81

Identifier	FR-81
Title	< Patients.Profile.View.List>
Requirement	The system will display the list of patients enrolled in the system
Source	Admin
Rationale	To keep records of the patients
Business Rules (if required)	None
Dependencies	FR-80
Priority	Medium

Table : Description of FR-82

Identifier	FR-82
Title	< Patient.Profile.View.Detail>
Requirement	System shall view the details of the patient through patient profile by Taping on it.
Source	Admin
Rationale	To keep the admin update about doctors enrolled

Business Rules (if required)	None
Dependencies	FR-81
Priority	Medium

4.4.1 View user feed back:

Table : Description of FR-83

Identifier	FR-83
Title	< Feedback. View>
Requirement	System shall allow the admin to view the feedback of the patients and doctors
Source	Admin
Rationale	To make system better for the users
Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table : Description of FR-84

Identifier	FR-84
Title	< Feedback.View.Detail>
Requirement	System shall allow the admin to view the feedback of the patients and doctors in detail
Source	Admin
Rationale	To make system better for the users
Business Rules (if required)	None
Dependencies	FR-83
Priority	Medium

Table : Description of FR-85

Identifier	FR-85
Title	< Profile. Edit>
Requirement	Admin shall be able to edit the user profile
Source	Admin
Rationale	Allow the admin to update user profile information
Business Rules (if required)	None
Dependencies	FR 84
Priority	Medium

Table : Description of FR-86

Identifier	FR-86
Title	< Profile.Edit.ViewInfo>
Requirement	System shall display the profile information that admin wants
Source	Admin
Rationale	To change information user's profile
Business Rules (if required)	None
Dependencies	FR 85
Priority	Medium

Table : Description of FR-87

Identifier	FR-87
Up	< Profile.Edit.Update>
Requirement	System shall update the information he wants.
Source	Admin
Rationale	Flexibility of the users

Business Rules (if required)	None
Dependencies	FR 86
Priority	Medium

Table : Description of FR-88

Identifier	FR-88
Title	< Profile.Edit.SaveUpdate>
Requirement	System shall the changes made by admin
Source	Admin
Rationale	To update the date in data base
Business Rules (if required)	None
Dependencies	FR 87
Priority	Medium

Table : Description of FR-89

Identifier	FR-89
Title	< Profile.Edit.Confirm>
Requirement	System shall display a message for the conformation to the admin
Source	Admin
Rationale	To keep the admin notified
Business Rules (if required)	None
Dependencies	FR 88
Priority	Medium

Table : Description of FR-90

Identifier	FR-90
Title	< Profile.Edit.Redirect>
Requirement	System shall link the admin the control screen after making the changes
Source	Admin
Rationale	To maintain the flow of the system
Business Rules (if required)	None
Dependencies	FR 89
Priority	Medium

Table : Description of FR-91

Identifier	FR-91
Title	< Profile. Delete>
Requirement	Admin shall be able to delete the user profile
Source	Admin
Rationale	To delete user
Business Rules (if required)	None
Dependencies	FR -1
Priority	Medium

Table : Description of FR-92

Identifier	FR-92
Title	< Profile.Delete.Successful >
Requirement	System shall display a conformation message to admin
Source	Admin
Rationale	To keep admin updated about the actions

Business Rules (if required)	None
Dependencies	FR 91
Priority	Medium

Table : Description of FR-93

Identifier	FR-93
Title	< Profile.Delete.Redirect>
Requirement	System shall link the admin to control screen after making the changes
Source	Admin
Rationale	To maintain the flow of the system
Business Rules (if required)	None
Dependencies	FR 92
Priority	Medium

4.5 ChatBot

Table : Description of FR-94

Identifier	FR-94
Title	< Tap.Chatbot>
Requirement	System shall provide the patient Chabot facility
Source	Patient
Rationale	Patient can get basic level of assistance from the Chabot
Business Rules (if required)	None
Dependencies	FR 1
Priority	Medium

Table : Description of FR-95

Identifier	FR-95
Title	< Tap.Chatbot.vew>
Requirement	Patient shall be able to use the Chabot by taping on it
Source	Patient
Rationale	None
Business Rules (if required)	None
Dependencies	FR 94
Priority	Medium

Table : Description of FR-96

Identifier	FR-96
Title	< Tap.chatbot.StartConversation>
Requirement	Patient shall be able to start the conversation with the system
Source	Patient
Rationale	Patient can get medical assistance
Business Rules (if required)	None
Dependencies	FR 95
Priority	Medium

4.6 Report Generation:

Table : Description of FR-97

Identifier	FR-97
Title	< Profile. Generate>
Requirement	System shall allow the doctor to generate the report based on the data collect dring processing.

Source	System
Rationale	To Generate the report
Business Rules (if required)	None
Dependencies	None
Priority	Medium

4.7 Message box

Table : Description of FR-98

Identifier	FR-98
Title	< Tap.Message>
Requirement	System shall allow the patient to see the prescription of the doctor through his profile
Source	Patient
Rationale	To get the prescription from the doctor
Business Rules (if required)	None
Dependencies	Fr-69
Priority	Medium

Table : Description of FR-99

Identifier	FR-99
Title	< Tap.Message.View>
Requirement	System shall allow the patient to view the prescription through his profile
Source	Patient
Rationale	Patient can see his/her prescription
Business Rules (if required)	None

Dependencies	FR 98
Priority	Medium

Table : Description of FR-100

Identifier	FR-100
Title	< Tap.Message.Delete>
Requirement	System shall allow the user to delete prescription from the message box
Source	Patient
Rationale	To Delete prescription from his message box
Business Rules (if required)	None
Dependencies	FR 99
Priority	Medium

Table : Description of FR-101

Identifier	FR-101
Title	< Tap.Message.Delete. Successful >
Requirement	System shall display a conformation message to patient
Source	Patient
Rationale	To keep patient updated
Business Rules (if required)	None
Dependencies	FR 100
Priority	Medium

Table : Description of FR-102

Identifier	FR-102
Title	< Tap.Message.Delete. Redirect>
Requirement	System shall redirect the patient to the message box
Source	Patient
Rationale	To maintain the flow of the system
Business Rules (if required)	None
Dependencies	FR 101
Priority	Medium

4.8Medicine reminder

Table : Description of FR-103

Identifier	FR-103
Title	< Tap.MedicineReminder>
Requirement	System shall allow the patient to get an alarm/reminder for medicine
Source	Patient
Rationale	Help the user not to forget medicines
Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table : Description of FR-104

Identifier	FR-104
Title	< Tap.MedicineReminder.view.List>
Requirement	System shall show all the alarms and reminder on the screen
Source	Patient
Rationale	To view all the alarms
Business Rules (if required)	None
Dependencies	FR 103
Priority	Medium

Table : Description of FR-105

Identifier	FR-105
Title	< MedicineReminder.Edit >
Requirement	Patient shall be able to edit his Reminder
Source	Patient
Rationale	To allow the patient to update his reminder
Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table : Description of FR-106

Identifier	FR-106
Title	< MedicineReminder.Edit.NAME>
Requirement	System shall allow the patient to name the alarm
Source	Patient
Rationale	For Assign the name to alarm

Business Rules (if required)	None
Dependencies	FR 105
Priority	Medium

Table : Description of FR-107

Identifier	FR-107
Title	< MedicineReminder.Edit.SetTime>
Requirement	System shall allow the Patient to set the time of the alarm
Source	Patient
Rationale	To set a time for the alarm to ring
Business Rules (if required)	None
Dependencies	FR 106
Priority	Medium

Table : Description of FR-108

Identifier	FR-108
Title	< MedicineReminder.Edit.SetDays>
Requirement	System shall allow the Patient to set the days of the alarm
Source	Patient
Rationale	To set the days in which alarm will ring for the reminder of medicines
Business Rules (if required)	None
Dependencies	FR 105
Priority	Medium

Table : Description of FR-109

Identifier	FR-109
Title	< MedicineReminder.Edit.Select.Ringtone>
Requirement	System shall allow the Patient to select ringtone of the alarm
Source	Patient
Rationale	To remind the patient about the medicine
Business Rules (if required)	None
Dependencies	FR 105
Priority	Medium

Table : Description of FR-110

Identifier	FR-110
Title	< MedicineReminder.Edit.Select.Ringtone>
Requirement	System shall allow the Patient to select ringtone of the alarm
Source	Patient
Rationale	To remind the patient about the medicine
Business Rules (if required)	None
Dependencies	FR 105
Priority	Medium

Table : Description of FR-111

Identifier	FR-111
Title	< Tap. Medical. Reminder.Edit.Submit >
Requirement	Patient shall submit the edited alarm.
Source	Patient
Rationale	To remind the patient about the medicine

Business Rules (if required)	None
Dependencies	FR 105
Priority	Medium

Table : Description of FR-112

Identifier	FR-112
Title	< Tap. Medical Reminder.Edit.Submit. Successful >
Requirement	System shall display a conformation message to patient
Source	Patient
Rationale	To keep patient updated
Business Rules (if required)	None
Dependencies	FR 111
Priority	Medium

Table : Description of FR-113

Identifier	FR-113
Title	< Tap.MedicalReminder.Edit.Submit.Redirect>
Requirement	System shall link the patient to the List of alarms
Source	Patient
Rationale	To maintain the flow of the system
Business Rules (if required)	None
Dependencies	FR 112
Priority	Medium

Table : Description of FR-114

Identifier	FR-114
Title	< Tap. Medicine Reminder. Delete>
Requirement	System shall allow the user to delete alarm from the list of alarms
Source	Patient
Rationale	To delete certain alarm
Business Rules (if required)	None
Dependencies	FR 104
Priority	Medium

Table : Description of FR-115

Identifier	FR-115
Title	< Tap. MedicineReminder.Delete.Successful >
Requirement	System shall display a confirmation message to patient
Source	Patient
Rationale	To keep patient updated
Business Rules (if required)	None
Dependencies	FR 114
Priority	Medium

Table : Description of FR-116

Identifier	FR-116
Title	< Tap.Medicine.Reminder.Delete.Redirect>
Requirement	System shall link the patient to the List of alarms
Source	Patient
Rationale	To maintain the flow of the system

Business Rules (if required)	None
Dependencies	FR 115
Priority	Medium

4.9 Info box

Table : Description of FR-117

Identifier	FR-117
Title	< Tap.InfoBox.View>
Requirement	System shall allow the patient to get information related to the major 3 breath disease
Source	Patient
Rationale	To make patient aware about the diseases
Business Rules (if required)	None
Dependencies	None
Priority	Medium

Table : Description of FR-118

Identifier	FR-118
Title	< Tap.InfoBox.View. Detail>
Requirement	System shall allow the user to get detail information about the disease
Source	Patient
Rationale	To make patient understand the disease
Business Rules (if required)	None
Dependencies	FR-117
Priority	Medium

5 Non-Functional Requirements

5.1 Availability

AVAIL-1: The system will be available all the time. i.e. 24/7.

5.2 Usability

USE-1: The BreathEx system will allow user to detect disease with one tap.

USE-2: The system will provide an intuitive user experience to user.

USE-3: The system will be easy to use for both healthcare professionals and patients, reducing errors due to operator confusion.

5.3 Performance

PER-1: The system will detect disease available in the database within 4 to 5 seconds and responds to user request.

PER-2: The system will have access to comprehensive database of medical information, such as medical history existing medical conditions and symptoms.

5.4 Security

SER-1: The system will be able to protect users confidential data.

SER-2: The system will not allow any unauthorized user to access the system.

SER-3: The system will have security protocols in place to protect user data.

5.5 Maintainability

MAIN-1: The system should be easy to maintain and update, ensuring reliability and accuracy in the long run

6 External Interface Requirements

6.1 User Interfaces Requirements

UI-1:The system should provide a user authenticate system with login and register

UI-2:The system will provide a home screen this is clear and easy layout to understand the user.

UI-3:The home screen will have navbar to access different page of app.

UI-4:The home screen will be optimized for both android and ios devices.

UI-5:The app will provide a fast response times and smooth user experience.

UI-6:The app will have an attractive design with easy-to-use features and intuitive navigation.

6.2 Software interfaces

SI-1:The app user interface is independent of , and communicate with,all android and ios versions.

SI-2:The system shall communicate with cloud database system ie Firebase,Mongodb cloud.

SI-3:To save doctor and patient record we have choosen mongodb database.

SI-4:The system allows the patient to upload xray images inJPEG,JPG and PNG format.

SI-5:The system will generate in report in the form of pdf.


NEXT PAGE:-



MEDICAL REMINDER

medicine 1 mon,tue 11 am 

medicine 2 mon,wed 2 pm 

medicine 3 mon,fri 4pm 



CHAT BOT

Hi Ahmad ,want some help

.....

Ask something





6.3 Communications interfaces

CI-1: The system shall send an confirmation email to Doctor and Patient about their registration process.

CI-2: The system shall send a notification to patient when doctor send the prescription..

CI-3: The system uses simple electronic forms for requirements such as feedback.

CL-4: The system will run in all recent android/ios versions.

7 References

- [1] I gather the information of TB,Covid-19 and pneumonia from website
<https://www.woolcock.org.au/asthma-treatment-research>