



## American International University-Bangladesh (AIUB)

### Department of Computer Science

### Faculty of Science & Technology (FST)

## HEALTH CARE SYSTEM

A Software Quality and Testing Project Submitted  
By

Semester: Summer_22_23			Section: B	Group No: 04
SN	Student Name	Student ID	Individual Contribution (in %)	Total Marks: 50
				Earned Marks:
02	Pulok Kanti Paul	20-43502-1	25	
04	Sheikh Shafin Islam	19-41467-3	25	
22	Mitu Rani Ghosh	20-43406-1	25	
23	Abzana Sultan Ira	20-41973-1	25	

The project will be Evaluated for the following Course Outcomes

EVALUATION CRITERIA	Total Marks (50)	
Revision History, Test Plan Identifier, Reference Materials, Problem Background, Solutions	[10 Marks]	
Requirements Specification (System feature, Quality Attributes, System Interface, Project Requirements)	[10 Marks]	
Item Not to be tested, Testing approach (Testing levels, tools, meetings), Test cases	[10 Marks]	
Item pass/fail criteria, Test deliverables, Staffing and Training, Responsibilities, Scheduling, Risk	[10 Marks]	
Approval, Format, Submission, and Defense	[10 Marks]	

# Software Test Plan

for

## <Health Care System>

Version 1.5 approved

Prepared by < Pulok Kanti Paul, Sheikh Shafin Islam, Abzana Sultan Ira, Mitu  
Rani Ghosh >

< American International University-Bangladesh (AIUB)-Department of Computer  
Science and Engineering>

<3<sup>rd</sup> July 2023>

## Table of Contents

<b>Revision History .....</b>	<b>3</b>
<b>1. TEST PLAN IDENTIFIER: HCS01.5 .....</b>	<b>4</b>
<b>2. REFERENCE MATERIALS.....</b>	<b>4</b>
<b>3. INTRODUCTION.....</b>	<b>4</b>
3.1 Background to the Problem.....	4
3.2 Solution to the Problem.....	4
<b>4. REQUIREMENT SPECIFICATION .....</b>	<b>4</b>
4.1 System Features .....	4
4.2 System Quality Attributes.....	7
4.3 System Interface.....	7
4.4 Project Requirements .....	12
<b>5. FEATURES NOT TO BE TESTED.....</b>	<b>12</b>
<b>6. TESTING APPROACH .....</b>	<b>12</b>
6.1 Testing Levels .....	12
6.2 Test Tools.....	13
6.3 Meetings.....	13
<b>7. TEST CASES/TEST ITEMS .....</b>	<b>13</b>
<b>8. ITEM PASS/FAIL CRITERIA .....</b>	<b>18</b>
<b>9. TEST DELIVERABLES.....</b>	<b>19</b>
<b>10. STAFFING AND TRAINING NEEDS.....</b>	<b>19</b>
<b>11. RESPONSIBILITIES .....</b>	<b>19</b>
<b>12. TESTING SCHEDULE.....</b>	<b>19</b>
<b>13. PLANNING RISKS AND CONTINGENCIES .....</b>	<b>20</b>
<b>14. APPROVALS.....</b>	<b>21</b>

## Revision History

Revision	Date	Updated by	Update Comments
0.1	2023.07.03	Shafin	First Draft
0.2	2023.07.14	Ira	Second Draft
0.3	2023.07.17	Mitu	Third Draft
0.4	2023.07.20	Shafin	Fourth Draft
0.5	2023.07.26	Mitu	Fifth Draft
0.6	2023.08.04	Pulok	Sixth Draft
0.7	2023.08.09	Ira	Seventh Draft
0.8	2023.08.16	Pulok	Eighth Draft
0.9	2023.08.26	Pulok	Final Draft

## 1. TEST PLAN IDENTIFIER: **HCS01.5**

## 2. REFERENCE MATERIALS

- F. Anjum, A. S. M. Shoaib, A. I. Hossain and M. M. Khan, "Online health care," 2018 IEEE 8th Annual Computing and Communication Workshop and Conference (CCWC), 2018, pp. 580-583.

## 3. INTRODUCTION

### 3.1 Background to the Problem

People frequently struggle with the decision of whether they will go to doctor or not. Now a day, acquiring a serial at a government hospital is an extremely difficult process. More than an hour gets lost while waiting in queue. Then, after getting the serial, some people use political scheming to meet the doctor more quickly without any hassle. Moreover, taking tests and other tasks are difficult. If any patient loses his previous paperwork, he also has to suffer a lot. In terms of prescriptions, medications, procedures, and other services, some doctors and hospital administrators occasionally overcharge patients.

### 3.2 Solution to the Problem

The problems can be solved by a digital web-based system that can fix these complexities and will save both money and time. This application will help people save their time. It will help the patients to perform their tasks more efficiently. And it will also reduce the fear of losing documents, waiting in chamber or use political scheming to meet the doctor more quickly etc. Our aim is to build a web-based application to store patient's medical documents, set meeting with a doctor as soon as possible, doctors can easily find medical records and patient can manage exercise routine according to daily activity.

## 4. REQUIREMENT SPECIFICATION

### 4.1 System Features

#### 1. User Signup

- 1.1 New Patients/Doctor will require valid personal information such as phone number, email, Username and password.
- 1.2 If the registration process is successful, the User will see a popup confirmation and will be redirected to Login page.

Priority Level: High

Precondition: user must have valid information.

Cross reference: 2,7,11,13

## **2. Patient Login**

- 1.1 The software shall allow patients to login with their given username and password.
- 1.2 If the login is successful, the Patient will be redirected to the website homepage.  
Otherwise, it will load the login page again with wrong credentials message.

Priority Level: High

Precondition: patient must have valid username and password.

Cross reference: 1,3,4,5,6,8

## **3. Set Appointment**

- 1.1 A patient can set an appointment based on their symptoms and date of counseling.
- 1.2 The appointment will require the patient to specify the category of their disease.

Priority Level: Medium

Precondition: patient must have valid username and password.

Cross reference: 1,2,13

## **4. Regular Exercise**

- 1.1 The system will collect regular exercises for the patient that is prescribed by the doctor.
- 1.2 The patient can keep track of the exercise and maintain a record of exercise performed.

Priority Level: Medium

Precondition: patient must have valid username and password.

Cross reference: 1,2,13

## **5. Medicine Reminder**

- 1.1 The system will collect regular medicine for the patient that is prescribed by the doctor.
- 1.2 The patient can keep track of the medicine and maintain a record of medicine taken.

Priority Level: Medium

Precondition: patient must have valid username and password.

Cross reference: 1,2,13

## **6. Emergency Ambulance Service**

- 1.1 A patient can access the emergency ambulance service and call for an ambulance.
- 1.2 After clicking the emergency ambulance service, the patient will be required to put their current location space given below.

Priority Level: Medium

Precondition: patient must have valid username and password.

Cross reference: 1,2,13

## **7. Admin Login**

- 1.1 Admin will log into the system with admin Username and password.

- 1.2 If login is successful, admin homepage will be shown. Otherwise, it will redirect to the admin login page with wrong credential message.

Priority Level: High

Precondition: admin must have valid username and password.

Cross reference: 1,9,10,13

## **8. Patient Update Profile**

- 1.1 Patient has to Login with valid Patient name and password in order to Update Patient's profile.
- 1.2 If the operation is successful, the patient will be redirected to their profile page. Otherwise, the Update profile page will be shown again with specific error message.

Priority Level: Medium

Precondition: patient must log into the system in order to update the profile

Cross reference: 1,2,13

## **9. Delete user**

- 1.1 An admin can delete Patient or doctor from admin page.
- 1.2 If admin selects delete option and confirms the pop up to delete the patient /doctor, the patient/doctor profile will be deleted.

Priority Level: High

Precondition: An Admin must log into the system in order delete Patient or doctor.

Cross reference: 1,7,13

## **10. Donor List**

- 1.1 Admin can add a donor in the system.
- 1.2 Donor will be sorted based on blood group.

Priority Level: Low

Precondition: admin login required.

Cross reference: 1,7,13

## **11. Doctor Login**

- 1.1 The doctor log into the account with a valid Username and password.
- 1.2 After login, the doctor gets a notification if any patient sets an appointment under that doctor.
- 1.3 The doctor then gives a prescription or treatment to the patient, based on measuring the BMI.

Priority Level: High

Precondition: must have valid username and password.

Cross reference: 1,12,13

## **12. Give prescription**

- 1.1 After a doctor log into the system, they can see the appointments of all patients who require their counseling.
- 1.2 The doctor can check recent medical reports of the patient and calculate their BMI based on weight and height.
- 1.3 The doctor can then prescribe medicine to the patient.

Priority Level: Medium

Precondition: must have valid username and password.

Cross reference: 1,11,13

### 13. User Logout

- 1.1 A user will be able to log out of the system from his valid account.
- 1.2 After successful logout, it redirects to the login page.

Priority Level: High

Precondition: User needs to successfully log in first.

Cross reference: 1,2,7,11

## 4.2 System Quality Attributes

There are some software quality attributes as per ISO/ IEC 9126 that are very important to ensure the quality of software.

**QA1 - Functionality:** *A valid Patient can see all services or functionality after login into the system. Invalid Patients cannot access the system.*

**QA2 - Security:** *System security should be sufficient to prevent unauthorized access to the system operations.*

**QA3 - Reliability:** *All features will work as intended across a range of working environments or devices.*

**QA4 - Usability:** *The health care system is a system that is easy to understand for everyone. Any patient should be able to register and access the system easily.*

**QA5 - Efficiency:** *Our system size is small and efficient so that it can be handled by any device.*

**QA6 - Maintainability:** *If a bug or problem is found in the system, it will be solved as soon as possible.*

**QA7 - Portability:** *Switching the host or environment can be done in a short time. Reinstallation of the software can be done easily as well.*

**QA8 - Accessibility:** *As it is web-based software, it can be accessed from anywhere through Internet.*

**QA9 - Installation:** *There won't be any time-consuming downloads or installations because it is web-based. It is based on web addresses. It is very easy for anyone to access.*

## 4.3 System Interface

This is the system of home user interface. All types of users will first see this home page then visit this EkSheba Web application.

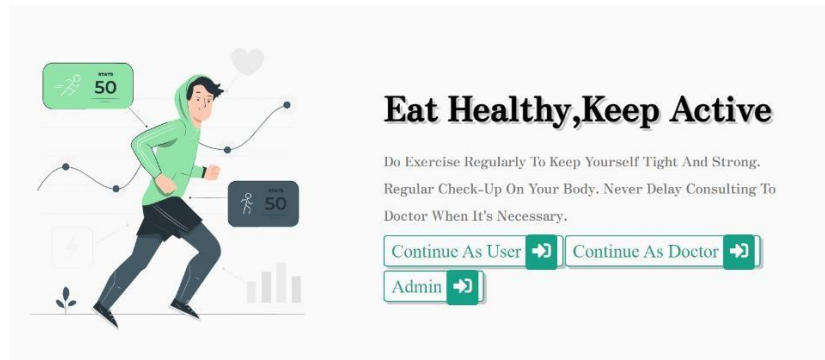


Fig 1: System Home Page

This is the login page for user (Doctor and Patient). User will provide their credentials to login to the system.



Fig 2: User Login Page

This is the Dashboard of the Patient. After successfully login into the system, Patient will redirect to this page.

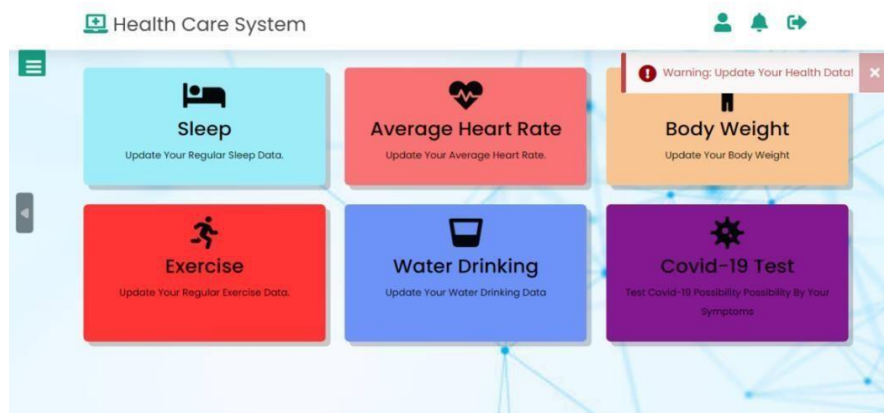


Fig 3: Patient Home Page



This is the patient profile page. Patient can view and update his/her personal information from here.

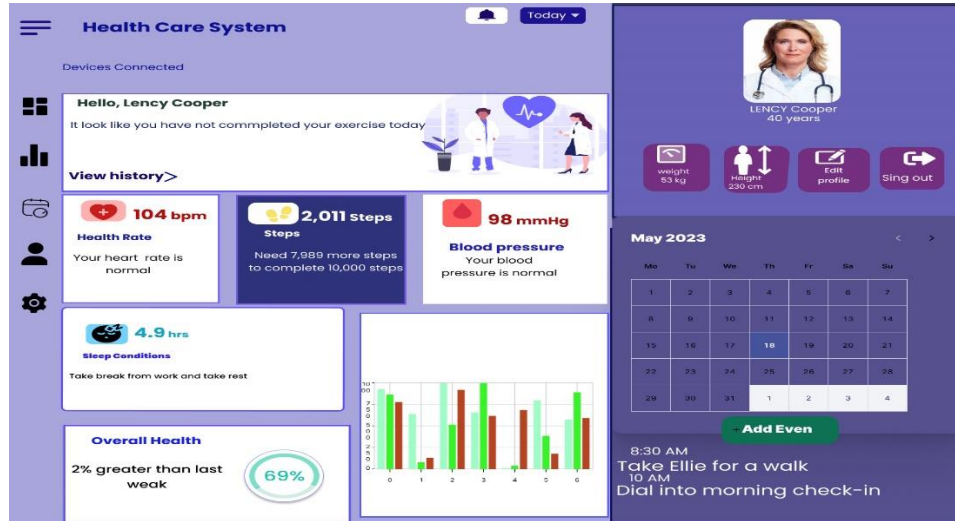


Fig 4: User Profile Page

This page is for updating patient health data. From here, the patient can enter his regular health data.

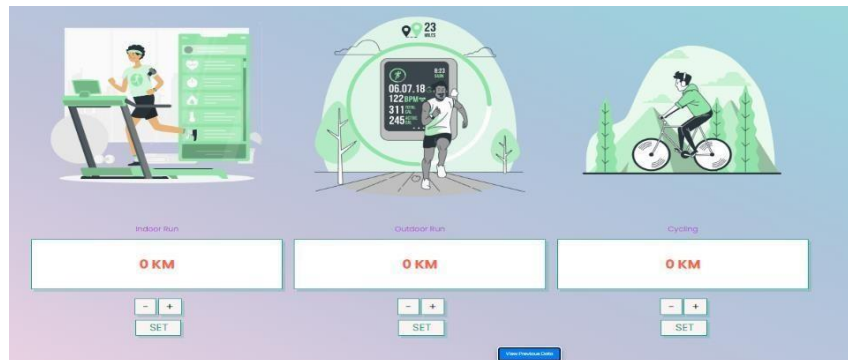


Fig 5: User Exercise Data Page

This page is for viewing the patient's previous data. The patient can view his previous health data on this page.

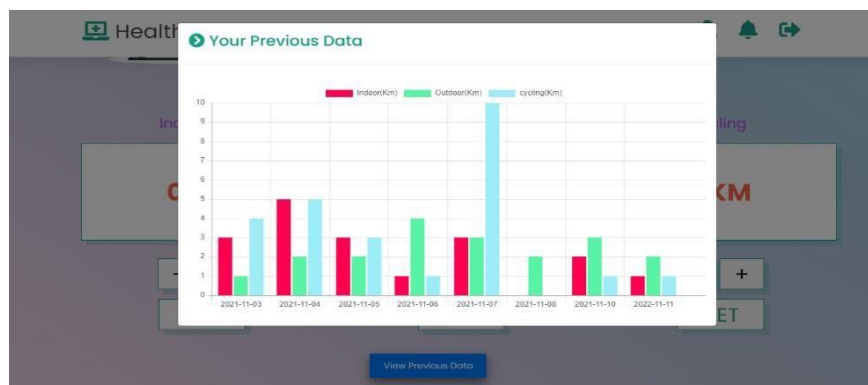


Fig 6: User Previous Exercise Data Page

This page is for viewing the donor's information. Patients can also use this page to look for donors based on their blood group.

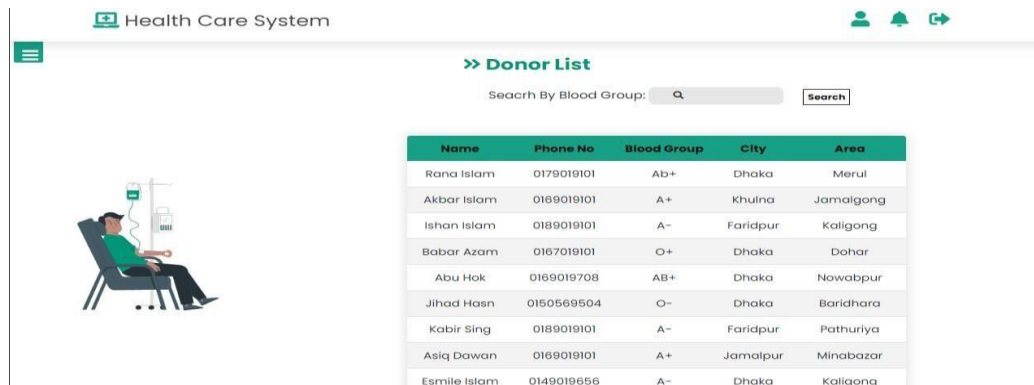


Fig 7: Donor List Page

This page is for calling the ambulance. Patient will be able to call ambulances by giving their address.

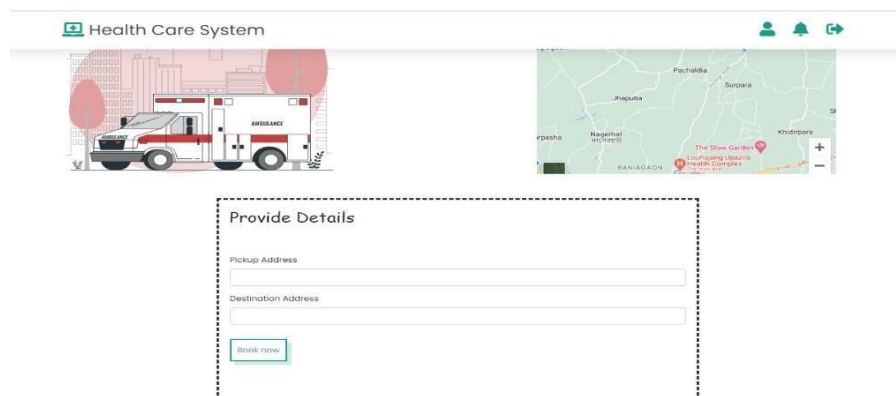


Fig 8: Ambulance Call Page

This page is for the medicine reminder page. The patient can set up medication reminders from here.

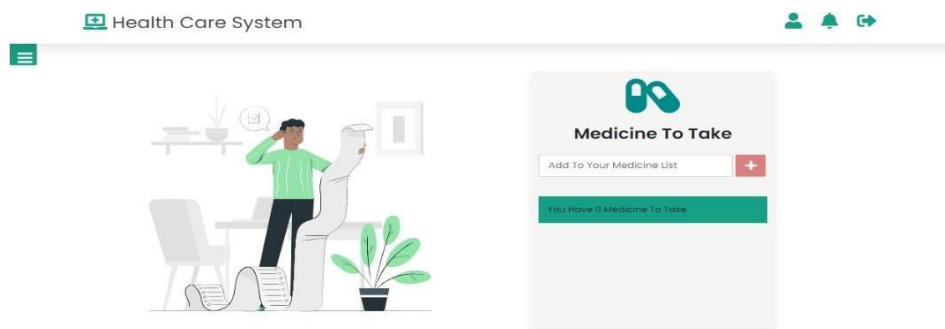


Fig 9: Medicine Reminder Page

This page is for giving prescription. Here, the doctor can give prescriptions and also calculate the BMI of the users by inputting their data.

Fig 10: Prescription giving Page

This page is for the admin dashboard. The user can view the statistics of the registered patient, doctor and donor.



Fig 11: Admin Dashboard Page

This page is for the patient's vaccination history. The user can add vaccination details and take a print out of them.

Vaccine Name	Doses	Date	Delete
Flue	3	2022-11-20	
Covid	1	2022-11-16	
HIV	2	2022-11-09	
Covid	2	2022-10-18	

Fig 12: Vaccination History Page

#### 4.4 Project Requirements

- Time: This web-based application may take about 3 months (90 days) to complete.
- Budget: 4,50,000 BDT
- Size: The final size of this web-based application will not be more than 500-600 MB.
- HTML, CSS, PHP, JavaScript, jQuery and Ajax will be used to build this web-based application.

#### 5. FEATURES NOT TO BE TESTED

Some of our system features are implemented using APIs and Iframes. The COVID-19 module is fetching the iframe from the Bangladesh government's COVID-19 website. The COVID-19 test module is embedded in an Iframe within our system, which pulls information from the Bangladesh government's website and interacts with it. So, we can skip this component for testing. We do not need to worry about any security concerns with this module as it is hosted and maintained by the Bangladesh government. The only concern is that the website may be unavailable due to the Bangladesh government's regular maintenance and updates, but we will monitor this closely and ensure that our testing process remains uninterrupted.

#### 6. TESTING APPROACH

##### 6.1 Testing Levels

**UNIT TESTING:** Unit testing is the first phase of testing, which is done by the developer himself. During the development of the software, after completing the code of a small unit, the developer tests whether it is working perfectly or not. It will be approved by the development team leader. A progress report for the unit testing is provided to the test person to let them know the current situation of the software.

**INTEGRATION TESTING:** Integration testing comes after unit testing, and it will be done by a team of testers who are only responsible for testing. The smaller units will be assembled together. And after assembling a smaller part, the whole system will be tested to check whether the new module is integrated perfectly with the existing system.

**SYSTEM TESTING:** After integration testing is complete, system testing should be performed to ensure that all modules work properly together after they have been connected as a whole software. It is a black box test. Depending on the requirement and specification, a test case is generated to test the system as a whole without knowing the inside of the module.

**ACCEPTANCE TESTING:** The final stage of software testing is acceptance testing. It is done by the real-time users of that particular software. A beta version of the software is released in the market. Users use the software, and based on their experience, they submit a review. Bugs are resolved as quickly as possible. Acceptance testing validates the effort of both the testing and developer teams and reflects the quality of the software overall.

## 6.2 Test Tools

**Selenium:** The only test tool to be used is Selenium IDE. Selenium automates browser- based web applications, allowing an agile tester to automate repeated test scripts so they can come up with more critical test scenarios. The testing will be done in the Chrome Browser with Start record and stop record.

## 6.3 Meetings

The test team will meet once in every week to evaluate progress to date and to identify error trends and problems as early as possible. The test team leader will meet with development and the project manager once every two weeks as well. These two meetings will be scheduled on different weeks. Additional meetings can be called as required for emergency situations.

## 7. TEST CASES/TEST ITEMS

Project Name: Heath Care System		Test Designed by: Pulok		
Test Case ID: FR_1		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Patient Signup		Test Execution date:		
Test Title: Signup With valid Information				
Description: Check If Patient signup works perfectly with valid information				
Precondition (If any): N/A				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Click Patient Signup 3. Put valid Information 4. Click submit	Put valid Information and fill up all input level	Sign up must be successful		
Post Condition: Redirect to Patient sign in page.				

Project Name: Heath Care System		Test Designed by: Shafin		
Test Case ID: FR_2		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Patient Login		Test Execution date:		
Test Title: Patient login with valid Username and password				
Description: Check If Patient login works perfectly with valid Username and password.				
Precondition (If any): Patient Must be registered into the system				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Click Patient Login 3. Put valid Username and password 4. Click sign in button	Username: Shafin_islam Password: 123@\$#67	Login must be successful		
Post Condition: Redirect to Patient Dashboard				

Project Name: Heath Care System		Test Designed by: Shafin		
Test Case ID: FR_3		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): Medium		Test Executed by:		
Module Name: Patient Details modification		Test Execution date:		
Test Title: Patient update profile				
Description: Check If Patient can update profile perfectly with valid Username and password.				
Precondition (If any): Patient Must be registered into the system				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Patient profile update 3. Put New valid data 4. Click save button	Username: Islam_shafin Password: 123@\$#67 NewPhone: 019***** Gender: Male	Update must be successful		
Post Condition: Redirect to Patient profile				

Project Name: Heath Care System		Test Designed by: Ira		
Test Case ID: FR_4		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): Medium		Test Executed by:		
Module Name: Appointment		Test Execution date:		
Test Title: Set Appointment				
Description: Check If Patient Can Set Appointment perfectly				
Precondition (If any): Patient Must be registered into the system				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Click set appointment 3. Put valid Visiting dateand time 4. Click button	Visiting date: Any valid upcoming date	must be successful		
Post Condition: Redirect to Patient profile				

Project Name: Heath Care System		Test Designed by: Ira		
Test Case ID: FR_5		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Doctor Signup		Test Execution date:		
Test Title:   Signup With valid Information				
Description: Check If doctor signup works perfectly with valid information				
Precondition (If any): N/A				
Test Steps	Test Data	Expected Results	Actual Results	Status
1.   Go to the website 2.   Then Click Doctorsignup 3.   Put valid information 4.   Click signup button	Put valid Information and fill up all input level	Sign up must be successful		
Post Condition: Redirect to Doctor sign in page.				

Project Name: Heath Care System			Test Designed by: Mitu	
Test Case ID: FR_6			Test Designed date: 16-8-23	
Test Priority (Low, Medium, High): High			Test Executed by:	
Module Name: Doctor Login			Test Execution date:	
Test Title: Doctor login with valid Username and password				
Description: Check If Doctor login works perfectly with valid Username and password				
Precondition (If any): Doctor Must be registered into the system				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Click Doctor Login 3. Put valid Username and password 4. Click sign in button	Username: PAUL12 Password: 123	Login must be successful		
Post Condition: Redirect to Doctor Dashboard				

Project Name: Heath Care System			Test Designed by: Pulok	
Test Case ID: FR_7			Test Designed date: 16-8-23	
Test Priority (Low, Medium, High): Medium			Test Executed by:	
Module Name: Doctor Details Modification			Test Execution date:	
Test Title: Doctor update profile				
Description: Check If Doctor can update profile perfectly with valid Username and password				
Precondition (If any): Doctor Must be registered into the system				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Doctor profileupdate 3. Put New valid data 4. Click save button	Confirm Password: 123@4 Chamber: Level 4	Update must be successful		
Post Condition: Redirect to Doctor profile				



Project Name: Heath Care System		Test Designed by: Ira		
Test Case ID: FR_8		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): Medium		Test Executed by:		
Module Name: Give Prescription		Test Execution date:		
Test Title: sent prescription				
Description: Check If Doctor Can Sent prescription properly				
Precondition (If any): Doctor Must be registered into the system				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Click give prescription 3. Put data 4. Click set button	Provide prescription: Napa extra 1 0 1	Send must be successful		
Post Condition: Redirect to Doctor Dashboard				

Project Name: Heath Care System		Test Designed by: Shafin		
Test Case ID: FR_9		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Admin Login		Test Execution date:		
Test Title: Admin login with valid Username and password				
Description: Check if admin login works perfectly.				
Precondition (If any): N/A				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Click admin Login 3. Put valid Username and password 4. Click sign in button	Username: admin Password: 123	Login must be successful.		
Post Condition: Redirect to admin dashboard				

Project Name: Heath Care System		Test Designed by: Pulok		
Test Case ID: FR_10		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): Medium		Test Executed by:		
Module Name: Manage Patient		Test Execution date:		
Test Title: Sent Notification, Process Ambulance Request & delete patient				
Description: Check if managed & request accepted successfully.				
Precondition (If any): Admin must be logged in.				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Click Patient Login 3. Put valid Username and password 4. Click sign in button	Message: Collect your medicine	Requests must be accepted & delete patient successfully		
Post Condition: Redirect to admin dashboard				

Project Name: Heath Care System		Test Designed by: Mitu		
Test Case ID: FR_11		Test Designed date: 16-8-23		
Test Priority (Low, Medium, High): High		Test Executed by:		
Module Name: Manage Doctor		Test Execution date:		
Test Title: Delete Doctor				
Description: Check if Doctor deletes successfully.				
Precondition (If any): Admin must be logged in.				
Test Steps	Test Data	Expected Results	Actual Results	Status
1. Go to the website 2. Then Click Patient Login 3. Put valid Username and password 4. Click sign in button	N/A	Delete Doctor Successfully.		
Post Condition: Redirect to admin dashboard				

## 8. ITEM PASS/FAIL CRITERIA

The main objective of this section is to describe the PASS/FAIL criteria for the tests that are a part of this project. Any system or unit receiving a score of less than 90% will be subject to the failure criteria, and any component, unit, system, or integrated test item receiving a score of 90% to 95% will be considered to meet the pass criterion.

## 9. TEST DELIVERABLES

Test Deliverables are documents that are given to the stakeholders when the software is being developed. It contains a list of documents, tools, and other equipment that must be created, provided, and maintained to support testing activities in a project.

- Unit testing findings and results will be properly documented. To stay on track, a continuous progress report is required.
- Audience for acceptance tests will be carefully selected, as wrong users can lead to incorrect results and feedback. It is similar to a contract for development team release and software delivery.
- During the time of integration testing, new modules are integrated into the system. And these records needed to be kept for further checking.
- Project management tools such as Jira, Trello, and others can be used to keep track of the progress report.
- After completing each of the testing phase the details report will be generated containing the test results.

## 10. STAFFING AND TRAINING NEEDS

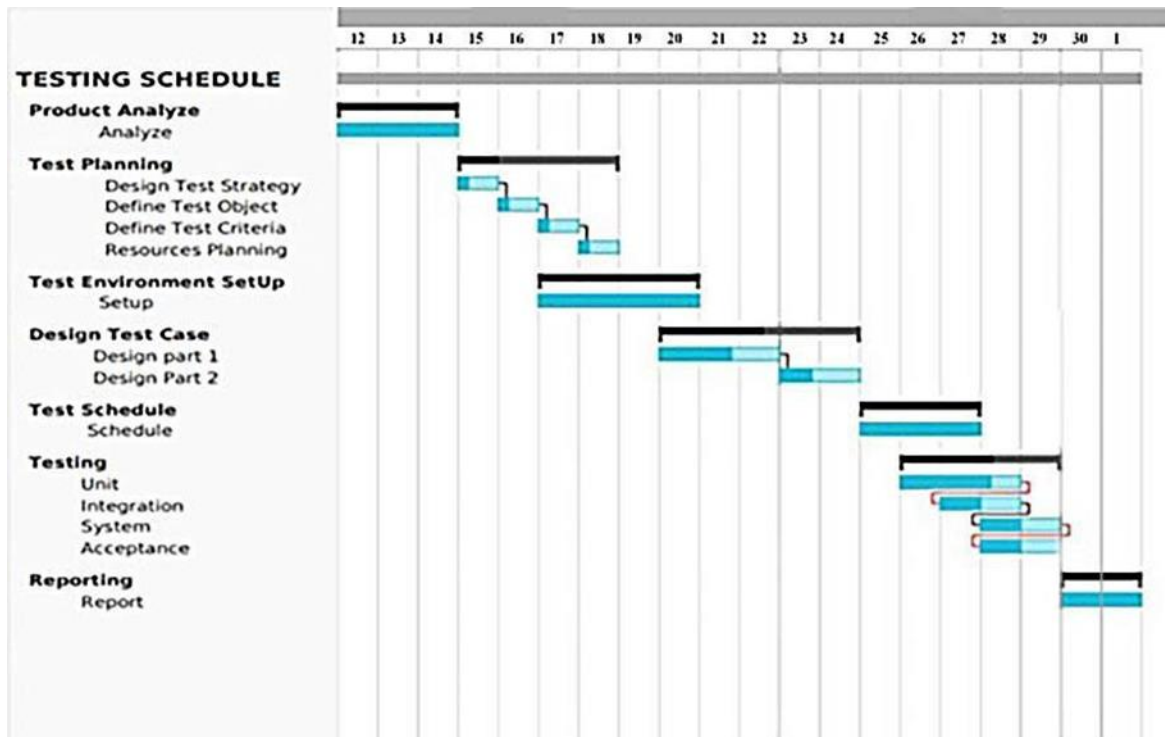
The goal of this staffing strategy is to maximize the likelihood that enough qualified people will be assigned to the project to ensure its successful completion. Proper training and staffing enable employees to think out of the box and also increase efficiency, which is very important for product development. We need at least one full-time tester during the system/integration and acceptance testing phases of our project. A dedicated tester will work on the project full-time for the first four months. When there isn't enough time for a dedicated tester, the test manager steps in. Developers and testers will need training on the basics of our project's user interface. Operations staff must also undergo comprehensive training in this project communication procedure before the project is greenlit. As we will be using Selenium, we have to bring all necessary tools to support the testing team, and necessary training is also need to be provided if it's necessary.

## 11. RESPONSIBILITIES

	TM	PM	Dev. Team	Test Team	Client
Acceptance test Documentation & Execution	X	X		X	X
System/Integration test Documentation & Execution	X		X	X	
Unit test documentation & execution	X		X	X	
System Design Reviews	X	X	X	X	X

Detail Design Reviews	X	X	X	X	
Test Procedures and rules	X	X	X	X	
Screen & Report Prototype reviews			X	X	X
Change control and Regression testing	X	X	X	X	X

## 12. TESTING SCHEDULE



## 13. PLANNING RISKS AND CONTINGENCIES

S/N	Risk Description	Probability	Impact	Mitigation Plan
1	Unrealistic Deadlines	60%	Delay project 1 week	Take multiple estimation, prioritize testing tasks and communicate with stakeholders.
2	Lack of Skilled Testers	50%	Low-quality testing	Invest in training, hire skilled testers, and cross-train team members to ensure necessary expertise.
3	Inadequate Requirements	40%	Incorrect testing, rework	Conduct thorough requirements analysis and involve stakeholders in requirement validation.

**14. APROVALS**

Project Sponsor	
Development Management	
EDI Project Manager	
RS Test Manager	
RS Development Team Manager	
Reassigned Sales	
Order Entry EDI Team Manager	