American International University-Bangladesh (AIUB)

Department of Computer Science

Faculty of Science &Technology (FST)

Spring 22 23

Section: H

Software Quality Assurance and Testing

Hospital Management System

A Report submitted
By

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ASSOCIATE PROFESSOR,CS

Checked By Industry Personnel

Name: **Sartaj Mahmud Oishik**

Designation: **Head of Software Architecture**

Company: **IBR Software Services & Soluutions**

Sign:

Date: 10/05/2023

Software Test Plan

for

<Hospital Management System>

Version 1.0 approved

Prepared by < **ROY MRIDUL KUMAR (20-43517-1) , AHMED SHOWYEAB (19-39668-1) , HASAN MD BENJIR (20-43494-1), MD. TAOHID HASAN ANIK(20-43028-1)**>

< **AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH**><15.05.2023>

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Revision History

Revision	Date	Updated By	Update Comments
1	2023.04.01	ROY MRIDUL KUMAR	First Draft
2	2023.04.15	AHMED SHOWYEAB	Second Draft
3	2023.05.03	HASAN MD BENJIR	Third Draft
4	2023.05.10	MD. TAOHID HASAN ANIK	Forth Draft

1. TEST PLAN IDENTIFIER: HMS-V1.0

2. REFERENCES

SRS DOCUMENT LINK:

- https://asq.org/quality-resources/software-quality
- https://www.altexsoft.com/whitepapers/quality-assurance-quality-control-and-testing-the- basics-of-software-quality-management/
- https://www.google.com/amp/s/www.geeksforgeeks.org/types-software-testing/amp/

3. INTRODUCTION

Background to the Problem

The management of patient data and the delivery of quick and efficient healthcare services provide various issues for the healthcare sector. Healthcare providers are looking to technological solutions like healthcare management systems to simplify procedures and enhance patient outcomes as the sector continues to change and adapt to shifting patient requirements. A healthcare management system is an application of software that helps in the administration of patient information, appointments, medical records, billing, and other operational duties. These systems allow healthcare professionals to follow patients' progress, get patient data properly, and automate several time-consuming administrative activities, all of which contribute to better patient care. A healthcare management system's objective is to improve the standard of patient care while reducing costs and increasing provider productivity.

Solution to the Problem

A web application called a healthcare management system (HMS) is made to improve patients' and providers' access to healthcare easier and better. With the help of the system, people may register online, make appointments, and get expert medical advice. Patients may easily manage their health and well-being from the convenience of their own homes thanks to an accessible interface and automatic functions.

To ensure quick and dependable performance, the Healthcare Management System was developed using the most recent technology and programming languages. To provide customers a smooth experience, the system uses PHP, JavaScript with a clear and expressive syntax. The user interface is made to be accessible from any platform, including desktop, laptop, tablet, and smartphone, thanks to its modern, responsive design.

Patients may quickly and easily create an online profile with their personal data, medical history, and insurance information. The system securely stores this data, and it is updatable as necessary. Patients may use the system to schedule appointments with their preferred physicians, nurses, and specialists. Patients get access to a calendar of their coming appointments, reminders, and the ability to change or cancel them as necessary.

Healthcare professionals can also use the Healthcare Management System's patient management, medical record keeping, and appointment scheduling functions. Through the system, providers can communicate with patients, update medical records, and access patient data. The system also has a feedback component that enables patients to share their opinions on their interactions with healthcare professionals.

4. REQUEIREMNT SPECIFICATION

4.1 System Features

1. Registration:

1.1 When users will fill up the registration form they should give only valid information.

1.2 They have to give their correct email address, phone number, Date of birth .

1.3 Their information will be verified later.

Priority Level: High
Precondition: This registration is only for patients.

2. Login

1.1 User login into the system with a username and password according to registration.

1.2 The login information will be cross-checked against database records.

1.3 If the login is successful, the user account's home page is displayed.

1.4 if the username or password are entered incorrectly then the system will produce a error message .

Priority Level: High
Precondition: The user has a valid username and password

3.Profile Update & View:

3.1 All user can modify their profile.

3.2 User must fill all the required info.

Priority Level: Medium
Precondition: user has to be valid.

4. Appointment management

4.1. Only for valid admin.

4.2. An admin can modify any appointment.

Priority Level: Medium
Precondition: user has to be a valid admin.

5. Blood management

5.1. Only for valid admin.

5.2. An admin can view the blood bank list and also modify them

Priority Level: Medium
Precondition: user has to be a valid admin.

6. View and Search the Doctor's Daily Schedule

6.1. Any patient (users) can view this page.

6.2. Doctors' daily schedules were previously stored in the database.

Priority Level: Low
Precondition: user must log in to see the doctor's schedule.

7. View the Services List

7.1. Any patient (users) can view this page.

7.2. All the services provided by the hospitals were previously stored in the database.

Priority Level: Low
Precondition: user must log in to see the services list.

8. View Patient Medical History & Add Prescriptions

8.1. Allow doctors to view a patient's medical history and add prescriptions.

8.2. Doctors can Provide a comprehensive list of past medical treatments, diagnoses, and prescriptions.

Priority Level: High
Precondition: user must be a valid doctor

9. Operation & Appointment Schedules Management

9.1. Allow authorized staff **(Doctors)** to manage the operation and appointment schedules.

9.2. Provide appropriate error messages if the staff is not authorized to manage the

Priority Level: High
Precondition: user must be a valid doctor

10. User Management

10.1. Allow authorized staff(Admin) to create, view, update and delete user accounts.

10.2. Ensure that users have appropriate access rights based on their roles.

10.3. Provide appropriate error messages if the user enters invalid information.

Priority Level: High
Precondition: user must be a valid Admin.

4.2 System Quality Attributes

Security: The system should be designed to protect the confidentiality, integrity, and availability of patient and healthcare data, and comply with relevant regulations and standards.

Priority Level: High
Precondition: N/A

Usability: The system should be easy to learn and use, with a consistent and intuitive user interface, and provide appropriate feedback to users.

Priority Level: Medium
Precondition: N/A

Reliability: The system should be reliable and operate without significant downtime or data loss, and provide mechanisms for fault tolerance, error recovery, and data backup.

Priority Level: High
Precondition: N/A

Scalability: The system should be able to scale up or down to accommodate changes in user demand, data volume, and system complexity.

Priority Level: High
Precondition: N/A

Performance: The system should be able to handle a large number of concurrent users, transactions, and data without significant degradation in response time or system availability.

Priority Level: Medium
Precondition: N/A

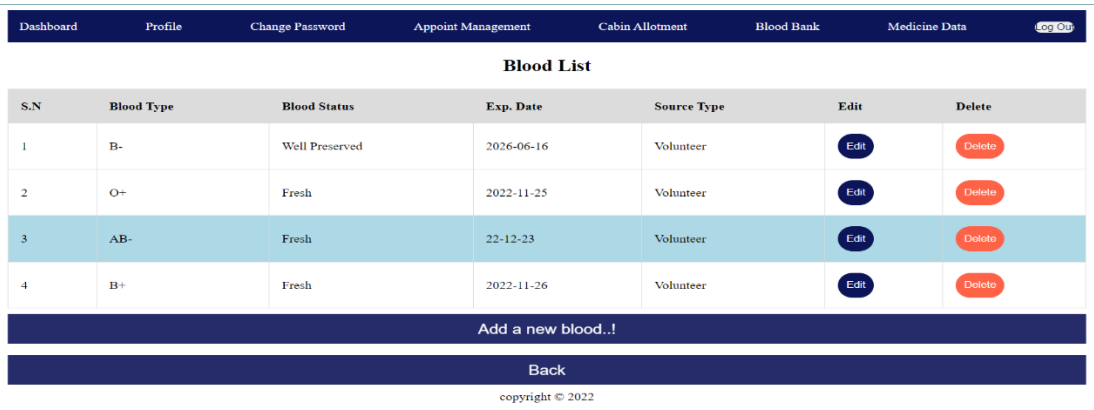
Interoperability: The system should be able to exchange data and communicate with other healthcare systems, such as electronic health record systems, medical devices, and other healthcare applications.

Priority Level: Medium
Precondition: N/A

Performance Monitoring: The system should provide mechanisms for monitoring system performance and detecting and responding to performance issues.

Priority Level: High
Precondition: N/A

4.3 System Interface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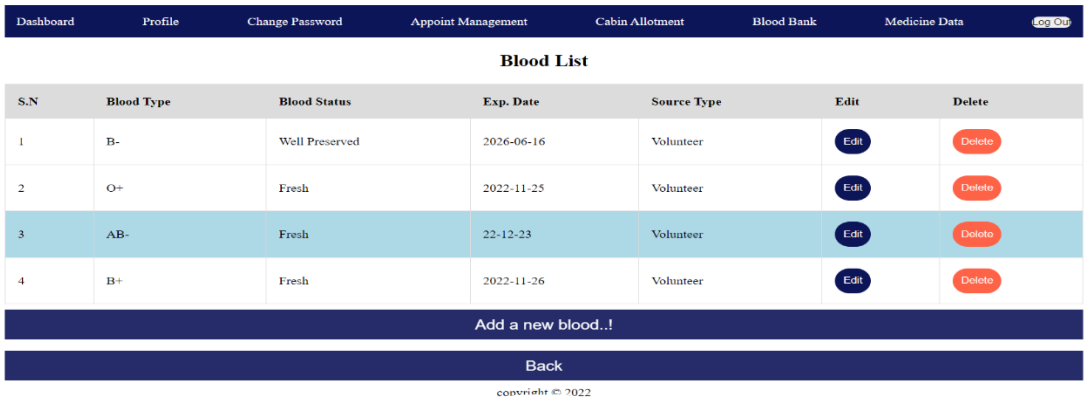
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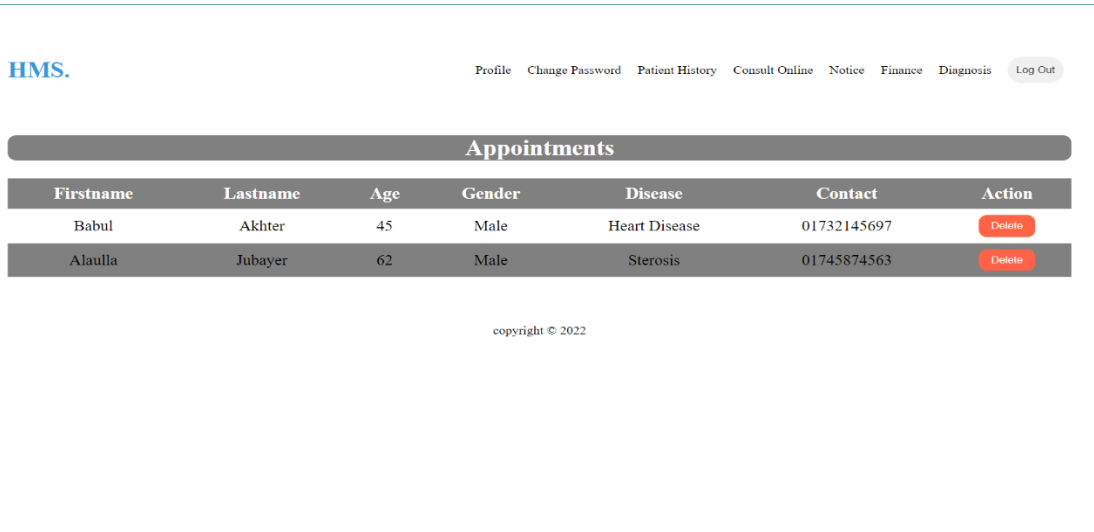
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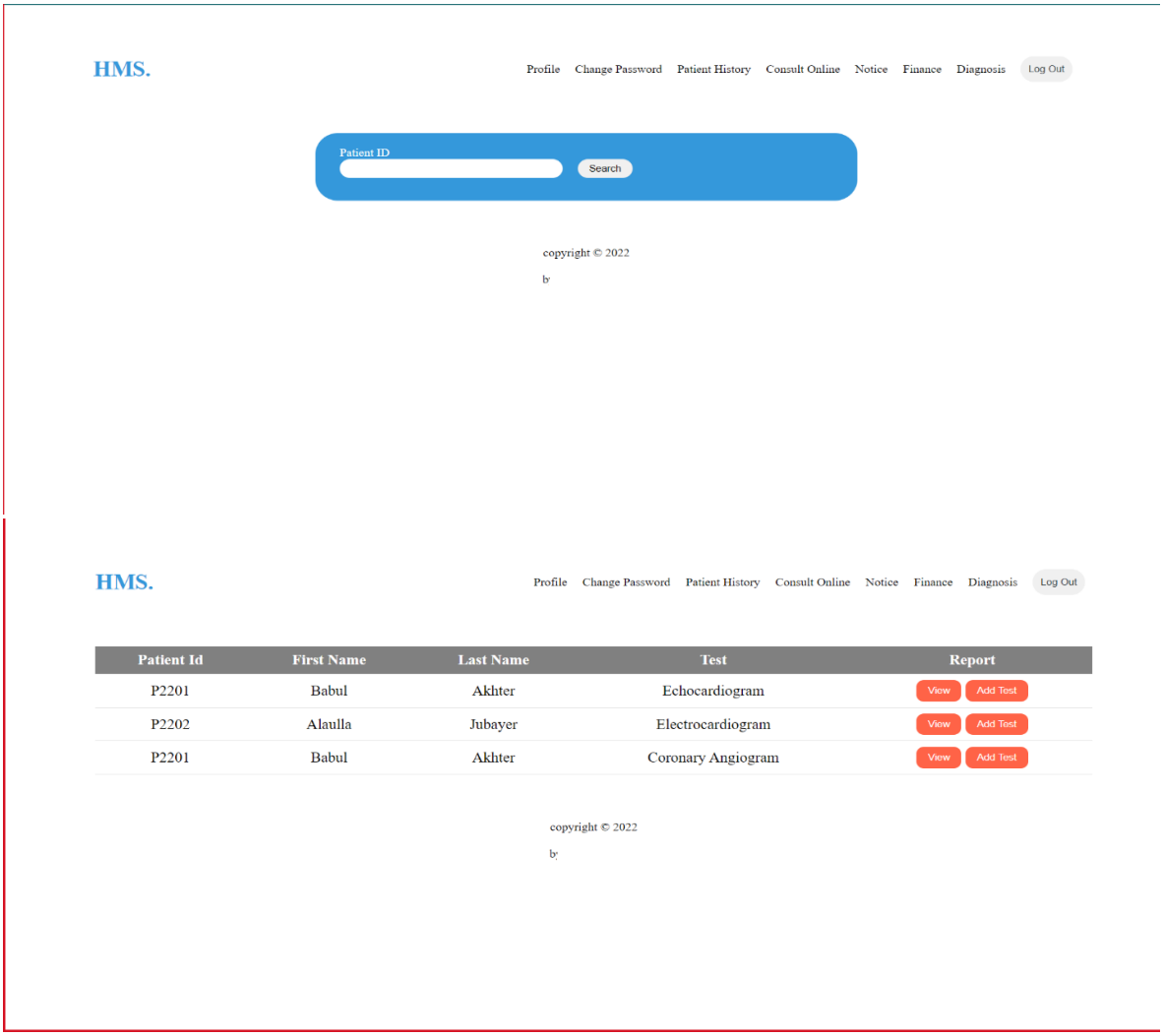
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4.4 Project Requirements

List of some project requirement for Hospital Management System. these are:

Budget: The Hospital Management System development, testing, and deployment expenditures are all included in the project's overall budget of $5000.

Time: The project's delivery date of June 30, 2024, is expected to be within a 12-month period.

Resources: A project manager, software developers, testers, and UX designers will be among the development team's ten members.

Environment: The healthcare's existing IT infrastructure should be compatible with the programming languages and the latest technologies used to construct the hospital management system.

5. FEATURES NOT TO BE TESTED

The following is a list of the areas that will not be specifically addressed. All testing in these areas will be indirect as a result of other testing efforts. For example:
In this project some Feature not to be tested:
1. Profile Update
2. Change Password
3. User Internet Connectivity
4. User Transection Gate way

6. TESTING APPROACH

6.1 Testing Levels

In this project, we'll put a test plan to improve the healthcare system to behavior. We must go through three main stages of testing to make sure the software is of a good quality. Functional testing, integration testing, and acceptance testing are some of these phases.

Functional Testing: To make sure the system satisfies all functional criteria, we'll use black-box and white-box testing strategies. White-box testing will focus on evaluating the internal workings of the system, while black-box testing will focus on testing the system as seen by the user.

Unit testing: To make sure the system's modules are operating as intended, we will do unit testing on each module individually. After finishing each module, we will execute the test cases we have created for each unit. To make sure that any flaws are found and corrected early in the testing process, we will employ both static and dynamic unit testing methodologies.

Integration Testing: To make sure that all individual modules function properly when integrated into the system, we will conduct system integration testing. To guarantee that all interactions between modules are accurate, we will develop test cases for the interface between system components.

Acceptance Testing: The final stage of testing is acceptance testing. This will be done by the final users with the help of our development team. The goal of acceptance testing is to ensure that the system meets all the user requirements. During this phase, we will create test cases that focus on the system's usability, reliability, and performance. We will also ensure that the system meets all regulatory requirements.

6.2 Test Tools

A "Hospital Management System" software application may be tested using any number of test tools available on the market. For in this project have used Selenium.

Selenium: This is an automated testing tool that is available for free and is frequently used to test web applications.

6.3 Meetings

In a software testing meeting, testers for a particular software application get together to talk about how the testing is going, any problems they've found, and any necessary next steps. This can include poring over the test findings, locating any errors or faults in the program, and figuring out how to fix them. Before to being made available to the general public, the meeting's objective is to make sure the software is in good working order and complies with all applicable requirements. The project manager, senior test engineer (test lead), junior test engineer, testing manager, database analyst, and others could attend the software testing meeting.

7. TEST CASES/TEST ITEMS

Project Name: Hospital Management System			Test Designed by: ROY MRIDUL KUMAR	
Test Case ID: FR_1			Test Designed date: 28.04.2023	
Test Priority (Low, Medium, High): Medium			Test Executed by: ROY MRIDUL KUMAR	
Module Name: Appointment List			Test Execution date:03.05.2023	
Test Title: User can read, create ,update and delete .				
Description: Test website Appointment List				
Precondition (If any): User must have valid username and password and role must be admin.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Enter username 3. Enter password 4. Click login 5. Go to Appointment management	Username: fxFarhan Password: 123	User should view, create, update and delete	As expected,	Pass
Post Condition: Updated data should post to the database and also the appointment list page should fetch the data from the data base.				

Project Name: Hospital Management System			Test Designed by AHMED SHOWYEAB	
Test Case ID: FR_2			Test Designed date: 02.05.2023	
Test Priority (Low, Medium, High): Medium			Test Executed by: AHMED SHOWYEAB	
Module Name: Blood Bank			Test Execution date:07.05.2023	
Test Title: User can read, create ,update and delete .				
Description: Test website Blood Bank				
Precondition (If any): User must have valid username and password and role must be admin.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Enter username 3. Enter password 4. Click login 5. Go to Blood Bank	Blood Group :	User should view, create, update and delete	As expected,	Pass
Post Condition: Updated data should post to the database and also the blood bank page should fetch the data from the data base.				

Project Name: Hospital Management System			Test Designed by HASAN MD BENJIR	
Test Case ID: FR_3			Test Designed date: 05.05.2023	
Test Priority (Low, Medium, High): Medium			Test Executed by HASAN MD BENJIR	
Module Name: Cabin Allotment			Test Execution date:10.05.2023	
Test Title: User can read, create ,update and delete .				
Description: Test website Cabin Allotment				
Precondition (If any): User must have valid username and password and role must be admin.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Enter username 3. Enter password 4. Click login 5. Go to Cabin Allotment	Sit And Cabin	User should view, create, update and delete	As expected,	Pass
Post Condition: Updated data should post to the database and also the cabin allotment page should fetch the data from the data base.				

Project Name: Hospital Management System			Test Designed by MD. TAOHID HASAN ANIK	
Test Case ID: FR_4			Test Designed date: 08.05.2023	
Test Priority (Low, Medium, High): High			Test Executed by MD. TAOHID HASAN ANIK	
Module Name: Admin login			Test Execution date:12.05.2023	
Test Title: Admin should verify username and password .				
Description: Test website login and logout part.				
Precondition (If any): Admin must have valid username and password.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Enter username 3. Enter password 4. Click login	Username: fxFarhan Password: 123	Admin should use verify username and password for login.	As expected,	Pass
Post Condition: After login the page will direct to the dashboard according to the user role.				

Project Name: Hospital Management System			Test Designed by ROY MRIDUL KUMAR	
Test Case ID: FR_5			Test Designed date: 30.04.2023	
Test Priority (Low, Medium, High): High			Test Executed by ROY MRIDUL KUMAR	
Module Name: Doctor login			Test Execution date:1.05.2023	
Test Title: Doctor should verify username and password .				
Description: Test website login and logout part.				
Precondition (If any): Doctor must have valid username and password and role must be doctor.				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Enter username 3. Enter password 4. Click login	Username: fxFarhan Password: 123	Doctor should use verify username and password for login.	As expected,	Pass
Post Condition: After login the page will direct to the dashboard according to the user role.				

Project Name: Hospital Management System			Test Designed by AHMED SHOWYEAB	
Test Case ID: FR_6			Test Designed date: 05.05.2023	
Test Priority (Low, Medium, High): Medium			Test Executed by: AHMED SHOWYEAB	
Module Name: Medicine Data			Test Execution date:09.05.2023	
Test Title: User can read, create ,update and delete .				
Description: Test website Medicine Data .				
Precondition (If any): User must have valid username and password role must be admin				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Enter username 3. Enter password 4. Click login 5. Go to Medicine date	Medicine Search	Admin can find easily medicine data.	As expected,	Pass
Post Condition: Updated data should post to the database and also the medicine data page should fetch the data from the data base.				

Project Name: Hospital Management System			Test Designed by HASAN MD BENJIR	
Test Case ID: FR_7			Test Designed date: 07.05.2023	
Test Priority (Low, Medium, High): Medium			Test Executed by HASAN MD BENJIR	
Module Name: Patient history			Test Execution date:10.05.2023	
Test Title: Check patient history				
Description: Test website Patient History .				
Precondition (If any): User must have valid username and password and role must be doctor				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Enter username 3. Enter password 4. Click login 5. Go to Patient History	Patient History	Doctor can Explore the patient history.	As expected,	Pass
Post Condition: Search by patient id which will fetch data from the database according to the patient id				

Project Name: Hospital Management System			Test Designed by MD. TAOHID HASAN ANIK	
Test Case ID: FR_8			Test Designed date: 06.05.2023	
Test Priority (Low, Medium, High): Medium			Test Executed by MD. TAOHID HASAN ANIK	
Module Name: Diagnosis			Test Execution date:13.05.2023	
Test Title: Check add test and View .				
Description: Test website Medicine Date .				
Precondition (If any): User must have valid username and password and role must be doctor				
Test Steps	Test Data	Expected Results	Actual Results	Status (Pass/Fail)
1. Go to the website 2. Enter username 3. Enter password 4. Click login 5. Go to Diagnosis	Check Patient test	Doctor can add test and View result	As expected,	Pass
Post Condition: user can create digenesis report, update the data and also delete, data should post in the database.				

8. ITEM PASS/FAIL CRITERIA

User login:
Pass: if User can use valid username and password that user can login in Dashboard.
Fail: if the username or password are entered incorrectly then the system will produce a error message .

Appointment management :

Pass: Only for valid admin can Access.

Fail: Null

Blood management:

Pass: An admin can view the blood bank list and also modify them
Fail: Null

9. TEST DELIVERABLES

- Acceptance test plan
- System/Integration test plan
- Unit test plans/turnover documentation
- Screen prototypes
- Report mock-ups
- Defect/Incident reports and summaries
- Test logs and turnover reports

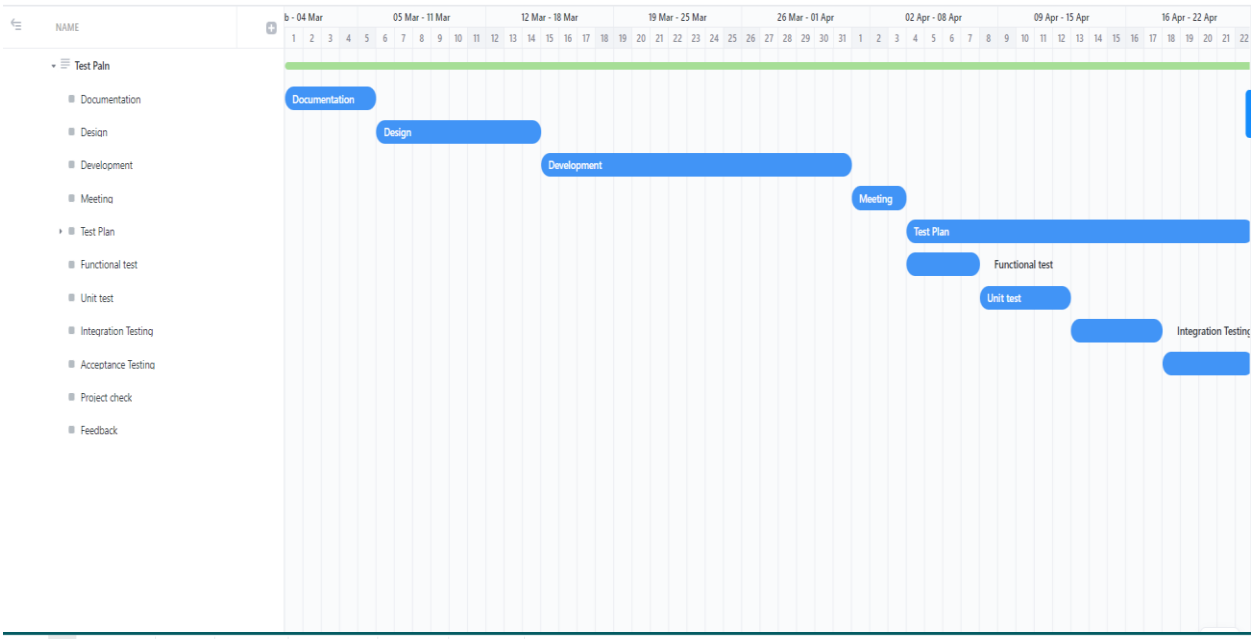
10. STAFFING AND TRAINING NEEDS

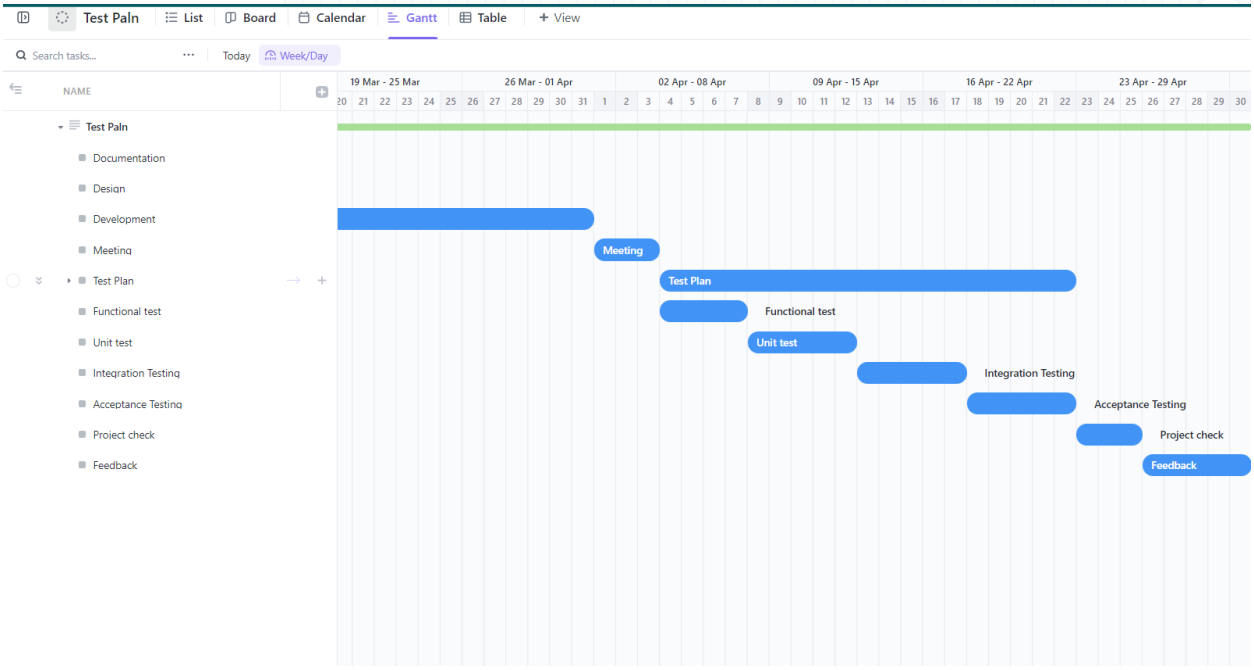
It is impossible to overstate how important it is to have qualified individuals and teams working on a project during its development and delivery. For the project to be successfully completed on time and within budget, competent employees and personnel are crucial. It might be difficult to complete projects on time without experienced labor. As a result, it is crucial to carefully assess the skills of employees and individuals through testing and skill-based training sessions. A project manager, a senior test engineer, a junior test engineer, a testing manager, a database analyst, and other experts may be on the project team. The project manager can take over or swap out the junior engineer with someone who has the necessary experience if a senior test engineer is not available.

11. RESPONSIBILITIES

	TM	PM	Dev Team	Test Team	Client
Acceptance test documentation & execution	ok	ok		ok	ok
System/Integration test documentation & execution	ok		ok	ok	
Unit test documentation & execution	ok		ok	ok	
System Design Reviews	ok	ok	ok	ok	ok
Detail Design Reviews	ok	ok	ok	ok	
Test procedures and rules	ok	ok	ok	ok	
Screen & Report prototype reviews			ok	ok	ok
Change Control and regression testing	ok	ok	ok	ok	ok

12. TESTING SCHEDULE





13. PLANNING RISKS AND CONTINGENCIES

Every project should include planning for risks and unanticipated events, but hospital management systems are especially essential for patient care. The followings are some typical risks and potential backup plans that should be taken into account during the planning stage:

1) System failure risk: System failure risk may have an impact on patient care and safety. Duplication, backups, and failover techniques should all be included in a backup strategy in order to avoid any downtime. The backup strategy must have processes for system recovery, communication, and risk reduction.
2) Failure of a Third-Party Vendor: This risk can affect the system's reliability and working properly. The backup strategy should contain protections against vendor failure such as contract rules, performance monitoring, and due investigation. The backup strategy should contain procedures for choosing an alternate vendor, transferring to them, and risk reduction.

14. APROVALS

Project Sponsor- ROY MRIDUL KUMAR	Approved
Development Management- AHMED SHOWYEAB	Approved
EDI Project Manager- HASAN MD BENJIR	Approved
RS Test Manager- AHMED SHOWYEAB	Approved
RS Development Team Manager-ROY MRIDUL KUMAR	Approved
Reassigned Sales- MD. TAOHID HASAN ANIK	Approved
Order entry EDI Team Manager- HASAN MD BENJIR	Approved