e-Treatment Clinical Application

Software QA Test Plan

Version: <1.0>

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Prepared By: Group 2

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1 Document Acceptance and Sign-Off

By signing below, I acknowledge that I have read the entire contents of this document and accept the document in this form as reasonably fulfilling the goals described in the section titled Document Purpose. I further agree that this will constitute the document of record and cannot be changed without review and acknowledgement of the groups shown below:

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2 Revision History

Document/Department Editor:			
Date	**Revision #**	**Editor**	**Description of Change**
12/05/2021	1.0	Diksha Desai	Documented the Introduction
12/07/2021	1.1	Diksha Desai	Added the testing objectives and testing strategies
12/08/2021	1.2	Aelina Das	Test Schedule and Testing Tool Requirements
12/08/2021	1.3	Nirmayee Dighe	Test Environment, Roles and Responsibilities
12/09/2021	1.4	Aditya Dasani	Entry Exit Criteria, In Scope Out of Scope
12/09/2021	1.5	Aelina Das	Defect Lifecycle Management
12/10/2021	1.6	Nirmayee Dighe	Testing Monitoring
12/10/2021	1.7	Aditya Dasani	Risk/Assumption Dependencies
12/11/2021	2.0	Diksha Desai, Aelina Das	Reviewed and modified Test environment

12/12/2021	2.1	Aditya Dasani, Nirmayee Dighe	Reviewed and modified Testing Strategy, added Glossary

3 Glossary

Term	Definition
Clinical Clearance	This flag determines the patient treatment for every patient. If it is set to yes, the patient treatment is approved if not the patient treatment is declined.
Financial Clearance	This flag determines the patient's admission. If set to yes, the patient is admitted if not, the patient is rejected.
BCBS	Blue Cross Blue Shield. A type of insurance that the patients who are taking treatment at home opt for.
Medicare, Medicaid Insurance	This insurance is provided to patients with low income by the State and Federal Program. A patient can claim this insurance while he/she is taking the treatment in clinic.
Commercial Insurance	This is a type of insurance that is used by business owners, employees of an organization. A patient can claim this insurance while he/she is taking the treatment in clinic.
DI	Document Imaging technique will replicate the documents that are usually used.
HIE	Health Information Systems stores and manages all the health care data
Hemo Dialysis	Procedure where a dialysis and a special filter is used to purify the blood. Available for home as well as in clinic treatment
Peritoneal Dialysis	Procedure to remove the unwanted and vestigial products from blood. Available for home treatment only.
Machine HH	Machine used for at home treatments with Hemo Dialysis
Machine HP	Machine used for at home treatments with Peritoneal Dialysis
Machine CH	Machine used for in clinic treatments with Hemo Dialysis

4 Introduction

A e-Treatment Clinicals application is replacing the legacy Pro-Care application. The e-Treatment Clinicals application has a more comprehensive functionality for the nurses to do their daily jobs better. In the e-Treatment system patients will get admitted based on their Financial Clearance status and get treated depending on Clinical Clearance status. The lab orders of the patient are sent to the InVision Labs and the labs results are then sent back to the e-Treatment application.

The e-Care Clinicals system will send all treatment and lab charges to the Financials system and the Financials System will then send claims to the insurance companies and the GenTrack company. The Holding Trust Company receives payment from the insurance companies

depending on the claims. Gentrack performs weekly reconciliation between the Payments and the Claims and stores results for audit purpose.

5 Testing Objectives

The purpose of testing this application is to verify smooth running of e-Treatment Clinicals application so that it can replace existing legacy Pro application which helps nurses to do their daily jobs better.

• The main functions of the system are patient admission, patient treatments, treatment and lab charges, financial billing and reconciliation.

• Objectives
- Check whether e-Treatment Clinicals System functionality is working as expected without any error or bugs in real business environment
- Check whether data is correctly stored in database
- Check whether the patient gets admitted based on the financial clearance status
- Check the financial systems are accurate and there are no bugs in the system

6 Testing Strategy

6.1 Unit and SIT Testing

Unit Testing – Testing is performed at module level in the development environment by the developers.

SIT Testing - System Integration Testing (SIT) is performed to verify the interactions between the modules of a software system. Performed in the development environment by the Business Systems Analyst and the developers.

6.2 System and Integration Testing

System Testing - testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirement, done by QA team
Integration Testing - Integration testing is done to test the modules/components when integrated to verify that they work as expected. It is mostly done by QA team, but developers can also perform integration testing

6.3 Performance and Stress Testing

Yes, performance testing should be part of this testing as this system uses n number of entities at the same time which can induce load on the system.

6.4 User Acceptance Testing

User Acceptance Testing (UAT) is a type of testing performed by the end user or the client to verify/accept the software system before moving the software application to the production environment.
The UAT team is responsible for the User Acceptance testing.

Role of QA team in UAT:
QA teams here ensure that each method and strategy is executed to improve the quality and usability of the product while making user-friendly.
QA teams streamline the testing process in a way that the outcome of UAT is much better

QA needs to work on iterating the product functions based on improving the quality of a product. Through various inspections and process checklists, QA teams can improvise their processes and contribute to developing a top-quality product.

6.5 Automated Regression Testing

Yes, automated regression testing is part of the application.
It is done to ensure that any changes made to a Build did not negatively impact any of the functionality of the application.

7 Test Environments

Testing environment is an arrangement of all the required software and hardware settings essential for testing. The setting of the environment depends upon the requirement of the product that is to be added. For one application to be tested the QA might have to develop various test scenarios. Hence, the settings of the testing environment completely depend up on the application or the build that is to be tested.
Additional components which are usually taken into consideration while setting up a test environment are as follows:

- Setting up a test server – Each test may or may not be executed on the local machine itself. Hence, we need to establish a test server.
- Setting up a network – Setting up of Internet, LAN WIFI
- Testing the local machine's set up
- Creating Test Data
- Check the Bug Reporting Tools

7.1 Test Data

Like test environment, test data will depend upon the application which is to be tested by the QA. After studying the requirements of the application, the QA can create appropriate test cases based up on the test scenarios which are to be tested.

8 Roles and Responsibilities

1. QA Engineer –
    a. In charge of testing software in order to detect errors and analyse the bugs which are detected during the test phases.
    b. Document the results acquired
    c. There are two types of QA Engineer: Manual QA Engineer and Automation QA Engineer

2. Test Analyst –
    a. Decides what exactly needs to be tested and the procedure to do the same
    b. Responsible to systemize the information.
3. Test Architect –
    a. Responsible to look for solutions that meet the client's requirement and align with the organization's resources as well.
    b. Has a complete knowledge of the software to be tested.
4. Test Manager –
    a. In charge of preparing test strategy and outlays the scope of work for the other members.
    b. Responsible for the success or failure of the project
5. QA Team Lead –
    a. The main Supervisor who overlooks all the other members in the tam.
    b. Conducts interviews and hires new members in the team
    c. More aligned with managing the team rather than the technical tasks.

9 Monitoring Testing

- Reporting and tracking defect status as per the defect management process.
- Document and publishing test status reports as defined by implemented test methodology.
- To verify if all the approved changes could be fused into the testing, referencing the change control process as appropriate.
- Schedule test meetings for monitoring progress as appropriate.

10 Entry and Exit Criteria

Entry Criteria

Some specific conditions that must be present before the testing process starts for this e-Treatment Clinicals application is the entry criteria for the STLC (Software Testing Life Cycle) of the application.

- Appropriately requirements regarding Patient Admission, Patient Treatments, Treatment and Lab Charges and Financial Billing should be defined.
- Appropriately requirements regarding Patient Admission, Patient Treatments, Treatment and Lab Charges and Financial Billing should be approved.
- Partial or Complete code for each requirement must be available for testing.

- Patients admitted, Patient's treatment type, charges for each patient, types of treatment, and financial information about each patient's data must be available and accessible for testing.
- Readiness of test cases for testing each step of the process must be there.
- Test Environment should be set up with necessary resources like tools and devices.
- Spot checks to make sure if all the pre-conditions are fulfilled.
- Getting rid of tasks like patients replies and approval process that are delaying the process timeline.

Exit Criteria

- Making sure of all the critical test cases for admission of patient, treatment of patients, charges and billing are passed.
- Achieving complete coverage of each functional requirement.
- Spotting and fixing the high priority defects and errors. For example, errors in charges, billings and transferring the lab charges should be fixed.
- Fixing all the "Show Stopper Defects" or "Blockers" which are blocking the final functioning of the application and making sure that no critical defects and errors are in open status.
- Testing again and closing all the high priority defects and errors to execute the regression scenarios successfully.

11 In Scope and Out of Scope

List the In-Scope functions that will be tested.

- Patient Admission.
- Patient Treatment.
- Lab Orders.
- Lab Results.
- Charges.
- Transfer of Charges.
- Medical Claims.
- Payments.

List the Out-of-Scope functions of the application that will not be tested.

- Maintenance of Machines.
- Wages of the workers.
- Maximising Patients Benefits.
- Improvisations on machines for Home and In-Clinic treatment.
- Checking Annual Agreements with Insurance Companies.
- Payment terms and condition with Insurance Companies.

12 Risk/Assumptions and Dependencies

12.1 Risks/Assumptions

Risk	Mitigation
All Fetched data is Precise and to the point	Double checking and making sure about the data
The Bills which are transferred will be recovered from the insurance companies and patients	Checks after every cycle for the pending payment
All the home treatment equipment's are giving unaltered output	Verifying with the factual data of other in-clinic patients
Transfer of the bills from e-treatment to financial system will be done flawlessly	Verification of before and after numbers of the bills

12.2 Dependencies

Dependencies	Comments
Data Correctness	Test cases for Verification of data can be written
Bills are paid on time	Maintenance of machines and wages of the workers are dependent on bill payments on time.
These are the only requirements for whole system to work	We are missing the requirements of payments and maintenance for the whole flow
Three listed insurance companies have a tie up with our company	Annual agreements with the companies should be checked

13 Test Schedule

Deliverables	Expected Date(mm/dd/yy)
Review BRD and FSD	12/02/21
User Story Review	12/13/21
Sprint 1 to Sprint 6	04/01/22
Test Plan	01/10/2022

Test Plan Review	01/15/2022
Test Scenarios from BRD and FSD	01/10/2022
Design Test Cases	04/02/2022
Software Quality Testing	04/06/2022
Performance and Load Testing	03/12/2022
UAT	03/19/2022
Pilot Release	03/22/2022
Deployment	04/14/2022
Project Retrospective	05/01/2022

14 Testing Tools Requirements

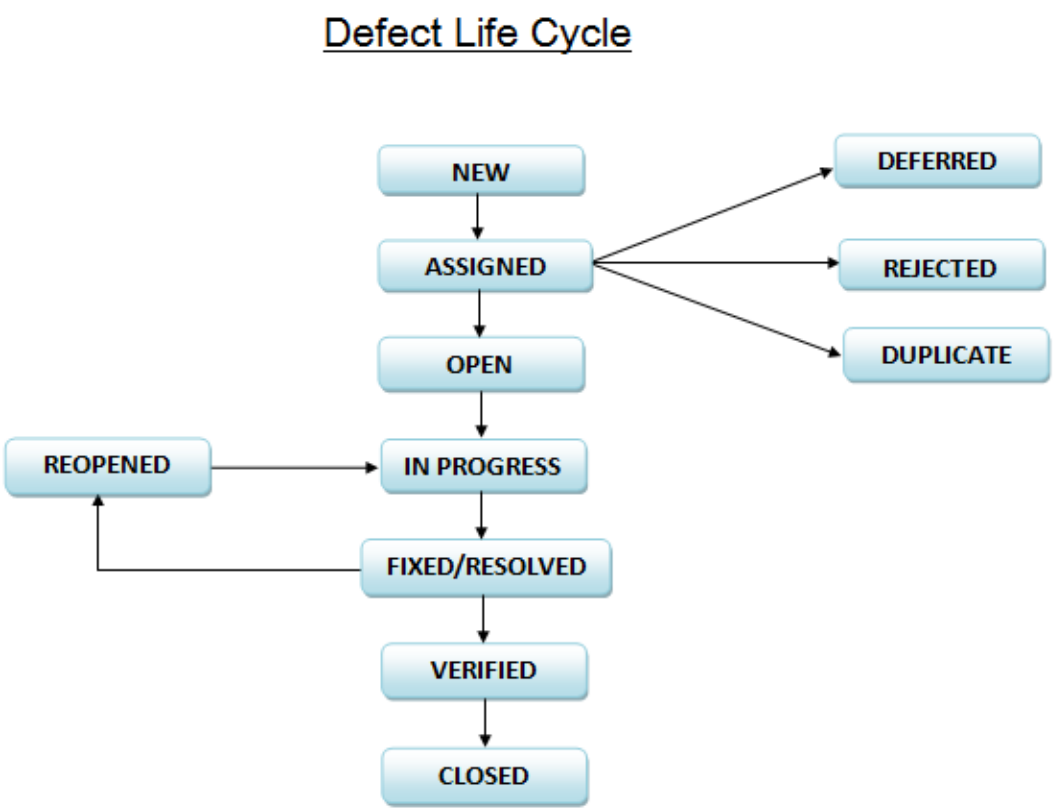
The following options are available:

1. **Selenium**, for automation testing
2. **JIRA**, for Project Tracking
3. **Microsoft Excel** for generating Test Condition Matrix, Test Cases and Traceability Matrix
4. **Microsoft Word**, we used for Test Plan

15 Defect Life Cycle Management

The defect life cycle is used to smoothly coordinate and communicate the current status of the defect which changes to various assignees and makes the defect fixing process systematic and efficient.

The life cycle of Defect Management:



- **New**: When a new defect is found and posted for the first time, the status is assigned as "New"
- **Assigned**: Once the defect is posted, the bug is assigned to the developer
- **Open**: The developer analyzes the defect and works on it
- **In Progress**: Once the developer starts working on the defect, the status changes to "In Progress"
- **Fixed**: As soon as the developer verifies the changes, he/she makes the status as "Fixed"
- **Verified**: The tester then tests the defect once gets fixed by the developer. If there is no defect detected, the status is assigned to "Verified"
- **Reopen**: If the defect still exists even after the developer had given a fix, the tester changes the status to "Reopen". The defect again goes through the defect life cycle
- **Closed**: If the defect is no longer exists, the tester assigns the status as "Closed"
- **Duplicate**: If the defect is repeated twice or it is related somehow with any previous defect, the status is assigned to "Duplicate"
- **Rejected**: If the developer does not think that the bug is a valid defect, then the status is changed to "Rejected"
- **Deferred**: If the current defect is not assigned as a priority and is expected to be fixed in the next release, the status is assigned to "Deferred"