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CredersiVend

<<Client>>

<<17/03/23>>

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1. Introduction

1.1. Project Background

Credersi-vend is a vending machine company founded in 2009, in Bury, St Edmunds. The company supplies and operates vending machines that sell premium Suffolk-based products to museums and other tourist sites of historical interest. Credersi-vend has two software systems, a legacy internal console application called Credersi-vend Customers, and a new web application which is currently in Alpha release, called Credersi-vend Admin.

Credersi-vend are concerned that the new Admin system may have a large number of defects as the work product is new and only in the Alpha release, but their internal legacy system also needs to be tested.

Credersi-vend have hired Roq to test both of these systems, and as a part of the project, the Roq testing team is responsible for developing a test plan which ensures that both the internal legacy system and the new admin system meet the functional, performance, and security requirements specified in the project scope as defined in this test plan. The testing plan will include component testing, integration testing, system testing, and acceptance testing. The development of this plan will involve collaboration with teams within the Credersi-vend company, including the original developer of the admin system, the current development team, and the business stakeholders.

The goal of this test plan is to identify and mitigate any potential defects or issues in both Credersi-vend systems before the admin system continues in development, and to ensure the quality of the internal legacy system. This will help to ensure that the new admin system will be improved based on the findings of the testing, and to provide potential improvements needed for the legacy system to meet the client's requirements.

Purpose

The purpose of this document is to describe the scope and high-level approach for the work to be undertaken, along with supporting material on factors that will affect the testing.

1.2. Test Objectives

One primary objective of testing application systems is to assure that the system fully meets the client's requirements, including quality requirements (non-functional), and fit metrics for each quality requirement, as well as assuring that all use case scenarios are satisfied, and maintaining the quality of the product. Once the project development life cycle has ended, the user should find that the project has at least met, if not exceeded, all expectations as detailed in the requirements.

A secondary objective of testing application systems is to identify and expose any issues and risks, communicate all known issues to the project team, and ensure that all issues are addressed in an appropriate manner before testing is complete. This requires careful and methodical testing of the application; first, to ensure all areas of the system are scrutinised and, then, to ensure all issues (bugs) found are dealt with appropriately.

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2. Scope

2.1. Test Scope – Inclusions

2.1.1. Systems Under Test

Item	Purpose	Version
System	Description	Version
Credersi-vend Admin	Web application in Alpha release, uses Neo4j AuraDB graphical database system, Fluid Java API called Routes, Java Spring Boot REST API called Backend, and Svelte web-application called Frontend. This allows administrative users, through a web application, to view customers, sites of said customers, and the vending machines currently on said sites. Administrative users can also add new customers, sites, and machines, which will be added to the database within the relevant tables. The purpose of this system is to allow the vending machine engineers to view the sites which they visit and view the route to a vending machine, using the directions, which are stored in the database.	Alpha
Credersi-vend Customers	This is a legacy internal tool which provides a console application for viewing the list of customers and their details, adding new customer records to the system, with details such as their name and address, querying the list of customers by customer ID to find a specific record, and an option to run some simple smoke tests on the system, as well as an option to quit. This system	Legacy

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Item	Purpose	Version
	uses an entity-framework based SQLite database component called VendDatabase, an object model class library called VendObjects, and a console application called VendCustomers.	

2.1.2. Features Under Test

Feature	Sub-Feature	Reference Document and Version
Features	Description	
Credersi-vend Admin - Login	Ability for users to login to the web application.	
Credersi-vend Admin - Create Customer	Ability for users to create a new record.	
Credersi-vend Admin - Create Site	Ability for users to create a new site for an existing customer.	
Credersi-vend Admin - Create Machine	Ability for users to create a new machine for an existing site.	
Credersi-vend Admin - View Customer	Ability for users to view an existing customer.	
Credersi-vend Admin - View Site	Ability for users to view an existing site for a given customer.	
Credersi-vend Admin - View Machine	Ability for users to view an existing machine for a given site, for a given customer.	
Credersi-vend Admin - Delete Customer	Ability for users to delete an existing customer.	
Credersi-vend Admin - Delete Site	Ability for users to delete an existing site for an existing customer.	

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Feature	Sub-Feature	Reference Document and Version
Credersi-vend Admin - Delete Machine	Ability for users to delete an existing machine for an existing site, for a given user.	
Credersi-vend Admin - Navigate with breadcrumb trail	Ability for users to select a customer, site or machine from the breadcrumb trail to navigate across the web application.	
Credersi-vend Customers - Add Record	Ability for users to add a new customer record to the system and database through the console application.	
Credersi-vend Customers - View Customer List	Ability for users to view the entire list of customers and the details stored about each within the console application.	
Credersi-vend Customers - Exit/Quit Console	Ability for users to exit the console application.	
Credersi-vend Customers - Query Customers	Ability for users to find the details of a customer record by entering a given customer's ID into the console application.	
Credersi-vend Customers - Smoke Test	Ability for users to run simple smoke tests on the console application, within which a number of records are created, added to the database, checked and then deleted from the database.	

2.2. Test Scope – Exclusions

We will be excluding: static/main/resources, JRE System Library, Maven Dependencies, and Referenced Libraries file. All these files are held within the backend file within the CredersiVendAdmin. (maybe root if we don't have time) The CustomerContext class will be excluded from testing, as well as cyber security testing being excluded due to time constraints and the skillset of the testing team. Performance testing will be largely out of scope for this plan, however, the team aims to provide some base performance test results to the client.

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3. Approach

The project will use an agile approach, with a two-week test iteration. At the end of the two weeks, the findings of the test sprint will be presented to the stakeholders. This will mark the end of the test cycle. Exploratory testing will play a part of the testing as the team has never used this type of tool and will be learning as they go. Time will be a significant constraint on testing, as the sprint provides the testing team with only two weeks for planning, requirements writing, test case design, test estimations, testing and presentation preparation and providing a presentation to stakeholders.

Credersi-vend exists in a food retail industry, which means that it is not a particularly safety-critical system, however, the performance and user-experience with the system should be prioritised. Therefore, the testing team plans to spend a suitable amount of time testing at the levels of component, integration, system and acceptance for both Credersi-vend systems.

The customer requirements for this test plan were provided verbally by the client, this may leave room for interpretation so communication with the development team and the product owner will be utilised to ensure that any assumptions can be clarified. Further to this point, the testing team aims to produce a set of user stories for each system respectively, to provide the team with a concrete understanding of the functionality of each system.

These criteria require that each software requirement be complete, unique, consistent, traceable, feasible and maintainable. Test cases will be designed at each test level for each system respectively, with the test cases being peer reviewed by the team before moving onto the next level. The test team will use SMART objectives, to design and perform relevant tests within a constrained time period, with a clear goal set out. The test case designs will be stored as a set of Google Spreadsheets, which the whole testing team has access to at all times. Additionally, any evidence, results and important points will be included within the spreadsheets. Repeatability will be assured by the clear steps provided to recreate a given test within the 'action' field, and traceability will be assured through the use of a unique test ID value for each test.

Two separate spreadsheets will be created; one for the admin system, and the other for the customer system. Each spreadsheet will be split into four separate sets of test cases, with one case each representing a test level.

Test coverage and completion will be determined by the use of automated testing, logging manual test results using spreadsheets, product coverage, risk coverage, requirements coverage, boundary value coverage using boundary value analysis, and referencing the user stories created by the testing team. Also, in order to provide the client with a set of regression tests which can be reused after this test cycle, automated tests will be implemented for both systems. These tests, or some subset of these tests, will form a regression pack for the client.

4. Acceptance Criteria

4.1. Entry Criteria

- The software that will be tested needs to be created.
- The software needs to be able to run stably.

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- The environment for the software needs to be set up correctly and then configured.
- The test plan needs to be completed and reviewed by the testing team and then approved by the stakeholders.
- The software undergoing testing has been deployed inside the test environment and everything is in order and ready to undergo testing.

4.2. Exit Criteria

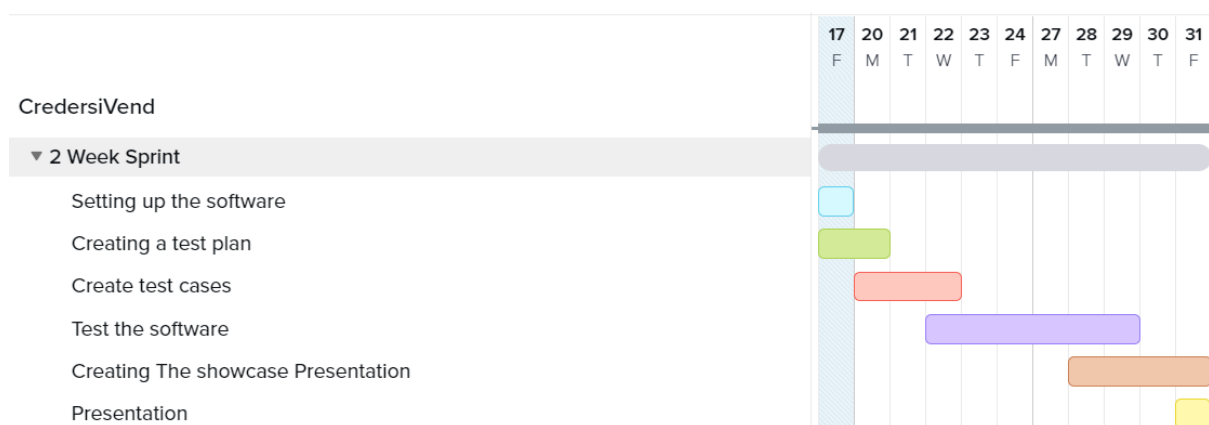
- All the test cases that are included in the test plan have been executed and the results of these tests have been documented.
- All critical or high priority tests have been looked at and tested, then raised up so that they can be dealt with promptly.
- All the documentation used to test the software is completed and then is up to date.
- The tests have been reviewed by the wider team and then stakeholders.
- The test team has fully completed their testing activities.

4.3. Suspension Criteria

- If the testing environment isn't available or is unstable, the testing activities will be suspended until the testing environment is stable again.
- If the testing resources are not available for testing, such as hardware or software. Then the testing activities will be suspended until the requirement for resources have been met.

5. Tasks and Deliverables

5.1. Test Project Plan



5.2. Test Milestones

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Task	Milestone	Planning Date
<i>High level task, e.g. Test Build</i>	<i>The milestone being met, for example build complete</i>	<i>The initial planned date to hit this milestone</i>
Deploy Customer system to test environment	Customer system deployed and ran successfully within the test environment.	17/03/2023
Test Planning	Test plan document completed.	21/03/2023
Deploy Admin system to test environment	Admin system deployed and ran successfully within the test environment.	21/03/2023
Static Review of Source Code & Read Me's	Static review completed for each document within the test scope.	21/03/2023
Create User Stories	User stories created for the Admin & Customers systems.	23/03/2023
Create Initial Test Estimates	Test estimates created.	23/03/2023
Deploy Automated Tests for Customer system	Test results stored.	27/03/2023
Deploy Automated Tests for Admin system	Test results stored.	27/03/2023
Execute Manual Tests for Customer system	Test results and steps stored.	27/03/2023
Execute Manual Tests for Admin system	Test results and steps stored.	27/03/2023

5.3. Test Deliverables

Deliverable	Description	Task
<i>The physical item to be delivered, e.g. a Test Specification</i>	<i>Describe the deliverable in the context of the planned work, e.g. This document records the testable requirements for system x</i>	<i>The associated high level task, e.g. Test Analysis</i>
Test Plan	This document details the objectives, resources, and processes for testing both the Credersi-vend Customer system and the Credersi-vend Admin system.	Test Design
Test cases and result spreadsheet	This document records data obtained from performing and evaluating the planned tests, describes the environmental or operating conditions, and shows the comparison of test	Test Design

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Deliverable	Description	Task
	results with test objectives and expected results.	
Test Status Reports	(test management test rail) A testing status report is a report that contains a summary of all the testing-related activities that happened within a particular time.	

6. Roles and Responsibilities

Role	Responsibilities	Person(s)
Software Tester	<p>identify business requirements</p> <p>carry out stress testing, performance testing, functional testing and scalability testing</p> <p>write and execute test scripts</p> <p>run manual and automated tests</p> <p>write bug reports</p> <p>review documentation</p> <p>provide objective feedback to software development project teams</p> <p>design tests to mitigate risk</p> <p>communicate findings to technical and non-technical colleagues.</p>	Adam Eckley
Software Tester	<p>identify business requirements</p> <p>carry out stress testing, performance testing, functional testing and scalability testing</p> <p>write and execute test scripts</p> <p>run manual and automated tests</p>	Levi Cole

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Role	Responsibilities	Person(s)
	<p>write bug reports</p> <p>review documentation</p> <p>provide objective feedback to software development project teams</p> <p>design tests to mitigate risk</p> <p>communicate findings to technical and non-technical colleagues.</p>	
Software Tester	<p>identify business requirements</p> <p>carry out stress testing, performance testing, functional testing and scalability testing</p> <p>write and execute test scripts</p> <p>run manual and automated tests</p> <p>write bug reports</p> <p>review documentation</p> <p>provide objective feedback to software development project teams</p> <p>design tests to mitigate risk</p> <p>communicate findings to technical and non-technical colleagues.</p>	Harvey McKeown

7. Test Environment Needs

The development environment will be used by the development team to develop and unit test the software. The environment will consist of development workstations running the required software tools, such as IDEs and compilers. The environment will also include version control systems and code repositories. The support and controls needed for the development environment include: access control and security management, regular backups of the code repositories.

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The integration environment will be used to integrate and test the different components of the software. The environment will consist of a database server and systems. The support and controls needed for the integration environment include: access control and security management backup and restore procedures for the database server configuration management and version control.

In addition to the computer system requirements, the test environment will also require rooms and other facilities for testing and training purposes. These facilities will include meeting rooms and training rooms.

External interfaces to other systems or outside the organisation will be supported through the use of APIs and other integration technologies. The support and controls needed for these interfaces include: access control and security management, error handling and reporting procedures, integration testing and verification procedures.

Finally, key administrative requirements and functions for the test environment include backup and restore procedures, batch execution and schedule management, and printer management. These administrative functions will be managed by a dedicated team responsible for the maintenance and support of the test environment.

8. Test Data Needs

The data sources for this project will include:

Test data: This is the data that is specifically created for testing purposes.

Synthetic data: This is the data that is generated by using a tool or program.

The test data will be created or generated based on the specific test scenarios defined in the test plan. The test data will be created manually or generated automatically using Neo4j. Synthetic data will be generated using a data generation tool that simulates real-world scenarios. The data will be generated in a format that is compatible with the application and the test environment.

9. Staffing and Training Needs

The staff that will be responsible for completing the task at hand. Will be Levi, Adam and Harvey. They have already been fully trained over the past 9 weeks to complete the task of testing your software and writing up a detailed report of their findings.

10. Test and Defect Management

10.1. Test Management

The tests will be managed by using spreadsheets to design and create the test cases. after the test cases have been fully created and reviewed. The testing will take place and the results of each test will be documented within the spreadsheet. The test cases will be divided and given to each member of the team, so that we can test effectively and efficiently.

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10.2. Defect Management

Defects will be identified and then documented in a defect report document to outline the defects that have been found in the software. Any defects that have a risk factor of 6+ will be raised instantly as there will be a massive issue in the system that could cause unforeseen consequences. The defects found will also be highlighted at the showcase on the 31/03/2023.

11. Assumptions

Description	Impact	Agreed By	Agreed Date
Assumption	Impact if False		
Access to required resources throughout testing process	Delays or disruptions in testing which may impact project timelines		
Application stability and functionality	Testing process may need to be modified or delays made, which may impact project timelines		
Access to developer and development team within a reasonable time	Testing process may need to be modified or delays made, which may impact project timelines		
Test team has required skills and required knowledge	Additional training, or resources, or both, might be needed, which may impact project timelines and also project budget		
Defects can be resolved within allocated time and budget	Testing process may need to be extended, or additional resources might need to be allocated, which may impact project timelines and also project budget		

12. Constraints

Description	Impact	Agreed By	Agreed Date
Loss of internet connection	All testing activities will stop, until the internet connection can be sorted.		

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Description	Impact	Agreed By	Agreed Date
Test machine stops working	A member of the team will have to stop performing testing activities until they can either get their machine working through IT support or they can access a different machine.		
Fire alarm	All activities will stop until we have been cleared to re-enter the building.		
Pandemic	All activities will stop until each team member is set-up correctly to work from home.		

13. Risks

Description	Impact	Likelihood	Risk Factor	Owner
A team member is unable/off work	3	1	3	Levi
The test environment does not work as intended	4	1	4	Adam
CredersiVend or Roq hardware requires a software update	3	1	3	Harvey
Security Breach	4	1	4	Harvey

This document has been reviewed, and approved for issue at the indicated issue status by the following:

CredersiVend

Name:

Position:

Signature:

Date:

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Roq Test Project Manager

Name:

Position:

Signature:

Date:

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