

## Storage-X



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## Milestone 8 Report

**Milestone Manager: Junfeng Ou**

**Project Manager: Paul Van Vliet**



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### Control Documents: Roles and Responsibilities Matrix

Name	Role	Responsibilities
Junfeng Ou	The Project Manager is responsible for ensuring that the project is delivered on time and to the required quality standards.	Maintenance Plan
Thadeous Phipps	The Project Tracker ensures that members of the project are working in a timely and responsible manner.	Software Testing Plan
Levi Price	The Project Producer focuses on making sure documents are reviewed before submission and submitted in a timely fashion.	Client Documents, PM Chart, Meeting Communications & Control Documents
Kyle Haston	The Project Communicator ensures necessary parts are completed by communicating with team members.	Implementation Plan



### Control Documents: Change Log

Date	Version	Change Description	Team Member
02/11/2021	5.1	Condensed milestone report from last semester and added Project Management Gantt Chart	Kyle Haston
02/11/2021	5.2	Updated Table of Contents, added ERD and FRDD	Levi Price
02/12/2021	5.3	Updated Table of Contents, Control Documents, Client Documents, Project Documents, and Meeting Communications	Levi Price Junfeng Ou Kyle Haston Thadeous Phipps
02/13/2021	5.4	Updated ERD, FRDD, and Meeting Communications	Junfeng Ou
02/23/2021	6.1	Updated Table of Contents, Client Documents, & Control Documents	Levi Price
02/27/2021	6.2	Added Comprehensive System Controls Plan, & Disaster Recovery Plans	Kyle Haston
02/28/2021	6.3	Added User Interface screenshot & updated Meeting Communications	Levi Price
03/06/2021	6.4	Updated Comprehensive System Controls Plan & Executive Summary	Kyle Haston
03/06/2021	6.5	Added Computer Architecture Design	Thadeous Phipps
03/09/2021	6.6	Updated UI Design screenshots	Levi Price
03/10/2021	6.7	Updated Computer Architecture Design (Actual Architecture and RFP)	Thadeous Phipps

Date	Version	Change Description	Team Member
03/12/2021	6.8	Updated Computer Architecture Design & Comprehensive System Controls Plan	Thadeous Phipps Junfeng Ou Kyle Haston
03/12/2021	6.9	Updated Executive Summary, Table of Contents, & PM Chart	Levi Price
03/25/2021	7.0	Updated Control Documents & Meetings Communications	Levi Price
03/28/2021	7.1	Added Structure Chart	Junfeng Ou
03/31/2021	7.2	Updated Control Document & Meetings Communications	Kyle Haston
03/31/2021	7.3	Completed Commercial Software Component & Started CRUD table	Junfeng Ou
04/01/2021	7.4	Updated Control Document, Executive Summary, & PM Chart	Levi Price
04/02/2021	7.5	Updated Structure Chart & CRUD table	Junfeng Ou
04/09/2021	7.6	Updated Structure Chart & CRUD table	Junfeng Ou
04/10/2021	7.7	Updated CRUD Table, Run Sheets, & Table of Contents	Levi Price
04/13/2021	8.0	Updated Client Documents & Control Documents	Levi Price
04/13/2021	8.1	Started Implementation Plan	Kyle Haston
04/14/2021	8.2	Updated Executive Summary	Levi Price
04/15/2021	8.3	Completed Maintenance Plan	Junfeng Ou
04/16/2021	8.4	Updated Software Testing Plan	Thadeous Phipps
04/16/2021	8.5	Completed Implementation Plan & Updated Executive Summary	Kyle Haston
04/16/2021	8.6	Made finishing changes to Milestone 8	Levi Price



## **Client Documents: Opening Statement**

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Milestone 8 of the Storage X system has been completed. The systems development project continues to remain on time and budget.



## **Client Documents: Executive Summary**

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Milestone 8 report consists of the Control Documents, Project Documents, and Meeting Communications. The Control Documents contain the Roles and Responsibilities Matrix and the Change Log. These documents cover what the team members will be responsible for as well as what they will be working on during the current milestone. The Change Log notates any changes that have been made within this report. The Project Documents contain the Software Testing Plan, the Implementation Plan, and the Maintenance Plan. The Software Testing Plan is a schedule that will allow us to follow when testing and correcting our software design. This plan includes descriptions and our approach for testing. The Implementation Plan identifies the various tasks, task sequences, time estimates, and who is responsible for each task in our system. This plan will also describe the implementation of activities and a post-implementation review. The Maintenance Plan is a description of our approach to maintenance for the system. In addition, we also have a maintenance work order design to be used for our client to use when requesting any type of maintenance. Lastly, we have our Meeting Communications that contains each Milestone Meeting Minutes. These Meeting Minutes cover the times the team members met to discuss the status of the milestone.



### **Client Documents: Implications for Client**

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Milestone 8 implications for the client have been requiring consent for information needed to continue the progress with the development of the project. No weekly meetings have been set up with the client, but are available by appointment and emails are exchanged periodically. No work processes of the client will be affected by the changes in the current milestone. The client will not be required to learn any skills that are affected by the current milestone. This milestone is setting up the backbone for the client to effectively increase their productivity by streamlining their work processes into a more organized and automated approach. As a team we plan to develop and implement an effective information system for our client.





## **Client Documents: Items for Approval**

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**Items for Approval:** Access to information on DIY's data management.

**Status:** All the items have been approved by the client, Kirk Alloway.

**Date:** 04/16/2021



## Project Documents: Software Testing Plan

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### Introduction

The Software Testing Plan is a schedule that will allow us to follow when testing and correcting our software design. This plan includes descriptions and our approach for testing our modules, integration testing, system tests such as recovery testing, security testing, and human factor testing, and as well as acceptance testing.

### Module Testing

**Purpose:** Test the individual modules in order to make sure that they perform their designated functions.

**Testing Method:** Black Box and White Box testing will be conducted on the application.

**Testing Process:** First determine at the application level if the application operates within expected parameters while operating with test data. If it does not, we will move to the code-level to seek out logic and accuracy errors to determine completeness. Once the errors have been identified, the test will be repeated until all errors have been removed.

**Source of Testing Data:** Simulated test data will be used to test the application and its modules. We have chosen to use simulated test data to verify all conditions are met within the application and no anomalies are created.

**Testing Schedule & Participants:** A risk assessment will be conducted to determine the modules that absolutely need to be tested first and will proceed from there. Covid Consumers will participate in the testing process and will conduct it during the application development process on April 30th 2021.

### **Integration Testing**

**Purpose:** This testing allows multiple modules to be tested in a combined state, determining if an individual module is failing or if they are all failing at once. Proper transfer of data and testing of data couples are tested to determine if the proper modules are being called upon during the test.

**Testing Method:** Bottom-Up testing will be conducted on the application.

**Testing Process:** Starting from the lowest modules of the application, we will work our way up in pieces while slowly combining them in order to test how the modules interact with each other.

**Testing Schedule & Participants:** Testing will be conducted by Covid Consumers during the application development process on April 30th 2021.

### **System Test: Recovery Testing**

**Purpose:** This tests the backup and recovery features of the application from a system failure.

**Reason for Test Inclusion:** Including this test is important to make sure the database is backed up following an unexpected outage to the application.

**Test Criteria:** Application must be able to successfully activate backup and recovery features following a system failure.

**Testing Process:** Backup database will be tested when the main application loses access to the internet. This will trigger a rollover to the backup database.

**Source of Testing Data:** Modified test data will be used so no data loss actually occurs.

**Testing Schedule & Participants:** Covid Consumers will be conducting the testing on May 1st, 2021.

### **System Test: Security Testing**

**Purpose:** This test allows us to see if the application is protected from risks and threats unknown to the development team. This includes whether proper controls have been implemented into the application and test if they work.

**Reason for Test Inclusion:** The test needs to be in our application to determine if proper controls are assigned to certain levels of access.

**Test Criteria:** An employee account and a basic user account.

**Testing Process:** Employee accounts should have full access to the application and its database, whereas the customer should only have access to the rental form, their billing and payment history, and their account information.

**Source of Testing Data:** Test accounts will be created to test the level of elevated privileges and the access they are granted.

**Testing Schedule & Participants:** Covid Consumers will be conducting the testing on May 1st, 2021.

## **System Test: Human Factor Testing/Procedure Testing**

**Purpose:** Determine how the employee and customers would interact with the new system.

**Reason for Test Inclusion:** User friendliness is a large factor of developing the application. Making sure the documentation is clear on how to operate the system, as well as use and fill out the forms is crucial so that someone outside the scope of the development team understands how to operate and interact with the website.

**Test Criteria:** An employee will function as both an employee and customer.

**Testing Process:** The client will function as both an employee and customer and test the various items they will access and provide feedback to give to the dev team to make the system easier to use for both customers and employees.

**Source of Testing Data:** Modified test data will be used to fill the database so no losses can occur during testing.

**Testing Schedule & Participants:** Covid Consumers, along with the client, will be conducting the testing on May 1st, 2021.

## **Acceptance Testing**

**Purpose:** To demonstrate to the client and users that absolutely everything in the application will function properly and is usable once it has been applied to the operation.

**Testing Process:** A live demo will be conducted to demonstrate how the application operates, followed by the users interacting with the application. To follow up, a detailed report will be given to the users to assist with their application training.

**Testing Schedule & Participants:** Upon completion of the application, the client and Covid Consumers will sit together and conduct the acceptance test on May 2nd, 2021.



## Project Documents: Implementation Plan

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### Introduction

The Implementation Plan identifies the various tasks, task sequences, time estimates, and who is responsible for each task in our system. This plan will also describe the implementation of activities and a post-implementation review as well.

Task ID	Task Description	Date /Time	Implementer
1-1	Acquiring Hardware	N/A	N/A
1-2	Site Preparation	4/19 1pm	L. Price
1-3	Training	4/21 10am	T. Phipps
1-4	Documentation	4/25 5pm	L. Price
1-5	Program & Data File Conversion	4/28 3pm	J . Ou
1-6	People Conversion	5/1 10am	K. Haston
1-7	Post-Implementation Review	5/5 12pm	T. Phipps
1-8	Back Up File System	5/7 1 pm	K. Haston

## **Hardware Acquisition**

There is no need for hardware at this time. Any hardware that may be needed in the future will be gathered by using a RFP (Request for Proposal).

## **Site Preparation**

Levi will be in charge of site preparation. He will ensure all the hardware and associated cables are installed correctly and in working order. He will consider the ergonomics of the work environment as we don't want it to be cluttered or uneasy to find things. Additionally, we don't want to have any injuries on site so we will follow the necessary safety protocols and regulations as well.

## **Training**

Thadeous will be in charge of training courses for the end users of the system in a classroom based environment. As a team, we will provide training to Kirk so he fully understands how the system works.

## **Documentation**

Levi will finalize documentation and ensure it is accurate and completed in a timely manner.

## **Program & Data File Conversion**

Jun will assist with conversion of the application using a direct method as our system. He will monitor the success of the system regularly to ensure its working as it should. He will ensure that the current rental list and available units are sent along with the employee list, units, and



different unit types. He will also ensure the data is current as well to keep everything as accurate as possible.

### **People Conversion - associated with training**

Kyle will be in charge of people conversion by ensuring that end users are as comfortable as possible with the new changes. Occasionally people will feel anxious from a large change since they may have been utilizing a system for a long period of time so we will offer any tech assistance that is needed. He will also reiterate the benefits of the new system to the end users to try and mitigate resistance to change and respond to end user feedback regularly.

### **Post-Implementation Review**

Thadeous will be in charge of post-implementation review of the new system. He will review the entire systems design effort to identify any opportunities and ensure the system meets all the requirements. He will also determine if the system will add value to its users and upper management.



## **Project Documents: Maintenance Plan**

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### **Introduction**

The Maintenance Plan is a description of our approach to corrective maintenance, adaptive maintenance, perfective maintenance, and preventive maintenance. In addition, we also have a maintenance work order design to be used for our client to use when requesting any type of maintenance.

### **Corrective Maintenance**

Corrective maintenance handles general code errors, design errors, and implementation errors. This includes but not limited to incorrect form data submission, incorrect input field characters, etc. All errors discovered during the development phase will be fixed and tested extensively. Any errors discovered while the site is live, the owner can request a corrective maintenance report.

### **Process:**

1. Owner can submit a corrective maintenance request with a list of discovered bugs and steps to recreate the bugs if possible.
2. Developers will analyze the list of bugs and try to recreate the situation and address the root cause.
3. Map out strategy to tackle the issue without breaking other functionalities

4. Once the solution has been discovered and fixed, the owner will be contacted and a date will be scheduled to take down the current version of the site and upload the new version.
5. Customers will be notified via email or text message when the site will be down and when they can expect the site to be back in business.

### **Adaptive Maintenance**

Adaptive maintenance handles new functionalities that could potentially benefit the business.

This includes but is not limited to adding new storage units, new services, adjusting current discount rate, new regulations, change of existing business rules, and improving existing functionalities.

#### **Process:**

1. Owner submits an adaptive maintenance request with a list of new functionalities he wishes to implement.
2. Developers will carefully analyze the list of requests.
3. Developers will schedule a meeting with the owner to discuss how he wants the feature to be implemented.
4. Developers will take the list of recommendations and integrate the new feature to the existing system.
5. The new system will be tested extensively to make sure the feature works as expected.
6. Developer will schedule a meeting with the owner to discuss website downtime and when to upload the new version of the site.
7. Customers will be notified via email or text message when the site will be down and when they can expect the site to be back in business.

## **Perfective Maintenance**

Perfective maintenance handles periodic system updates and end user experience improvement.

This includes but is not limited to change the current web landscape for a better end user experience, optimize the current system with data structure, use external third party plugins to replace older technologies that's currently in the system, etc.

### **Process:**

1. Owner submits a perfective maintenance request with a list of items he wishes to improve upon and how he or she wants it to be done.
2. Developers will analyze the request and consult with the owner to discuss the best approach.
3. Once both parties agree on an approach, developers will implement the feature to the current website.
4. New features will be extensively tested to ensure end user's satisfaction while using the product.
5. Developers will schedule a time with the owner to take down the current live version of the site and upload the new version.
6. Customers will be notified via email or text message when the site will be down and when they can expect the site to be back in business.

## **Preventive Maintenance**

Preventive maintenance handles periodic system review and inspection. The owner of the business can request preventive maintenance with the developers to discuss potential upcoming changes to the business model and what to do to tackle the issue.

### **Process:**

1. Owner submits a preventive maintenance request with a list of potential changes he wishes to discuss.
2. Developers will analyze the request and schedule an appointment with the owner.
3. Developer will discuss with the owner on what changes he wishes to implement and draw out a roadmap for the upcoming changes.

<b>Maintenance Work Order</b>	
<b>Corrective</b>	<p>The owner can submit a corrective maintenance request if he or the customer encounters bugs while using the applications. This includes but not limited to:</p> <ul style="list-style-type: none"> <li>• Incorrect form data submission</li> <li>• User sign up error</li> <li>• Invalid data display</li> <li>• User unable to submit reserve storage request</li> <li>• Problem with user adding storage to cart</li> </ul>
<b>Adaptive</b>	<p>The owner can submit an adaptive maintenance request if he wants to integrate a new feature or functionality. This includes but not limited to:</p> <ul style="list-style-type: none"> <li>• Add a new feature</li> <li>• Add a new functionality</li> <li>• Add a new web page on the application</li> <li>• Edit discount or storage information</li> <li>• Edit questions or concerns on FAQ page</li> </ul>
<b>Perfective</b>	<p>The owner can submit a perfective maintenance request if he wishes to improve the current system but does not want to change any existing functionalities. This includes but not limited to:</p> <ul style="list-style-type: none"> <li>• Update frontend UI related issues</li> <li>• Fix visual bugs</li> <li>• Improve end user experience by editing existing feature</li> </ul>
<b>Preventive</b>	<p>The owner can submit a preventive maintenance request if he wishes to request a system review, system inspection, system test, or discuss with the developers any potential upcoming changes he wants to implement in the business model.</p>



## Meeting Communications

Communication Management Plan				
Who	What	Why	When	Where
Team Members	Ongoing Emails	Inform team members about current status of the project	As needed	UNO Email
Team Members	Ongoing Messages	Discuss with team members about current status of the project	As needed	Discord
Team Members and Client	Stakeholder Meeting	Provide milestone updates to the client	By appointment	Zoom

**Meeting Minutes:** Milestone 5

**Date:** 02/12/2021

**Time:** 3 PM

**Location:** Zoom

**Attendance:** Project Manager, Levi Price, Junfeng Ou, Kyle Haston, and Thadeous Phipps

**Notes:** In the meeting, we discussed some of the flaws in our Entity Relationship Diagram and the Full Relational Database Design with the Project Manager. We also obtained some general advice on how we should improve our model from the Project Manager. Lastly, we discussed the general format of the milestone document and the structure we need to follow in each section.

**Meeting Minutes:** Milestone 5**Date:** 02/12/2021**Time:** 8 PM**Location:** Discord**Attendance:** Levi Price, Junfeng Ou, Kyle Haston, and Thadeous Phipps

**Notes:** In the meeting, we discussed each team member's role & responsibilities in the milestone. Levi is updating the Control Documents, Client Documents, Project Documents, and Meeting Communications. Kyle started to create the Project Management Chart with Office Timeline, but Levi will be converting our agenda to Microsoft Project. Jun is creating the Entity Relationship Diagram with Lucidchart and the Full Relational Database Design with Microsoft Access. Thadeous is responsible for reviewing the milestone and verifying all parts have been completed.

**Meeting Minutes:** Milestone 6**Date:** 02/28/2021**Time:** 12 PM**Location:** Zoom**Attendance:** Project Manager, Kyle Haston, Junfeng Ou, and Levi Price

**Notes:** In the meeting, we discussed our progress on the Milestone 6 report. Noting that the Executive Summary could use better client friendly details about the project documents. The need to get started on the Computer Architecture Design & Proposal document. The Comprehensive System Controls Plan needs to be updated and could have better descriptions. The User Interface is off to a good start.

**Meeting Minutes:** Milestone 6**Date:** 03/12/2021**Time:** 1 PM**Location:** Zoom**Attendance:** Project Manager, Kyle Haston, and Thadeous Phipps

**Notes:** In the meeting, we discussed our progress on the Milestone 6 report before resubmission. The Project Manager mainly recommended changes towards our RFP and Control Plan.



**Meeting Minutes:** Milestone 7

**Date:** 03/22/2021

**Time:** 6:30 PM

**Location:** Zoom

**Attendance:** Kyle Haston, Levi Price, and Thadeous Phipps

**Notes:** In the meeting, we discussed our progress on Milestone 7 and worked on our Structure Chart.

**Meeting Minutes:** Milestone 7

**Date:** 03/25/2021

**Time:** 8 PM

**Location:** Zoom

**Attendance:** Project Manager, Junfeng Ou, Levi Price, and Thadeous Phipps

**Notes:** In the meeting, we discussed our progress on Milestone 7 so far with the Structure Chart. The Project Manager provided feedback and recommended improvements towards our Structure Chart.

**Meeting Minutes:** Milestone 7

**Date:** 03/31/2021

**Time:** 2 PM

**Location:** Zoom

**Attendance:** Project Manager, Junfeng Ou, Kyle Haston

**Notes:** In the meeting, we discussed our progress on Milestone 7 so far including the Structure Chart and the CRUD Table. We also discussed our Commercial Software Component. The Project Manager provided feedback and recommended improvements towards our Structure Chart and changes that needed to be made to our CRUD Table based on the modules in our structure chart.

**Meeting Minutes:** Milestone 7

**Date:** 04/02/2021

**Time:** 12:15 PM

**Location:** Zoom

**Attendance:** Project Manager, Junfeng Ou, Kyle Haston, Levi Price, and Thadeous Phipps

**Notes:** In the meeting, we discussed our progress on Milestone 7 with the Project Manager to get some advice on the Structure Chart, CRUD Table, and our 4 run sheets. The Project

Manager provided feedback based on the layout of the Structure Chart and added some run sheet clarification.

**Meeting Minutes:** Milestone 7

**Date:** 04/09/2021

**Time:** 12:15 PM

**Location:** Zoom

**Attendance:** Project Manager, Junfeng Ou, Kyle Haston, Levi Price, and Thadeous Phipps

**Notes:** In the meeting, we discussed our progress on Milestone 7 before resubmission. The Project Manager provided helpful feedback regarding our Executive Summary, Structure Chart, CRUD Table, and run sheets.

**Meeting Minutes:** Milestone 8

**Date:** 04/16/2021

**Time:** 1:30 PM

**Location:** Zoom

**Attendance:** Project Manager, Junfeng Ou, Kyle Haston, and Thadeous Phipps

**Notes:** In the meeting, we discussed our progress on Milestone 8 and went over the testing plan, implementation plan along with our maintenance plan and feedback was provided by the Project Manager.