Mocha Point Coffee Company

System Proposal

Team 1:

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Introduction

This system proposal is a response to the request for proposal issued by Mocha Point Coffee regarding the need for a modernized inventory management system. The company currently faces inefficiencies in tracking stock levels and seeks a solution that streamlines inventory processes, integrates with Clover POS using transactional data, and can scale with the future of Mocha Point.

The following proposal outlines how our custom desktop application will meet Mocha Point's objectives by improving inventory accuracy, reducing manual labor, and ensuring a user-friendly experience on their Windows-based system. Our solution will provide key features as requested, including low-stock notifications, regular inventory adjustments according to Clover POS Excel output uploaded to our system, and manual inventory adjustments, all while maintaining a user-friendly interface for their Windows PC in the manager's office.

To ensure a smooth transition, this proposal will include an overview of the system's functionalities, technical specifications, feasibility assessment, and a projected timeline. A prototype of the application will also be provided to demonstrate its usability. By implementing this system, Mocha Point will be able to optimize inventory management, minimize shrinkage, and support its future growth.

Company Background

Mocha Point Coffee is a specialty coffee shop that operates both in-store and online, offering high-quality coffees, herbal teas, refreshments, and pastry desserts. Founded in 2023 by Ahmad Othman, an immigrant from Yemen, alongside his two sons, Sarem and Addel, Mocha Point was established with the vision of introducing authentic Yemeni coffee culture to Missouri. As one of the few Arabic Yemeni coffee shops in the region, they have built a loyal customer base, particularly in the St. Charles area. Since its opening, Mocha Point has experienced rapid growth and is in the process of expanding, with new locations planned in the Manchester area and St. Louis City. This expansion will allow Mocha Point to reach a wider audience and further share Yemeni coffee culture throughout the region.

As the business continues to grow, an advanced inventory system is essential for maintaining efficiency, streamlining operations, preventing stock shortages, and ensuring an ideal customer experience. With expansion plans underway, implementing this system before launching new locations is a top priority to support operational scalability and maintain Mocha Point's commitment to quality.

Project Overview

Objectives

The primary objective of this system is to nearly automate inventory tracking to reduce manual labor and improve efficiency. Other objectives we plan to bring to fruition are

enhancing inventory accuracy by minimizing discrepancies and preventing stock shortages and overstock. The user-friendly interface will ensure ease of use for employees, allowing them to manage stock effectively with minimal training. Ultimately, the system aims to optimize operations, reduce errors, and improve overall productivity at Mocha Point Coffee.

Current System

Mocha Point currently relies on a manual inventory tracking process. Employees conduct stock counts twice a week using clipboards, manually recording figures before entering them into an Excel spreadsheet. This process takes about 4-6 hours per week and is highly dependent on the employees being accurate. Any miscounts, forgotten entries, or errors can lead to incorrect stock levels, making it difficult to predict inventory needs.

A challenge in this process is ordering coffee beans from an overseas vendor in Yemen. Mocha Point sources its coffee in bulk twice a year through a middleman who locates farms, organizes shipments, and then ensures delivery. Shipping takes 2-3 months, but as Mocha Point looks to expand, any miscalculation in stock levels can lead to serious supply shortages. If coffee inventory runs out unexpectedly, there isn't a quick solution to restock. Without an automated system to track coffee usage and forecast reordering needs, the business must rely on estimates, increasing the risk of running out of essential supplies before the next shipment arrives.

Problem Statement

The problem of	Inventory management being manually counted and costing Mocha Point valuable time and labor hours.
Affects	Owners, employees. Lack of efficient inventory management leads to wasted time, over/under ordered product, and mismanaged labor hours. This hurts Mocha Point owner, employees that need support while these tasks are taking place.
The impact of which is	Loss in net income for company, wasted product, over/under ordering, and not receiving product in time when ordered too late.
A successful solution would be	A program that can be used to update inventory with information from Clover POS and update non-retail inventory from a user-friendly interface.

Potential Solutions

With the information gained from Mocha Point's request for proposal, our team was able to draft potential solutions that address Mocha Point's deficiency in its inventory management system. These solutions vary in scope and feasibility, so the client should take these concerns into consideration when viewing our proposal.

Thrive Inventory

Thrive Inventory is an inventory management program that is designed for small businesses like Mocha Point that utilize Clover POS. The system offers tools like inventory optimization, low-stock alerts, multi-location stock tracking for businesses with multiple locations. Since Mocha Point uses Clover POS, this option could work with some setup. However, Thrive Inventory has a monthly fee that depends on the tier chosen. The base tier, at $49 per month, allows one location, one POS integration, and tracks up to 1,500 transactions monthly. However, with Mocha Point planning to open three locations soon, it would have to upgrade to the professional tier at $229 per month, which includes five locations, five POS integrations, and unlimited transaction reports. Since Mocha Point was previously unable to integrate this service successfully and aims to minimize costs while not requiring Thrive Inventory's extra features, this option isn't ideal

Square or Toast POS

Mocha Point could adopt a different POS with built-in inventory tracking features. With a POS that natively tracks inventory, stock levels would update automatically with each transaction. This solution would reduce the need for manual inventory checks, saving employee hours. However, this would require that Mocha Point uproot its current infrastructure. This would likely disrupt business and would have an upfront and new monthly cost.

Custom Inventory Management Program

The final proposal from our team is a desktop application that could run on Mocha Point's desktop. It would manage Mocha Point's inventory with less manual labor and be personal enough for us to add features depending on the requirements of the company. The program would be developed with no costs, without any subscription fees. The program would be designed to use data from Clover POS as an input to adjust inventory automatically. Additionally, the program would include a manual input interface for adjusting stock due to inventory shrinkage or other irregularities.

Solution	Pros	Cons	Cost
Thrive Inventory	Integrates with Clover POS, includes multi-location tracking	Previously failed integration, expensive, unnecessary features	$49-$229/month
Switching to Square/Toast POS	Built-in inventory tracking, real-time stock updates	Requires replacing Clover POS, disrupts operations	New hardware & monthly fees
Custom Inventory Management App (Best Option)	No cost, integrates with Clover, allows custom features	Requires initial setup & testing	Free (built by team)

Ideal Solution

After consideration, our team determined that the optimal solution for Mocha Point is option 3: the custom desktop application created by our team. This solution has no cost for Mocha Point, eliminates the need to change the currently integrated systems, and enables the company to better allocate the 4-6 hours previously spent on manual checks.

Description of Proposed System

Manager Login

Upon launching the application, the user will see a screen with a text box requesting a password. If the correct password is entered, the user will gain access to the rest of the

program. If the password is entered incorrectly, the user will be notified and prompted to try again. Access to other screens will be denied until the correct password is provided. This system ensures that only Mocha Point's manager can authorize changes to the inventory.

Dashboard

The dashboard will be the control hub of the inventory management system. Since the system is intended for Mocha Point's Windows-based desktop setup, the dashboard will have a clean layout with clear navigation buttons, allowing users to manage inventory without extensive training.

The following five main buttons will be present on the dashboard:

- View Inventory – Displays an inventory table, showing current stock levels, name of the ingredients, reorder thresholds, and units of measurement. This will help managers quickly find which items need to be replenished.
- Excel Import – Allows managers to upload inventory reports directly from Clover POS, automating stock updates and minimizing manual data entry. Once the report is uploaded, the system extracts relevant data from the spreadsheet and adjusts inventory levels based on recent sales. This improves stock management efficiency, reduces errors and streamlines operations without additional effort from staff.

- Settings – Provides customization options for the system, such as adjusting reorder thresholds, managing user permissions, and updating supplier information. Only authorized users (managers) will have access to this section.
- Manual Entry – Allows managers to manually update stock levels for inventory that is not recorded through Clover POS. This is useful for logging waste, damaged supplies, or any other unaccounted adjustments to inventory.
- Exit – Allows users to close the application safely, ensuring that all recent inventory updates are properly saved before exiting.

The dashboard will be designed with minimal clutter, using a straightforward interface that highlights important notifications, such as low-stock alerts.

View Inventory

The view inventory screen will show a structured table of Mocha Point's current inventory, including:

- Ingredient Name (e.g., Espresso Beans, Vanilla Syrup)
- Current Stock Levels (e.g., 50lbs, 3 bottles)
- Unit of Measurement
- Reorder Threshold.

Managers will be able to identify low-stock items and make informed decisions about restocking.

This screen will enable the user to view Mocha Point's current inventory. This screen will display the product name, the current quantity number, and order threshold.

Excel Import

The application will have an Excel import function for easy user upload of Clover POS output. The user will have the option to import an Excel file exported by Clover POS with transaction details. Upon selecting the preferred csv file, the user will confirm their decision, and the inventory system will update coffee and tea inventory. There will be columns to show the user which ingredients were in the csv file, what the unit of measurement is, and what the new inventory level is. In the case of any discrepancies or inventory physical adjustments not accounted for by Clover, the user should utilize the manual entry screen described below.

Settings

The settings screen will boast a text box that the user will use to change the password used to enter rest of the program. Alongside this, it will boast a dropdown box where the user will select inventory and set a desktop notification threshold for said inventory in a numeric value box. When set, the application will push a desktop notification to alert the user that inventory for the specified ingredient hits the specified amount.

Manual Entry

The manual entry screen will provide an interface for users to input changes in inventory not captured by Clover POS, such as wasted coffee or other ingredients. There will be input menus for the product type, change in current inventory, and the manual entry screen will provide a structured interface for users to input changes in inventory that are not automatically factored into Clover POS.

Any changes to coffee stock will require the managers' approval before they are finalized. This prevents unauthorized modifications and ensures accurate tracking of available stock. The system will also track how much coffee is used per cup, allowing managers to monitor discrepancies between expected and actual usage.

Technical Details

The system will use Python as the backend language, integrated with XAMPP to make it easier to manage the MySQL database. XAMPP provides a local development environment for SQL for smooth database management without needing to connect to an external database host. As this will be a standalone desktop application on store management's Windows device, there is no need for languages like HTML.

For database management, the program will use MySQL. We chose this for the reliability, scalability, and structure of the data management of this platform.

Technology	Purpose	Why We Chose It
Python	Backend processing	Reliable, easy to maintain, good for automation
MySQL	Database management	Scalable, secure, and efficient for inventory data
XAMPP	Server environment	Simplifies database hosting for local deployment
Tkinter	User interface (UI)	Lightweight and easy to use on Windows

Assessment of Feasibility

Technical

The system is designed to run on a Windows device, which Mocha Point has in the manager's office. The nature of the technical stack means that the system will be easy to maintain and lightweight. The program will not be handling information outside of tracking inventory and sending push notifications, so there will be no associated security risks.

Financial

Given that we are students developing the application with free development tools, the program will not have any upfront costs. The program is also being designed in a way that will not cost Mocha Point anything to maintain. This will allow Mocha Point to continue funding other projects to benefit the company.

Operational

The proposed system will be built with the intention of streamlining the current processes at Mocha Point. The program will be capable of smooth integration into Mocha Points daily operations, so there will be no disruption to existing systems. It will not conflict with any current processes with the exception of replacing an inefficient manual process. The app itself will be easy to navigate, meaning that staff capability is not a concern with such a low learning curve.

Our Team

Anthony Goss

Anthony is an UMSL undergraduate student pursuing a degree in Information Systems. He is responsible for client communications, preparing user and system documentation, and assisting in the creation of our team's proposed application. As part of degree requirements, Anthony completed courses in technical documentation, Java, Python, R, and SQL that have prepared him for his role in the course. Outside of UMSL, Anthony has

10 years of customer service experience, ranging from kitchen work requiring flexibility, and sales with an emphasis ensuring the customer leaves pleased with their experience. His focus during this project will be assisting in the creation of system documentation and working on the application itself.

Dellah Salem

Dellah is a UMSL undergraduate student pursuing a degree in Information Systems and Technology. His coursework has provided him with a solid technical foundation, including experience in Java, Python, R, SQL, and NetBeans, as well as proficiency in terminal commands. Through his Systems Analysis course, Dellah has gained skills in understanding system requirements and designing process models, which will be valuable for creating clear and effective documentation. Additionally, his coursework has equipped him with communication and coordination skills, which will enable him to effectively manage client communications and project tasks in this role.

Joe Garavaglia

Joe is an undergraduate student pursuing a degree in Information Systems and Technology at the University of Missouri – St. Louis. With over 10 years of customer service experience across various industries including restaurants, retail and car services, he has developed strong problem solving and adaptability skills in fast paced environments. Additionally, his

coursework has given him a foundational understanding in Python, Java, SQL, and R. His role in this project includes assisting with the design and implementation of the inventory management system, ensuring seamless integration with Mocha Point's operations.

Justin McNaughton

Justin is a UMSL undergraduate student pursuing a degree in Information Systems and Cyber Security. His coursework has given him a good foundation in system analysis, data security, and technical documentation. His primary role in this project will be focused on creating system documentation and writing user guides to ensure that the inventory management system is easy to understand and implement. In addition to drafting clear and structured documentation, Justin will assist in mapping out system workflows, outlining integration with Clover POS, and developing troubleshooting guides for end users.

Olivia Dunn

Olivia Dunn is an undergraduate at the University of Missouri-St. Louis, student pursuing a degree in Information Systems and Technology. With a strong passion for leveraging technology to solve business challenges, her coursework has led to proficient experience with Java, Python, R, SQL, and NetBeans. Beyond academics, Olivia has gained 4+ years of valuable customer service and leadership experiences within her career. This role has enhanced her problem-solving, communication, and time management skills in a fast-paced environment. As part of the project team, Olivia is contributing to system

documentation and application development, applying her technical and analytical skills to design an effective solution for our client.

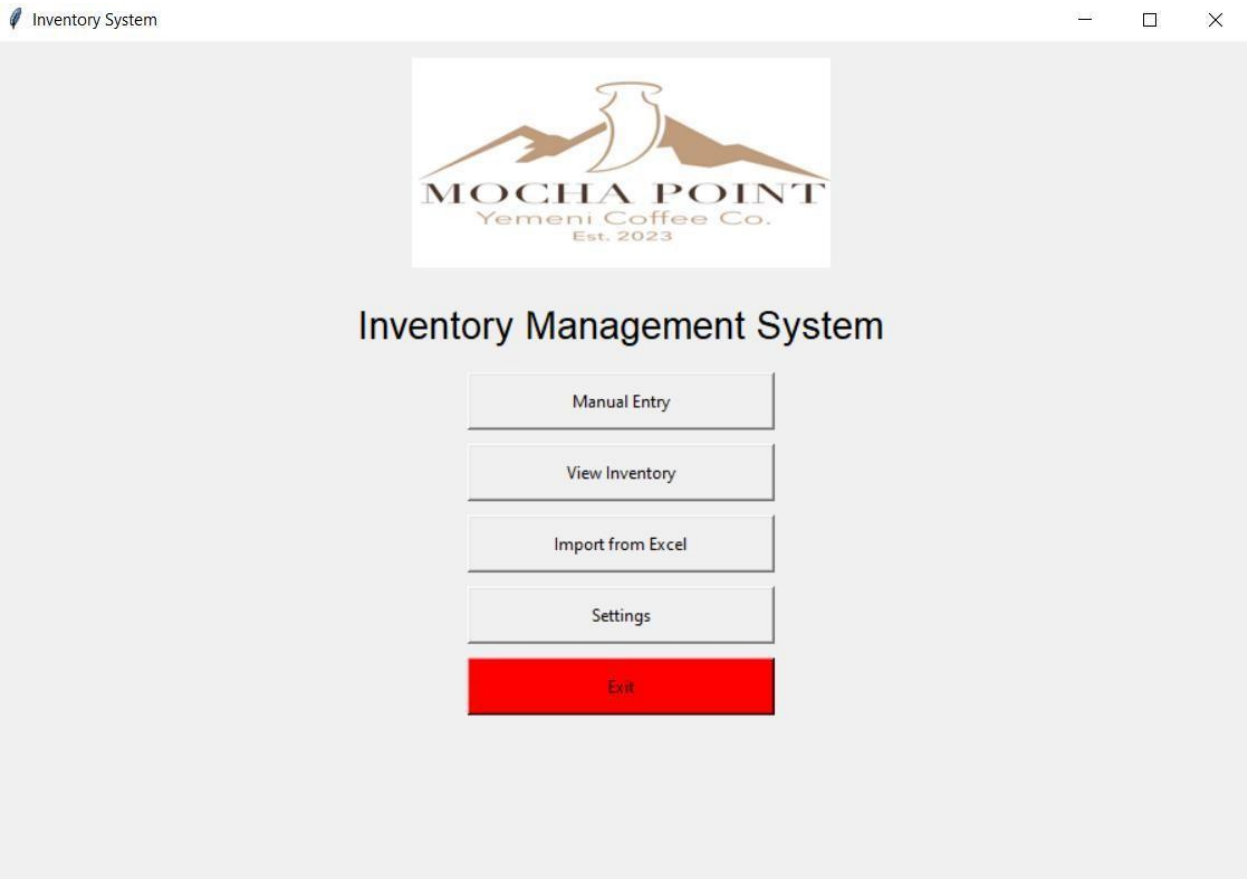
Communication Plan

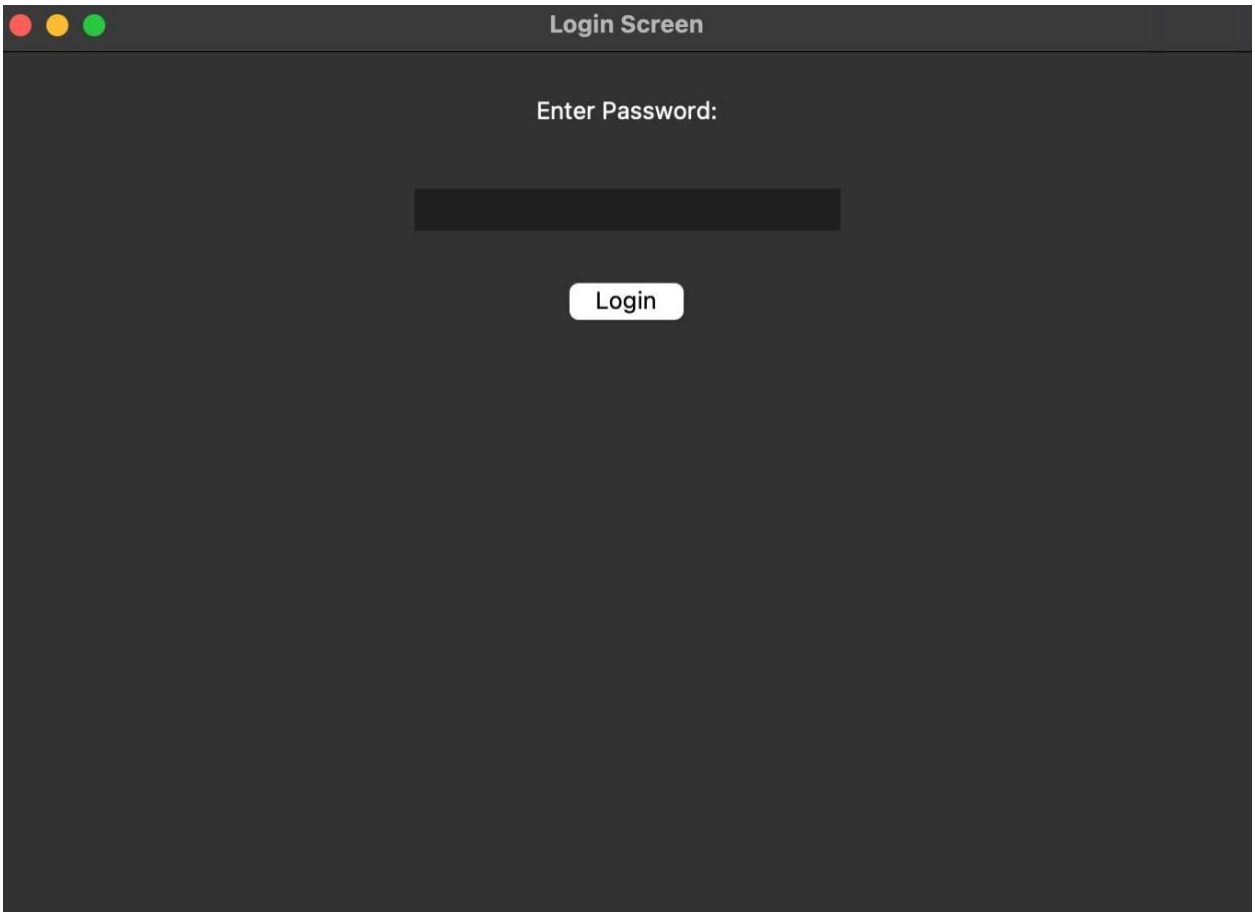
Communication	Method	Frequency	Details	Owner
Project Initiation	Zoom	Feb 26th	Define objectives, schedule, requirements, deliverables	UMSL Team, Mocha Point Management
Team Meetings	Zoom	Weekly	Status updates, clarification, review	UMSL Team
Project Work	Text, Email, Phone Call	Daily	Project updates, track changes, clarification or quick questions,	UMSL Team
App Reports	Zoom	Weekly	Provide updates to Mocha Point management,	UMSL Team, Mocha Point Management

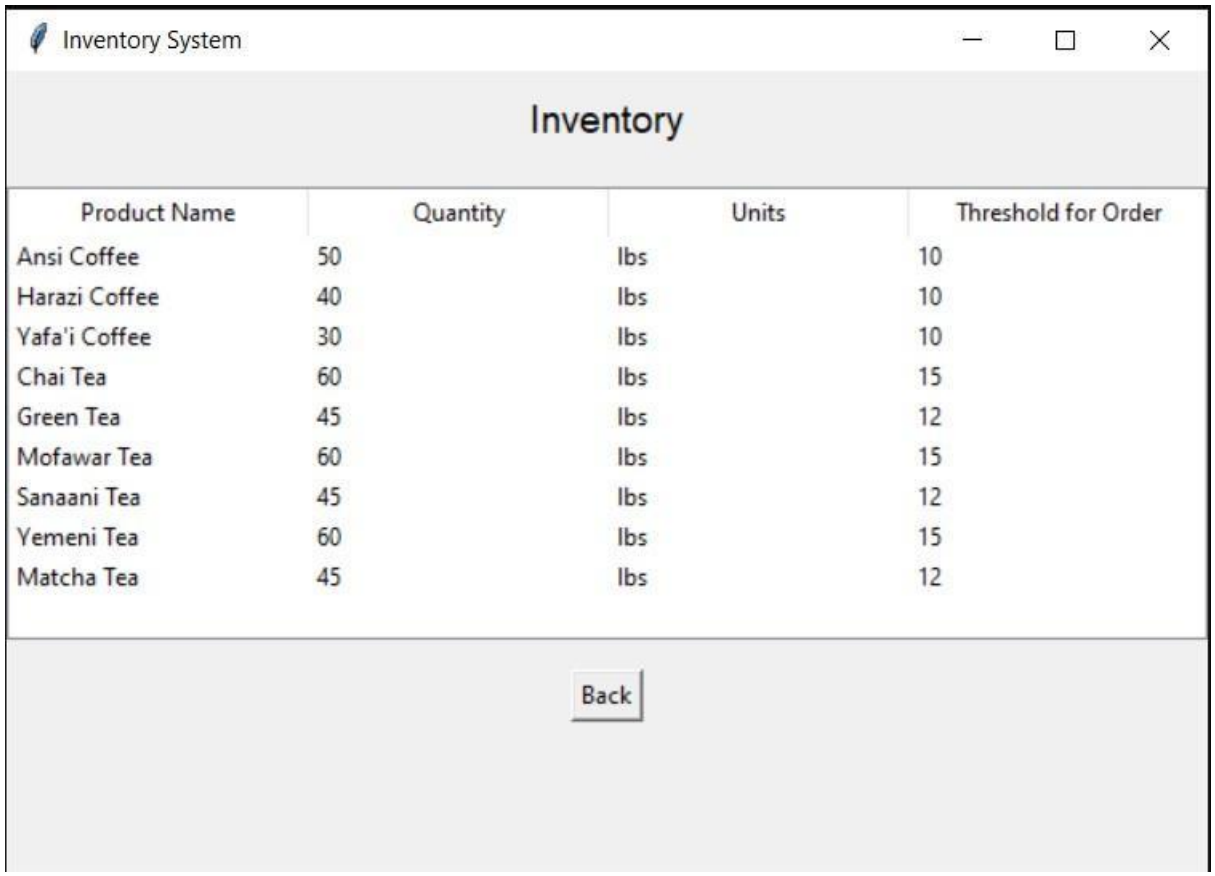
Schedule

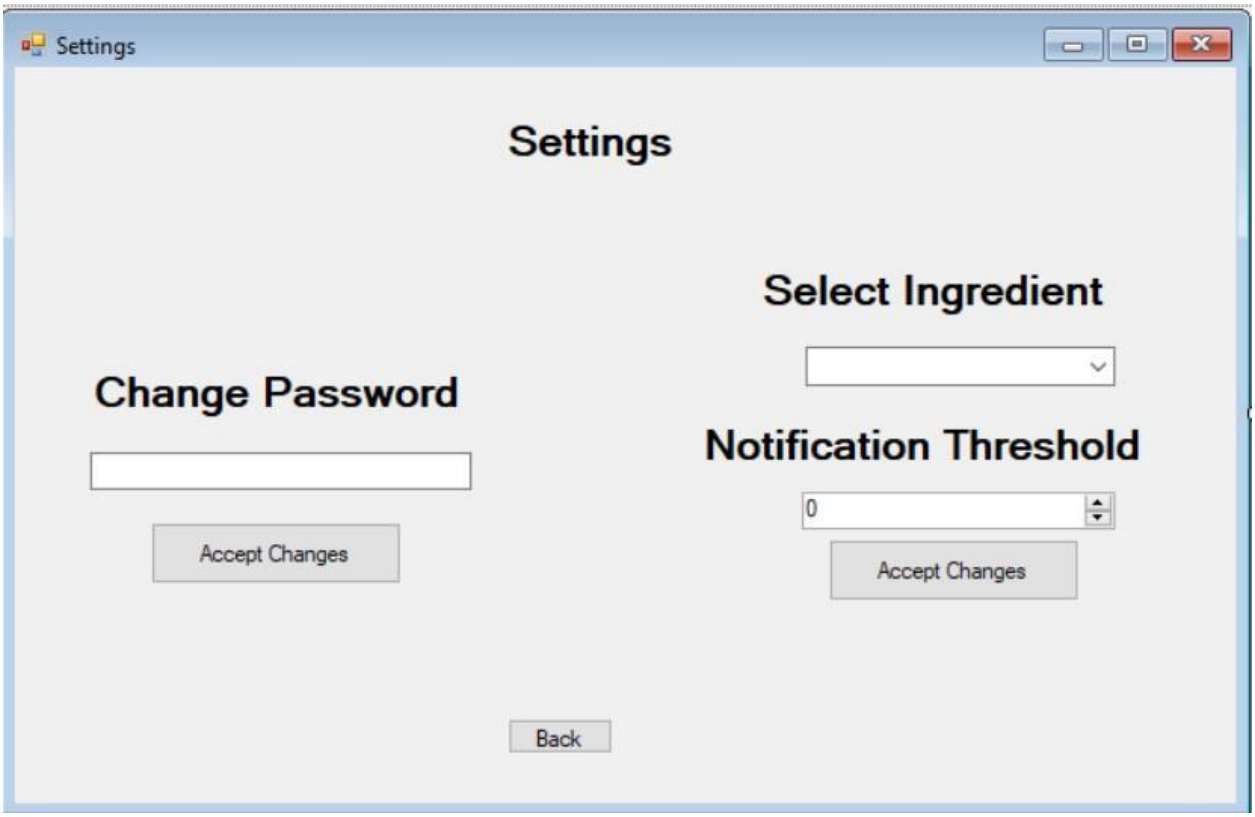
Task Number	Task Name	Member	Start Date	End Date	Prerequisite
Planning Phase					
1	First Mocha Point Meeting	Dellah & Anthony	1/21/2025	1/21/2025	-
2	DFD of Current System	All	2/10/2025	2/13/2025	1
3	Request for Proposal	All	2/18/2025	2/18/2025	1,2
4	Second Mocha Point Meeting	All	2/26/2025	2/26/2025	1
Design Phase					
5	System Propsal Presentation	All	3/18/2025	3/18/2025	3
6	DFD of Proposed System	Dellah & Olivia	3/12/2025	4/15/2025	4
7	ERD of Proposed System	Dellah & Olivia	3/12/2025	4/15/2025	6
8	Data Dictionary	All	3/12/2025	4/15/2025	7
9	Prototype Blueprint	Anthony	2/27/2025	3/17/2025	3,6,7
Development Phase					
10	Programming Familiarization	All	2/10/2025	3/18/2025	9
11	SQL Server Creation	Anthony	2/20/2025	3/25/2025	10
12	Develop Login Screen	Anthony, Joe, Justin	3/18/2025	3/25/2025	10
13	Create Main Menu	Anthony, Joe, Justin	2/22/2025	3/29/2025	12
14	Create CSV Import Functionality	Anthony, Joe, Justin	3/18/2025	3/31/2025	13
15	Create Manual Entry	Anthony, Joe, Justin	3/18/2025	4/5/2025	13
16	Create Settings Menu	Anthony, Joe, Justin	3/18/2025	4/10/2025	13
17	Create Inventory Display	Anthony, Joe, Justin	3/18/2025	4/15/2025	13
QA Phase					
18	Development Team Testing	Anthony, Joe, Justin	4/20/2025	4/20/2025	11~18
19	End User Testing	Dellah & Olivia	4/20/2025	4/20/2025	19
Final Revisions					
20	Bug Fixes	Anthony, Joe, Justin	4/21/2025	4/21/2025	19,20
21	Crash Testing	All	4/21/2025	4/21/2025	21
22	Final Revision	All	4/22/2025	4/22/2025	21,22
Final Documentation					
23	Install Guide	All	4/25/2025	4/30/2025	19
24	Backup Guide	All	4/25/2025	4/30/2025	19
25	Users Manual	All	4/25/2025	4/30/2025	19

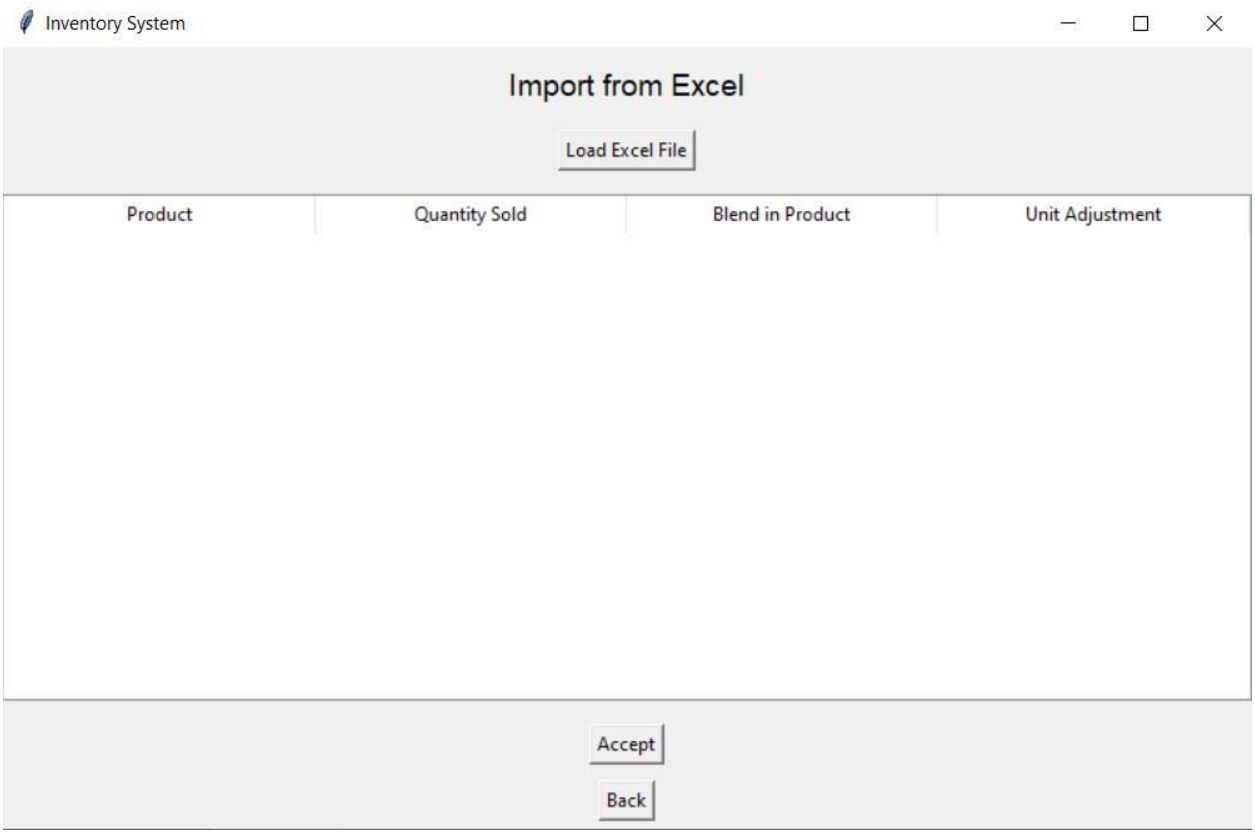
Prototype

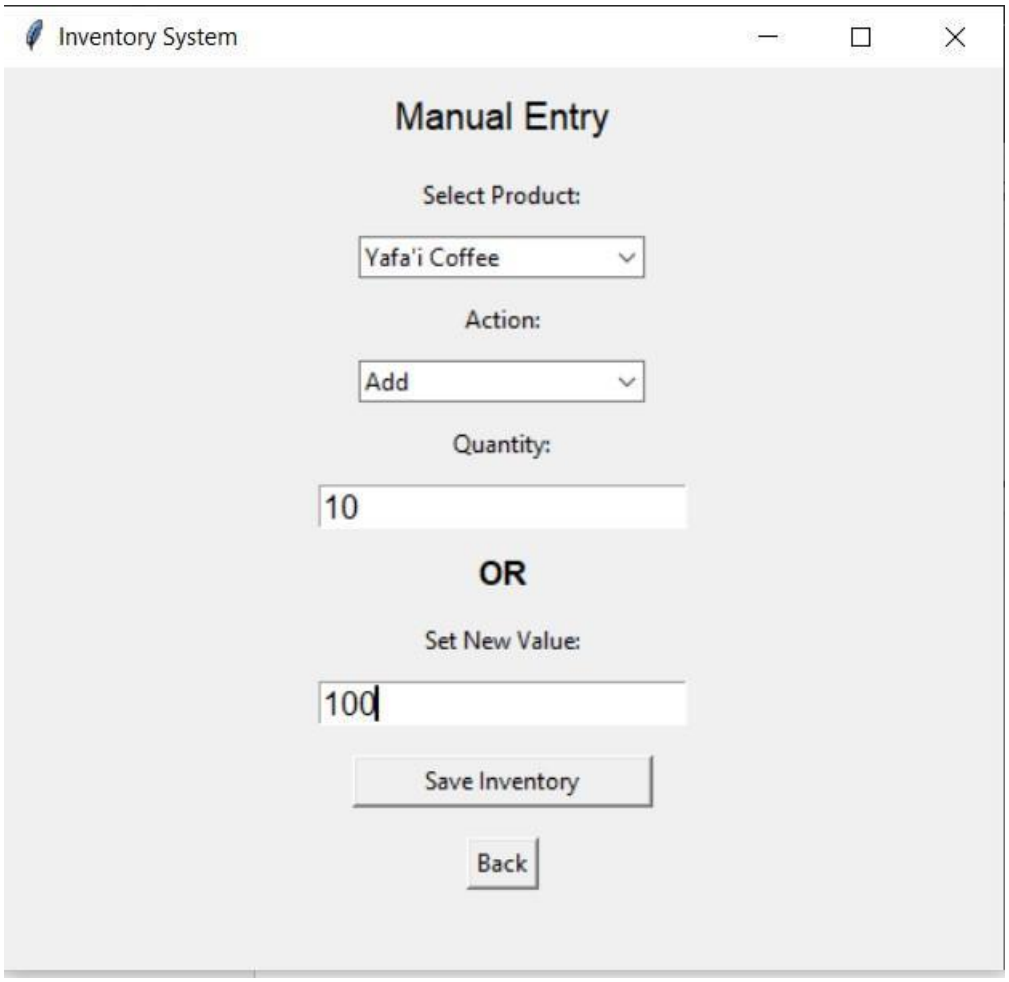

Inventory System
MOCHA POINT
Yemeni Coffee Co.
Est. 2023
Inventory Management System
Manual Entry
View Inventory
Import from Excel
Settings
Exit


Login Screen
Enter Password:
Login


Inventory System
Inventory
Product Name
Quantity
Units
Threshold for Order
Ansi Coffee 50 lbs 10
Harazi Coffee 40 lbs 10
Yafa'i Coffee 30 lbs 10
Chai Tea 60 lbs 15
Green Tea 45 lbs 12
Mofawar Tea 60 lbs 15
Sanaani Tea 45 lbs 12
Yemeni Tea 60 lbs 15
Matcha Tea 45 lbs 12
Back

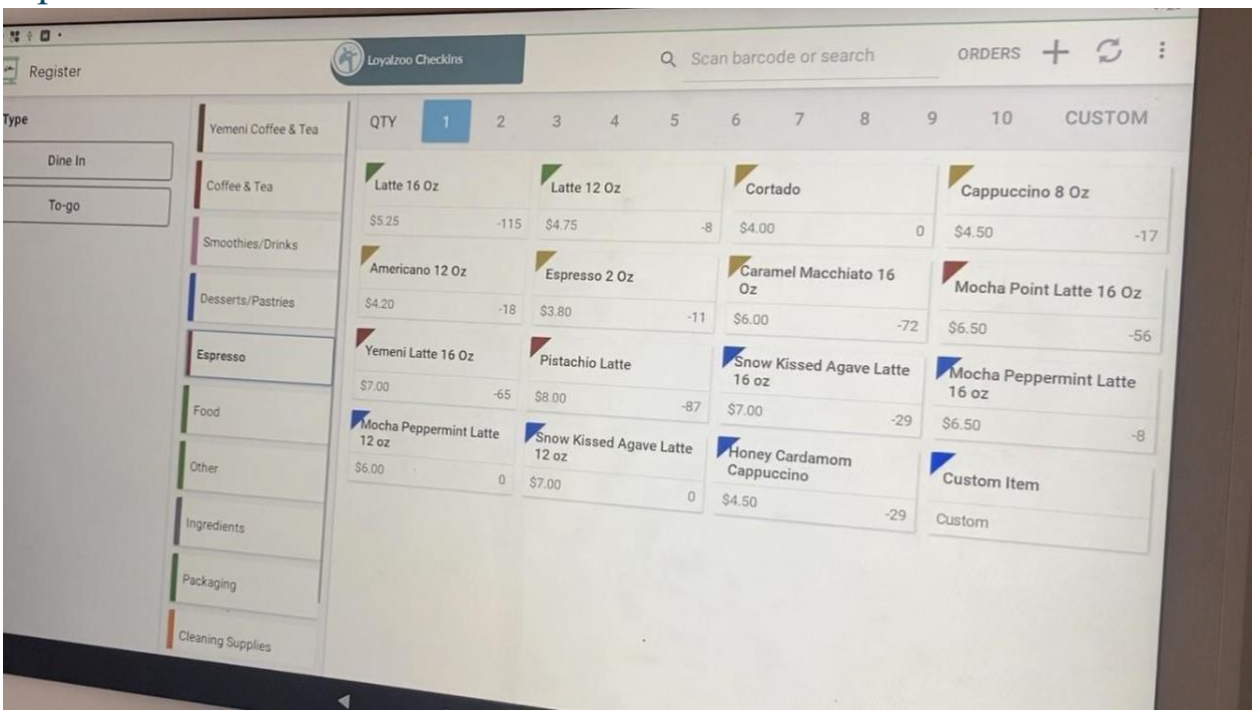

Settings
Settings
Select Ingredient
Change Password
Notification Threshold
0
Accept Changes
Accept Changes
Back

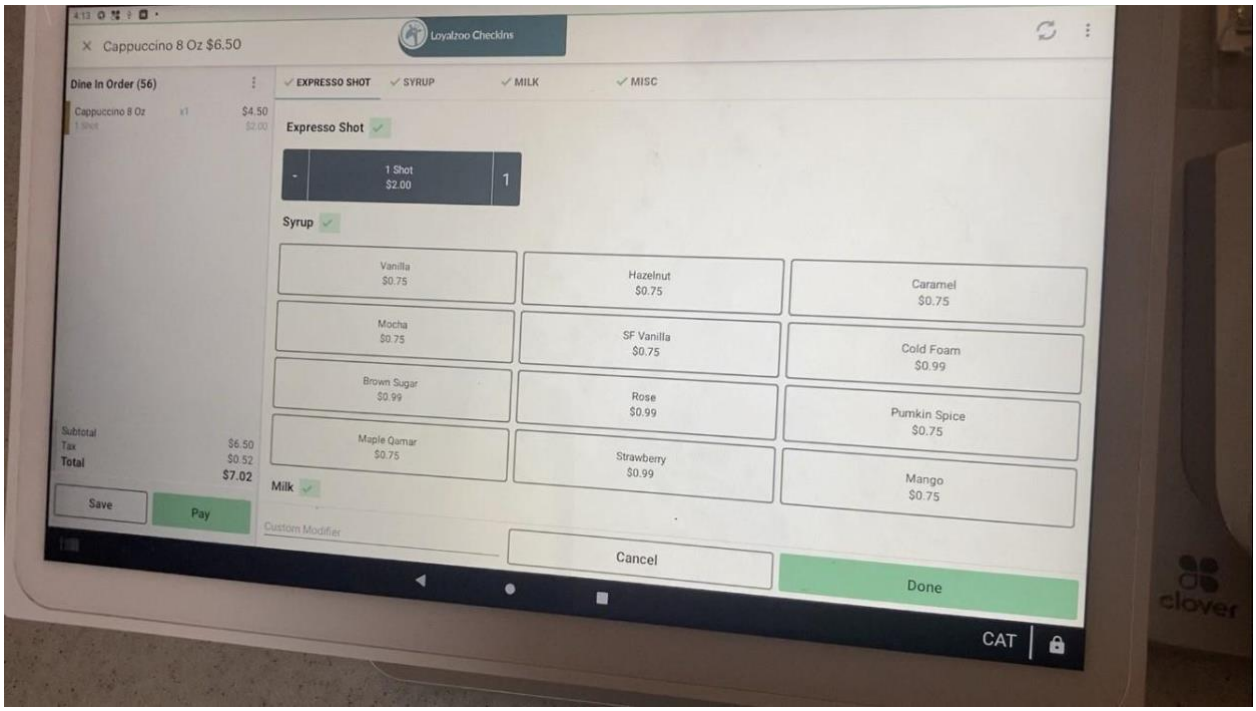

Inventory System
Import from Excel
Load Excel File
Product
Quantity Sold
Blend in Product
Unit Adjustment
Accept
Back



Other Information from Mocha Point

Inputs from Clover POS





Interview Questions

How long does it take (on average) to do a full inventory count and how do you go about doing so?

“4-6 hours max it takes to go through the whole process. Employees do it throughout their shift. 2 weekday workers, 3 weekend workers (Friday/Sat./Sun.)”

What does the time spent on inventory prevent the staff from doing instead?

“Takes staff away from advancing mocha point in marketing aspects, strategizing, and store upkeep”