# Baseline Project Plan

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## Objectives

The primary objective of this system is to 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.

## 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.

**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. Password access will only be required again in the Manual Adjustment tab. 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 eight main buttons will be present on the dashboard:

- Manual Adjustment

- View Inventory

- Clover Upload

- Notification History

- Drink Settings

- Ingredient Settings

- App Settings

- Exit

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 shot, Almond Milk)

- Current Inventory

- Unit of Measurement (e.g., oz, g)

- Notification 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 in a clear way, displaying the product name, the current quantity number, and the threshold for notifications to be sent.

In this screen we will also offer the ability to view 'Low Stock' where it filters to items that are below the threshold for clear view. There will also be an option to change the 'Stock Display' where the user can switch between the units of measurements or containers.

## Notification History

The Notification History screen will provide a record of past notifications for ingredients in the inventory that have fallen below the set threshold. The screen will include the following columns:

- Ingredient: The name of the item that triggered the alert.
- Date: The date and time the notification was sent.
- Stock at Alert: The inventory level at the time the notification was generated.
- Threshold: The specified threshold level for that item, allowing a comparison between the current inventory and the threshold.

Notifications will be listed in reverse chronological order, with the most recent displayed at the top. Additionally, a 'Clear Selection' button that allows users to select a notification and remove it from the list, helping to maintain a clutter-free view of critical alerts.

## Drink Settings

The Drink Settings screen allows managers to create and manage drinks that are offered on the menu. This feature helps link drinks to their corresponding ingredients for accurate inventory tracking.

To create a new drink, the manager will:

- Enter the Drink Name: The name of the new drink.

- Select Ingredients: Choose one or more ingredients that make up the drink.

- Select Serving Sizes: Specify the amount of each ingredient used in the drink.

Once all fields are completed, clicking the Create Drink button will save the new drink and its associated ingredient data to the system.

The Edit Drink tab allows for modifications to existing drinks. To edit a drink, the manager will:

- Select the Drink: Choose an existing drink from a dropdown list.

- Select or Update Ingredients: Add, remove, or adjust the ingredients used in the drink.

- Select Serving Sizes: Modify the amount of each ingredient used.

After making the necessary adjustments, clicking the Edit Drink button will update the drink information in the system.

## Ingredient Settings

The Ingredient Settings screen allows managers to manage the inventory database by adding new ingredients or editing existing ones. To add a new ingredient, the manager will enter the following details:

- Ingredient Name: The name of the new ingredient.

- Unit of Measurement: The unit used to track the ingredient (e.g., oz, g, ml).

- Ingredient Serving Size: The standard serving amount used per drink.

- Container Size: The total size of the container the ingredient is stored in.

After entering this information, the manager can click the Add button to save the new ingredient to the system. To edit an existing ingredient, the manager will select the ingredient from a dropdown list, and update the relevant fields:

- Unit of Measurement

- Ingredient Serving Size

- Container Size

Once the changes are made, clicking the Edit button will update the ingredient in the inventory system.

## Clover Upload

This screen will have one main button that reads 'Upload Clover'. This allows the user to upload a CSV file that is exported from the POS of Clover. The CSV will include the sales data from any selected time period from the Clover database. Upon selecting the preferred csv file, the user will confirm their decision, and the inventory system will update inventory of the ingredients sold. 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 adjustment screen.

There will also be a section of this screen that will allow users to see an overview of all the drinks sold from the CSV upload. There will be an option to double click the particular drink and view a breakdown of exactly what ingredients were sold within that product.

## App Settings

The settings screen will boast a text box that the user will use to change the password used to enter the 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.  Also, the backup database feature will be on the settings screen, ensuring that no data is lost in case of a crash or accidental change.

## Manual Adjustment

The manual adjustment screen will be secured with a password and required to manually adjust ingredients.This prevents unauthorized modifications and ensures accurate tracking of available stock. It will provide an interface for users to adjust stock in the inventory not captured by Clover POS, such as wasted coffee or other ingredients. There will be an 'Adjust Stock' section for the product type, change in current inventory, and the quantity to add or remove to update individual ingredients. There will also be an option to manually adjust the stock of a whole drink, for mishaps where an extra drink is made or spilled. The last section in the screen will allow the user to manually set the stock for any ingredient.

## Technical Details

The System will use C#  for the logic, and Winforms extension for the frontend/UI. HTML will be used for the context sensitive help. For database management, the program will use SQLite. We chose this for the reliability, scalability, and structure of the data management of this platform.

# 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.