1. A proposed timeline with 4 sprints and defined deliverables for each sprint for the remainder of the semester that you will present on a retro discussion board. (NOTE: You will be making weekly progress reports as well as the 4 spring retros)
2. A rough GUI drawing (can be an image file of a hand-draw sketch).

**Problem Statement:** Store Inventory Management System

**Background**: A company that deals with a diverse range of products requires an efficient inventory management system to keep track of its product stock, manage restocking, and provide real-time information on product availability. The company operates both physical stores and an online platform, making it essential to have a unified inventory system.

**Proposal:** Design and develop an Inventory Management System that allows the company to effectively manage its product inventory, track product sales, and optimize the restocking process. The system should provide a user-friendly interface for employees to perform the tasks like adding, updating, and removing products (including product details/data), a searching system to quickly find products based on data like name, category, and/or supplier, and an order tracker that automatically updates inventory. A map is the best choice to store and quickly retrieve product information, while a stack or a queue can be used to handle customer orders. For sorting purposes, considering an inventory management system would usually handle large datasets, the merge sort algorithm is the best option available because of its “divide and conquer” functionality, with a time complexity of , making it very efficient for large datasets. This will however hinder performance if the inventory dataset is small.

**Proposed Timeline**

Sprint 1:

Sprint 2:

Sprint 3:

Sprint 4:

**Rough GUI Sketch:**