

# Team 5 - Vending Machine Inventory Sprint 3

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# Project Goal & Problem-Solution Fit

## Goals:

- Older campus vending machines needed accurate and convenient inventory tracking
- Staff should perform less manual stock checks
- Delayed restocking -> expired products & sold-out items
- Centralized visibility across multiple machine locations

## Solution:

- Web dashboard shows inventory via transaction data
- Ingests campus card CSV data to track inventory without needing manual checks
- Configurable low-stock alerts notify users to restock before shelves empty
- Centralized view of all machines with color-coded status indicators

# Usability Principles: Shneiderman's Golden Rules

## Rule #6: Reduce Short-Term Memory Load

Interfaces should minimize what user must recall.

### Color-Coded Status Indicators

Green/Yellow/Red shown on every machine card

+ Faster understanding - no memory needed to interpret stock levels

### Notifications panel

All low stock items are in one drop down panel. Staff doesn't need to remember which machines had alerts

+ Fewer missed restocks -> system memory replaces human memory

### Per-Machine Inventory Detail

One click shows all products and their attributes (eg. name, price, slot)

+ Increased efficiency -> all context visible on a single screen

# Usability Principles: Nielsen's 10 Usability Heuristics

## Heuristic #5: Error Prevention & Recovery Support

Design that prevents a problem from occurring in the first place.

### Confirmation Dialogs

Every inventory update shows a modal review step before saving.

Users see proposed changes and must actively confirm - preventing accidental overwrites.

### Transaction File Validation

CSV files are validated for format and completeness before processing.

Invalid records are rejected with feedback - preventing malformed data from corrupting inventory counts.

### Role-Based Access

Only authorized admins can modify data.

All restocks and transactions applied are recorded - enabling review and recovery of bad modifications.

# Testing Types and Strategy

## Unit Testing

- Parse CSV Files
- Low Stock Threshold
- Status Color coordinated with Stock
- Valid Price (Unique, and Non Negative)

## Integration Testing

- Transaction file upload decrement stock
- Login authentication for Admin
- CSV File -> Parse Items -> Vending Machine

## Functional Testing

- Guest vs Admin function restrictions
- Notification Panel Behavior
- Editing Item to update to Firestore
- Unique Item Prices

## Acceptance Testing

- Tested on Chrome across different screen sizes
- Low Stock creates a notification
- Verified Stakeholder requirements

# Findings of Sprint 2 and 3 Review Meeting

- Admin and Guest Account
  - Giving user different accounts
  - Guest can only view Vending Machines and Item stocks
  - Admin can Edit, Add, Delete Vending Machines and Items
- Populating Machine using File
  - Using a CSV file we are able to parse and automatically populate the machine from creation
- Transaction File
  - Insert a CSV file of the transaction data will automatically decrement the item machines stock
- Unique Item Prices
  - Since the Transaction file only shows the prices of each transaction we are using a unique price for each item to map the transactions from the file to the item

# Retrospective

## What went well:

- Pull request efficiency
- Feedback and Response
- Workflow over the Sprint
- Dividing up work
- Efficient use of JIRA Board Tasks

## What didn't go well:

- Backend to frontend integration
- Had some merge conflicts
- Ran into bugs with Admin Authentication

# Start/Stop/Continue

## Start:

- 1) Using Priority on tasks a bit more
- 2) Setting up Test Cases as we coded

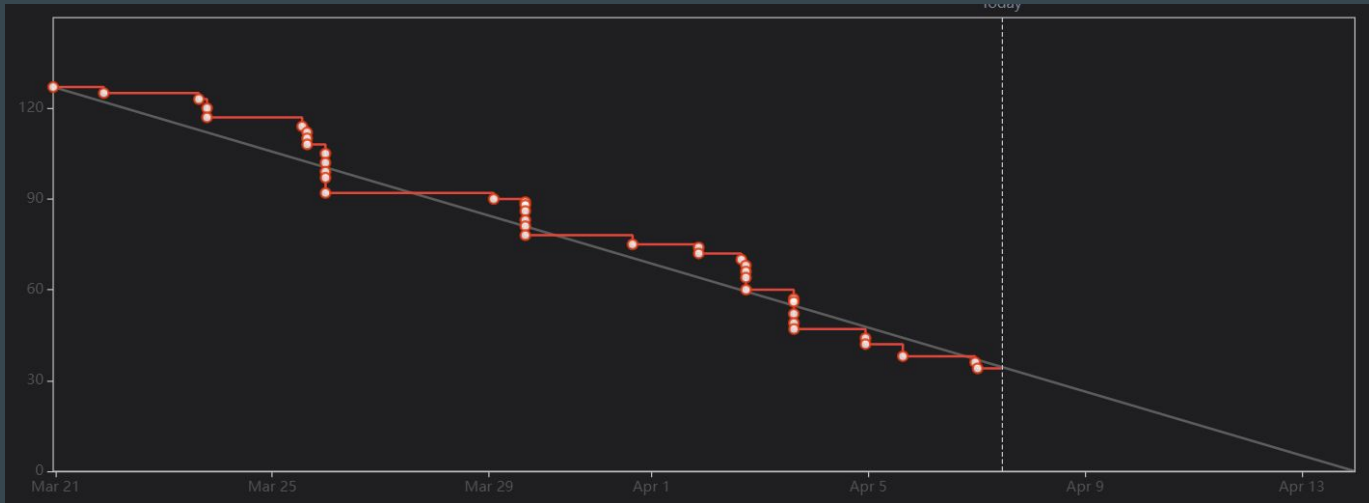
## Stop:

- 1) Having task sit In Review

## Continue:

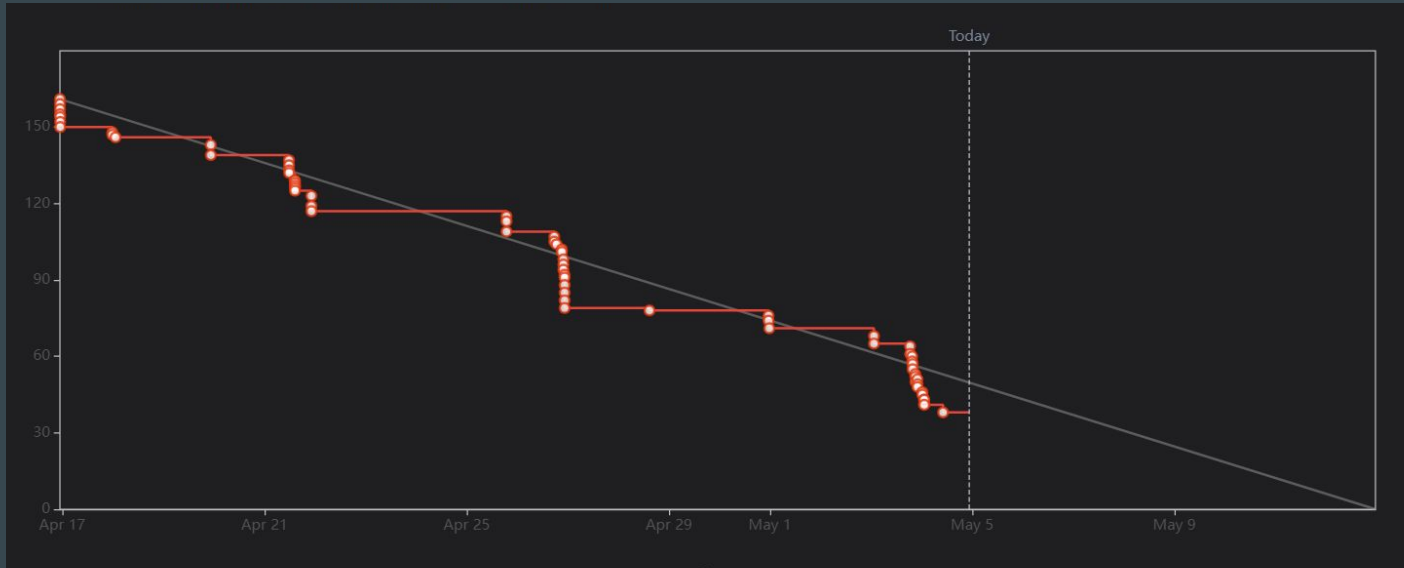
- 1) Communicating regularly with team members
- 2) Discussing code changes, new implementations, possible features/methods
- 3) Developing project efficiently across the timeline

# Sprint 2



- Stays close to the expected downward trend
- No points added beyond the start

# Sprint 3



- More time under the line
- Some Large Drops

# Demo of All Completed Features

