Proposal for Orbital 2021

Team Name:

Markeet

Proposed Level of Achievement:

Artemis

Motivation

Ever run a small shop on Carousell or a flea market store but have no idea how to keep track of inventory and profit? Or perhaps you want to find out easily how much profit you are making? Enter Markeet, a free Point Of Sale (POS) system that can help you solve the issue.

Or are you a customer, traveling down to a shop to buy a certain item, only to find out the item is out of stock. If the shop uses Markeet, time spent travelling to the shop can be saved too. You can easily check the stock of the item on your phone and even find the nearest shop that sells the item.

Aim

The aim of the project is to benefit small retail shops by creating an open source and free to use Point Of Sales (POS) system. Many small businesses currently use traditional methods to keep track of sales and conduct stock-taking, be it due to budget constraints or the small scale of the business. As such, there is value in implementing a POS system that can be used easily anywhere at almost no cost. All that's needed is an internet connection and a device to access the internet.

Customers can also check inventory count for the item, instead of wasting a trip down to the shop only to realise that it is out of stock. They can also locate the nearest shop that has stocks for the item they are looking to buy.

User Stories

1. As a stock taker for a shop, I want to be able to keep track of the stock easily without having to count it manually and be alerted when I need to restock.
2. As a small business owner, I want to be able to get data from the monthly sales that can help my business grow, for example profits and best selling items.
3. As a business owner with multiple outlets, I want to be able to find out which shops are making a profit or loss.
4. As a cashier, I want to have a system that is easy to use and convenient.
5. As an accountant, I want to be able to manage the finances of the company easily, instead of having to go through books and papers to find the information needed.
6. As a customer, I want to be able to find out if the item I want to buy is available before I would make my way down to the shop to purchase it. I also want to be able to locate the nearest shop that sells the item I'm looking for

Features and Timeline

A **Web-based Point Of Sale (POS) system** that is free to use. It will help businesses generate real-time detailed sales reports and inventory count, on top of normal cashier operations.

The **Telegram Bot** provides a quick way for customers to check for stocks in a particular store and locate the nearest shop with the item they want to buy. The Telegram Bot will share the same database as the POS system

Core features:

(1) **Dashboard page** - The main page when a user logs in to the website. They will be able to see details on their shop, like inventory count, latest sales and other notifications. Links to other pages will also be available on that page.
(2) **Cashier page**- Where cashiers can enter sales in
(3) **Inventory page** - For live tracking of inventory. Options to add in inventory count and remove inventory will be available too. Updating inventory by CSV will also be supported.
(4) **Sales report page** - To see the profit/loss of the shop as well as the best/worst selling item. Other details regarding such as a breakdown of sales per day etc will also be shown.
(5) **Telegram Bot** - For customers to find out if the item is in stock. They can also locate the nearest shop with the items they are looking to buy.

Features to be completed by Milestone 1 (31 May):

- Design of the system
- Integrated frontend and backend system with a login feature
- (1) Display information about the shop
- (1) "Settings" page for changing settings
- (2) Barebones cashier page
- (3) Inventory list displaying all the inventory in the database
- (3) Ability to add in new stocks and sending it to the database

Features to be completed by Milestone 2 (28 Jun):

- (2) Entering of sales
- (3) Sorting of inventory list based on different method
- (3) Deduction of stock based on sales
- (3) Alert when stocks are running low
- (4) Ability to see basic sales report such as profit/lost
- (4) Sales information will be updated once sales are entered
- (5) Telegram bot basic layout and menu

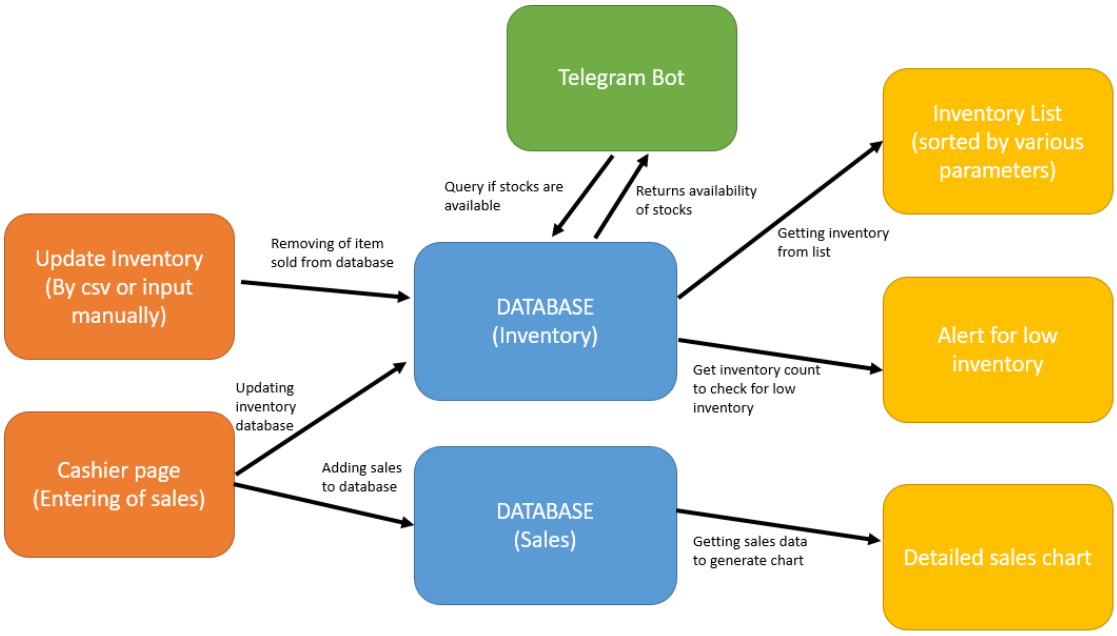
Features to be completed by Milestone 3 (26 Jul):

- (1) Add in options for settings such as Telegram bot support
- (3) Prediction of how much stock to order to replenish
- (4) Charts based on sales
- (5) Telegram bot support for customers to check stock
- (5) Telegram bot support for finding the nearest shop with stock

Possible future feature implementations:

- Machine learning Telegram Bot
- Introductory tutorial page for newcomers
- Support for multiple stores per account
- Employees account for the shop

Outline



Proposed timeline

Dates	To-dos
10 May - 16 May (Lift Off)	Complete ideation and architecture design
17 May - 23 May	Build minimal system with login
24 May - 30 May	Testing and debugging of system
31 May (Milestone 1) - 13 Jun	Implementing of core features
14 Jun - 20 Jun	Complete the basic CRUD features
21 Jun - 27 Jun	Debugging and basic tests
28 Jun (Milestone 2) - 11 Jul	Integration of database with Telegram Bot
12 Jul - 18 Jul	Further testing and debugging
19 Jul - 25 Jul	Polishing up UI and features
26 Jul (Milestone 3) - 25 Aug	Refinement

Tech Stack

1. MERN Full stack (for website)
    a. MongoDB
    b. Express
    c. React
    d. Node JS
2. Telegram API (for Telegram Bot)
3. Python (for Telegram Bot)
4. Git & GitHub (for version control)

Qualifications

We are both first year computing undergraduate, majoring in Computer Science with big dreams and aspirations.

1. Ee Kar Hee, Nicholas
    - GPA: 4.75 / 5.00
    - CS modules
        i. CS1010X - A
        ii. CS1231S - B+
        iii. CS2030S - B+
    - Programming languages: Java, Python, C
    - Developed a 2048 solver in Python with over 80% accuracy
    - Designed a discrete event simulator in Java
    - Participated in Shopee Code League
2. Peh Hoe Khim Marcus
    - GPA: 4.90 / 5.00
    - CS modules
        i. CS1010X - A
        ii. CS1231S - A-
        iii. CS2030S - A+
    - Programming languages: Java, Python, C, JavaScript
    - Basic MERN stack knowledge
    - Developed a random clothes decider in flutter
    - Developed a 2048 solver in python with over 90% accuracy
    - Designed a discrete event simulator in Java
    - Participated in Shopee Code League, Hack&Roll'21