INVENTORY MANAGEMENT SYSTEM FOR RETAILERS

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CHAPTER 1

1.1 INTRODUCTION

Retail is the broadest catch-all term to describe business-to-consumer (B2C) selling. There are essentially two types of retail separated by how and where a sale takes place.

- First, online retail (eCommerce) where the purchase takes place digitally.
- Second, offline retail where the purchase is physical through a brick-and-mortar storefront or a salesperson.

Wholesale, on the other hand, refers to business-to-business (B2B) selling. Knowing the differences and best practices of retail and wholesale is critical to success. Most businesses maintain stock across multiple channels as well as in multiple locations. The diversity of retail inventory management adds to its complexity and drives home its importance to your brand.
In business terms, inventory management means the right stock, at the right levels, in the right place, at the right time, and at the right cost as well as price. **Inventory management** is a part of the supply chain **management**, which includes various aspects such as the process of ordering, storing and using the company's **inventory** like raw materials, its components, and the finished products. It is also used for controlling the number of products for sale.

1.2 OVERVIEW

Retail inventory management is the process of ensuring you carry merchandise that shoppers want, with neither too little nor too much on hand. By managing inventory,

retailers meet customer demand without running out of stock or carrying excess supply.

Retail can be split into several areas:

- Offline. Where a company sells via a brick-and-mortar store or physical location.
- Online. Where a company sells over the internet via an ecommerce website or marketplace.
- Multichannel. Where a company sells in multiple different places, usually a combination of online websites and marketplaces.
- Omnichannel. Where a company provides a unified, integrated experience for customers across all the different online and offline channels it sells on.

Businesses may also choose to trade via wholesale channels. This involves selling inventory (usually in bulk) directly business-to-business (B2B) or taking part in B2B ecommerce.

A company's inventory will therefore need to be managed in accordance with which of these retail models it operates within. In practice, effective retail inventory management results in lower costs and a better understanding of sales patterns. Retail inventory management tools and methods give retailers more information with which to run their businesses. Applications have been developed to help retailers to track and manage stocks related to their own products. The System will ask retailers to create their account by providing essential details. Retailers can access their accounts by logging to the application.

Once retailers successfully login to the application they can update their inventory details, also users will be able to add new stock by submitting essential details related to the stock. They can view details of the current inventory. The System will automatically send an email alert to the retailers if there is no stock found in their account. So that they can order new stock.

CHAPTER 2

2.1 LITERATURE SURVEY

At a basic level, inventory management works by tracking products, components and ingredients across suppliers, stock on hand, production and sales to ensure that stock is used as efficiently and effectively as possible. It can go as deep as you need it to: for example, by examining the difference between dependent and independent demand, or forecasting sales to plan ahead. But at the end of the day, it all goes back to your stock.

Inventory control is how you manage the stock you currently have in storage. This involves knowing your stock inside and out — how much is available, where it is and what condition it is in. It's also about ensuring that you are storing stock efficiently, keeping inventory costs down and minimising the time spent counting and controlling inventory.

2.2 EXISTING PROBLEM

Most of the web application development methodologies used these days are extensions of standard software engineering methodologies. The usual iterated waterfall model is too rigid an approach to developing web applications. An agile approach for web application development has been proposed that applies the concept of agile modeling, adopts a standard software architecture and is heavily based on frameworks, speeding up system analysis, design and implementation.

2.3 SOLUTION

When businesses don't have a handle on the activity of their inventory, or worse, track it with outdated spreadsheets and data entry, the rest of the pieces, like order fulfilment, don't fall into place.

When you don't know how much inventory you have on hand, you can't make smart reorder decisions

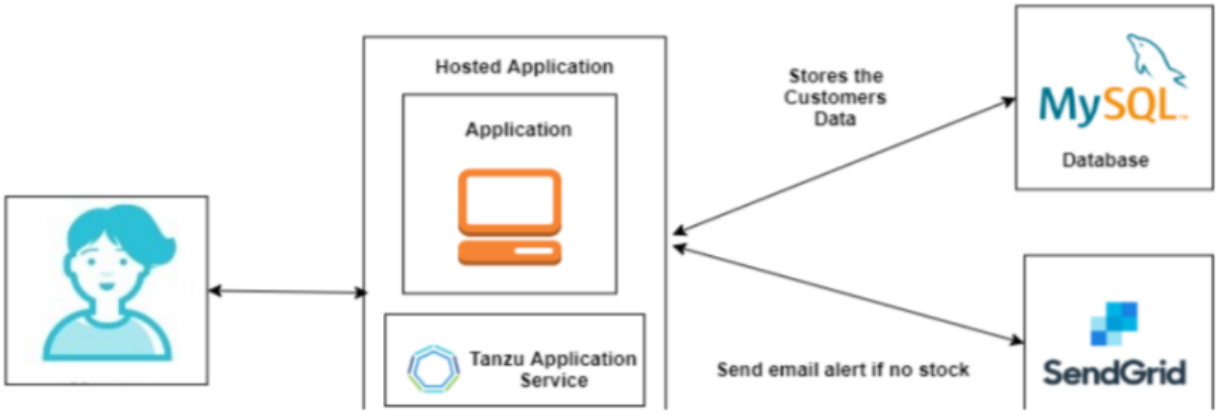
You can't list items accurately online because you don't have visibility into how much inventory you have to allocate to each channel. You get stuck with too much inventory or an incorrect amount of product. The list is endless.

Inventory management processes are imperative to succeed as a retailer of any kind — ecommerce, multi-channel, brick-and-mortar, omni-channel.

CHAPTER 3 THEORETICAL ANALYSIS

3.1 SYSTEM OVERVIEW

Proposed Architecture



While selecting the platform to build the web application, I went through a lot of web development tools and found that Python Flask web framework would be easy to use as Python provides all the required modules and tools needed to build a web application. While there are no-code web application builders available online, it does not give us the full freedom to design the UI the way we want. Hence, a traditional coding framework was chosen for this project. The peculiarity of this problem is collecting the inventory details from the user and working with the database to add new item into the inventory, edit the details of the existing item, delete an item from inventory and to display other details such as total inventory value.

3.2 Hardware / Software designing

HARDWARE STACK:

- System Type: 64-Bit Operating System.
- HDD: 1TB.
- RAM: 8 GB RAM.
- GRAPHICS: 2GB.

SOFTWARE STACK:

- Operating System: Windows 10.
- Software used: Spyder/Anaconda
- Front End: HTML, CSS, JavaScript.
- Back End: Python 3.
- Database: RemotemySQL

CHAPTER 4: RESULTS

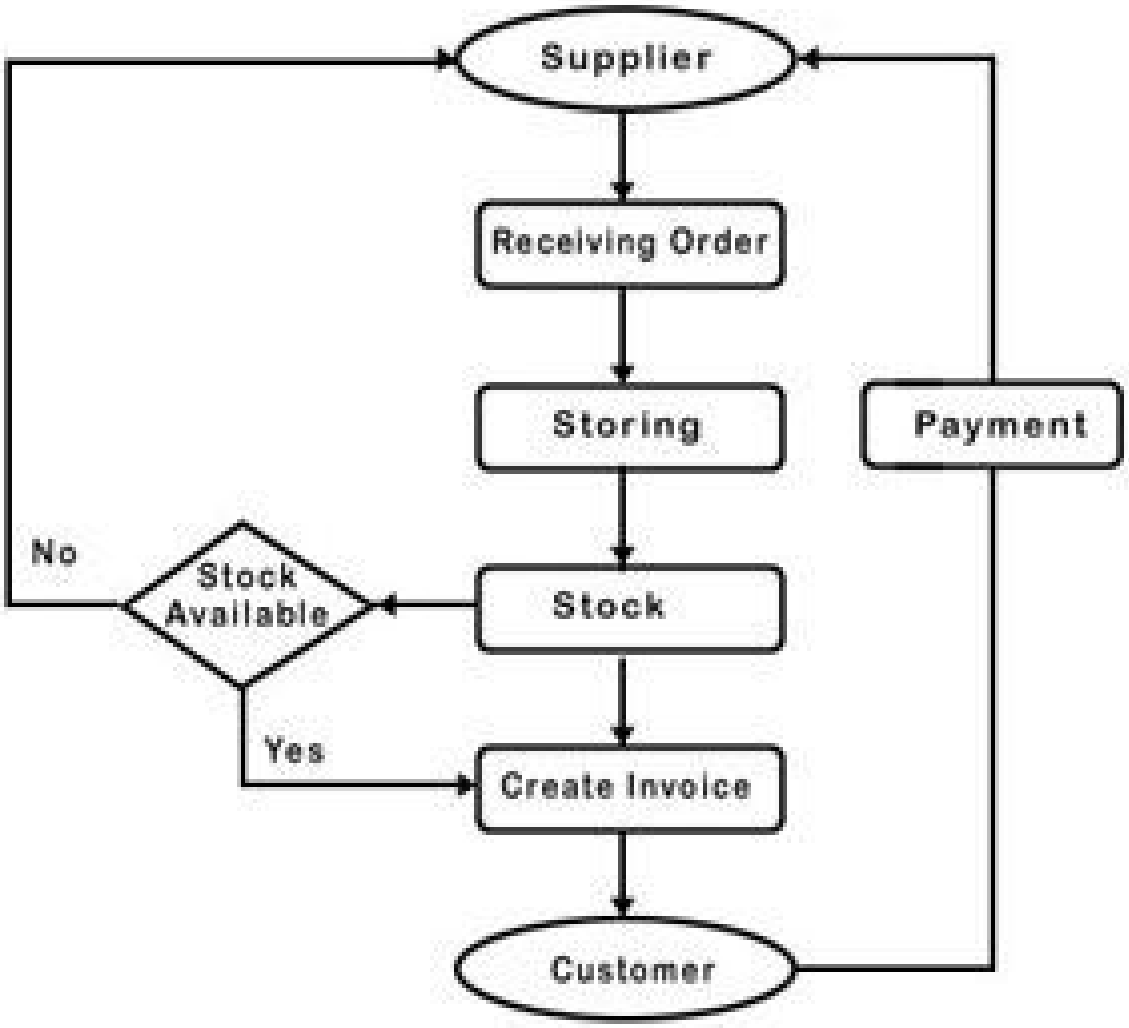
Authenticating retailers accounts.

● Stock Management.

● Tracking of inventory details.

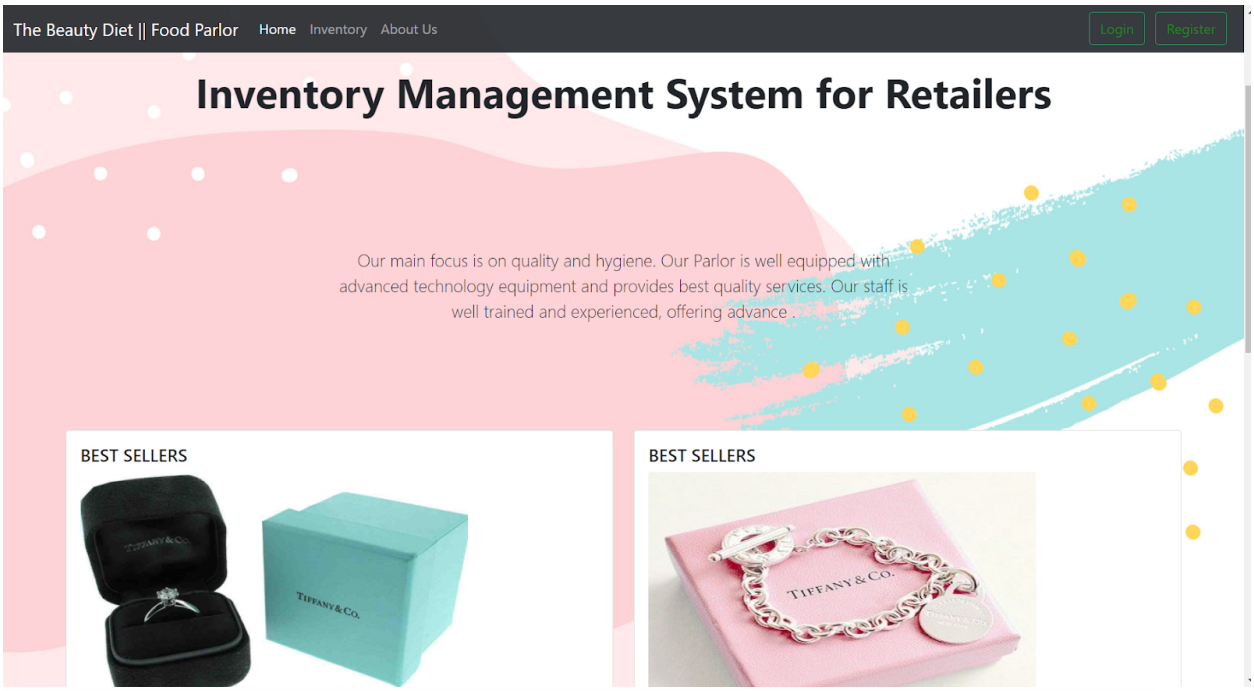
● The System will automatically send an email alert to the retailers if there is no stock found in their account. So that they can order new stock.

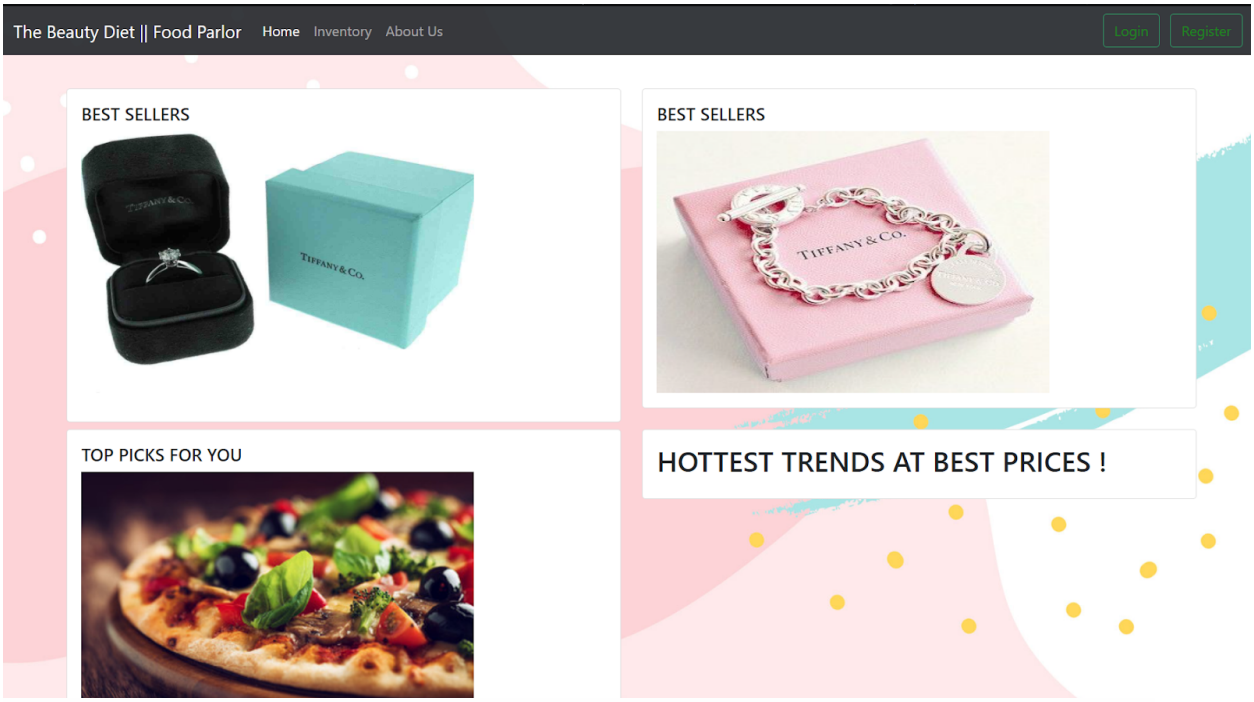
4.1 FLOWCHART



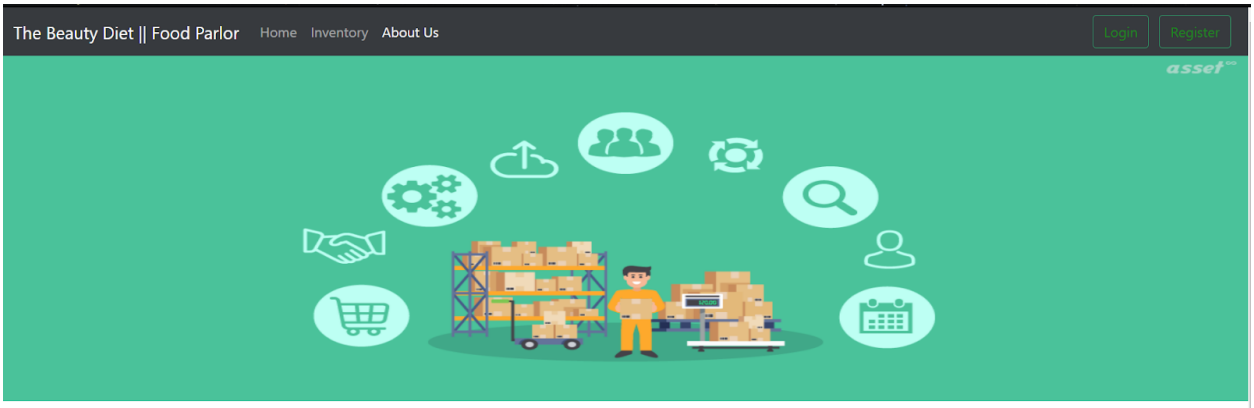
4.2 SCREENSHOTS

1. **INDEX/HOME PAGE:**





2. **ABOUT ME**



About us

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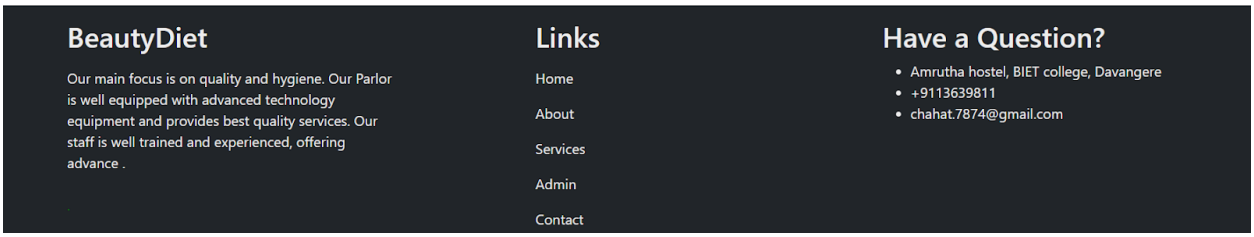
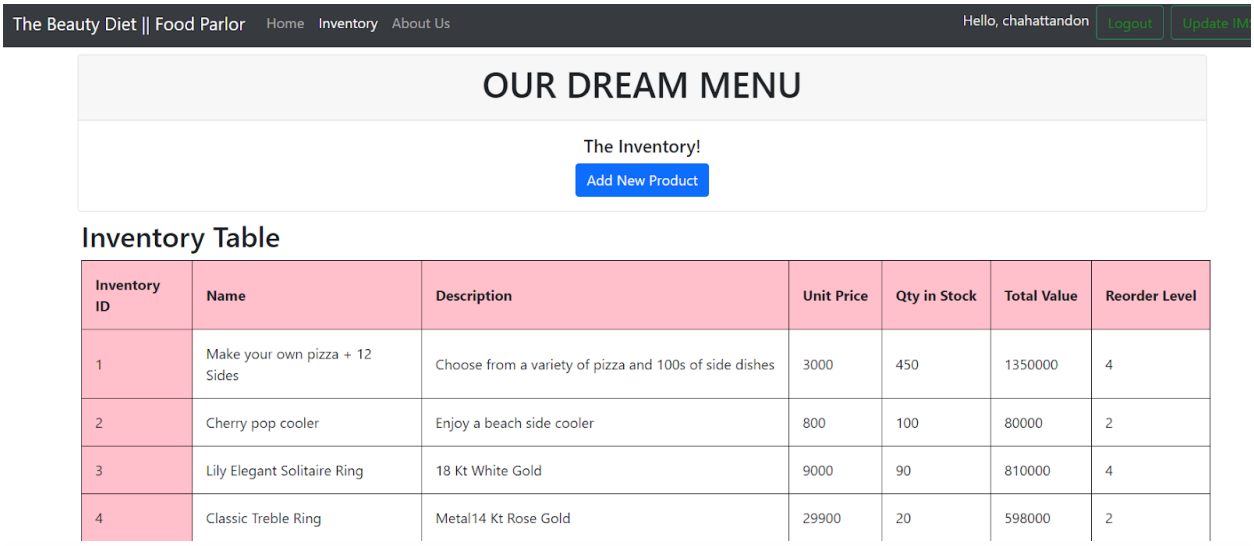
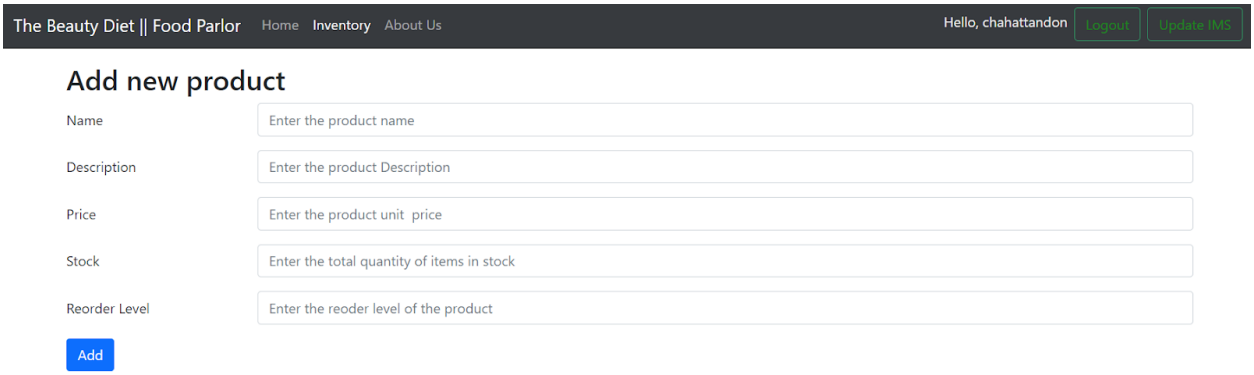
(C) **LOGIN/SIGNUP**



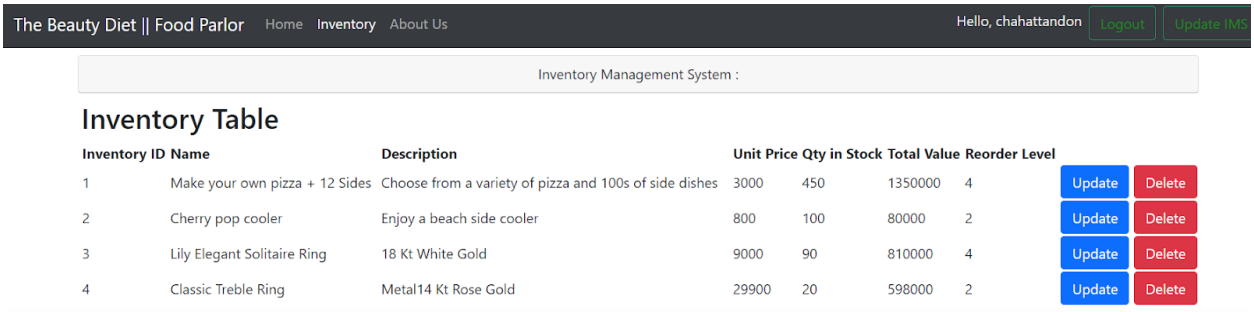
(D) INVENTORY



(E) ADDING PRODUCTS



(F) UPDATING THE INVENTORY

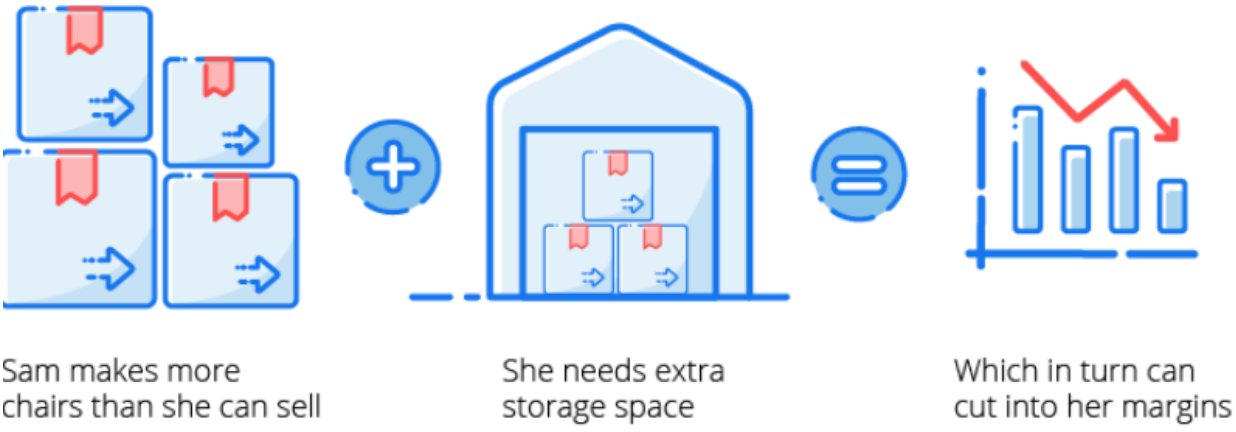


CHAPTER 5 CONCLUSION

This project is built using the Flask framework. HTML and CSS are used effectively to create a simple UI for the users to interact with the system. Necessary Python modules are used to provide the email feature for the users and also to create the REST api. Retailers can easily maintain a record of the suppliers, transactions and the products that they buy and sell.

CHAPTER 6 FUTURE SCOPE

Many small businesses rely on manually counting stock to track what's in store. But stock counts are disruptive and time-consuming, taking time away from making and selling products. So putting a system in place that doesn't require stocktakes for accurate figures is imperative.



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