

A SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP

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FINAL YEAR PROJECT REPORT

This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled “A SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP”, submitted by Md. Kamrul Hasan to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 01.06.2024.

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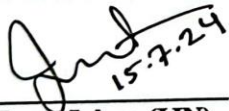
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I hereby declare that, this project has been done by me under the supervision of **Md. Sazzadur Ahamed**, Assistant Professor, Department of CSE Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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Finally, I must acknowledge with due respect the constant support and patients of my parents.

ABSTRACT

An effective and user-friendly platform called "A SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP" was created to simplify Super Shop administration. The software reduces manual errors and increases operational efficiency by automating price computations, QR code scanning, and PDF invoicing using technologies like React.js [3], Node.js [4], and MongoDB [5]. It guarantees ethical retail practices and encourages environmentally friendly operations by placing a significant emphasis on data privacy, ethical considerations, and sustainability. The software benefits society by encouraging conscientious consumption and administrative contentment. Long-term viability and relevance in the constantly changing Super Shop business are ensured by its scalability and possibility for further developments, including AI-powered features and increased data analytics. Overall, the software provides a thorough and creative way to improve Super Shop administration, client experiences, and company ethics.

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CHAPTER 1

INTRODUCTION

1. 1 Introduction

New – A smart VAT Calculation software for a Super Shop is ready to use in the super shop! As for the functionality, this software is designed for Super Shop administrators who need a reliable solution for calculation of the product prices including the VAT. It is convenient for admins to add the price to the list of products with a single click using their smartphone by simply scanning the QR code of the given product. This way, the admins help change the quantity by employing the buyer's requirements, and instantly, the software will be calculating the total cost. It provides a quick way for admins to remove what they consider to be un-useful products from the list. This is possibly the easiest pill to swallow; to create the receipt, one is only asked to input the customer's name and phone number and the rest will be done by the program.

Why Super Shop Administrators would require this program is due to the fact that it is versatile in that it enables them to restock with ease, manage the products and further monitor the product quantities. Try the efficiency of our developed “SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP” which is still open for registration.

1. 2 Motivation

As a result, Super Shop Admin will benefit from my solution, the “SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP,” by effectively managing their tasks. It has finally led to a world where decisions based on what product to offer and how much to charge for it do not require hours of computations. For the QR codes of products, the admins may just need to capture the QR codes with my software, and I will do the rest. Using the program, one can be able to produce professional formats of receipt in PDF format as well as calculate on the prices with the vat included. Products are easier to sell when they are promoted by skilled personnel who had ample time admiring how to make complicated calculations. I also provide crucial functions for managing inventories of products as well as restocking of other necessities in my software.

The above analysis of the objectives reveals that my “SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP” will be able to accomplish all of the above stated objectives and more to help your Super Shop thrive. Just try my software and experience the change that the software offers for your system right now!

1.3 Objective

1. Simplify product pricing: The idea driving my program is to assist the Super Shop Admins to be able to deduce the prices of products including the VAT.
2. Boost productivity: My program helps administrators to avoid time-consuming activities, such as, using QR code, or conducting complex calculations.
3. Boost accuracy: This ensures accurate pricing as well as total computations and this means that there are reduced chances of human errors occurring.
4. Simplify inventory management: I have stated that my program has simple functions of managing products, checking the number of products and restocking them.
5. While focusing on administrative convenience, it is also possible to produce neat-looking PDF receipts with customers’ details for a more impressive look.
6. Boost productivity: My software allows administrators focus on providing great customer service and increasing sales by performing complex calculations while providing the essential tools.

1.4 Expected Outcome

1. Enhanced productivity: With help of the presented formula, precise and fast calculation of product prices with VAT will be more convenient for administrators in their work process.
2. Increased accuracy: Pricing and overall computations will be less prone to errors on account of automated computations.
3. They shall have a great control on managing inventories so that the procedure of restocking and managing products shall be eased out.
4. Improved client satisfaction: Expertly developed pdf receipts will also provide your business with a more professional look.

5. Enhanced productivity: This helps avoid wastage of time for manual computation which in the end makes the admins to focus on offering quality customer services and increasing sales.

1. 5 Report Layout

This report comprises six chapters, each focusing on one aspect of the “**SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP**”:

Chapter 1: I. Purpose of the Software –Enumerates the objectives, significance and benefits of the software to the Super Shops.

Chapter 2: Technology Overview - Focuses on technologies used, software development life cycle, and collaboration.

Chapter 3: Admin Authentication and Features - Looks into the software's security features for admin access as well as important functions like cart management and product presentation.

Chapter 4: Technical Design and Implementation - Explains the design of the front-end and back-end of the program to ensure a seamless administration experience.

Chapter 5: Implementation and Testing - Describes the software's implementation and extensive functional and performance testing.

Chapter 6: Impact on Society and Environment - Examines the ways in which the software supports eco-friendly operations and ethical retail practices.

Chapter 7: Conclusion and Future Work - summarizes the software's accomplishments and future expansion and enhancement objectives.

CHAPTER 2

BACKGROUND STUDY

2.1 Preliminaries/Terminologies

In this project I have given the background information and the context or terminologies which are required for the preparation of ‘SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP’ at a Super Shop. To understand how the software is designed and what functions it has, these phrases are used. Some of the key terms are; this is scanning of adding products into the cart, denoted as QR code scanning; admin means the authorized admin of the software and VAT stands for Value Added Tax, which is a tax charged on the products. In addition, ‘Stock Management’ involves issues of product numbers while Product Management is involved in issues to do with adding, updating or deleting products. “PDF Generation” produces invoice documents for clients, while “Admin Authentication” ensures a secure interface. In total, these phrases form a set of ideas that would be useful to reflect upon the powers and advantages of the Super Shop calculating program.

2.2 Related Works

The software platform for the calculation of VAT for the ‘SUPER SHOP’ is designed by integrating a number of modern technologies for an efficient and more administrative mode. The general concept of the software is defined, and the elements are structured in HTML5 (JSX) To Ensure They Are Straightforward to use. CSS with CSS3 has such benefits to the looks that beautiful styles, smooth animation, and effective responsiveness are provided by Tailwind CSS. Realtime response of the software is made possible by React. embed and js, which also encompasses the use of those dynamic and interactive elements. Node.js and Express.js [5] are more utilized at back-end and they are also responsible for managing the HTTP request and entire logic of the application. JavaScript is the primary language which is employed by both the front-end end and the back-end in order to achieve code consistency. In the end, MongoDB [6] is chosen for the solutions that deal with storing and tracking product information and other relevant information.

Mediasoftbd.com [8]

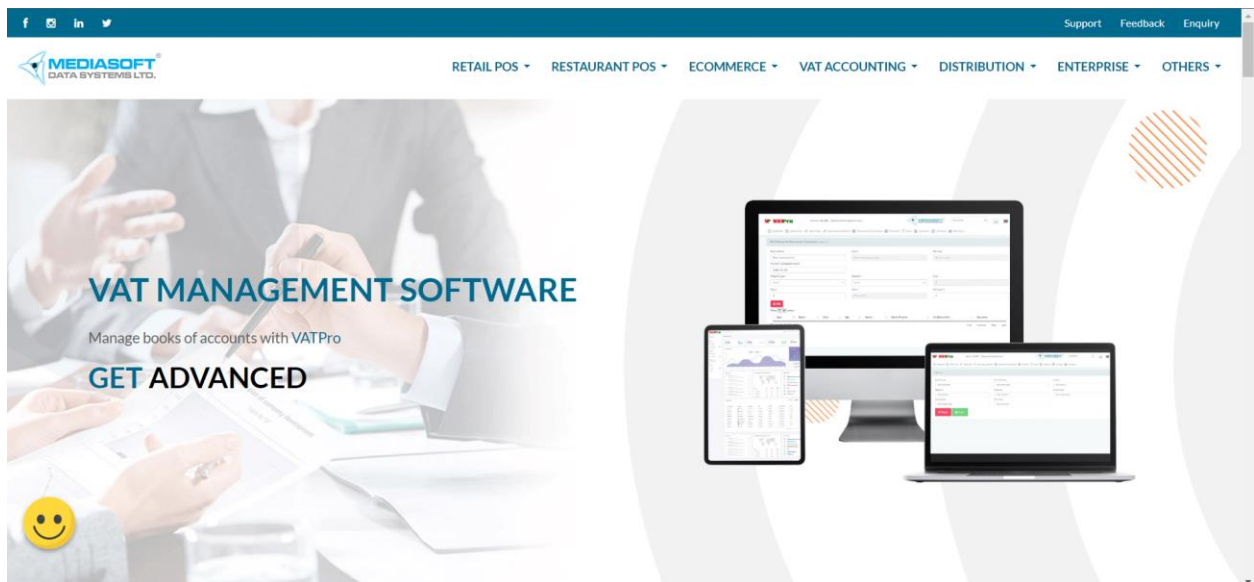


Figure: 2.1 UI of Mediasoftbd.com

Ibos.io [9]

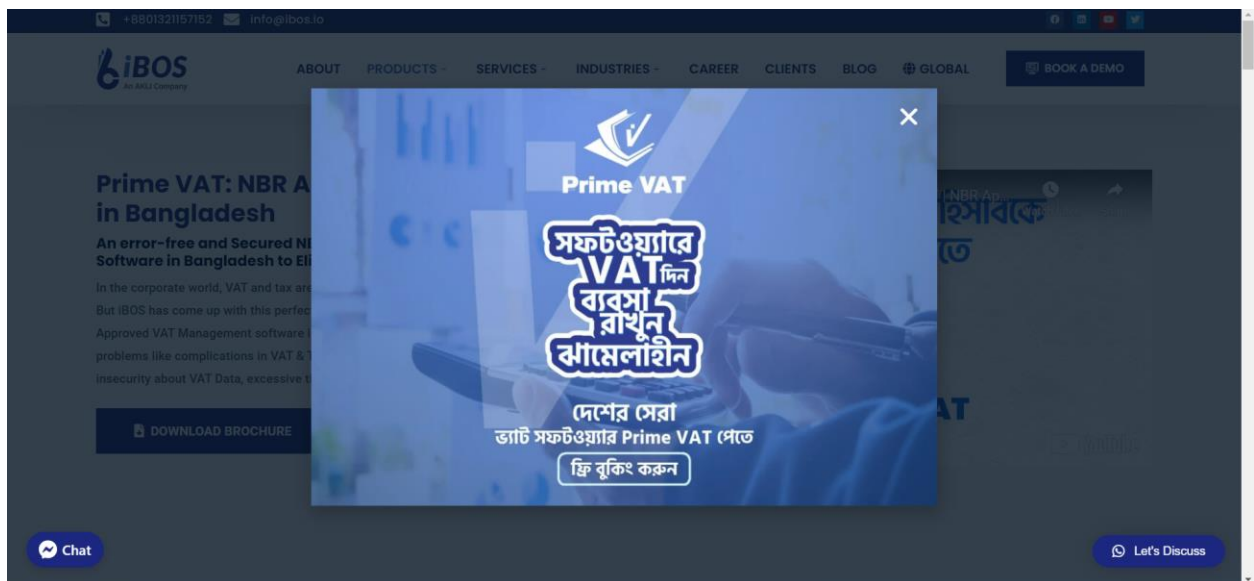


Figure: 2.2 UI of Ibos.io

Retail Solution.com [10]

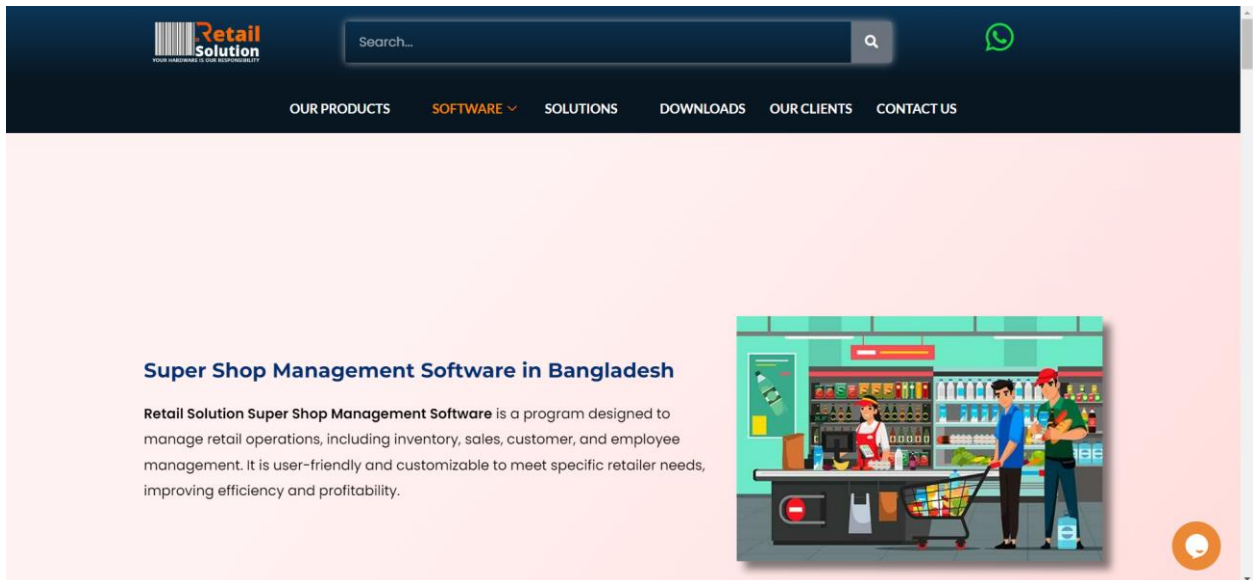


Figure: 2.3 UI of Retail Solution.com

Easy MTD Vat.com [11]

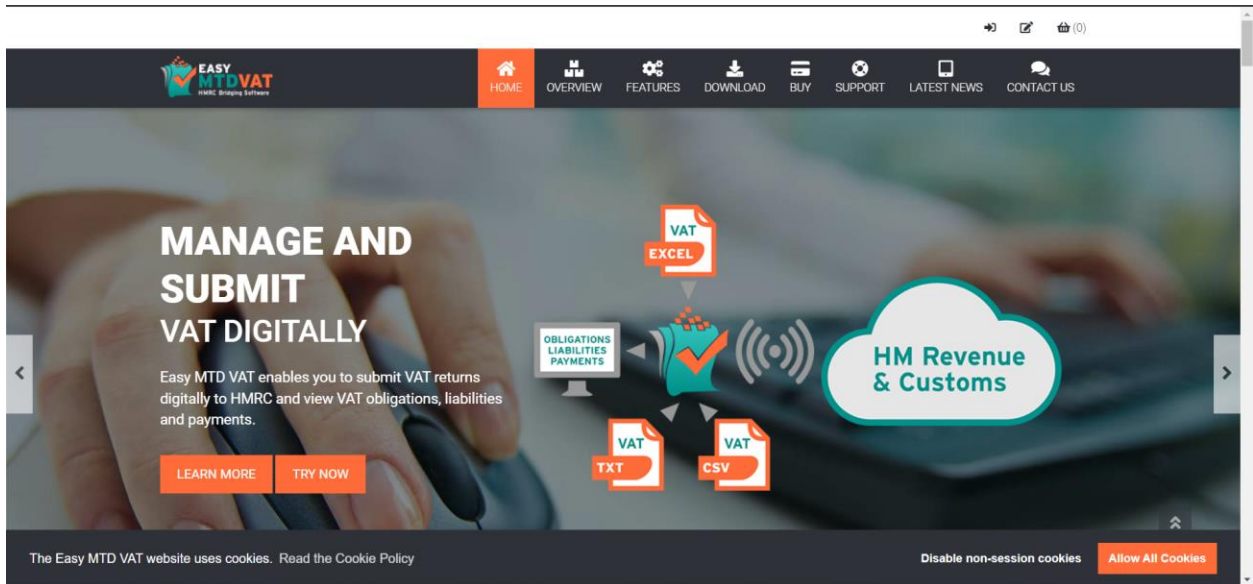


Figure: 2.4 UI of Easy MTD Vat.com

2.3 Comparative Analysis

Hypothesis and comparison of this project: The project's proposed concept offers several types of advantages. when compared with other retailing management systems over owners of a Super Shop. This in contrast to usual systems is designed to be easy to use or what we should state, designed with ease in mind. One could add its products quickly by using QR codes, it can compute its prices which included taxes as well and it is capable of producing PDF invoices. Thus, simplifying the purchasing experience, while its admin-oriented design and the usage of modern technologies, including React, are making it comfortable to operate. Due to the flexibility of the JS programming language and the functionality and compatibility of MongoDB, it can be successfully used. Therefore, it can be said that all things considered, this software appears to be very helpful and specific program created for Super Shops used to coordinate many administrative responsibilities and providing excellent customers' service.

2.4 Scope of the Problem

The Super Shop industry is also faced with the problem of controlling the prices of products, inventory, and sales. Peculiarities and disadvantages of the traditional systems include the increased number of time-consuming procedures and possible human mistakes. computing prices with taxes, stock control and generating bills can be a real headache It can be very tedious to come up with prices inclusive of taxes, stock keeping and coming up with bills. This is an issue that seems to affect the general productivity of the overall operation of the Super Shops as well as the overall customer experience. This is the best opportunity to develop this web application to design and accomplish PDF invoice printing, product scanning, price computing and stock management. The software aims at increasing the satisfaction of its customers, reducing the number of mistakes that are made, and enhancing the functioning of Super Shop because of having an efficient solution that is palatable to the administration.

2.5 Challenges

Some of the major challenges faced in establishing the project include the following; Firstly, there is a need for proper coordination to synchronize the front-end technologies like React with the back-end technologies in order to achieve a seamless flow in performance of the model. js and Node. js. Second, because of the availability of the administrator account for any attacks, it is necessary to establish a reliable and strong administration authentication. The third requirement entails the proper organization of data for the ability to manage and maintain the product database in MongoDB effectively. Fluent code is also required for automated price calculations and the implementation of QR code scanning technologies. It is also critical when generating PDF bills with client information to be precise in data handling.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

The applicability and relevance of the web application can be argued by the fact that it is operating under the Super Shop Management Model. This model shows that the most important aspects of the program, such as product cost calculation, inventory tracking, and automatic generation of PDF invoices, are done adequately. Adherence to this paradigm helps the software enhance the functionality to fulfill the needs of Super Shop owners and ease the operations of the shop and customer service aspects. Super Shop's management and expansion through the use of the software is likely to be enhanced by the fact that it tackles price computations and stock management jobs which may otherwise be complex and hinder business flow.

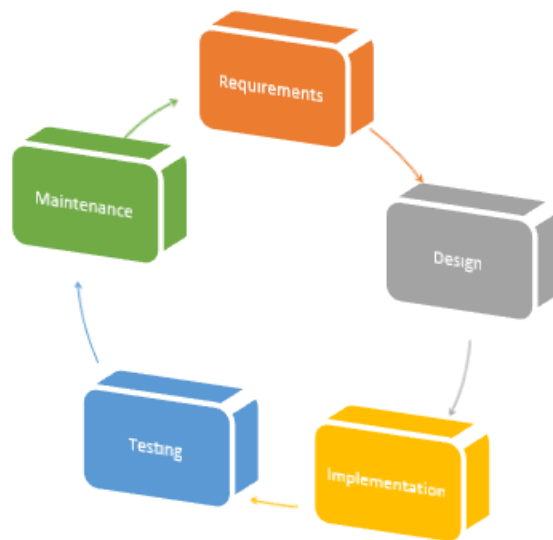


Figure: 3.1 Business Process Model

3.2 Requirement Collection and Analysis

1. Software requirements:

To effectively achieve the aforesaid objectives the following conditions should be fulfilled. First and foremost, it must have a friendly backend panel, which allows the product scanning via QR codes and the navigation process. Second, the software has to generate pdf invoices for the clients and accurately determine the costs of the products that include VAT. Thirdly, to ensure the security and privacy of the admin feature, the admin authentication has to be turned on. Fourthly, the web application must also have proper stock management functionalities to allow for changes in quantity and restocking.

2. Hardware requirements:

Consequently, the web app is designed to empower the administrator with easy and smooth navigation of the application across several interfaces. Its performance is perfect due to the ability of working with the other kinds of processors like Intel Core i3, i5, and i7. Minimum recommended RAM: 4GB of RAM to get the best experience while browsing the site and engaging the content. The program makes it very easy to move through it and engage in the content and is available for laptop, PC, and smartphone. It is also admin-friendly. This optimization enables Super Shop owners to efficiently operate the business with the help of any device possible.

Functional Requirements:

When the web applicatoin for a Super Shop has been designed, some functional requirements need to be set to enable it to run as intended. Some form of admin authentication should be provided to ensure proper software accessibility but always safe. This is important in order to add products and making scanning of QR codes possible in the software. Price controls have to be automated with dynamic assignment of VAT included. It should allow cart management, and by this, it will be easy for the admin to modify the quantity of a particular product. To facilitate this, the software should generate PDF invoices so as to facilitate and enhance transactions. Like it was mentioned before,

functionalities related to product stock management should include changes and replenishment of quantity.

3.3 Use Case Modeling and Description

The actual use of a named case, the project use case model for a Super Shop aid in the design of admin-friendly features with an agreed semantics oriented to operations of the system and interactions with the admin. It ensures efficient problem-solving and log many kinds of administrative scenarios; therefore, it ensures the software developed meets all the administrative needs, enhances customer satisfaction, and eases the running of Super Shop.

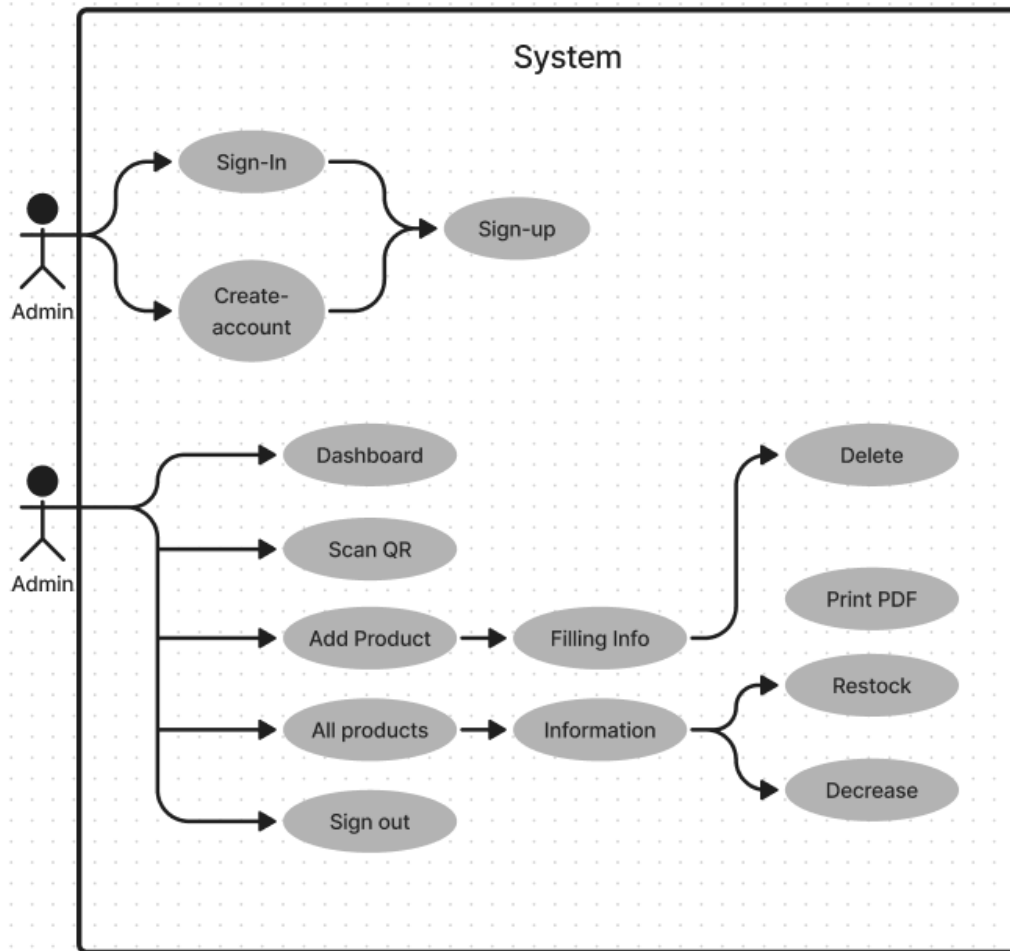


Figure: 3.2 Use Case Diagram

3.4 Design Requirement

In order to ensure that the software solution provides an efficient and user-friendly administrative solution for a Super Shop, certain design specifications must be adhered to. The software's design should be simple for the admins to use for easier management of users' accounts. However, due to the variability of clients' circumstances and the nature of software used, responsive design is necessary to guarantee that the developed program can run on a wide range of devices. As a result, to ensure that decision-making is affected promptly and effectively, the product displays should be strategic and informative. This is

pertinent in order to ensure that suitable spaces for product insertion are designed in such a way that allows easy scanning of QR codes. As for the usability improvement, the provided program should pay attention to the possibility of processing the data as soon as they come in and calculating the prices without involving the user. Owners of Super Shop who are implementing the program can confidently embark on the task knowing that they will derive the required satisfaction with an aesthetic and orderly interface layout.

3.5 Activity Diagram

In order to utilize the "Smart VAT Calculation Software for a Super Shop," the administrator needs to either register for an account or sign in with an existing one. By selecting "Create Account," customers provide a working email address, a password, and other registration-related information. Admin can use the software to calculate VAT and efficiently run the super shop by logging in and accessing the Home Page after completing the registration process successfully.

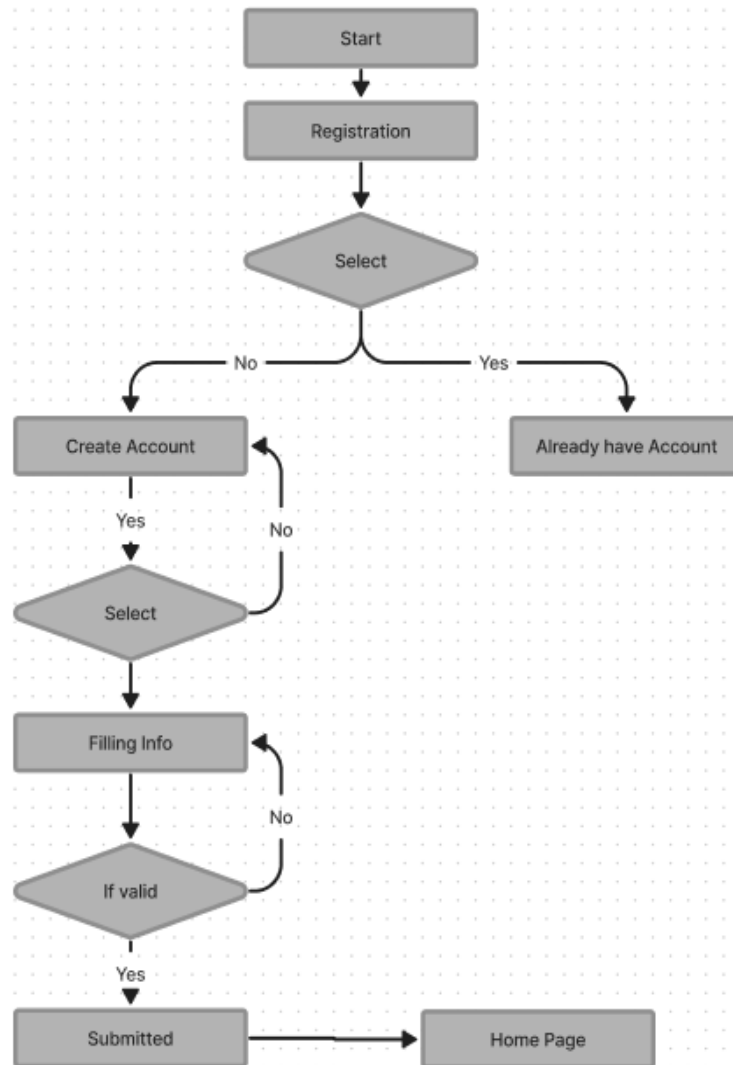


Figure: 3.3 Activity Diagram of Register

An existing administrator can sign in with their password and email. They will be taken to the Home Page of the Smart VAT Calculation Software for a Super Shop after entering correct login information.

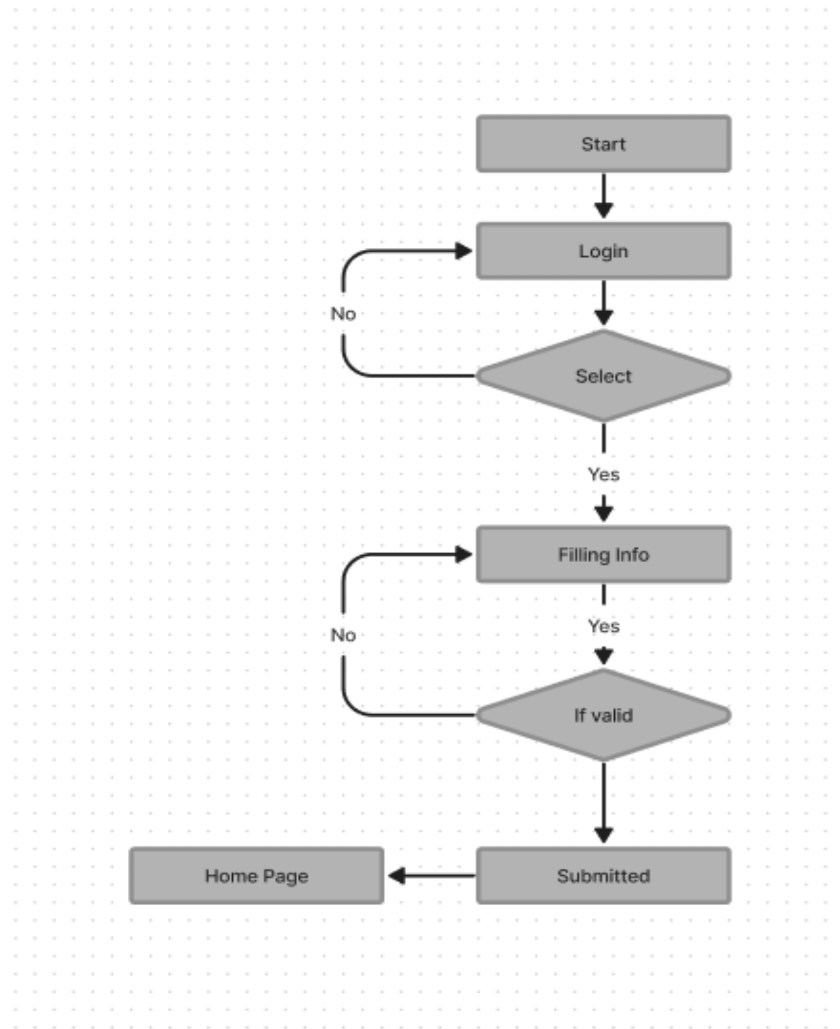


Figure: 3.4 Activity Diagram of Login

The admin can handle every product by filling out information after logging in. Before submitting, the administrator can fix any mistakes in the information. Furthermore, the admin can use the Smart VAT Calculation Software for a Super Shop to remove products as needed.

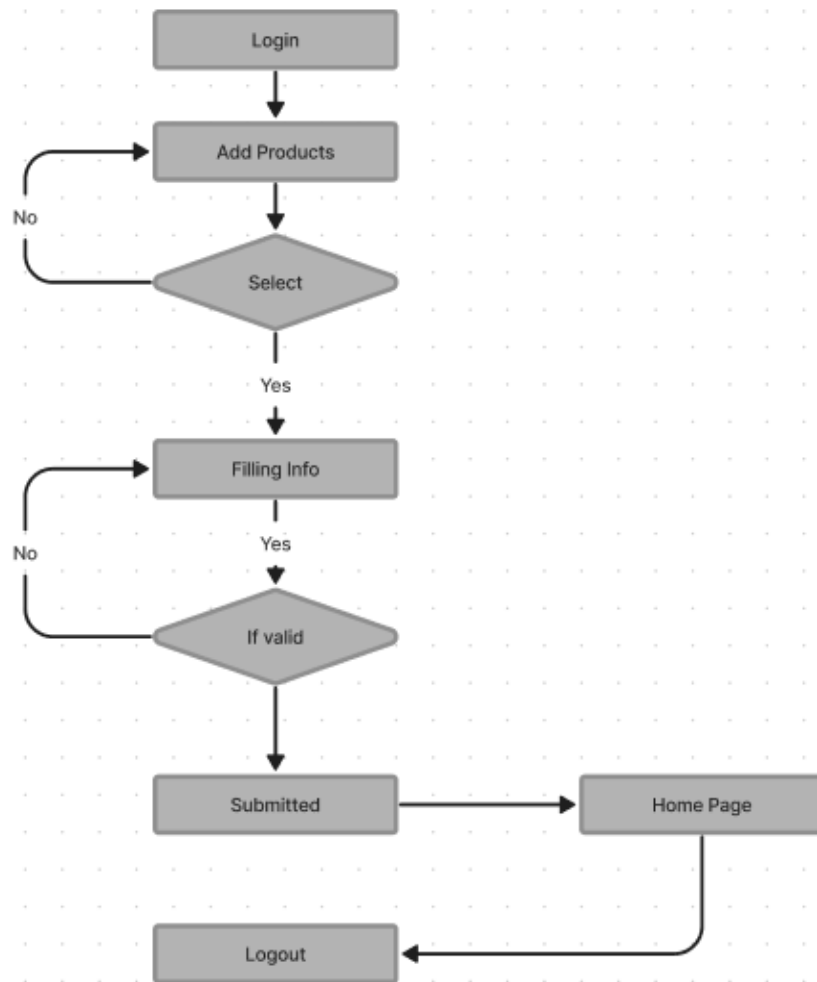


Figure: 3.5 Activity Diagram of Add Products

The administrator can manage products by entering the required data after logging in. It will be submitted if the data is accurate. The administrator can update the information if there are mistakes. The administrator also has the ability to remove products as needed.

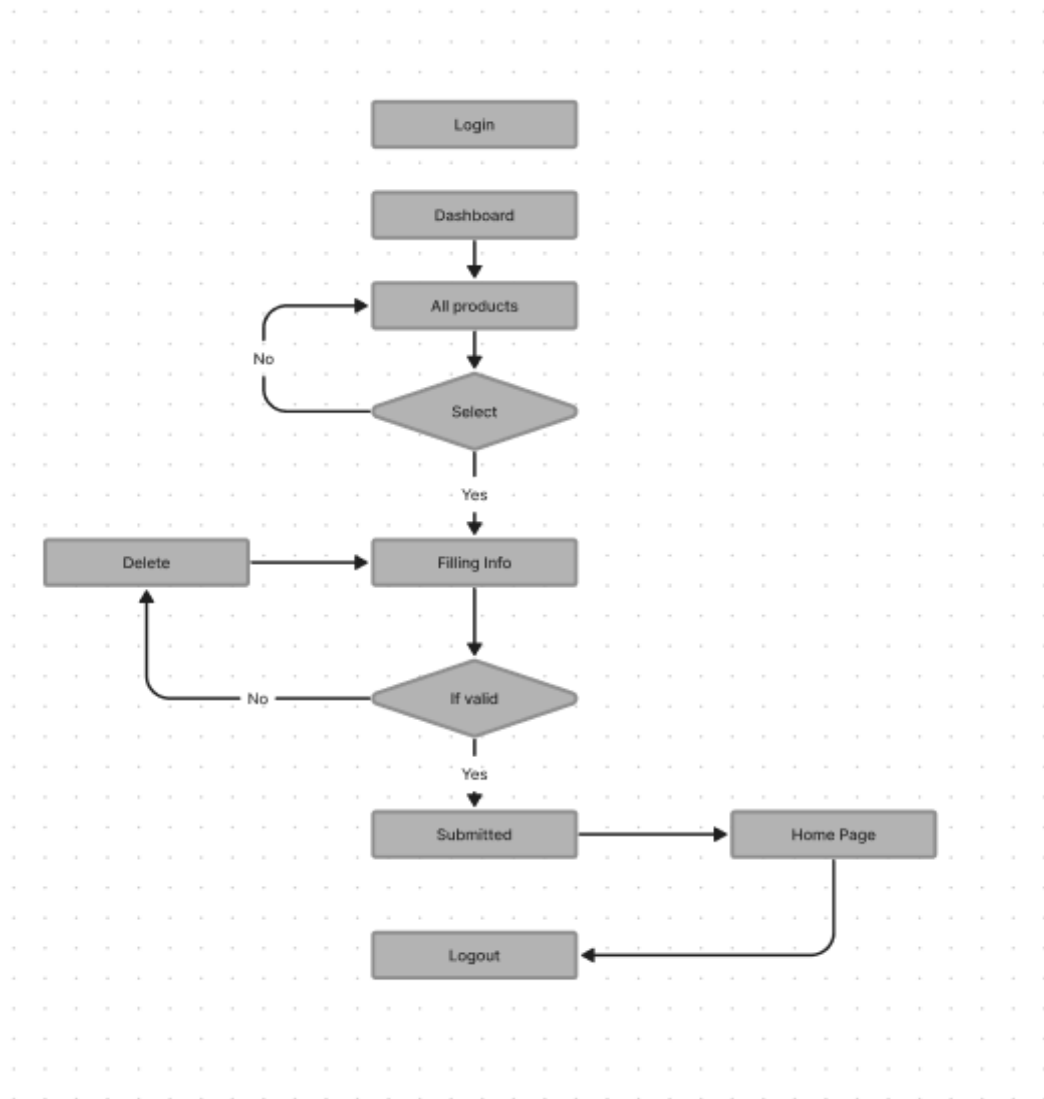


Figure: 3.6 Activity Diagram of Delete the Products

As an admin, they have access to all of their goods' associated data as an admin. If they so choose, they can remove products. They can pay and the status will be updated if they choose to move forward with the merchandise. Once the procedure is finished, users will be taken back to the main page.

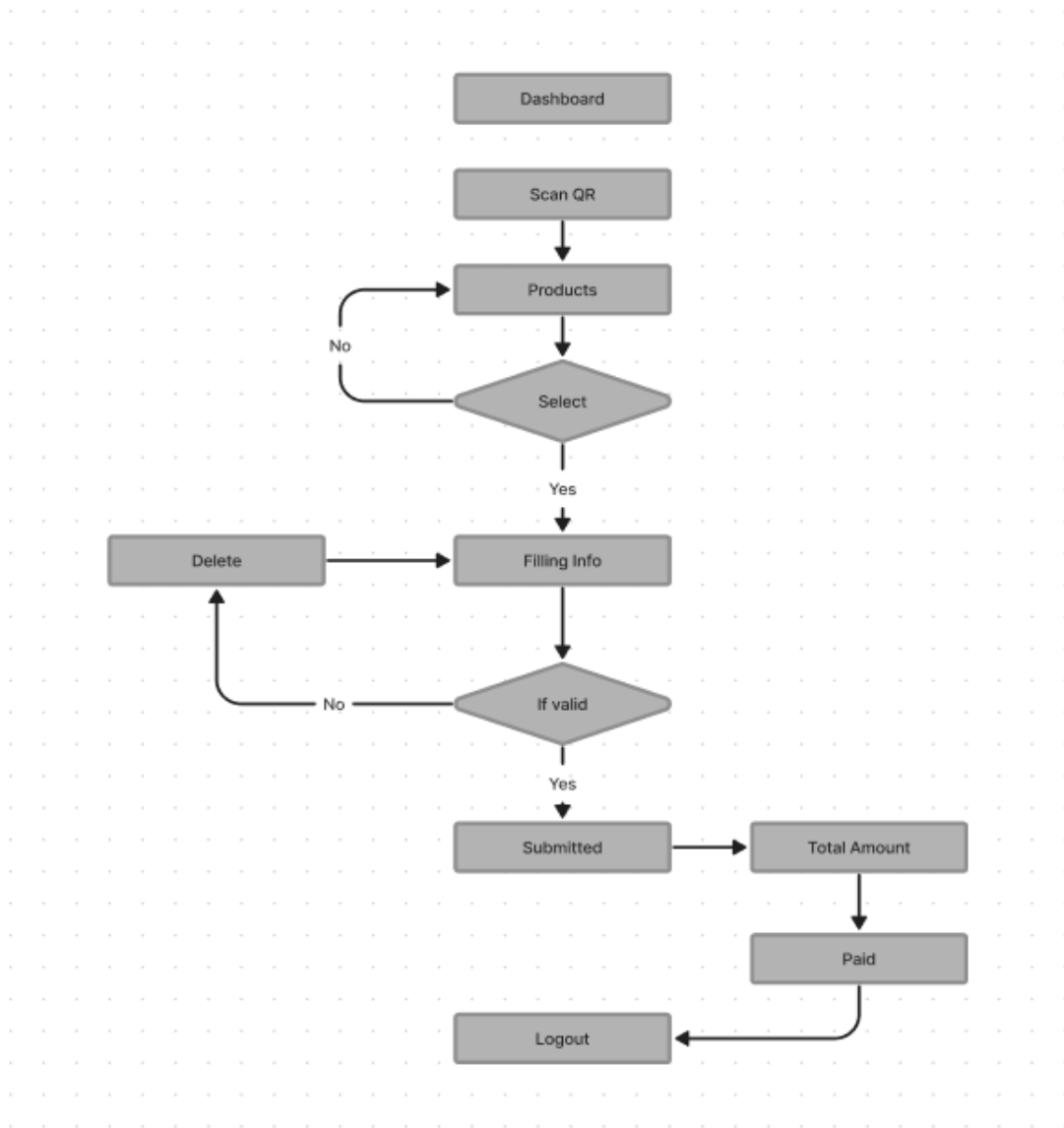


Figure: 3.7 Activity Diagram of the products process

If the administrator wants to add more than one item, they can view all of them in the information area. The user will return to the home page after the products have been submitted and approved.

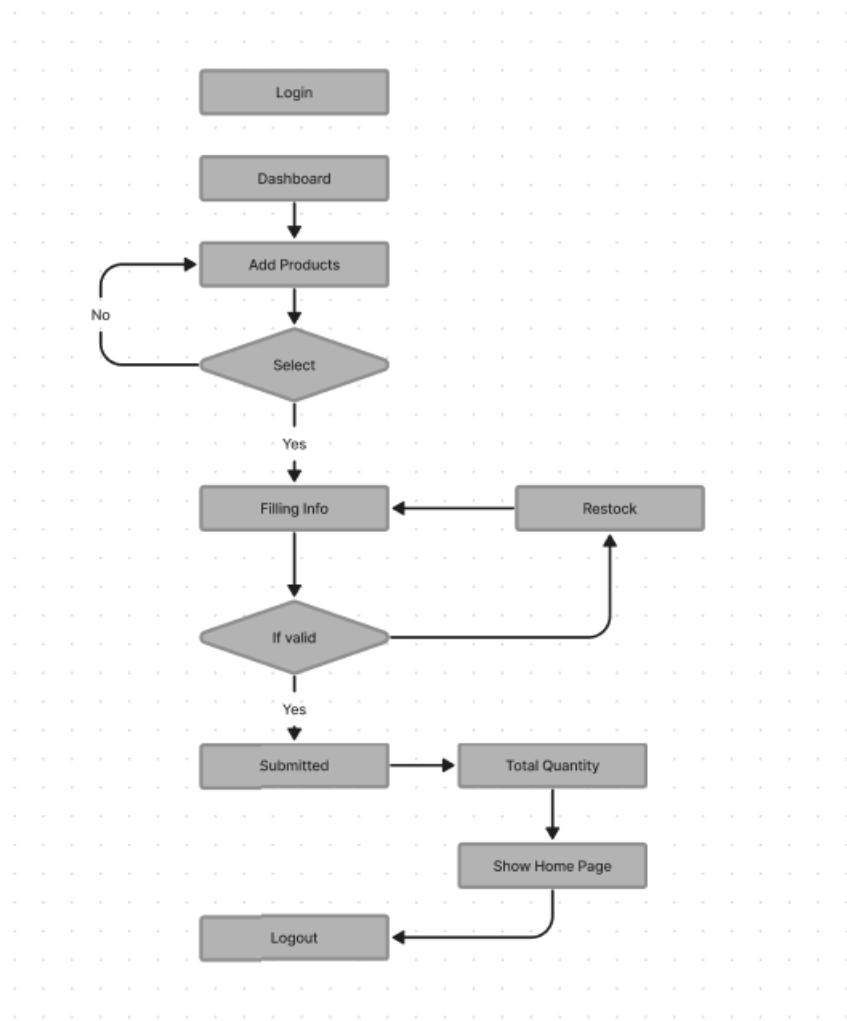


Figure: 3.8 Activity Diagram of Query the products

The administrator can view booking details by logging in to the dashboard. They can choose to remove products that aren't valid. They'll get a confirmation prompt if any of the information is wrong. The administrator can add once the data is accurate, submit the information, and then log out.

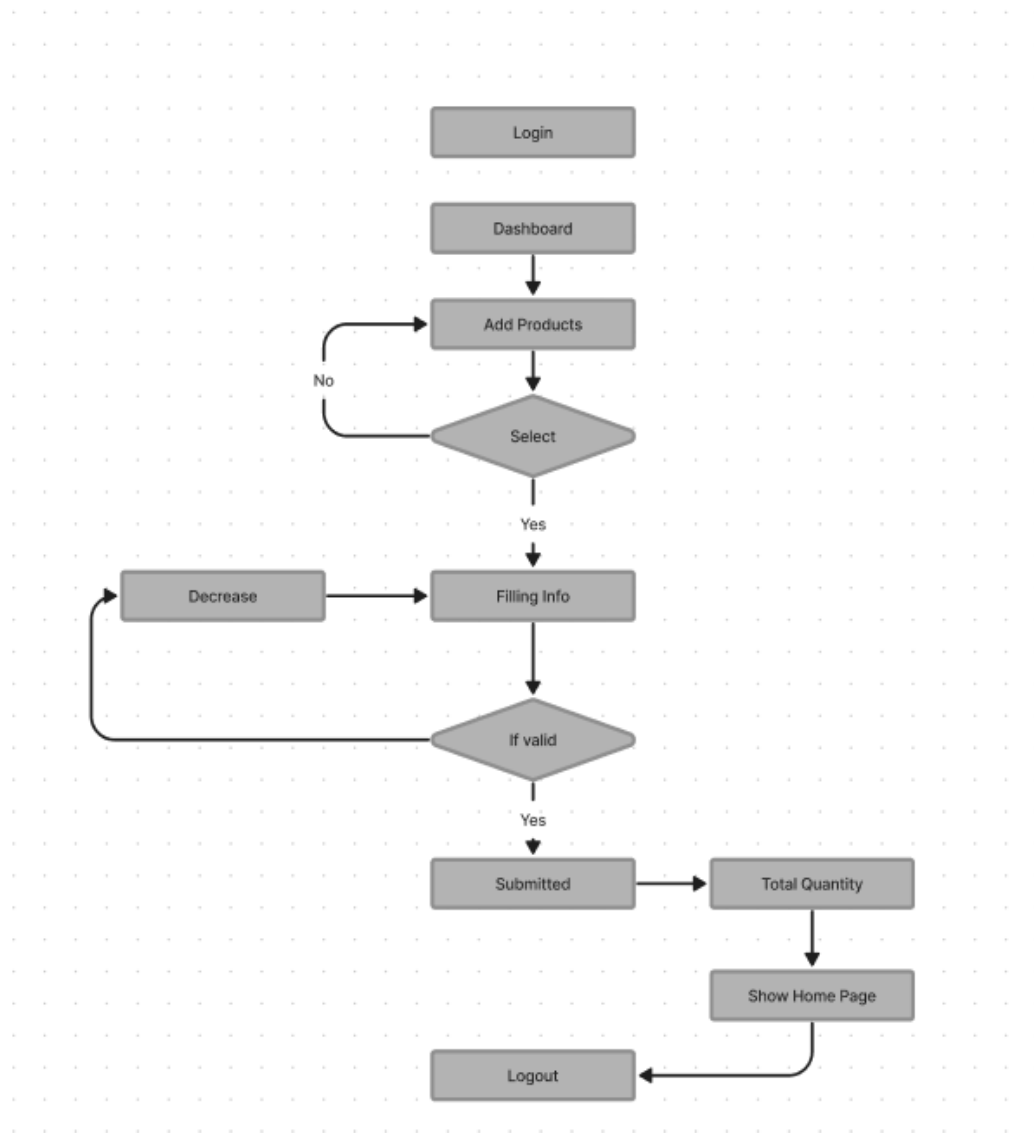


Figure: 3.9 Activity Diagram of Add products

Admins have the ability to quickly shut off the website by selecting the "Log Out" option.

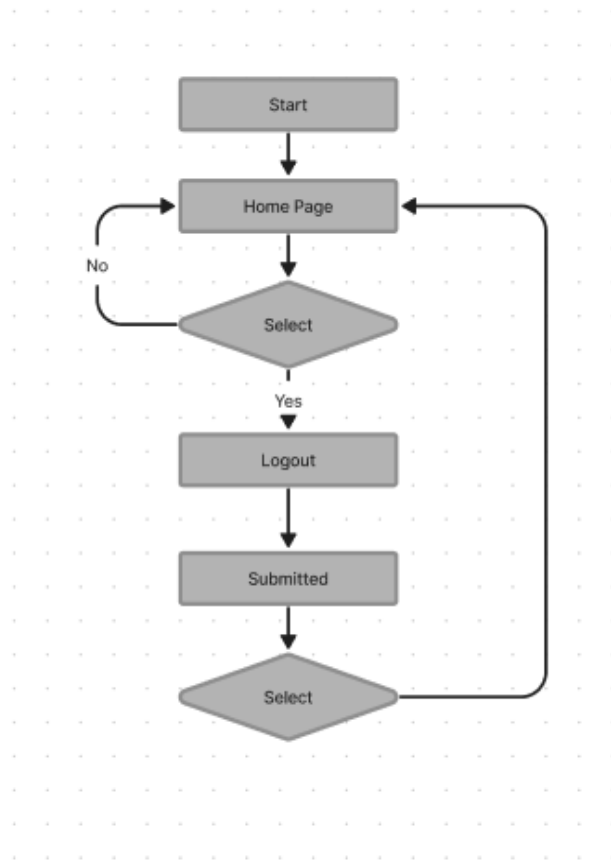


Figure: 3.10 Activity Diagram of Logout

3.6 ER Diagram

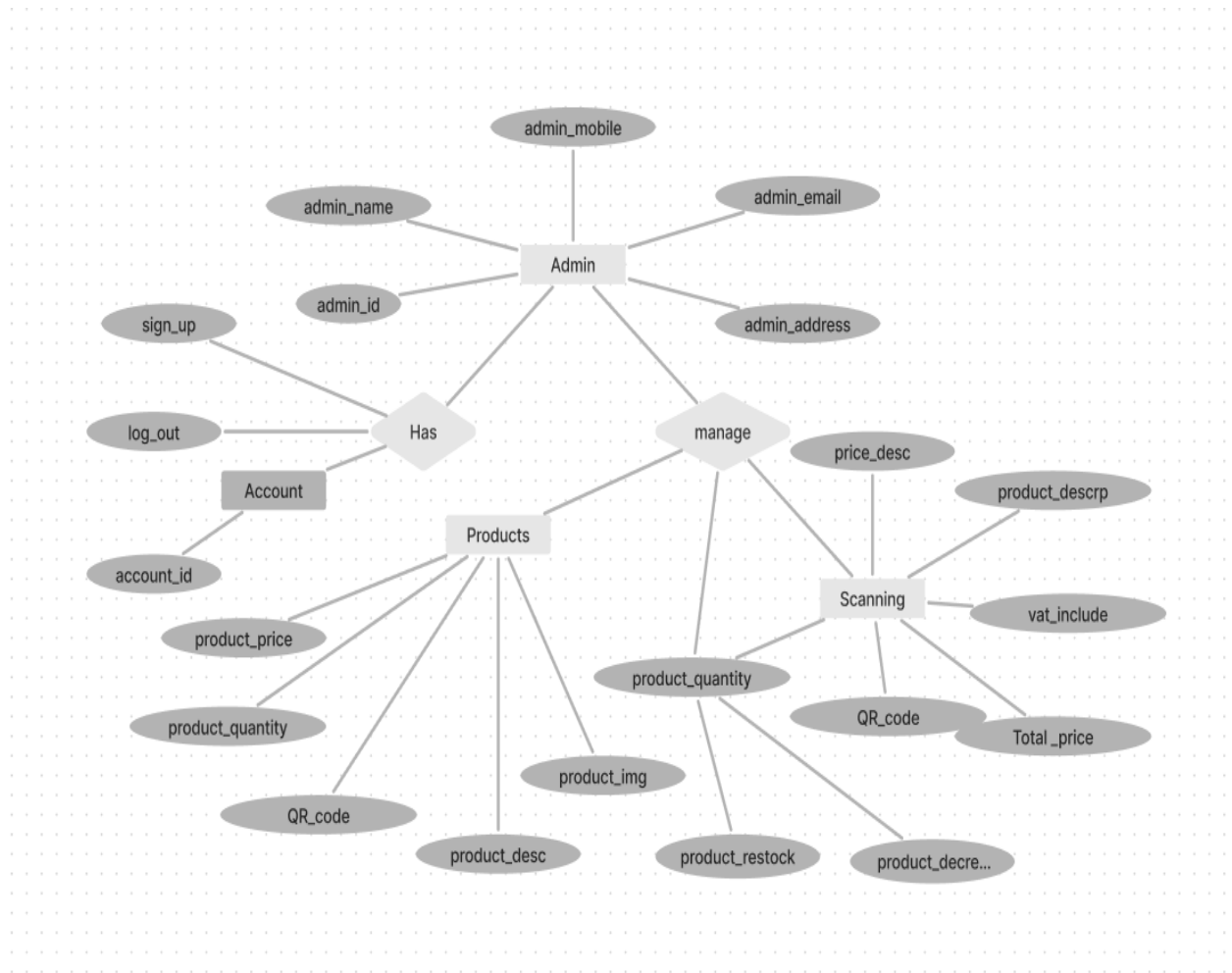


Figure: 3.11 ER Diagram

This is an ER diagram of the web application. We can see the internal networks connecting the entire operation in this ER diagram.

3.7 Class Diagram

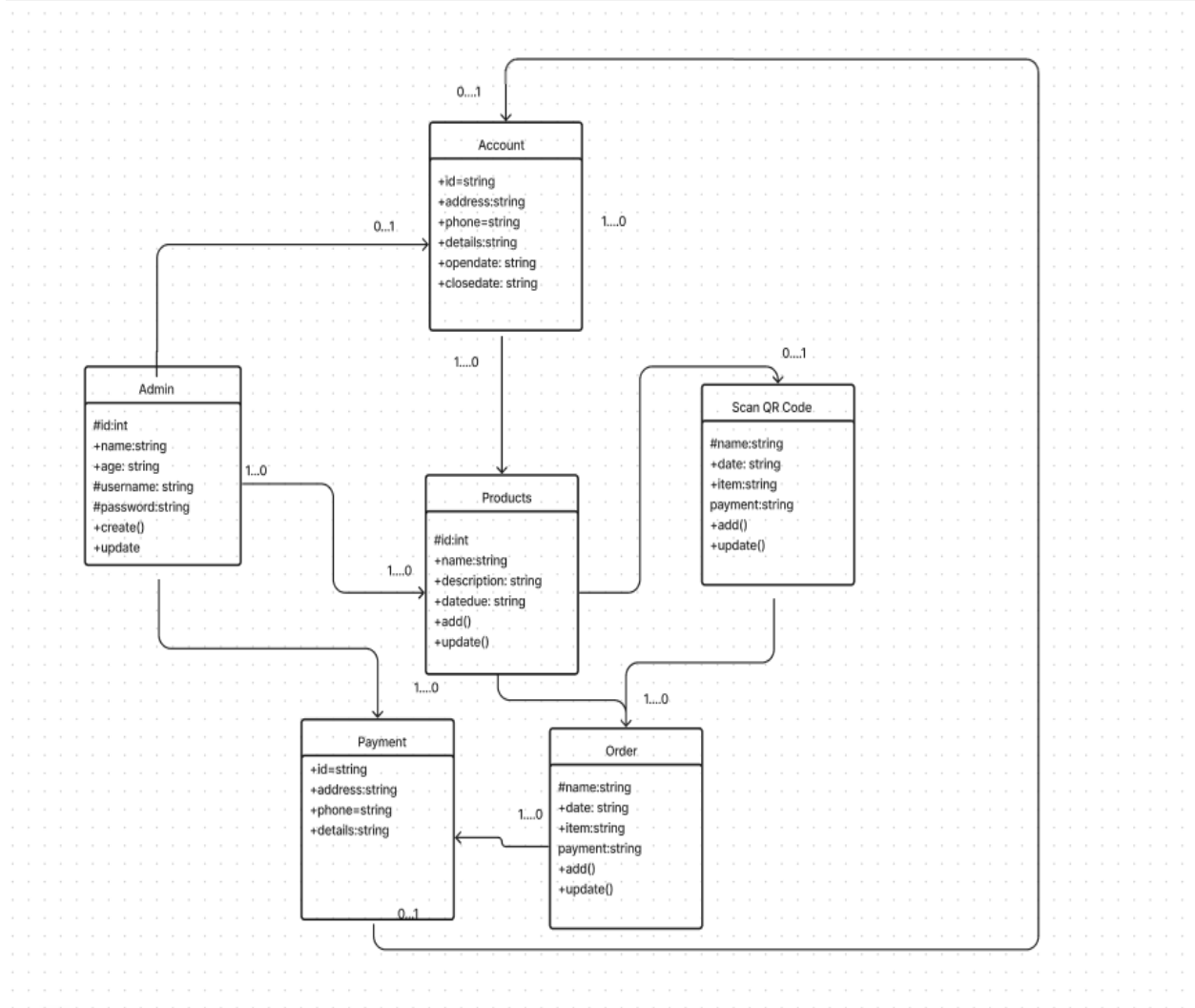


Figure: 3.12 Class Diagram

In this class diagram we can see 6 components like account, admin, QR scanner, products, order and payment gateway. Here one can create an account which is connected with admin, product & payment system. Admin is connected to all sections here.

3.8 Flowchart

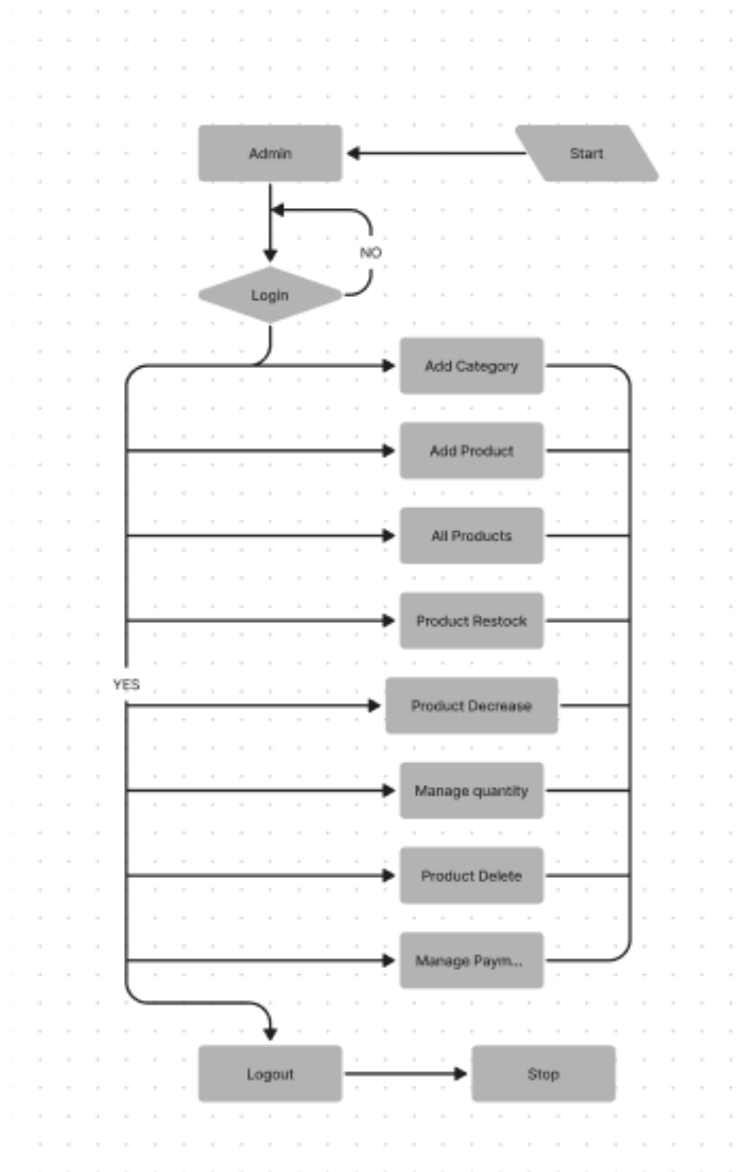


Figure: 3.13 Flowchart

This flowchart represents an admin interface for a product management system. It starts with an admin login check, and upon successful login, allows the admin to perform various tasks such as adding categories, adding products, viewing all products, restocking, decreasing product quantities, managing quantities, deleting products, and managing payments. The process ends with a logout and stop operation.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-End Design

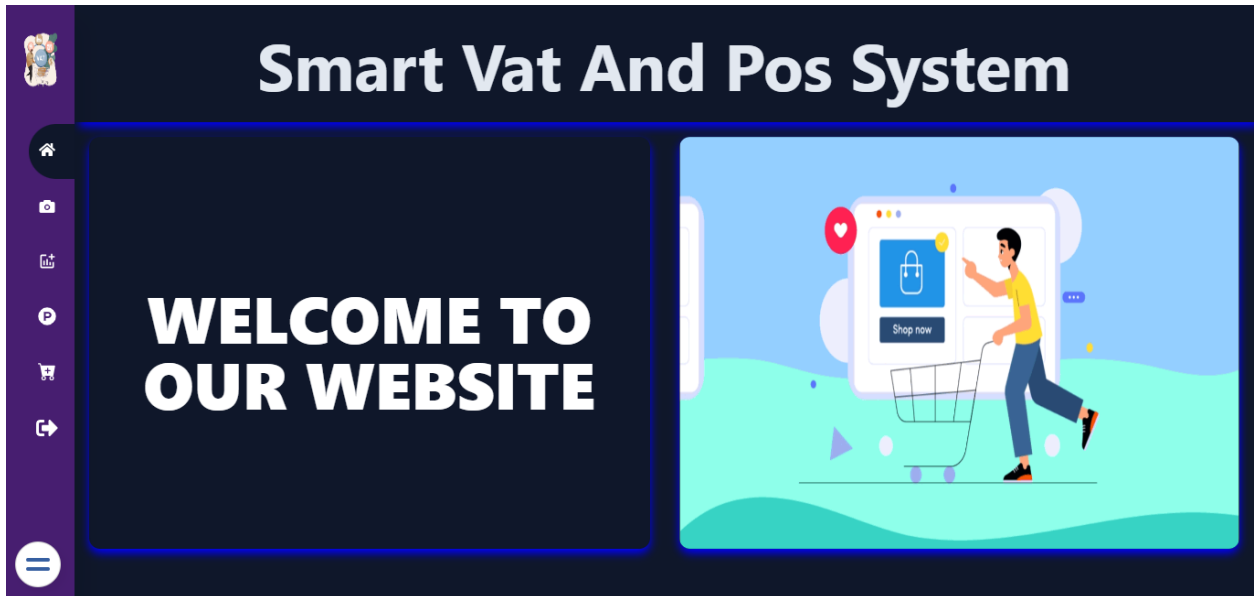


Figure: 4.1 Front-End Design

In Figure: 4.1, the registration page: Users can make an account on the Smart VAT Calculation Software for a Super Shop sign-up page by entering their email address, password, and other necessary registration details.

4.2 Login Page

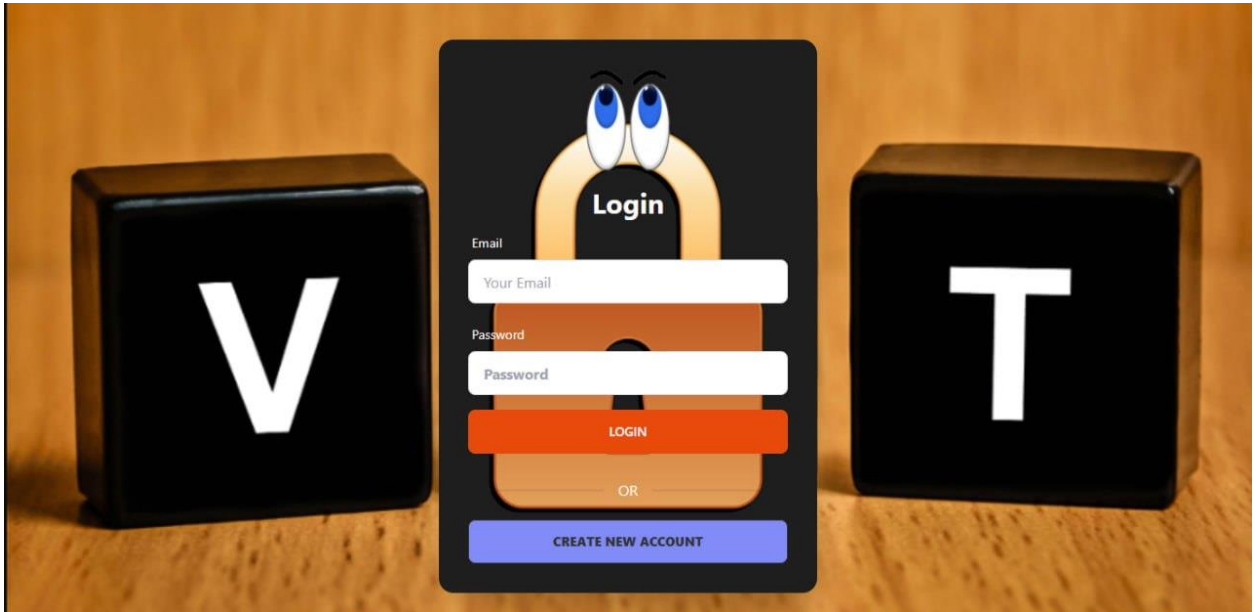


Figure: 4.2 Login page

In Figure: 4.2, the login screen by entering their email address and password, current users of the Smart VAT Calculation Software for a Super Shop can access their accounts. Users can utilize the functionality of the software after successfully logging in.

4.3 Home page

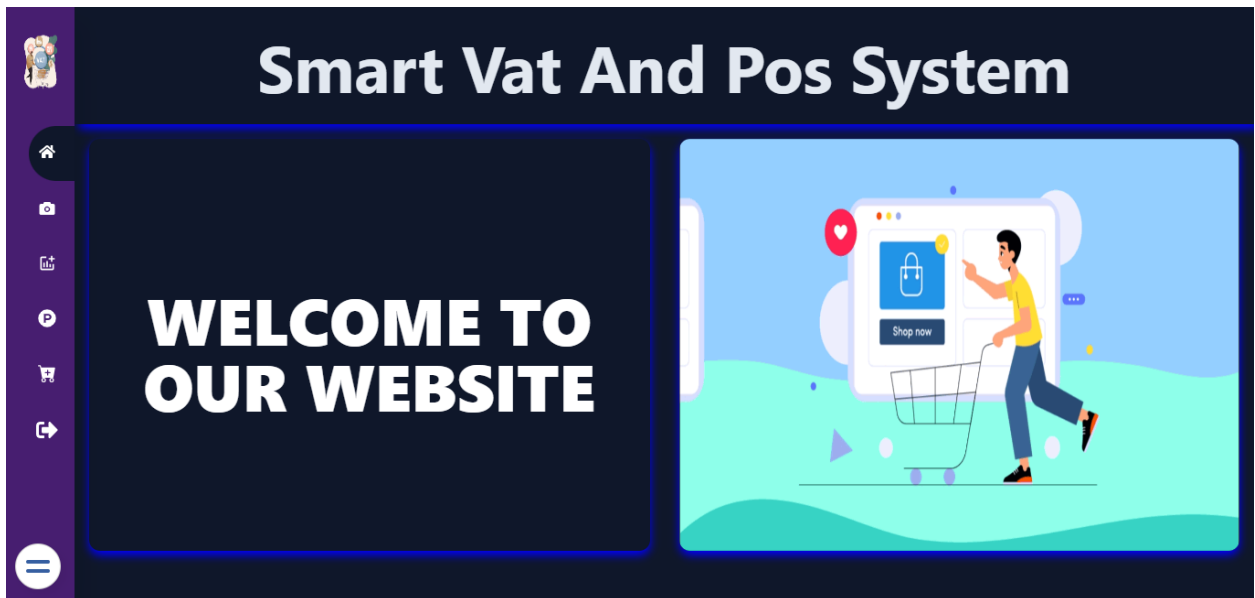


Figure: 4.3 Home page

Front page in Figure: 4.3 The primary user interface of the Smart VAT Calculation Software for a Super Shop is its front page. It offers functions that are necessary for controlling stock levels, product prices, and creating invoices that include VAT computations.

4.4 Add Products

The image shows two screenshots of a web application interface. The top screenshot is the 'ADD A PRODUCT' form, and the bottom screenshot is the 'Show All Product' list.

ADD A PRODUCT Form:

- Name:** Service name
- Product Id:** Product id
- Input Image:** Choose File (No file chosen)
- Quantity:** Input Product Quantity
- Price:** Price
- ADD** button
- QR Code:** A QR code is displayed next to a text input field containing '25' and a 'Generate QR Code' button.

Show All Product Table:

	NAME	PRODUCT ID	QUANTITY	PRICE	INCREASE QUANTITY	DECREASE QUANTITY	DELETE
1		Potato	220	42	15		DECREASE
2		fish oil	134	21	150		DECREASE
3		Monitor	C2aDC	20	25		DECREASE
4		Monitor	M234s	196	5000		DECREASE
5		Grilles	2kg	3	100		DECREASE
6		ABC	Mjhdd	40	75		DECREASE
7		chips	a10	248	15		DECREASE
8		Soap	s10	47	40		DECREASE

Figure: 4.4 Adding Products

In Figure 4.4: Adding Substances: The administrator can add products to the Super Shop's Smart VAT Calculation Software by entering the necessary information, such as the product name, price, and quantity. When you select "Scan for Click," the product appears in the list of products in the software.

4.5 Restocking Unit

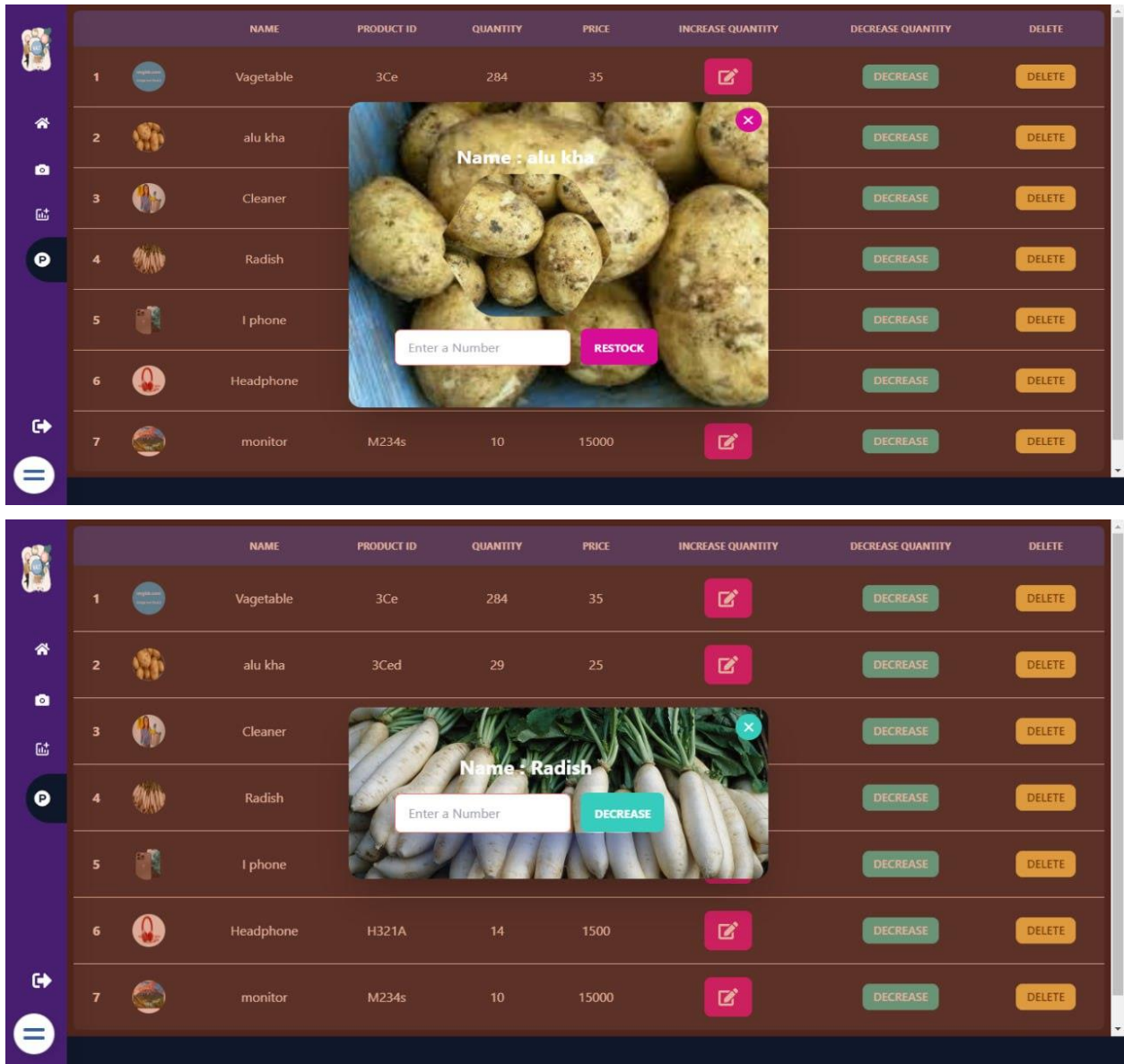


Figure: 4.5 Restocking Unit

In Figure 4.5, the Administrator Profile: The admin of a Super Shop can access and manage their account details, including login credentials and personal data, using the Admin Profile in the Smart VAT Calculation Software. It gives the administrator a single location to manage settings pertaining to accounts.

4.6 Invoice Generator



- 
- 
- 
- 
- 
- 

Scan Here





Vat Management System
Daffodil International University
Level # 03, Shop # 203, 204 Daffodil Tower, Dhanmondi
Dhaka - 1205
Government of the People's Republic Of Bangladesh
National Board of Revenue

BIN: 111330010031
Mushak - 6.3

Invoice No : 0123072200004

Date : Sun Jul 14 2024
Time : 11:21:54 PM

Name :

Address :

Mobile :

Sales Exec : Md Hasib Ahmed

Served By : Hasib

INDEX	NAME	QUANTITY	PRICE	AMOUNT
1	 Soap	3	40	120.00
2	 Potato	5	15	75.00

PURPLE 5- BISQUE -SLIMFIT- KNITTED- SQLED

Sub Total :	195.00
Discount :	0.00
Special Discount :	0.00
Vat :	15.60
Net Amount :	210.60
Paid Amount :	500.00
Change Amount :	289.40

Description	Amount
Cash	210.60

PRODUCT EXCHANGE POLICY
1. Products can be exchanged within 7 days from the date of purchase.
2. Wrong product: If the product received is not the one that was ordered.
3. Perishable items such as food and beverages.
4. Personal hygiene products like cosmetics, toiletries, and undergarments.
5. Products that have been used, altered, or damaged by the customer.

System By : Daffodil Pos Ltd . Tel : 0353981

Name :

Address :

Phone :

Vat :

Discount :

Special Discount :

Paid

CLEAR

DOWNLOAD PDF 

Figure: 4.6 Invoice Generator

Here, Products are to be scanned with a device like, webcam or mobile camera. Insert the percentage of VAT, discount and others. The calculation will be seen parallelly in the invoice and is ready to be downloaded and printed.

4.7 Sales & VAT Report

Buy Product										
	NAME	PRODUCT QUANTITY	DATE	TIME	DISCOUNT	SPACIAL DISCOUNT	SUB AMOUNT	VAT %	VAT	TOTAL PRICE
1	NAN	2	Sun Jul 14 2024	11:10:37 PM	0	0	90	8	7.2	97.2
2	Customer's name	1	Sun Jul 14 2024	10:53:47 PM	5		145	10	14.5	159.5
3	Suit	1	Tue Jun 11 2024	11:27:55 AM	2	2	101	10	10.100000000000001	111.1
4	hello	1	Tue May 28 2024	10:16:28 PM	0	0	300	8	24	324
5	dddd	1	Tue May 28 2024	10:12:01 PM	10	15	475	5	23.75	498.75
6	NAN	2	Tue May 28 2024	10:08:50 PM	0	0	900	8	72	972
7	NAN	1	Tue May 28 2024	9:49:19 PM	0	0	2000	8	160	2160
								Total Amount :		
										Total Sold Items : 28
										Total Vat : 2614.79
										Total Price : 33236.79

Figure: 4.7 Sales & VAT Report

Sales and VAT Report will be shown automatically in the web application. Products name, Quantity, total sales etc. is to be found here.

4.8 Back-End (Admin Details)

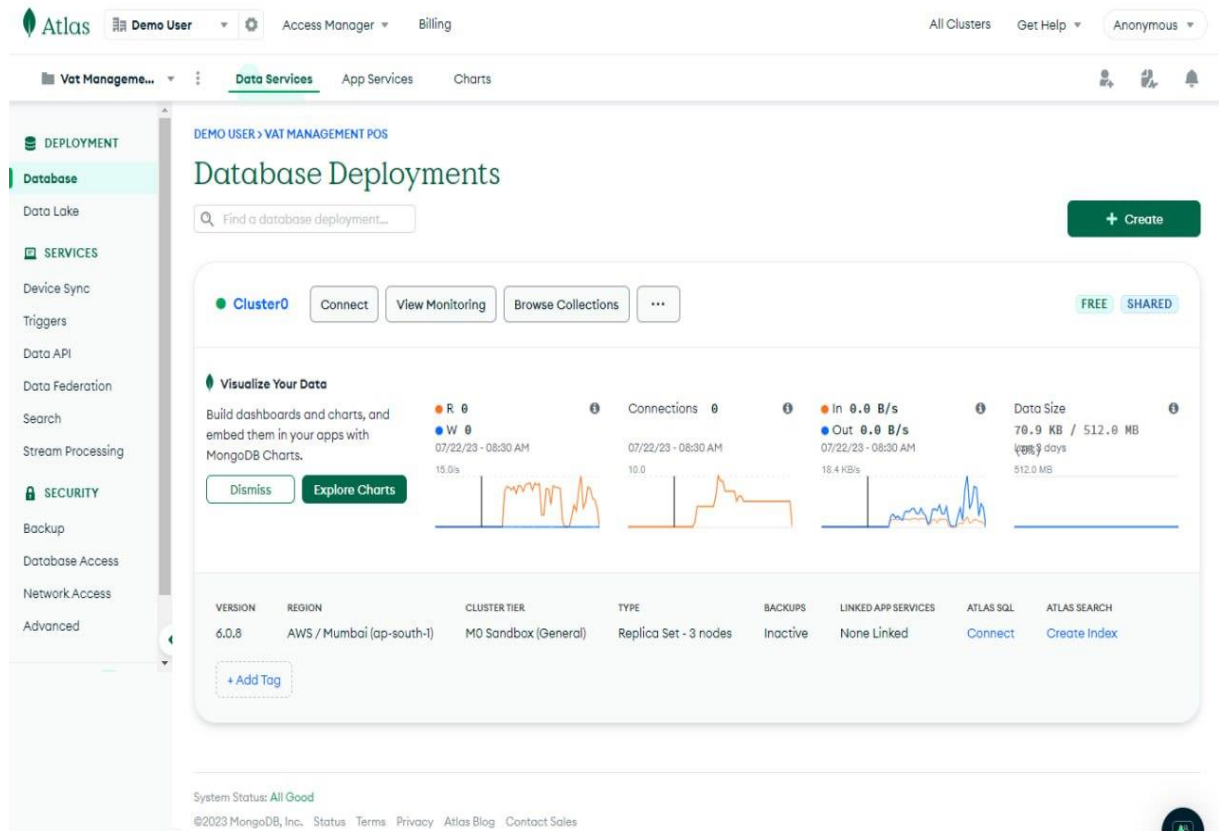


Figure: 4.8 Back-End (Admin Details)

4.9 Sign-in-method

The screenshot displays the MongoDB Atlas web interface. At the top, the 'Atlas' logo is on the left, and 'Demo User' is selected. Navigation links include 'Access Manager' and 'Billing'. On the right, 'All Clusters', 'Get Help', and 'Anonymous' are visible. Below the header, a breadcrumb trail shows 'Vat Manage...' > 'Data Services' > 'App Services' > 'Charts'. The left sidebar contains a 'DEPLOYMENT' section with 'Database' selected, and a 'SERVICES' section with 'Device Sync', 'Triggers', 'Data API', 'Data Federation', 'Search', 'Stream Processing', and 'SECURITY' with 'Backup', 'Database Access', 'Network Access', and 'Advanced'. The main content area is titled 'Cluster0' and shows 'VERSION: 6.0.8' and 'REGION: AWS Mumbai (ap-south-1)'. Below this, tabs for 'Overview', 'Real Time', 'Metrics', 'Collections', 'Search', 'Profiler', 'Performance Advisor', 'Online Archive', and 'Cmd Line Tools' are present. The 'Collections' tab is active, showing 'DATABASES: 1' and 'COLLECTIONS: 2'. A '+ Create Database' button and a 'Search Namespaces' input field are visible. The 'vat_management' database is expanded, showing the 'bookings' collection. The 'bookings' collection details include 'STORAGE SIZE: 36KB', 'LOGICAL DATA SIZE: 434B', 'TOTAL DOCUMENTS: 3', and 'INDEXES TOTAL SIZE: 36KB'. Below this, tabs for 'Find', 'Indexes', 'Schema Anti-Patterns', 'Aggregation', and 'Search Indexes' are shown. The 'Find' tab is active, displaying a query filter input with the text 'Type a query: { field: 'value' }' and buttons for 'Reset', 'Apply', and 'More Options'. Below the filter, the 'QUERY RESULTS: 1-3 OF 3' are shown. The first result is a document with the following fields: '_id: ObjectId('64bb76f04bb69c30614b99d0')', 'name: "Cleaner"', 'pId: "C2a0C"', 'price: "285"', 'img: "https://i.ibb.co/K2PqH0Y/download.jpg"', and 'bookQuantity: "18"'. The second result is a document with the following fields: '_id: ObjectId('64bb77424bb69c30614b99d1')', 'name: "Radish"', and 'pId: "R23A"'. At the bottom of the interface, the 'System Status: All Good' is displayed, along with copyright information for MongoDB, Inc. and links to 'Status', 'Terms', 'Privacy', 'Atlas Blog', and 'Contact Sales'.

Figure: 4.9 Sign-in-method

4.10 Database

DEMO USER > AGRICULTURE E COMMERCE

Database Deployments

Find a database deployment...

Cluster0 Connect View Monitoring Browse Collections ... FREE SHARED

Monitoring for Cluster0 is Paused
Monitoring will automatically resume when you connect to your cluster.
[Visit the documentation](#) for more info.

VERSION	REGION	CLUSTER TIER	TYPE	BACKUPS	LINKED APP SERVICES	ATLAS SQL	ATLAS SEARCH
6.0.6	AWS / Mumbai (ap-south-1)	M0 Sandbox (General)	Replica Set - 3 nodes	Inactive	None Linked	Connect	Create Index

[+ Add Tag](#)

System Status: **All Good**
©2023 MongoDB, Inc. [Status](#) [Terms](#) [Privacy](#) [Atlas Blog](#) [Contact Sales](#)

DEMO USER > AGRICULTURE E COMMERCE > DATABASES

Cluster0

VERSION: 6.0.6 REGION: AWS Mumbai (ap-south-1)

Overview Real Time Metrics **Collections** Search Profiler Performance Advisor Online Archive Cmd Line Tools

DATABASES: 1 COLLECTIONS: 3 VISUALIZE YOUR DATA REFRESH

[+ Create Database](#)

Search Namespaces

agriculture-e-commerce

- buy**
- buyAndSells
- user

agriculture-e-commerce.buy

STORAGE SIZE: 36KB LOGICAL DATA SIZE: 1.77KB TOTAL DOCUMENTS: 4 INDEXES TOTAL SIZE: 36KB

[Find](#) [Indexes](#) [Schema Anti-Patterns](#) [Aggregation](#) [Search Indexes](#) INSERT DOCUMENT

[Filter](#) Type a query: { field: 'value' } Reset Apply More Options

QUERY RESULTS: 1-4 OF 4

```
{
  "_id": ObjectId("64904b67262206c98505ceb0"),
  "date": "2023-06-21",
  "phone": "01254",
  "address": "dhaka",
  "quantity": "5",
  "totalPrice": 60,
  "product": {
    "name": "Product",
    "price": 12,
    "category": "Electronics"
  },
  "email": "abc@def.com",
  "userName": "ABC",
  "payment": true,
  "delivered": true
}
```

System Status: **All Good**
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Figure: 4.10 Database

4.11 Interaction Design and Admin Experience (UX)

For ensuring that the admin journey is simple and enjoyable, thus the “SMART VAT CALCULATION SOFTWARE FOR A SUPER SHOP” has considering human element often referred to as interaction design and user experience (UX). The purpose of the created software will be to provide Admin with clear and user-friendly tools to discuss with others. To ensure that Erke follows a user-friendly store design concept, the design achieves easy product browsing, simplification of the scanning of products through the use of the QR code, and basket handling. This way we have got the benefit of increased efficiency due to the automatic computation of the price as well as real-time data processing. One of the key factors is that the admin side will make the admin pleased and interested in working on it because of the good user interface design. In fact, the program enhances management of Super Shop work and makes it easier for the admin to carry out their tasks as it is designed to focus on the user.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

Since it is used in the web application for a Super Shop, the database plays a central role in the work. This one deals with the administrative information, the stock quantities, and the information on products. The implementation uses the adaptive and Integrable NoSQL database MongoDB. It can therefore be noted that since MongoDB is document-based, it can enable efficient data retrieval and manipulation in this way. To ensure that readers are given accurate and timely access during QR code scanning and other automated pricing calculations, product information is securely stored and retains prices and QR codes. The database also has the capability to keep track of the stock of the product in the inventory to help in management of quantities as well as restocking. With everything taken into consideration, the effective implementation of the database ensures proper operations of diffusion of data and it further increases the efficacy of the program in the functioning of Super Shop.

5.2 Implementation of Front-end Design

As the proposed web application is aimed at front-end, it should be simple, responsive, and easy to manage by an admin. The layout and design of the proposed application should be aesthetically appealing and easy for an admin to manage. React. HTML [1] is used in the front-end development process with the help of js, and CSS [2] is used to design some unique admin experiences. Where CSS incorporates additional styles and motion to the website, HTML reorients the written word and portions. The front-end relies on the framework named React. js, as it means real-time tabulation of data and interface painting, which makes the platform speedy. Super Shop owners can accomplish their relatively simple goals of cart management and product scanning through QR code scans with relative ease because of the interface. The positive front-end designs help to improve the overall usability of the software to its users, as well as the satisfaction level of an administrator.

5.3 Testing Implementation

Evaluations play a critical role in the project to ensure that the software works and meets its intended purpose. A test is performed to identify the defects, whether they are in the form of an error, weakness, or even a vulnerability. In order to check the correctness of the separated pieces and their communication as a whole, testing is carried out by means of unit testing, integration testing and end-to-end testing.

5.4 Test Results and Reports

The proposed plan for the web application is fully tested, and details of test results and reports are organized in order to check the efficient working of the software. Concerning the results of the tests, these are insights into the software's functioning, accuracy of the pricing calculations, and efficiency of the QR code scanning. Every single issue detected during the testing procedure is noted down and the reports contain explanations on how to solve them. Forms the basis for most testing objectives, such as performance testing, prove the scalability and efficiency of the software. These reports ensure the software reliability and dependability as a way of minimizing on faults or errors. The test results are compared and utilized to identify the modifications and augmentations that must be made in order to develop a better Super Shop software that is tailored to the needs of administrators and the subsequent improvements in operations.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society

As being the outcome of good and efficient Super Shop management techniques, the project is quite socially beneficial. Leverages on information technology to minimize on the use of paper and reduce on manual mistake with regards to price calculation and stock control. In this way, the software facilitates the purchasing process, thus improving client satisfaction levels and preventing reckless consumption by offering them better control over their purchasing decisions in general. They also experience fewer operating costs and higher efficiency in its operations as well as its Super Shops. These valued orientations can include being environmentally friendly during shopping and the optimization of the admin side of the business, both of which are relevant in the current society that is marked by a higher level of environmental consciousness and preferences for technology updates in various sectors.

6.2 Impact on Environment

The project avoids unnecessary usage of paper and stabilizes waste, which is good for the environment. It replaces the consumables through computerized invoicing and automated pricing calculations, which minimizes on the use of paper such as invoices and receipts. Efficient stocks mean less wastage and less stock build up hence greater efficiency in the utilization of resources.

6.3 Ethical Aspects

The following proposal for the software adheres to ethical norms by first pointing to the security of data and information as one of its key priorities. In this way, this type of approach guarantees that none of the data, for instance information concerning the client's identity or previous orders, is leaked and used inappropriately. This is done to secure user's privileges and to prevent certain kinds of unwanted use or access to admin data; the

program is made to adhere to certain industry rules or law standards. Timely operation costs disclosure together with the issuance of clean and correcting invoices promote fairness and integrity in the relationship between Super Shops and its clients. When ethical principles are put into practice, Super Shops are guaranteed that they would get a reliable and a real system which would enhance the bond between the clients and reinforces an aspect of ethical standards in business.

6.4 Sustainability Plan

The project clearly outlines the future plan for sustainability and attaining both profit-making motives as well as the Ethical Corporate model. These are conducted on a regular basis in order to verify that the program is correctly operating as well as running the newest additions and alterations associated with the program and its respective industry and legal demands. These include; as a support of environmental initiative to address the manner, low resource effects and shun usage of papers. It also entails searching for compliance regarding data security and the use of ethics while addressing the issue of privacy. The software, therefore, fosters drastic measures on sustenance to ensure safe guard of ethic, preserver environment and contain the most viable, economic solution to the management of Super Shops' needs.

CHAPTER 7

CONCLUSION AND FUTURE WORK

7.1 Discussion and Conclusion

The paper has also covered and analyzed the proposed idea of smart VAT calculation software for a super shop which involved special attention to strengths, characteristics and application. The program helps to deal with the management of the Super Shop to support friendly interfaces that are helpful in realizing all the operations as to offer the customer an exceptional purchasing experience. It engulfs influences the consumer to practice environmentally friendly conducts, customer getting maximum utility, and conservation of wastes. Thus, it is apparent that applying ethical consideration relates to the provision of customer trust and data privacy well. The above relationships and the characteristics of the software's environment are secured by the sustainability plan the above relationships as well as the characteristics of the environment within which the software operates are safeguarded by the sustainability plan. At last, the above said all-encompassing strategy of the software handles all the requirements of the Super Shop owners, increases efficacy and follows the norms of environment and society.

7.2 Scope for Further Developments

It is possible to improve further with effective strategy and planning tools using Artificial Intelligence for recommending one-of-a-kind selections as well as using anticipatory logistics. It appears to work only with smartphones and tablets; if it is to expand compatibility to support other devices and OS, the integration enhancement would be of great help. It only means that if only the payment gateway and the choices of language were some few amounts increased then more population could be entertained. Improved data analysis may be useful to provide the Super Shop owners with more appropriate information on how to more effectively run their stores. In addition, there would be changes in the additions of various bug fixes and improvements that would make the program current and useful at any one time. The fact of the further development allows to state that

it will keep continuing the introduced software as the unique and ready to adapt to the new tendencies of the sphere.

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