



Sri Lanka Institute of Information Technology

Online Super Market Management

Project Proposal
Information Technology Project (IT2080)
2020

KDY_2020_WD02

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23/10/2020

Declaration

We declare that this project report or part of it was not a copy of a document done by any organization, university any other institute or a previous student project group at SLIIT and was not copied from the Internet or other sources.

Project Details

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Project ID	KDY_2020_WD02

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Abstract

This project is an Online Supermarket System designed to the client “UDS Super” which is located at Kandy, Sri Lanka. This system is designed in such a way that the client could keep track of all aspects of the business process such as **Suppliers, Stock, Human Resource, Customers, Orders, Payment, and Delivery** under one centralized system efficiently.

Moreover, the system maintains a proper record of all aspects of the organization and enables report generation ensuring the possibility to review business performances and to keep track of the business statistics. The system also helps in reduction of manual operations ensuring flawless and accurate business activities.

So, the overall system provides solution to the problem statements, thus making the business process efficient and easy.

Acknowledgement

We would like to express our sincere gratitude for all those who helped us throughout in completing this project successfully.

A special gratitude to Sri Lanka Institute of Information Technology for taking measures to provide their guidance in starting the project, constant supervision and support amidst this pandemic and also a special thanks goes to Ms.Chathurika Koswatte, the lecturer in charge and Ms.Chathurika Pinnaduwage, the supervisor in charge of the group for their continuous guidance throughout this project.

A special gratitude goes to the Manager of UDS super Mr. Arafath Najeem for giving us this opportunity and spending his valuable time on behalf of this project. A special thanks goes to our colleagues who willingly helped us with their gained knowledge.

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1. Introduction

1.1 Problem Statement

The client has already dealt with many other web-based application systems but, is unsatisfied as the client expectation has not been fulfilled completely! Keeping track of suppliers, stock, orders, payments, loyal customers, deliveries and offers provided is being a daily challenge for the company.

Major drawback of the company is that the information related to employees; mainly the employee salary which includes the OT, and the reduction of EPF & ETF which are calculated and managed manually causes less efficiency in the business institution process and thus leads to unavoidable human errors.

When considering the customers, the current system of this business institution does not have any proper unique ways to differentiate the loyal/ privileged customers from their usual customers. Recognizing and prioritizing such customers is an essential process in the present marketing arena.

Even though the business organization has been able to facilitate the installment type payment method for their customers, still the system fails to organize and record the installment type schemes in a proper way.

Though the business organization provides the door to door delivery option for their customers, it is essential to record all the delivery details including the related customer's information and also the details of the staff who has been involved in the current delivery which ultimately reduces the hesitation between the customers and the business institution.

According to the client, the present system does not provide a proper record on the maintenance of the stocks, mainly the count on the available stocks and the stocks which must be restored frequently. If this tends to happen regularly the system will have to face a failure in their stock management system.

Generation of manual monthly and yearly reports regarding the business process, tend to contain errors thus creating chaos in the day to day business processes. In addition, managing the duplication of data entry and fraudulence due to the possibility of data access by any employee of the company becomes a huge challenge in the day to day business activity thereby having a need for an automated system which can manage all aspects of the business sector in a more efficient manner.

1.2 Product Scope

After analyzing the requirements of the client and being noted about the day to day problems faced by the company, as a team the web-based application was designed in such a way to prevent and overcome all the problem statements addressed by the client adding some extra value to fulfill the functional and non-functional requirements of the entire system efficiently.

The system gives an ideal solution for the problems addressed by the business, by separating the functionality management into seven individual sectors such as Supplier Management, Stock Management, Customer Management, HR Management, Order Management, Payment Management and Delivery Management which ensures that all aspects of the system are equally analyzed and regulated in order to reduce errors and increase system efficiency.

The system is assessed in terms of two main users; Administrator and Customer. With concern to the problem statement, the administrator and user privileges are analyzed thoroughly to provide a well secured system access providing timely information. The user is privileged to handle their profile according to their needs and is facilitated to perform any timely changes in their profile in few simple steps. The user is also benefited to carry out online shopping with the aid of loyalty points.

The system is designed in such a way that the HR management is completely automated along with the presence of the facility for the user to manipulate the OT, leave, EPF, ETF, Month end salary corresponding to a particular employee in a well-organized manner.

More priority has been given in providing a good user experience to the customer during the online shopping process. Order management is handled in such a way that the customer finds it very convenient to place their day to day orders with facilities such as rapid product search with sorted category of products, cart facilities for the user to add and remove products according to their priority and order summary confirmations thus providing a personalized and good online shopping experience.

Payment Mgt sector of the system is developed providing more concern to the security and accuracy of the product. Customer payment is facilitated to be made as installments and as one-time payment depending on the customer priority and the products they purchase. The system also has added value to payment enabling electronic fund transfer making the transactions easy. As the business focuses mainly on the customer and business relationship, it has been enhanced further by managing to provide various offers in fixed time periods on products in the store.

Further adding value to the system, Delivery Mgt facilitates the customer to get their orders delivered at the required time and at the required destination in a well-organized manner. Delivery staffs are assigned through the system ensuring that all the orders reach the customer in a well-organized manner.

To ensure that the business process is available constantly, Stock Mgt is handled considering 2 aspects of the business as warehouse management and store management respectively. Necessary steps are followed

to ensure error free stock entries and preventing data duplication. In the aim of carrying out the business process without any stock deficit, stock reorder levels are assessed from time to time ensuring administrator is notified at the right time regarding stock re shelving and stock deficit.

Good supplier and business relationship are aimed to be managed as a part of Supplier Mgt. Keeping track of the active supplier details and details of cash transactions related to the supplier helps the user gather evidence regarding business transactions. It also helps the user make better business choices as the qualitative and timely goods produced by the suppliers play a vital role in running the business process successfully.

Both the administrator and the customer are facilitated to insert, update, delete and search necessary data according to their priority while being instructed precisely to ease the daily business processes. Necessary steps has also been implemented to generate automated reports regarding the various sectors of the company, thus enlightening the owner of the business to take better decisions in spite of the betterment of the business process in future activities .Ultimately, immense effort has been put forward to implement the system such that major manual processes of the system are partially/completely transformed into automated processes to ensure that the system makes the business process flexible, error free and convenient where the owner is privileged to view all business sectors merely as one centralized system.

1.3 Project Report Structure

The project report is partitioned into five main chapters illustrating the software development lifecycle of the supermarket system developed for "UDS super", where the first chapter provides a brief introduction of the product designed with reference to content such as the problems within the existing system and how the team have designed the product in order to overcome the problem statements.

Methodology which is the vital phase followed throughout the project progress including the phase of analyzing the product requirements, design, implementation, and testing are elaborated under the second chapter of the report. Design phase is illustrated using high level design diagrams such as use case diagrams, activity diagrams and sequence diagrams accompanied with the GUI implemented for individual functionalities whereas the implementation phase provides a brief idea about the choice of DBMS, programming language, platforms and tools used in order to implement the system in a productive and user-friendly manner.

Chapter three provides a brief idea about the final evaluation of the End Product addressing the lessons learned at the end of the product completion and the future work to be carried to enhance the product quality.

The latter part of the report consists of the conclusion, references, and appendices. The design diagrams illustrating the system behavior as a whole and as individual working functionalities, individual test results and additional code listings are attached to the appendix as three sections namely A, B and C, respectively.

2. Methodology

2.1 Requirements and Analysis

As the initial step after confirming the client to whom the product is to be developed for, as the team decided to visit the client's business workplace, to discuss and gather information about the client's requirements on the system to be developed. During the client meeting, the basic idea of the business environment the client is dealing with was analyzed, and interaction of the team and the top-level employees currently working in the business was facilitated. Requirements were gathered using three methods;

- Interviews
- Observations
- Brainstorming

After the interview sessions with the client and the department heads in the business, a deep and quick understanding about the client's requirements were obtained. For this purpose, the client permitted the team to observe and experience the current working system of the company. This facilitated more understanding about the client's requirements and the limitations the existing system had. As mentioned above a brainstorming session was held to clarify all doubts about the new system to be developed. Finally, the requirements were confirmed and clarified, thus moving on to the documentation of the requirements.

Functional Requirements

Functional requirements describe the behavior of the system as it relates to the system functionality,

- All customers are applicable to gain discounts for their purchases through the system and customers with loyalty points should be able to gain more benefits.
- Customers should be able to see Item availability based on a selected category.
- Offers, New arrivals, coming soon products should be visible to the users.
- The client-side development should be user friendly
- Payment modes can be cash on delivery and card payments (Credit and debit)
- Installment based payments are only limited for purchasing household items.
- Administrator should be able to view the availability of products.
- The system should be able to handle the HR related functionalities.
- The system should be able to record staff over time, leave and half day deductions and calculate month end salary of employees.
- At the end of month, staffs' total Salary, EPF and ETF should be shown as a summary for viewing.
- Offers are applicable for selected items and orders.
- Delivery Charges are calculated based on the location and the net total amount of the order.
- Supplier payment is made via cash and cheque.
- The overview or summary of supermarket should be displayed in the home page to give an insight of the supermarket at the beginning before login.

Non-functional Requirements

Security

Security was a major issue that the client had put forward during the requirement gathering phase. Since there were many users and user levels who access the same database throughout the system, the system had to restrict users accessing unauthorized information.

Performance

Since the system deals with all kinds of functionalities related to customers, staffs, suppliers etc. the system should have a good performance level.

Recoverability

If there is a necessity the system should be able to recover relevant deleted data at any required time.

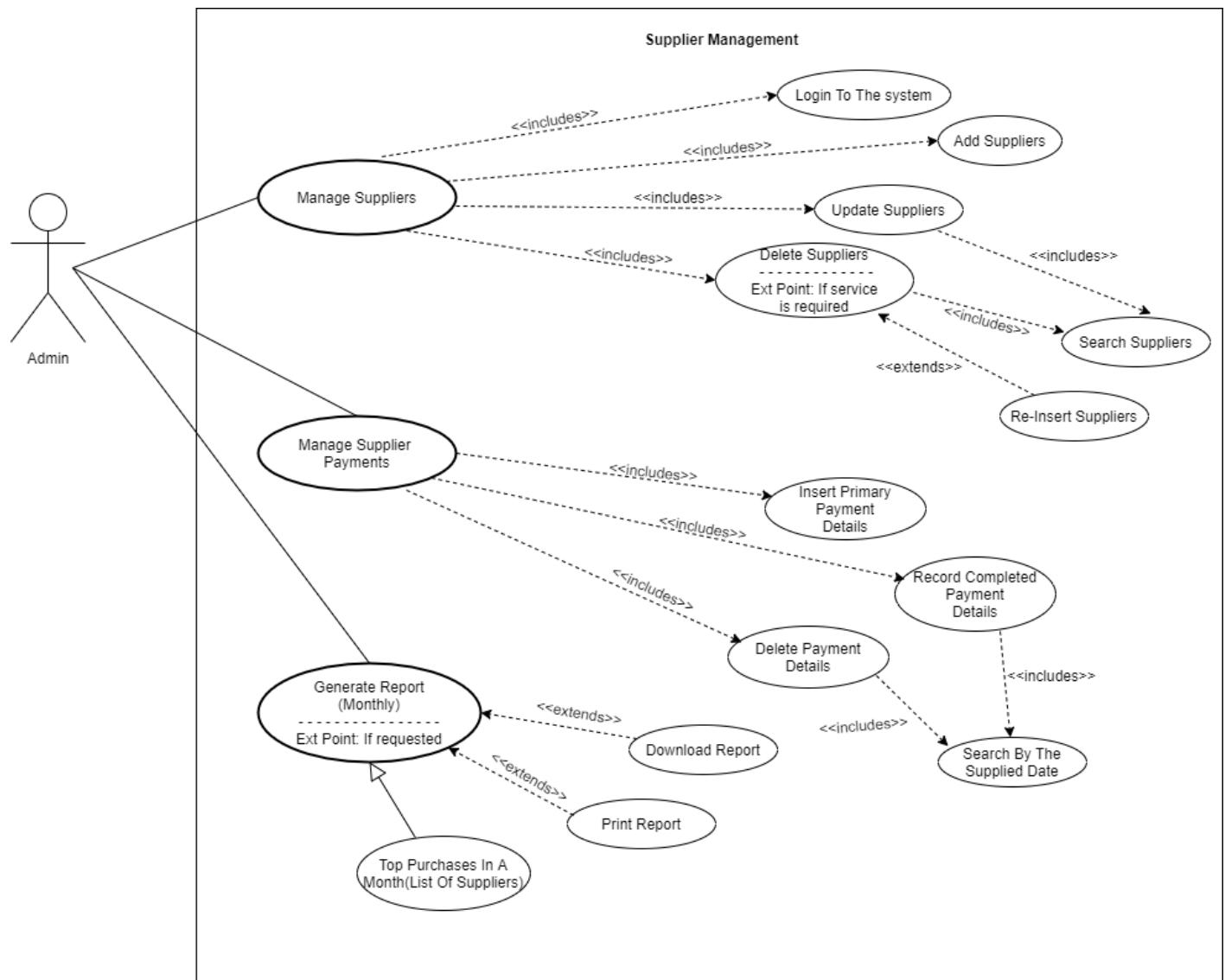
Reliability

The system is supposed to satisfactorily perform the task for which it was designed or intended, for a specified time in the client's business environment.

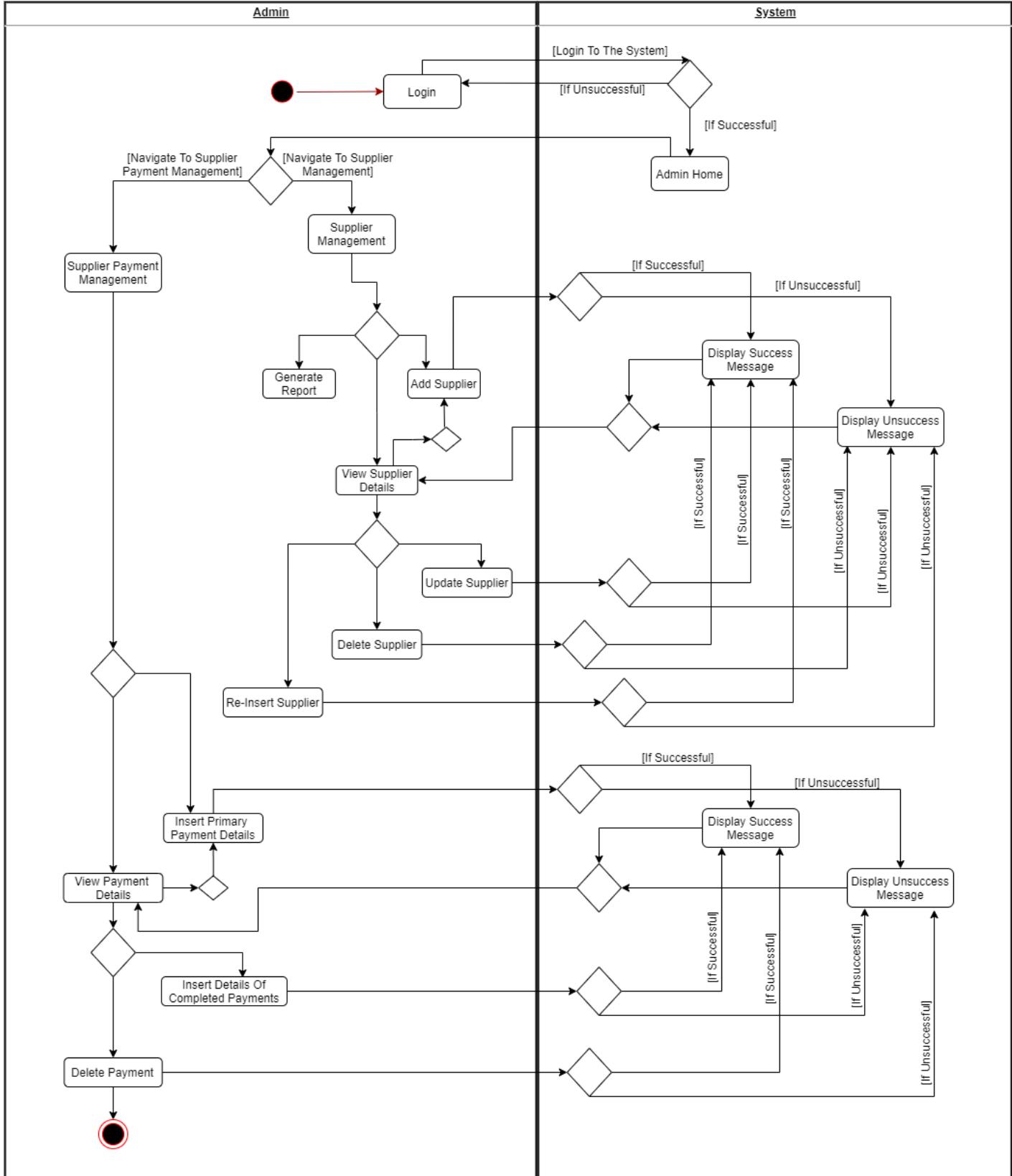
2.2 Design

Supplier Management

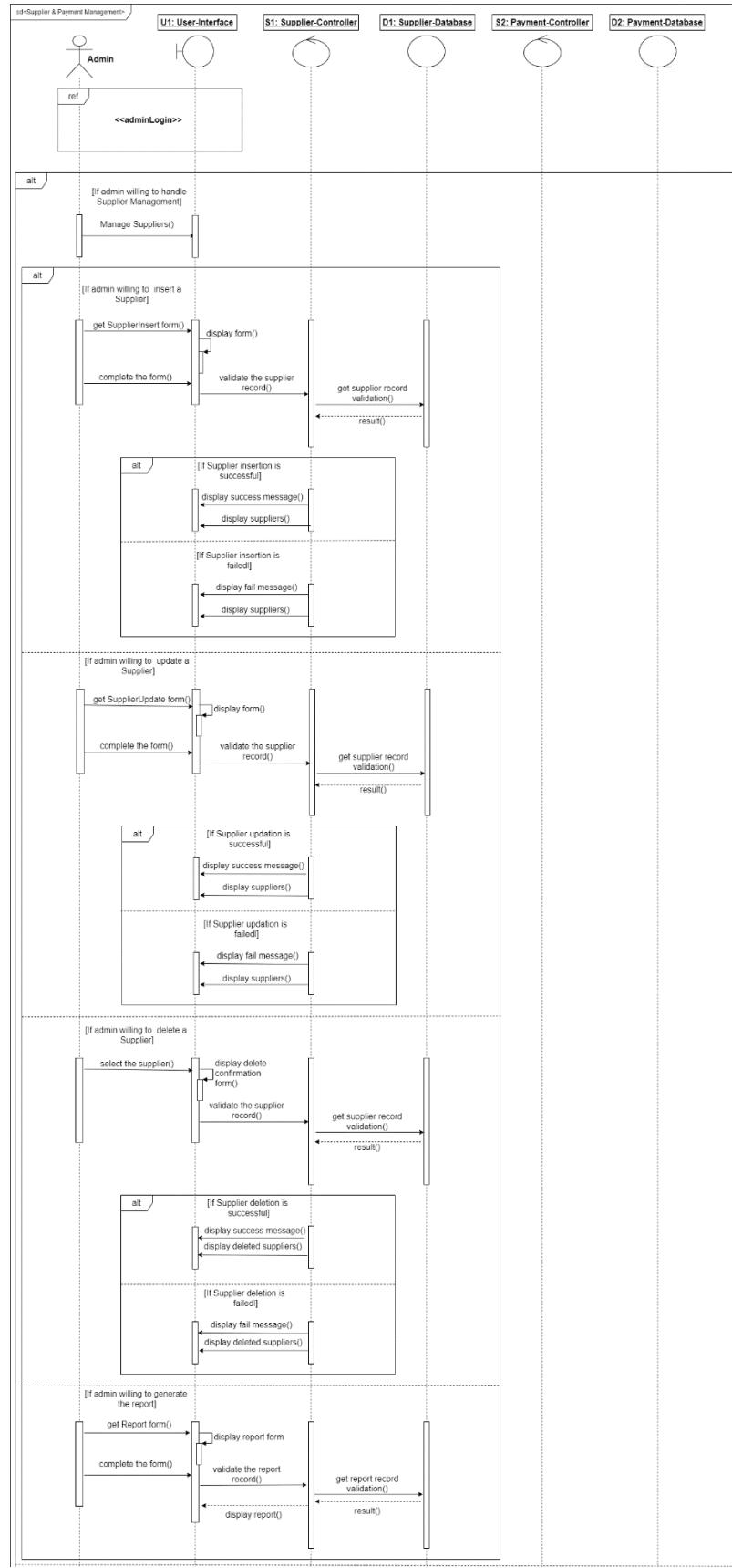
Use Case Diagram

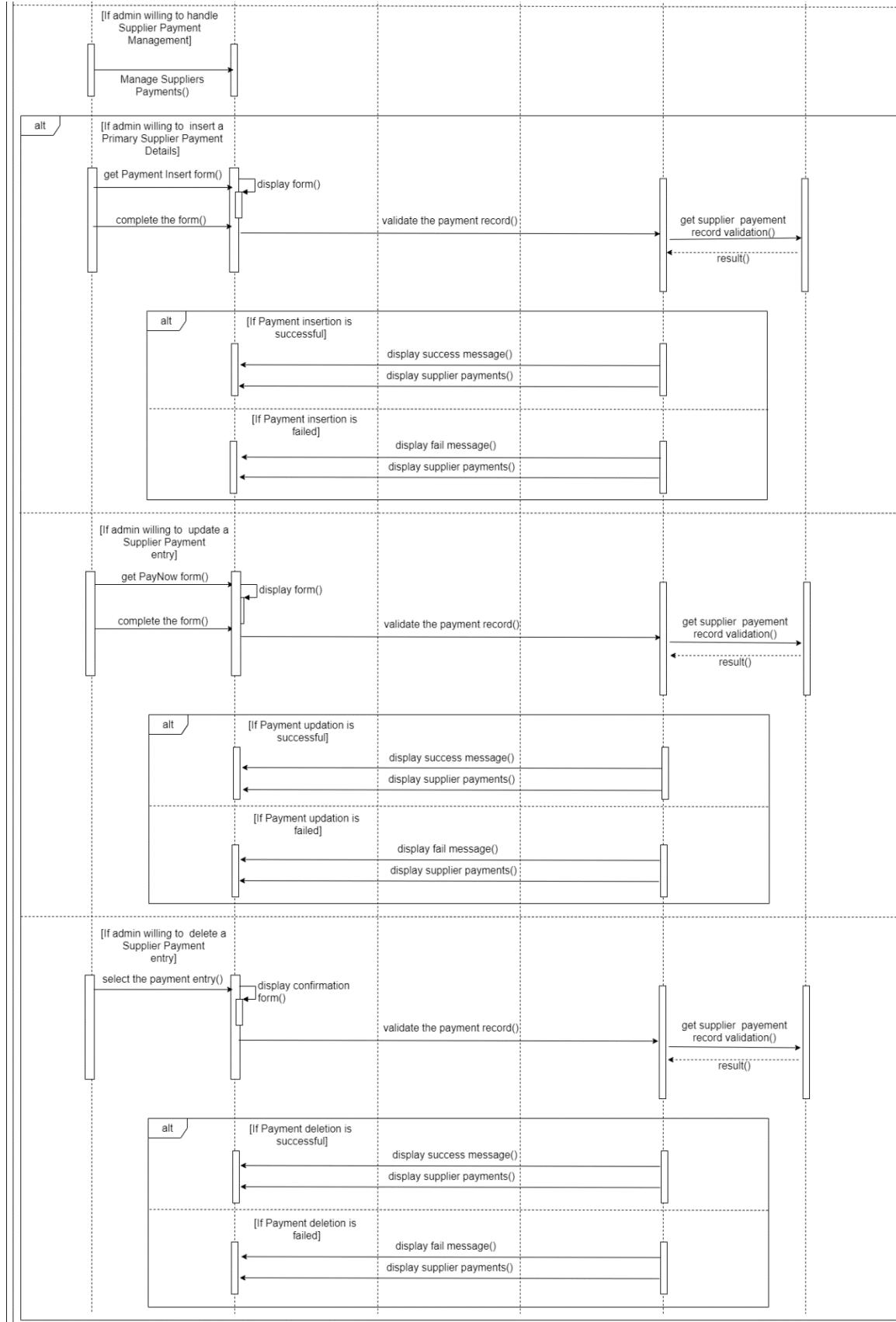


Activity Diagram



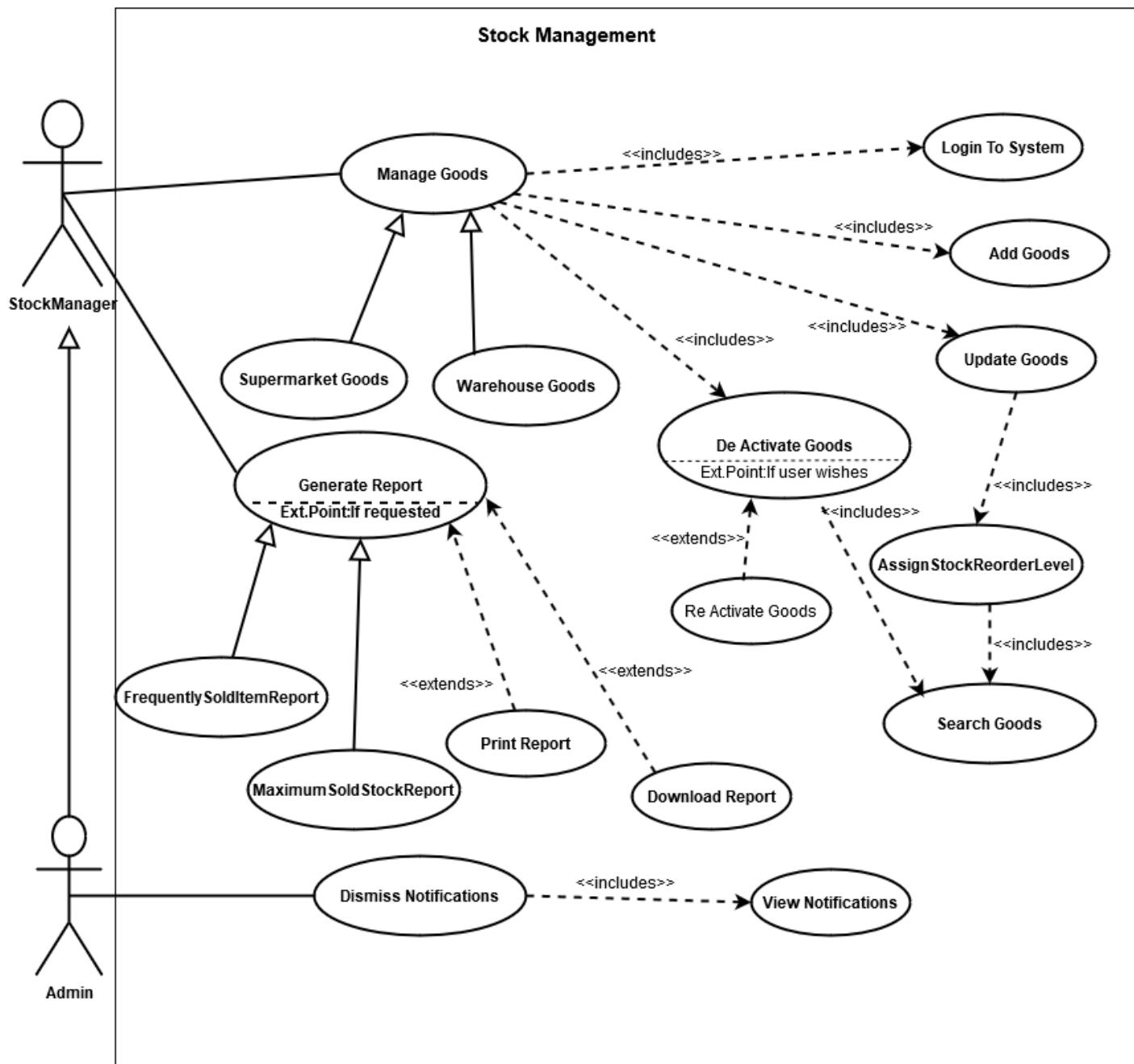
Sequence Diagram



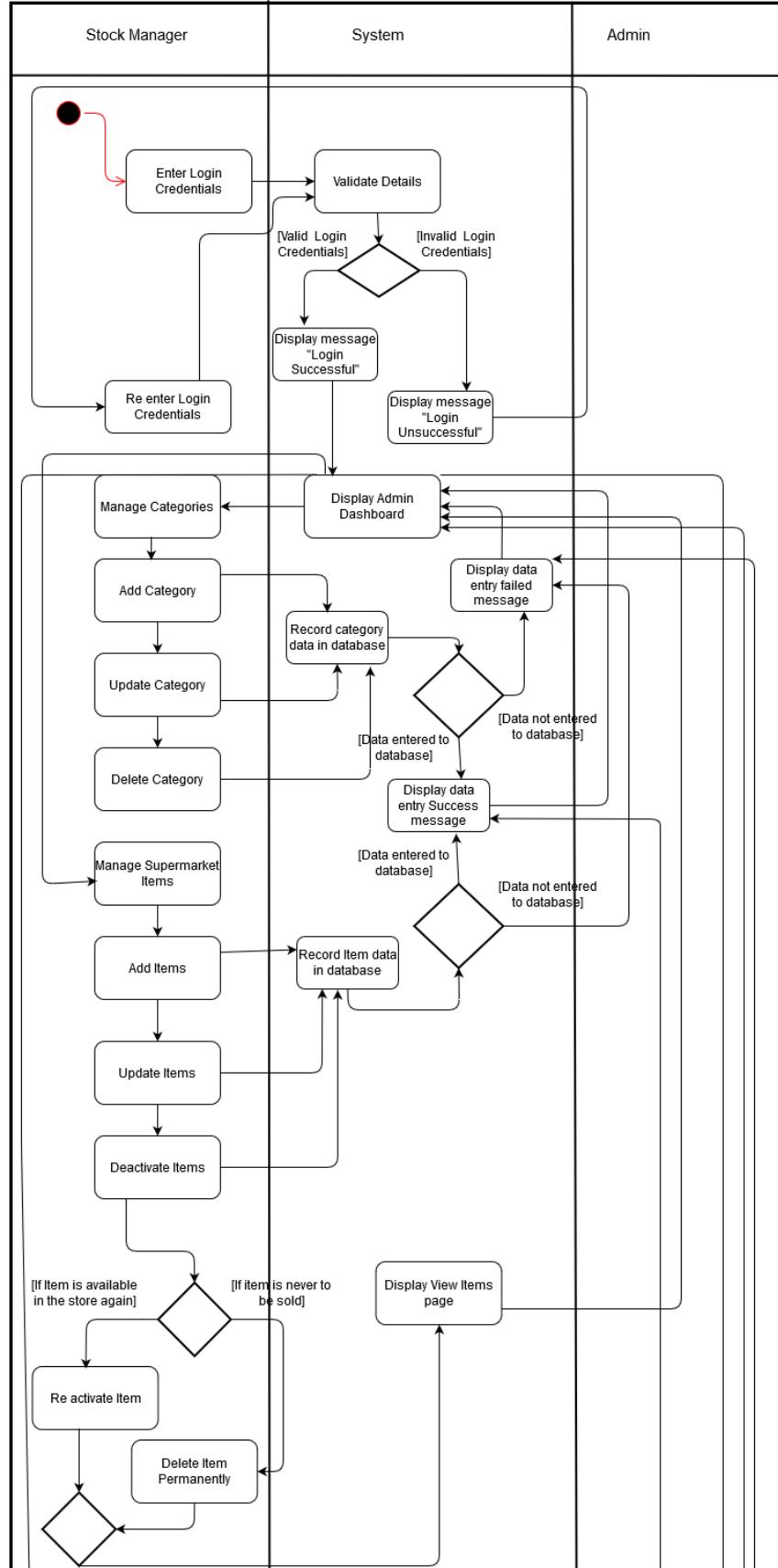


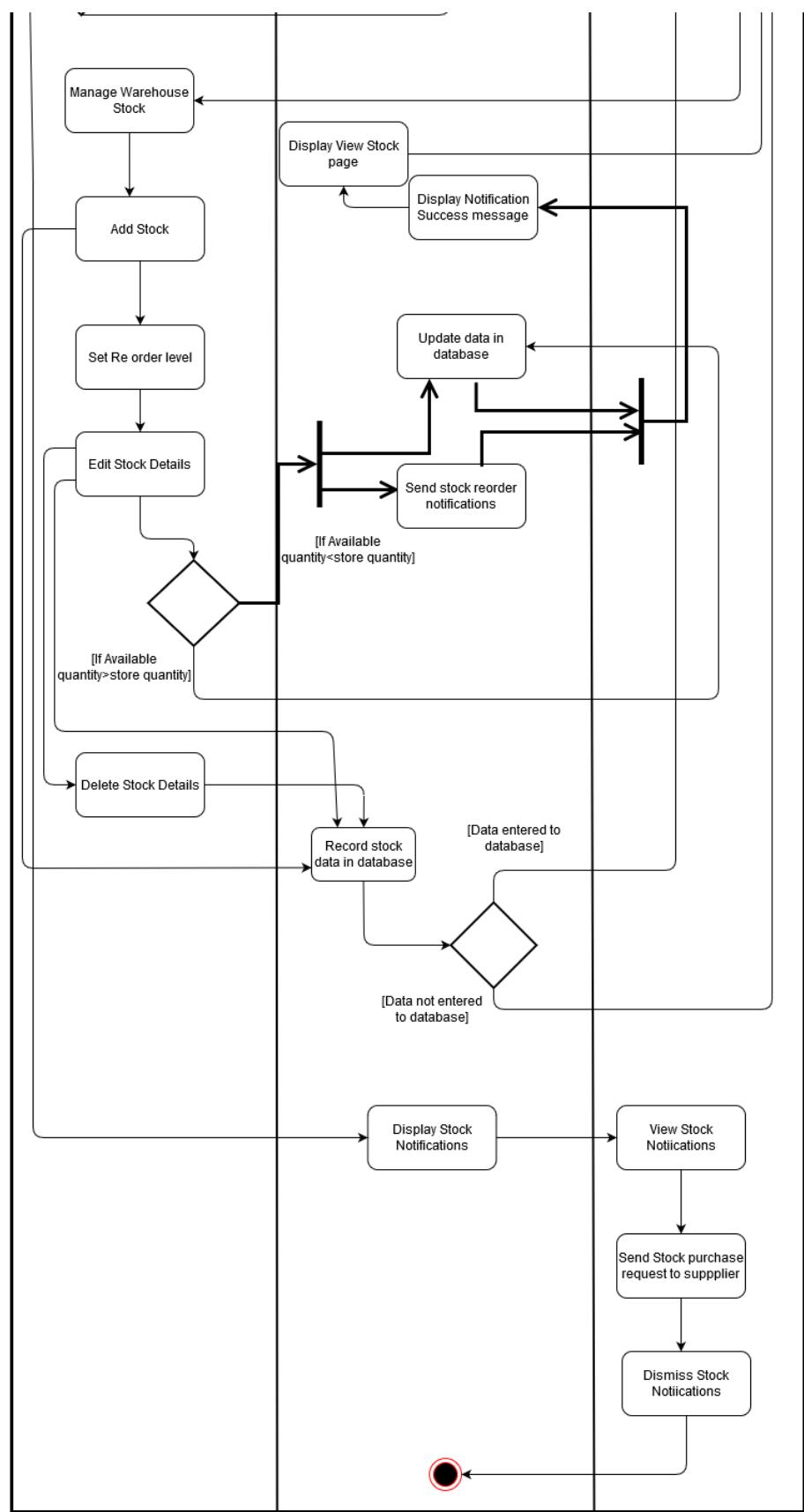
Stock Management

Use Case Diagram



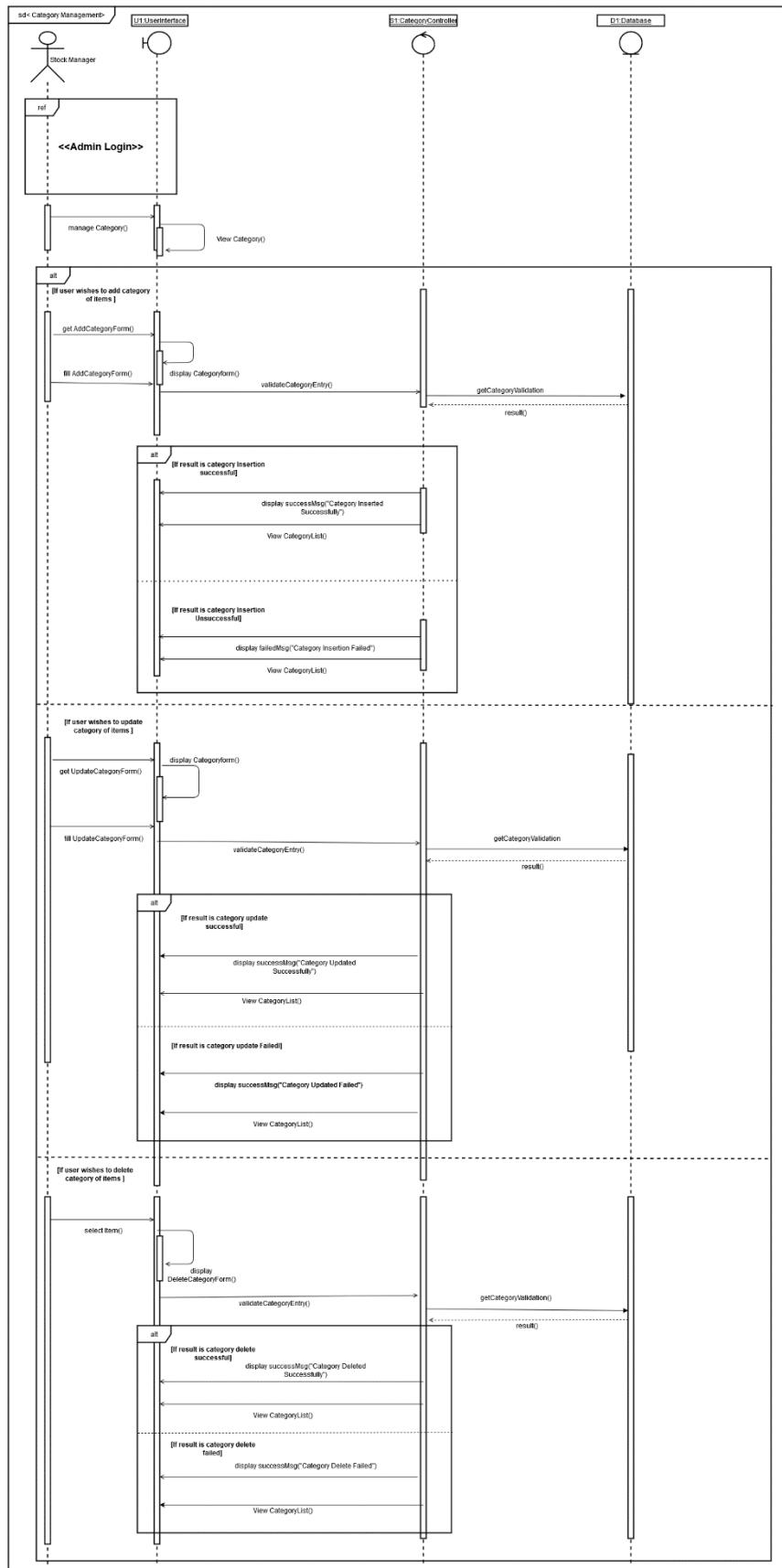
Activity Diagram



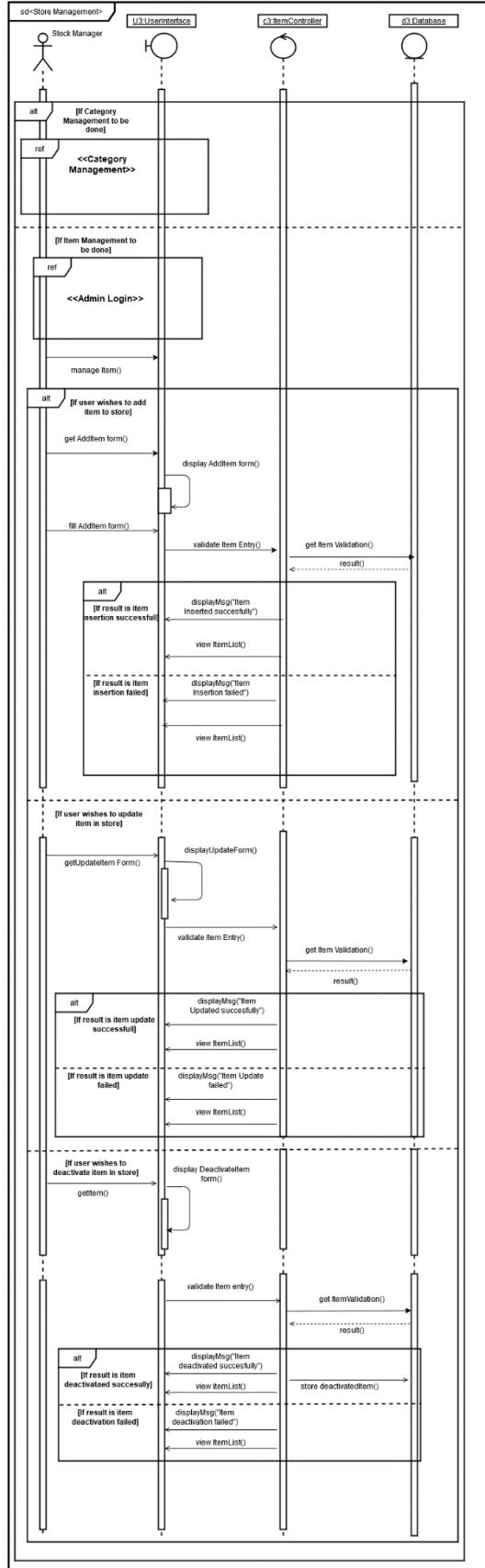


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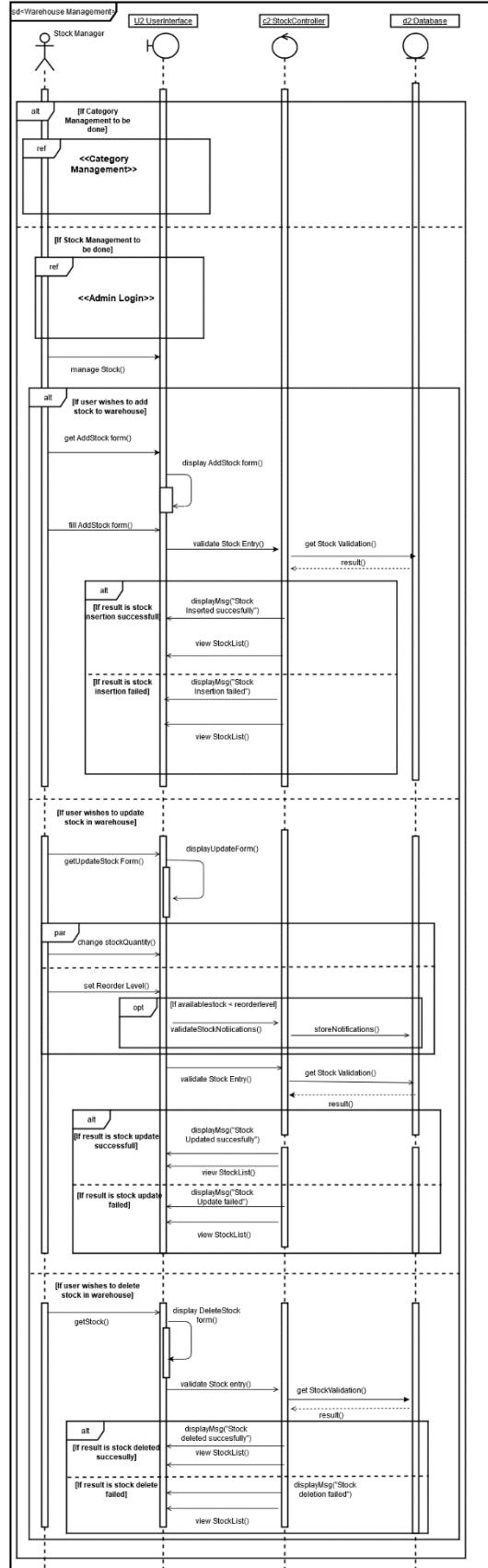
Category



Item

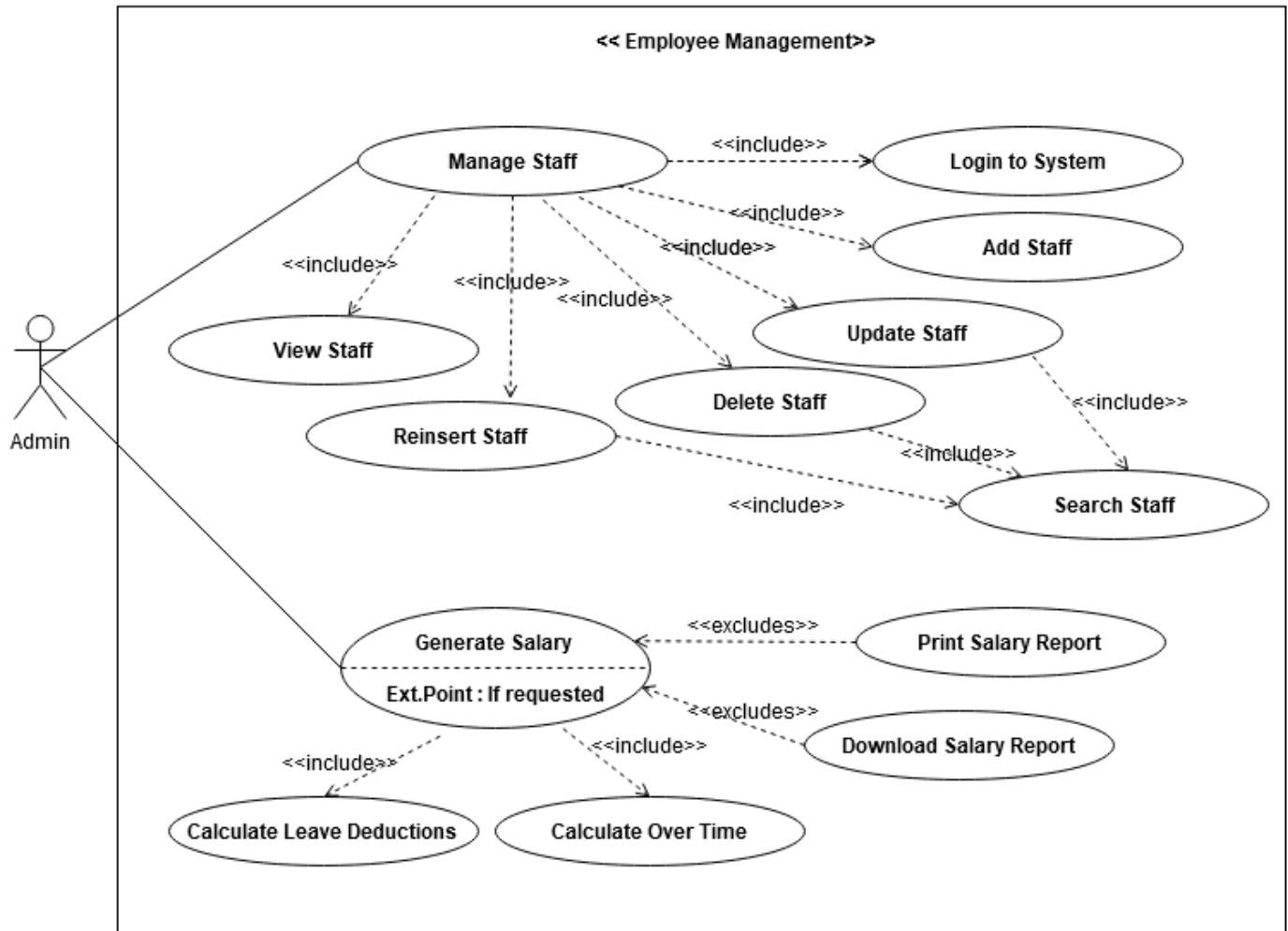


Stock

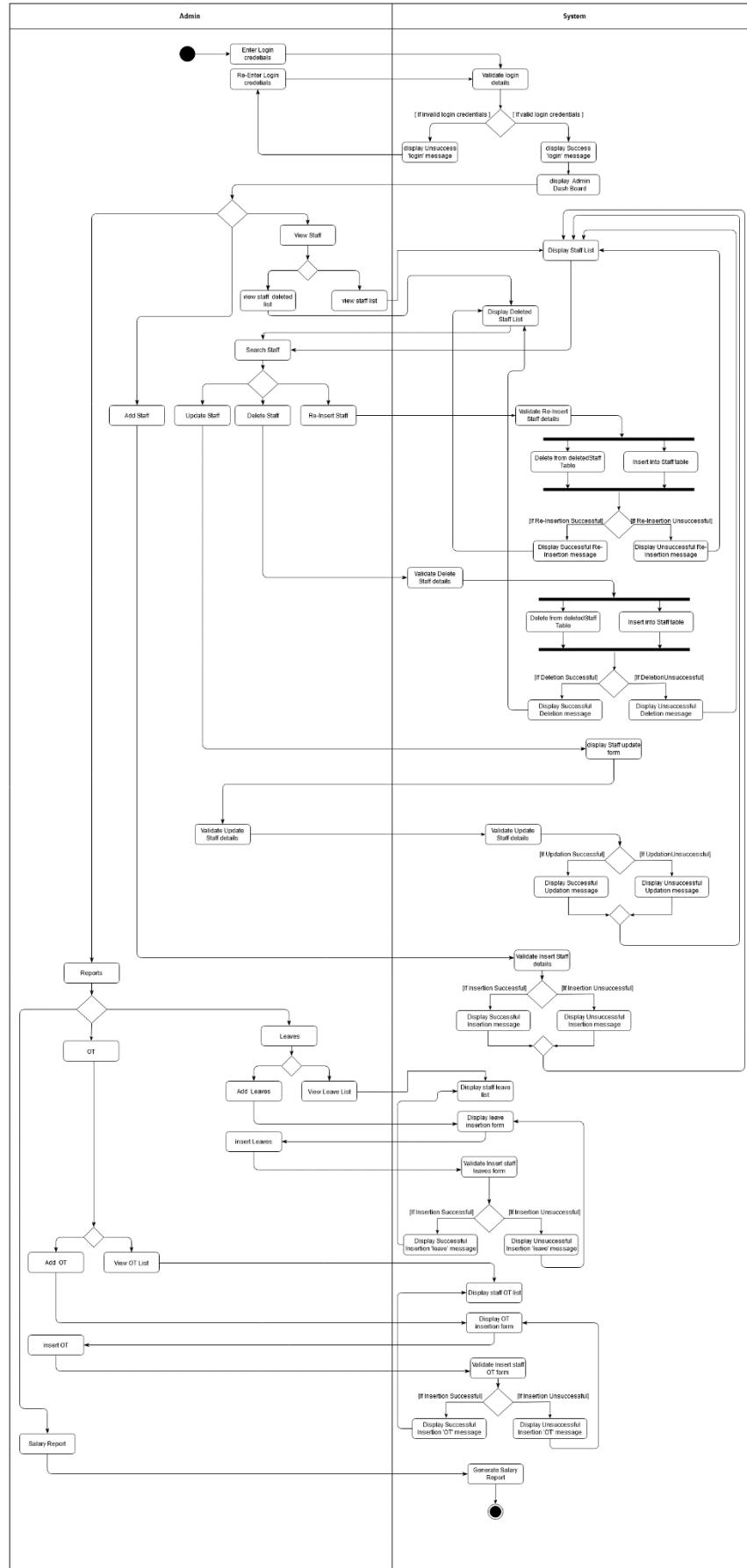


HR Management

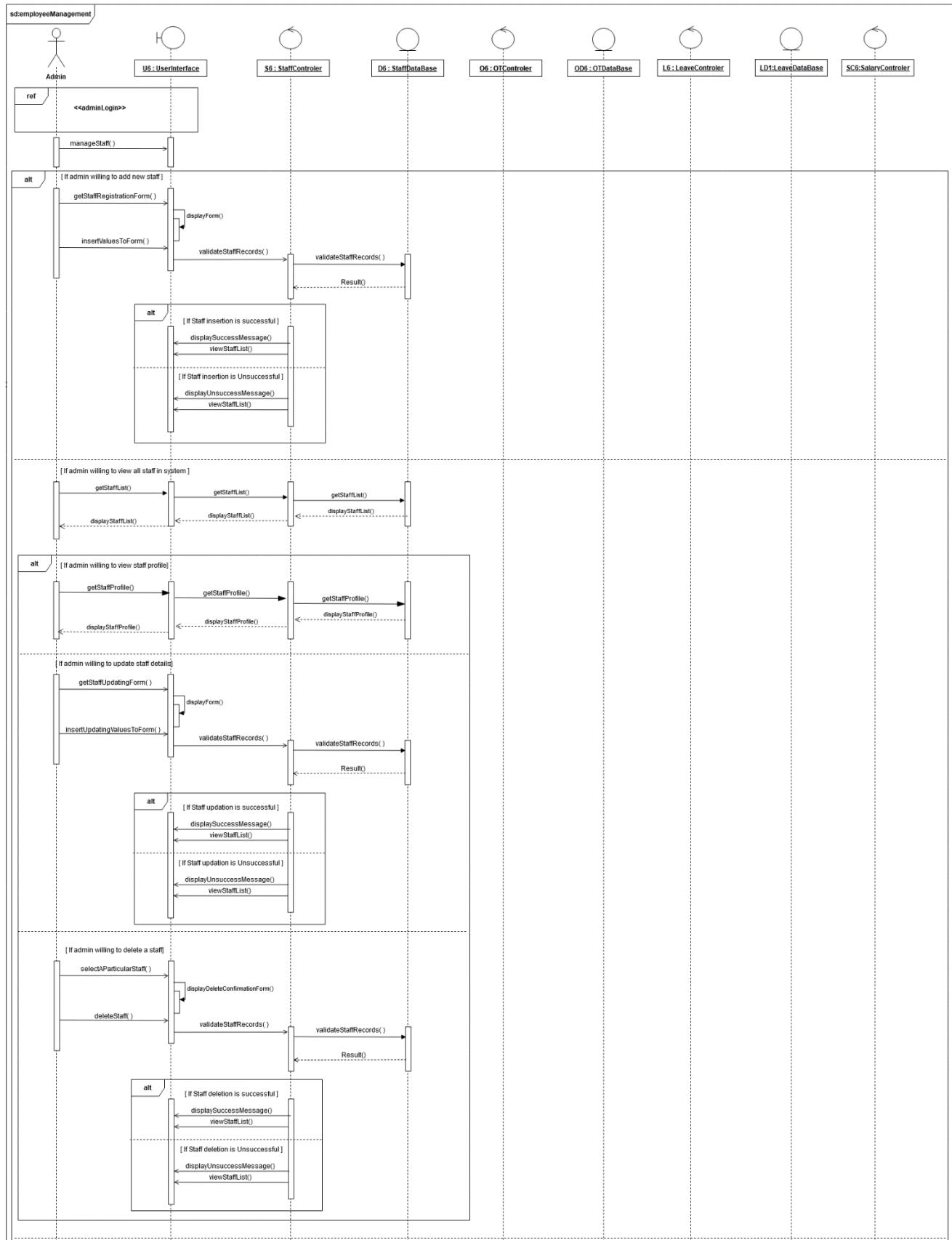
Use Case Diagram

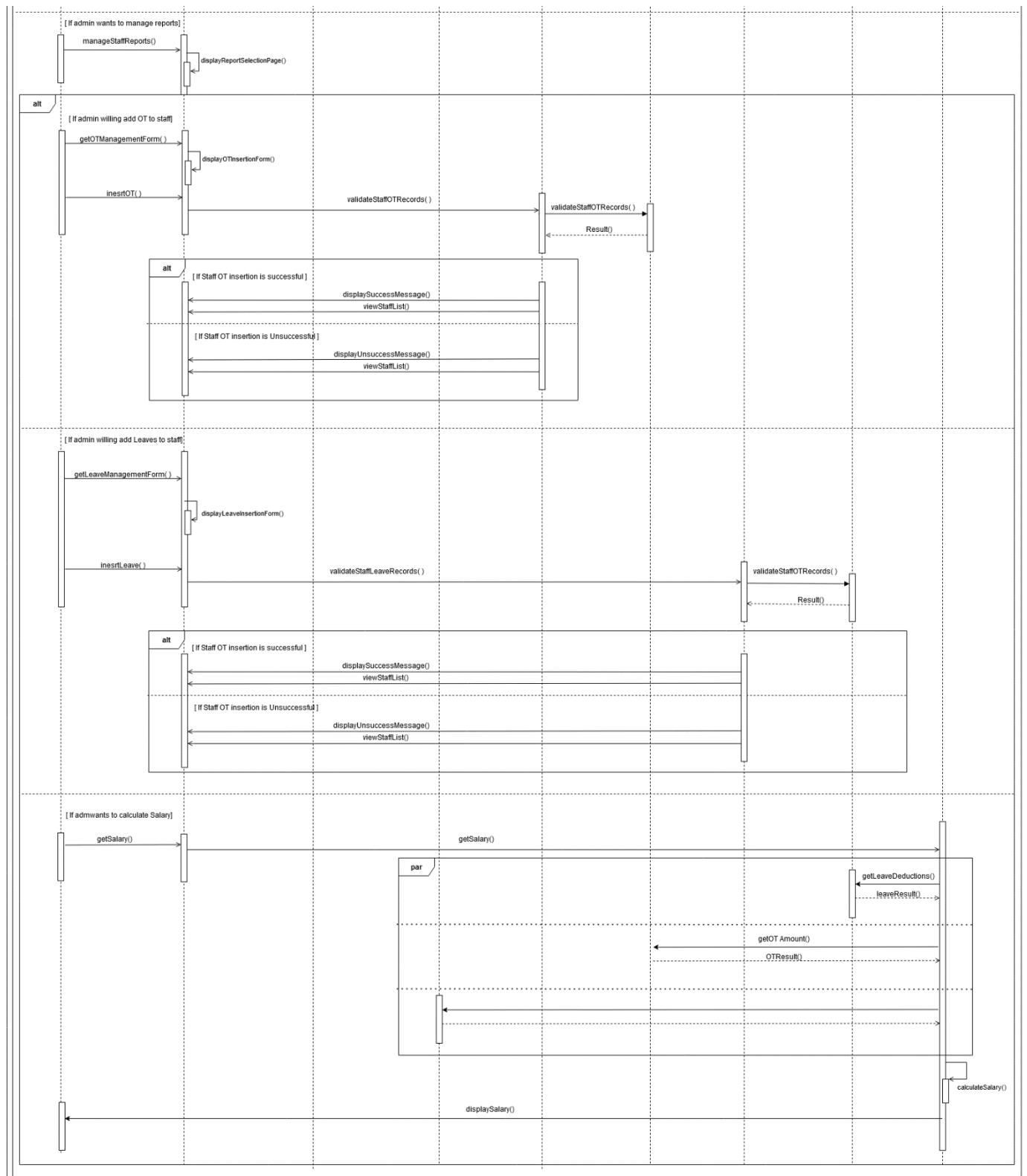


Activity Diagram



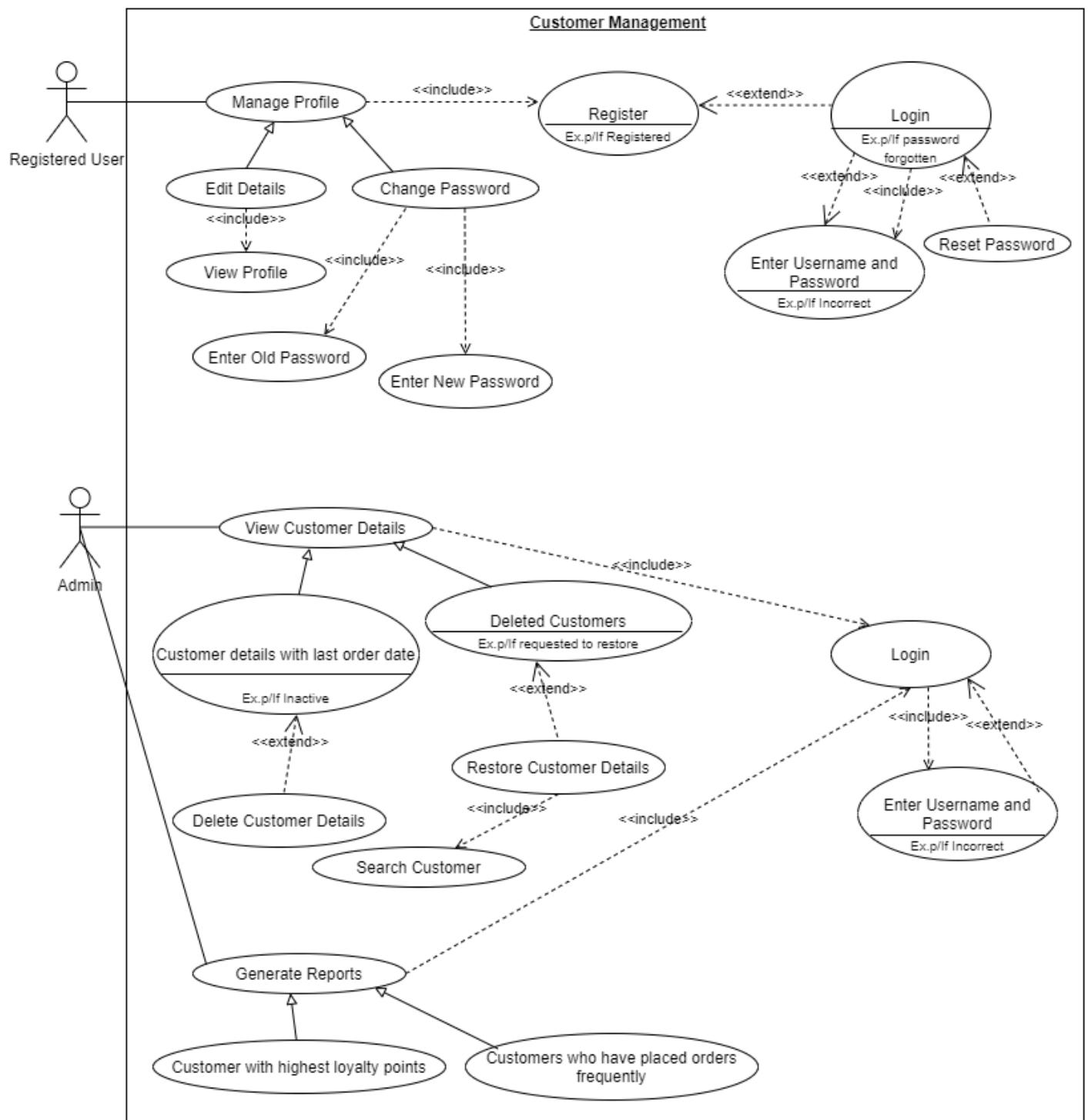
Sequence Diagram





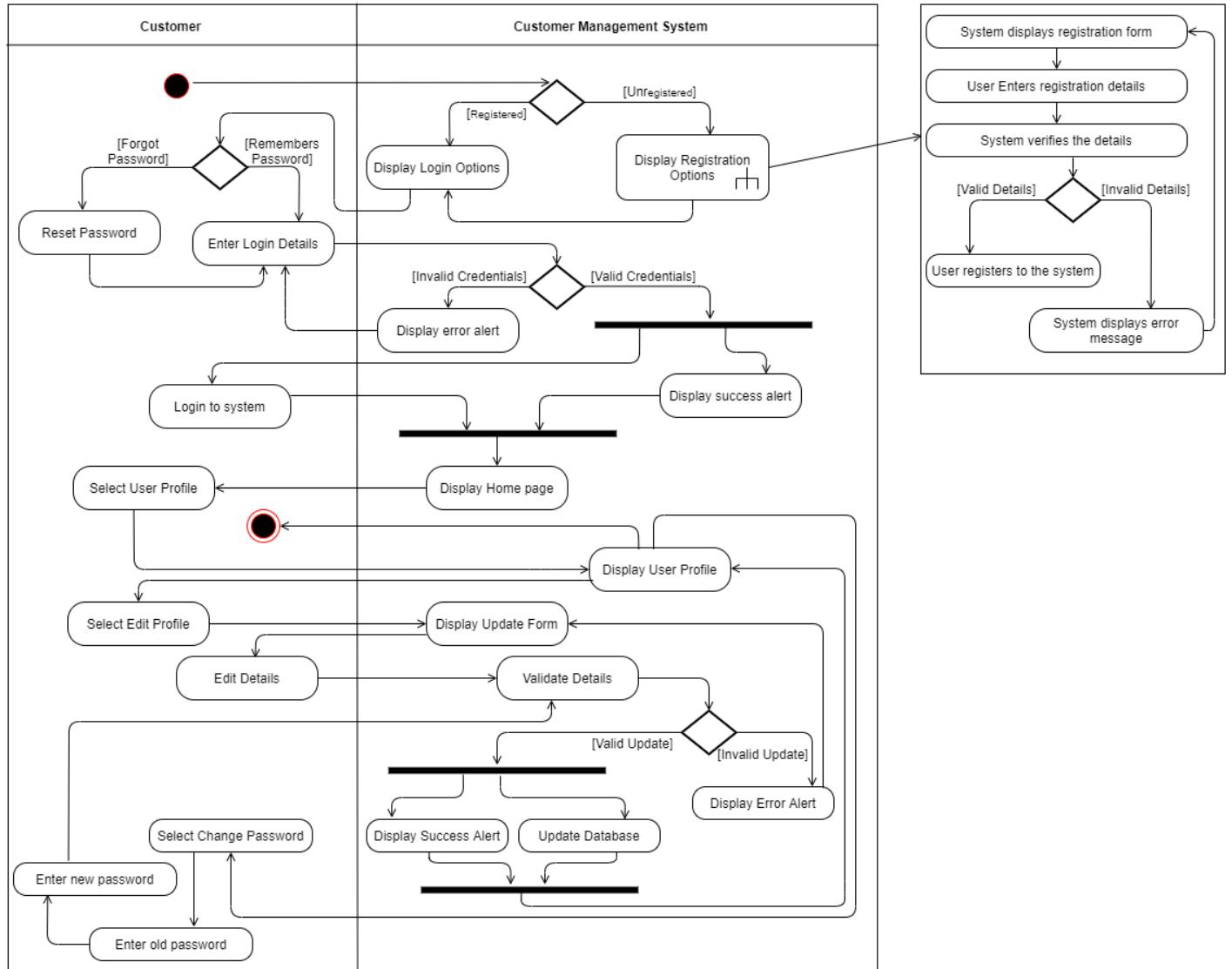
Customer Management

Use Case Diagram

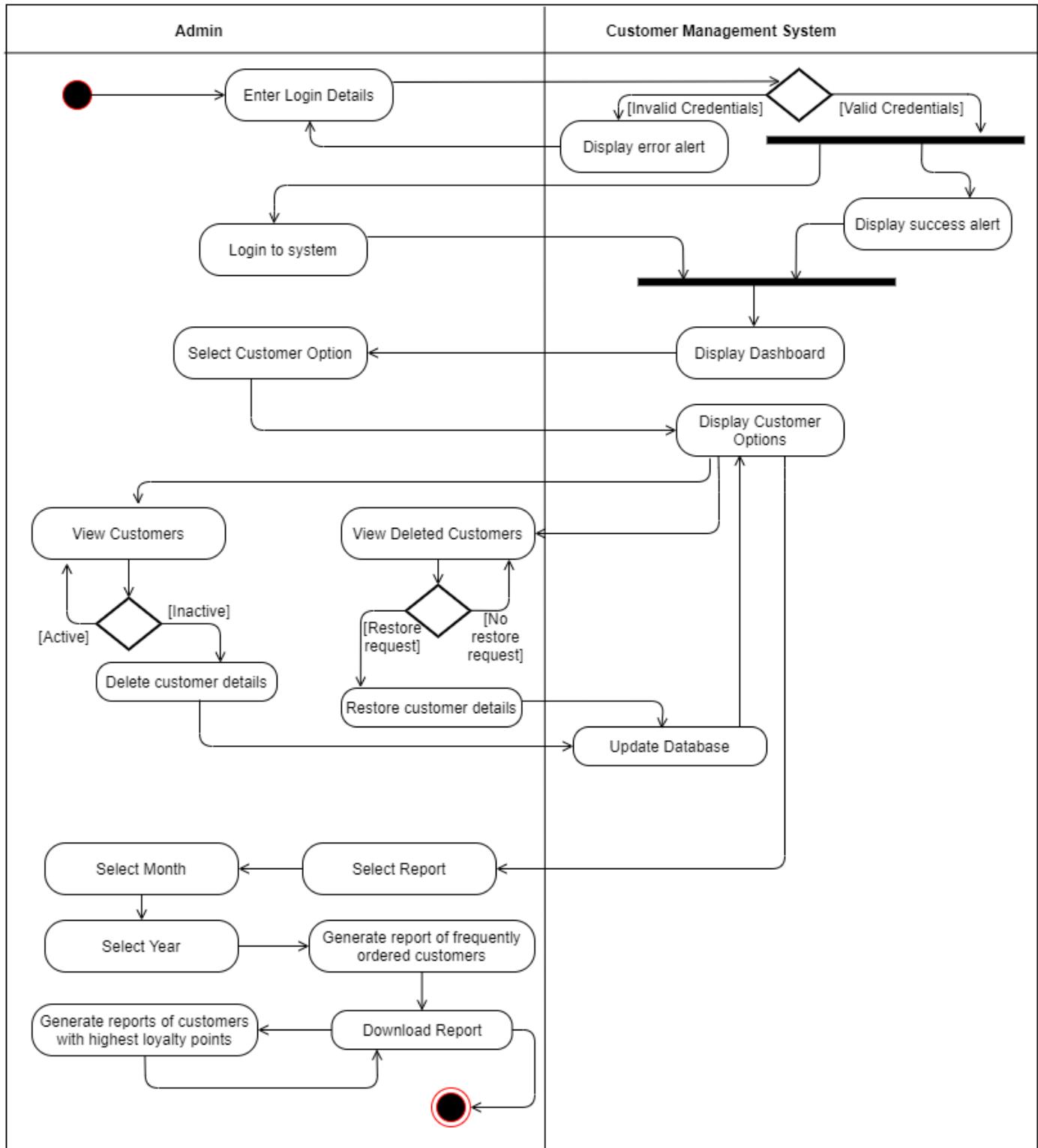


Activity Diagram

Customer

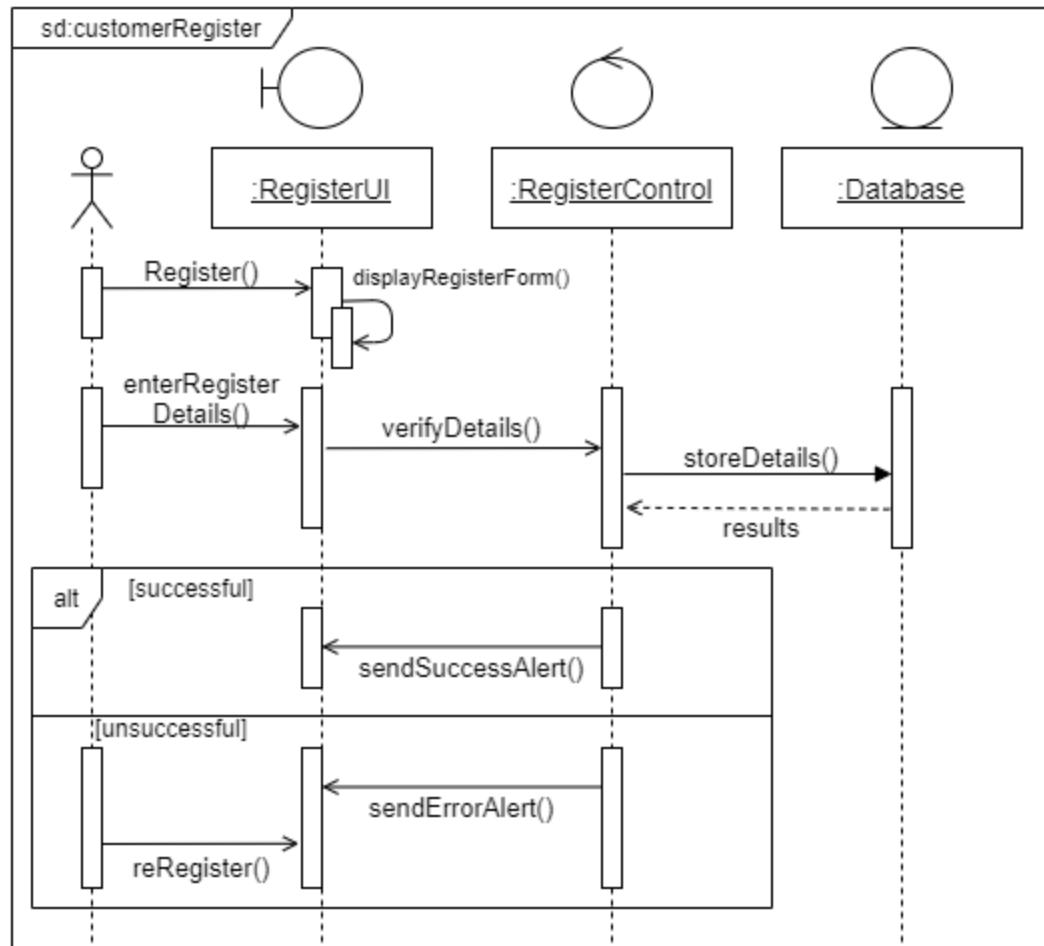


Admin

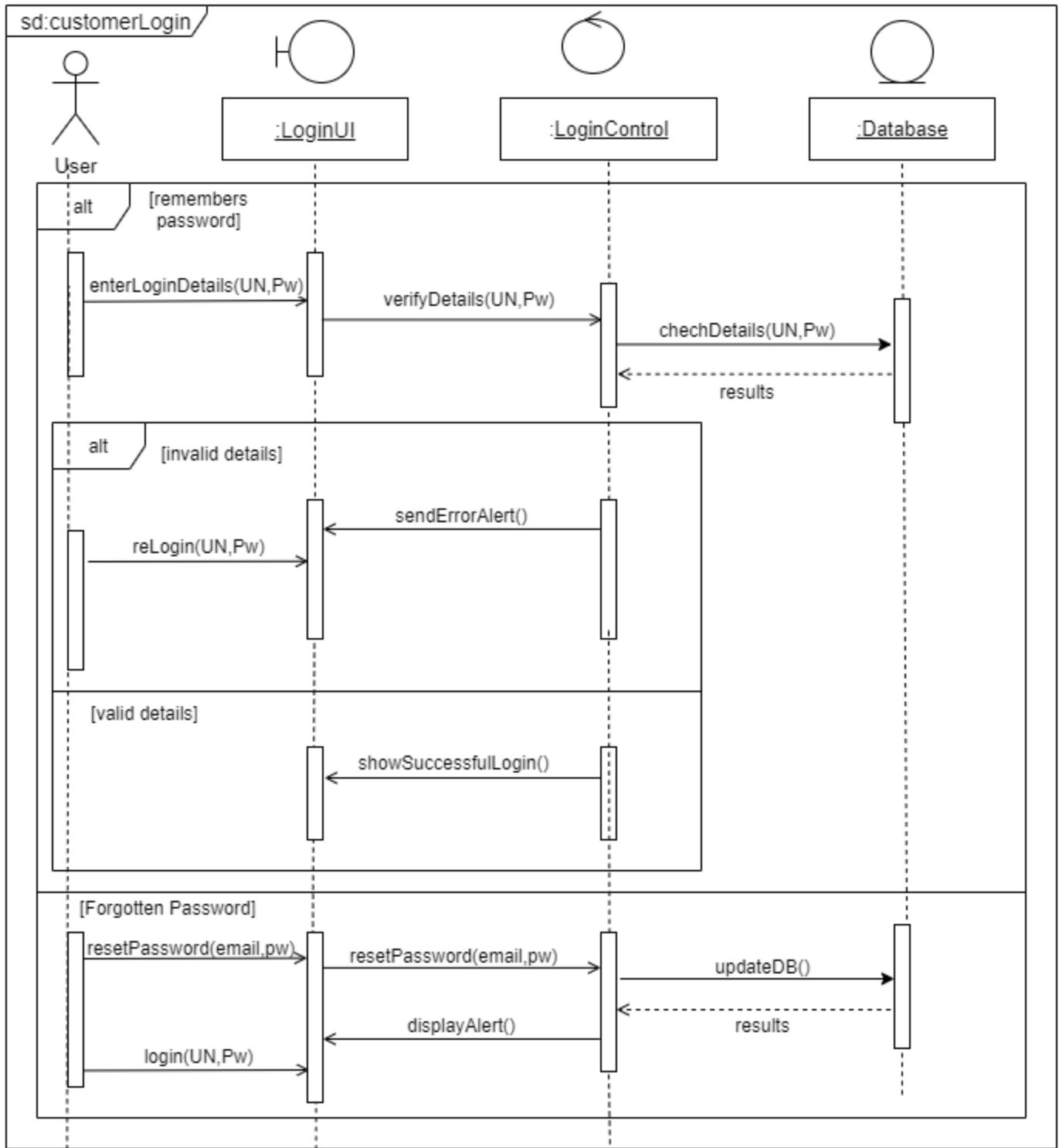


Sequence Diagram

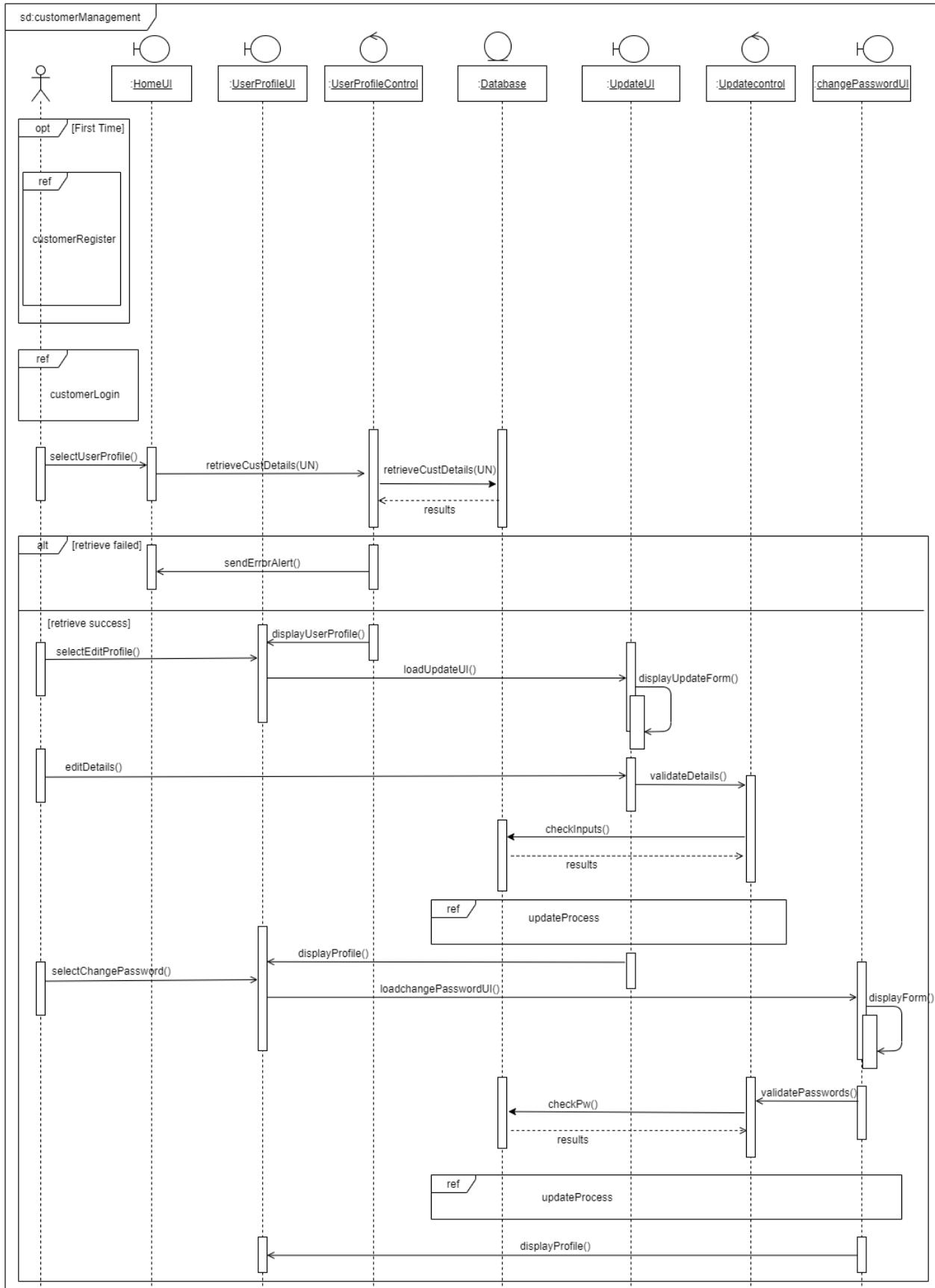
Register



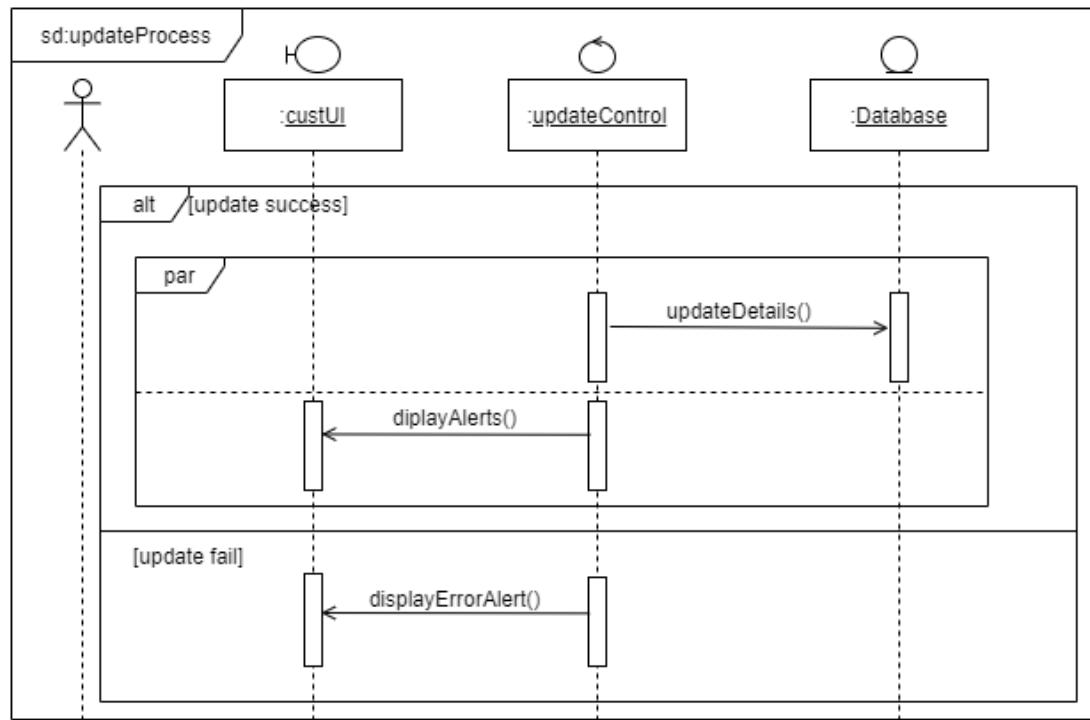
Login



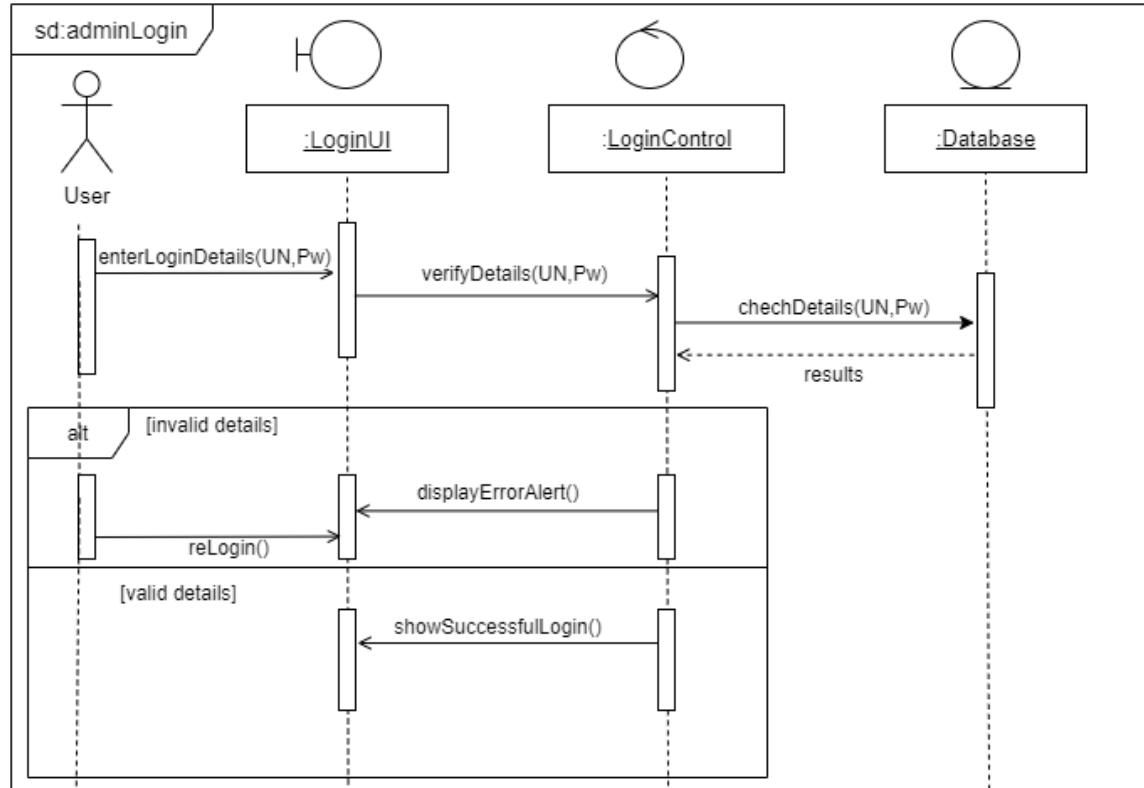
Customer Management



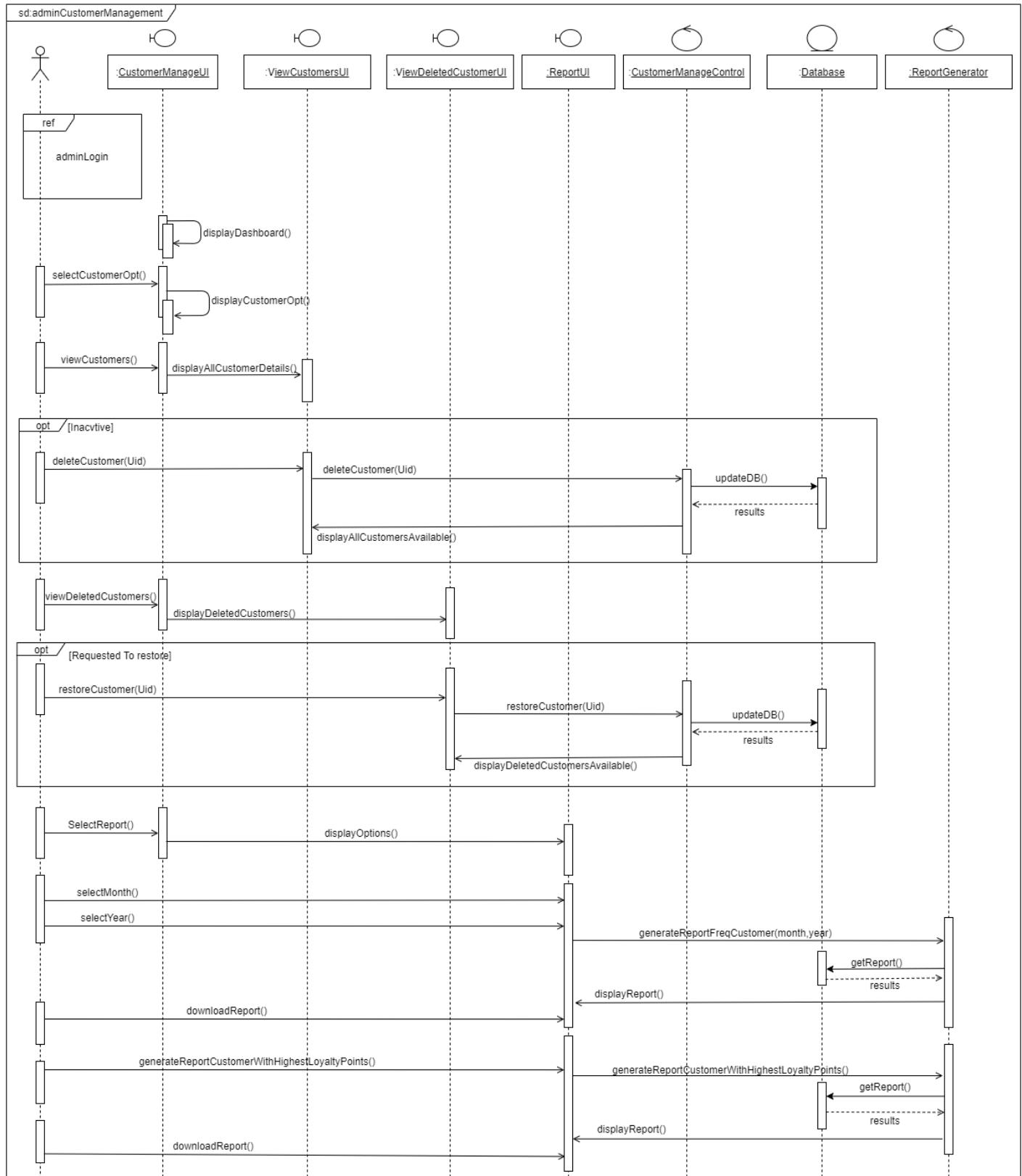
Customer Update Process



Admin login

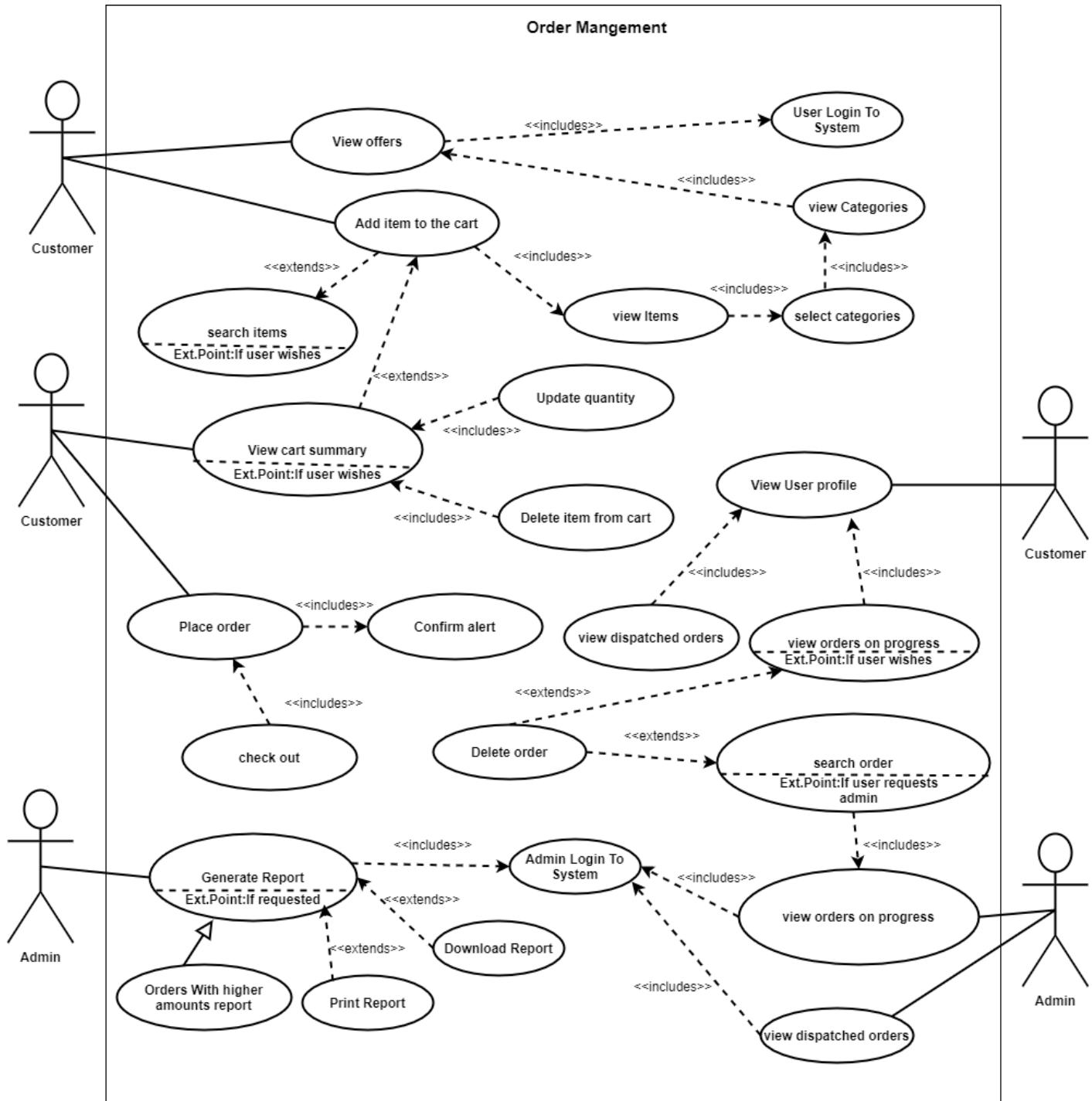


Admin Sequence



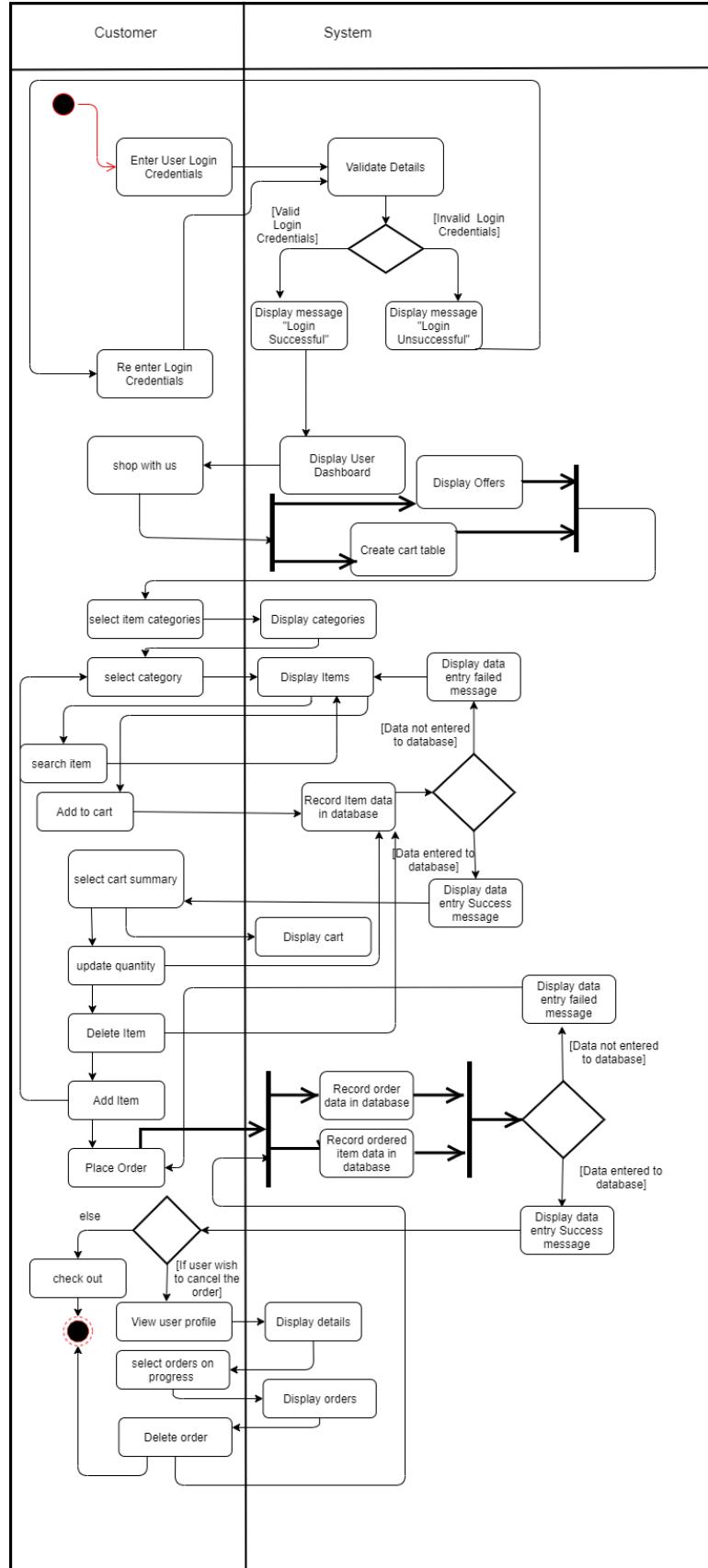
Order Management

Use Case Diagram

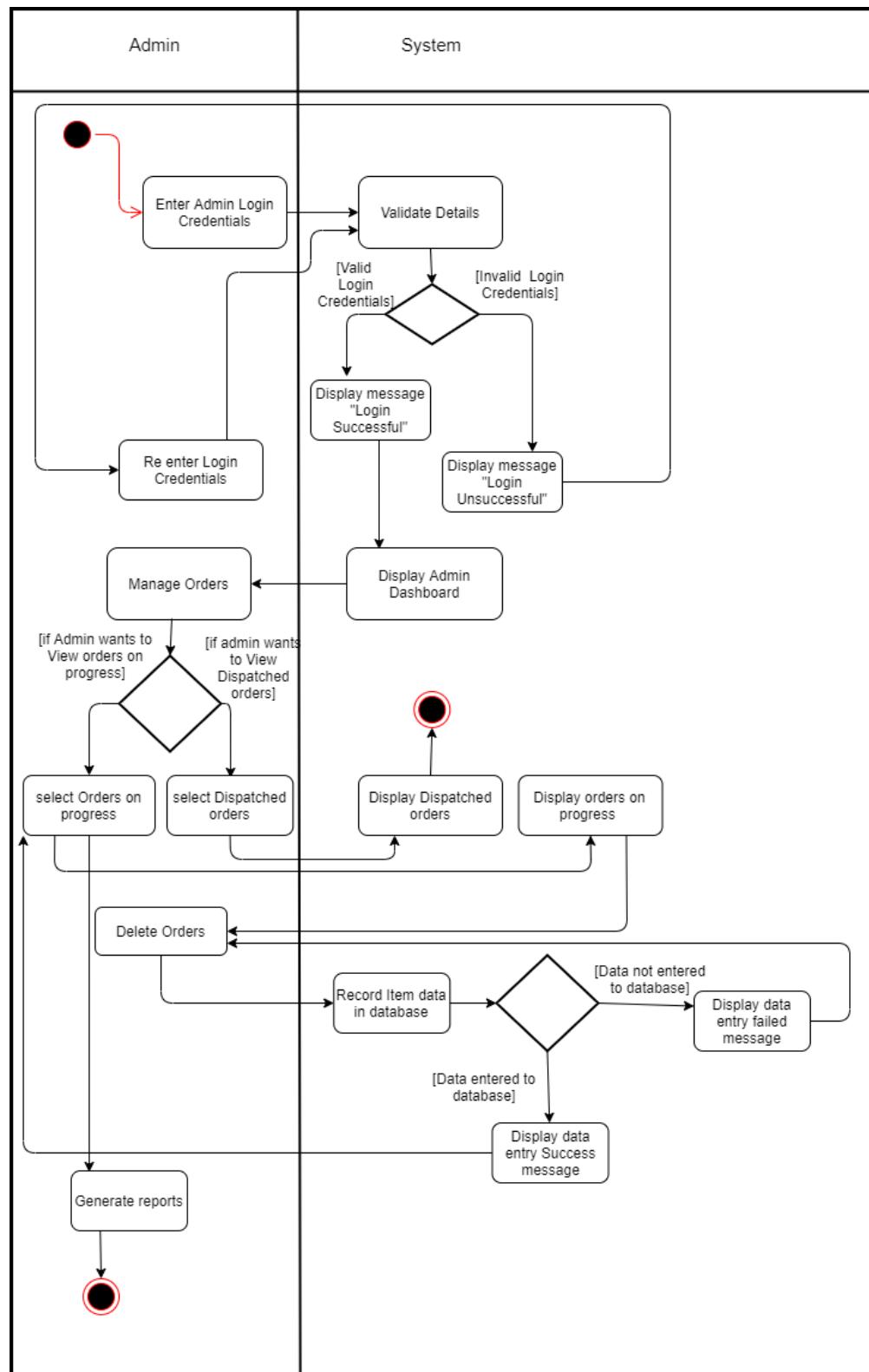


Activity Diagram

Customer

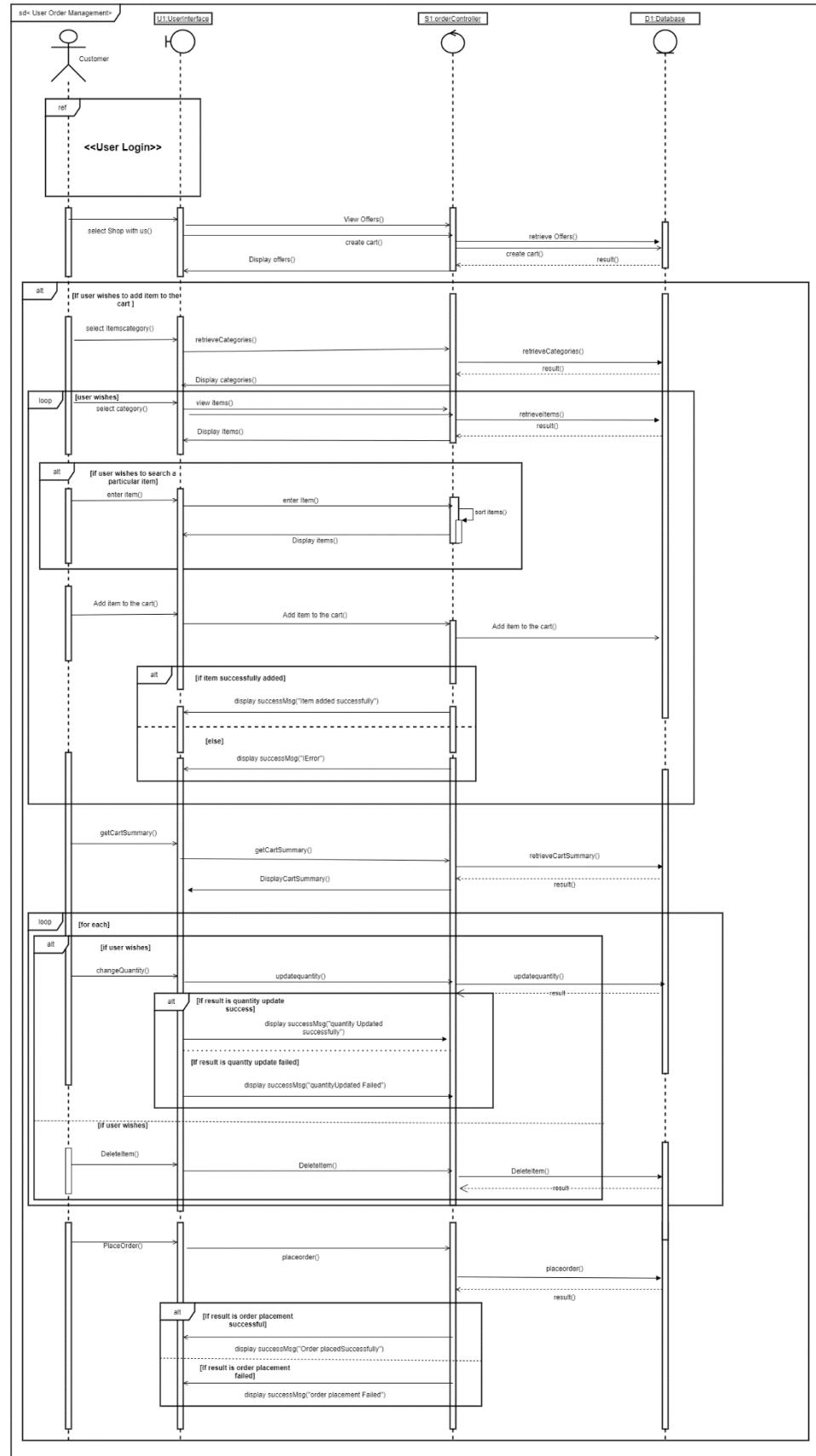


Admin

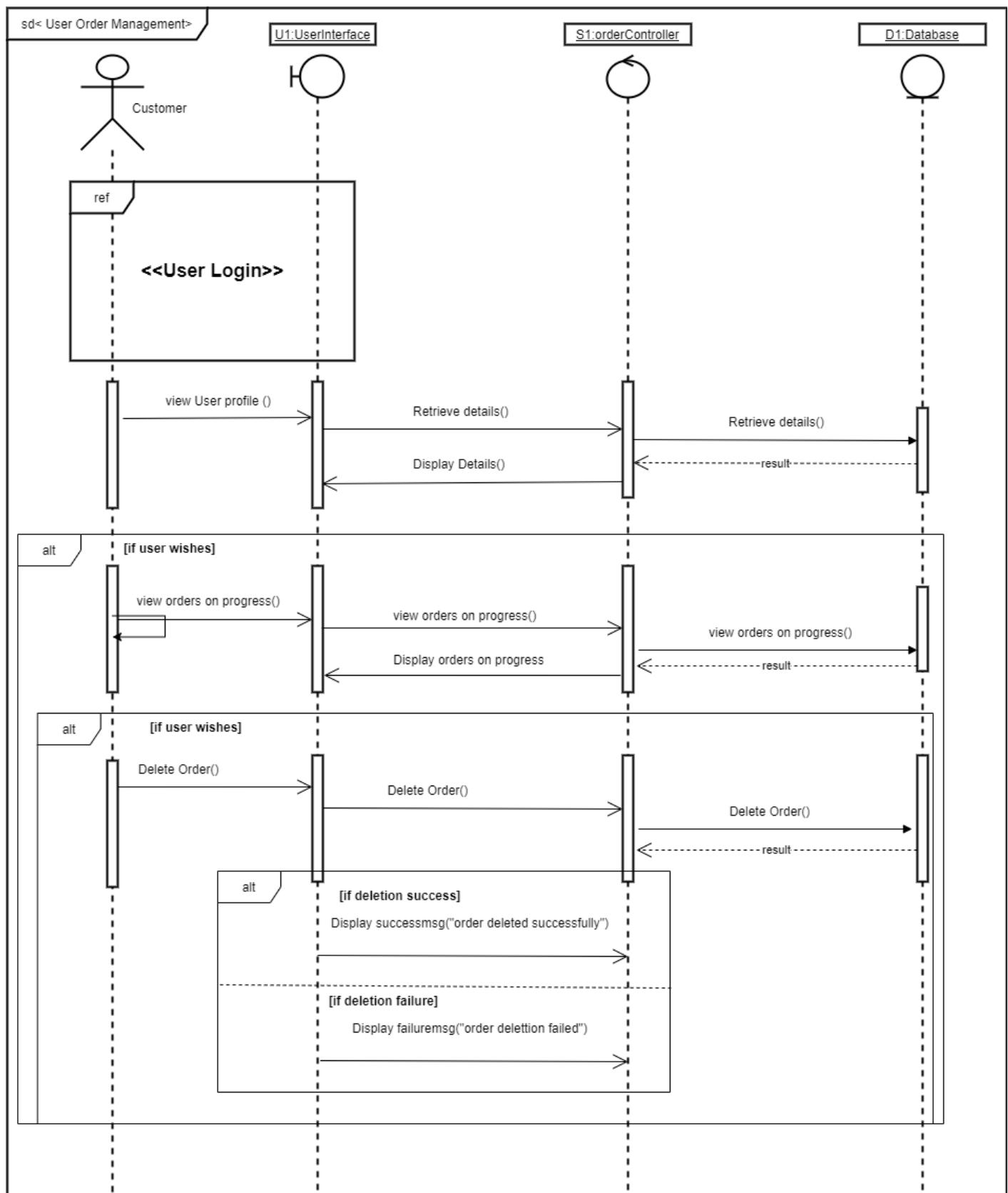


Sequence Diagram

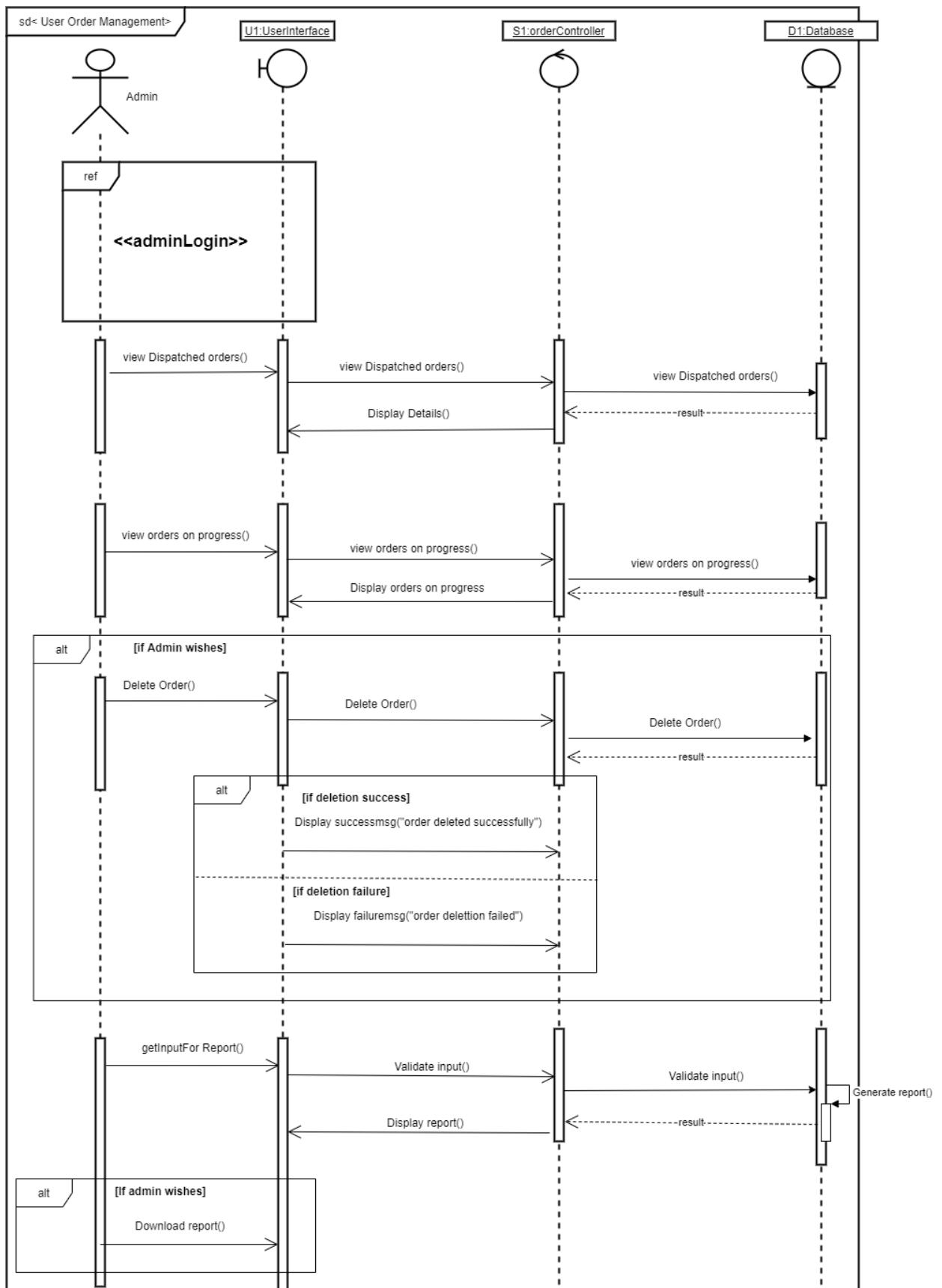
Place Order



Cancel Order

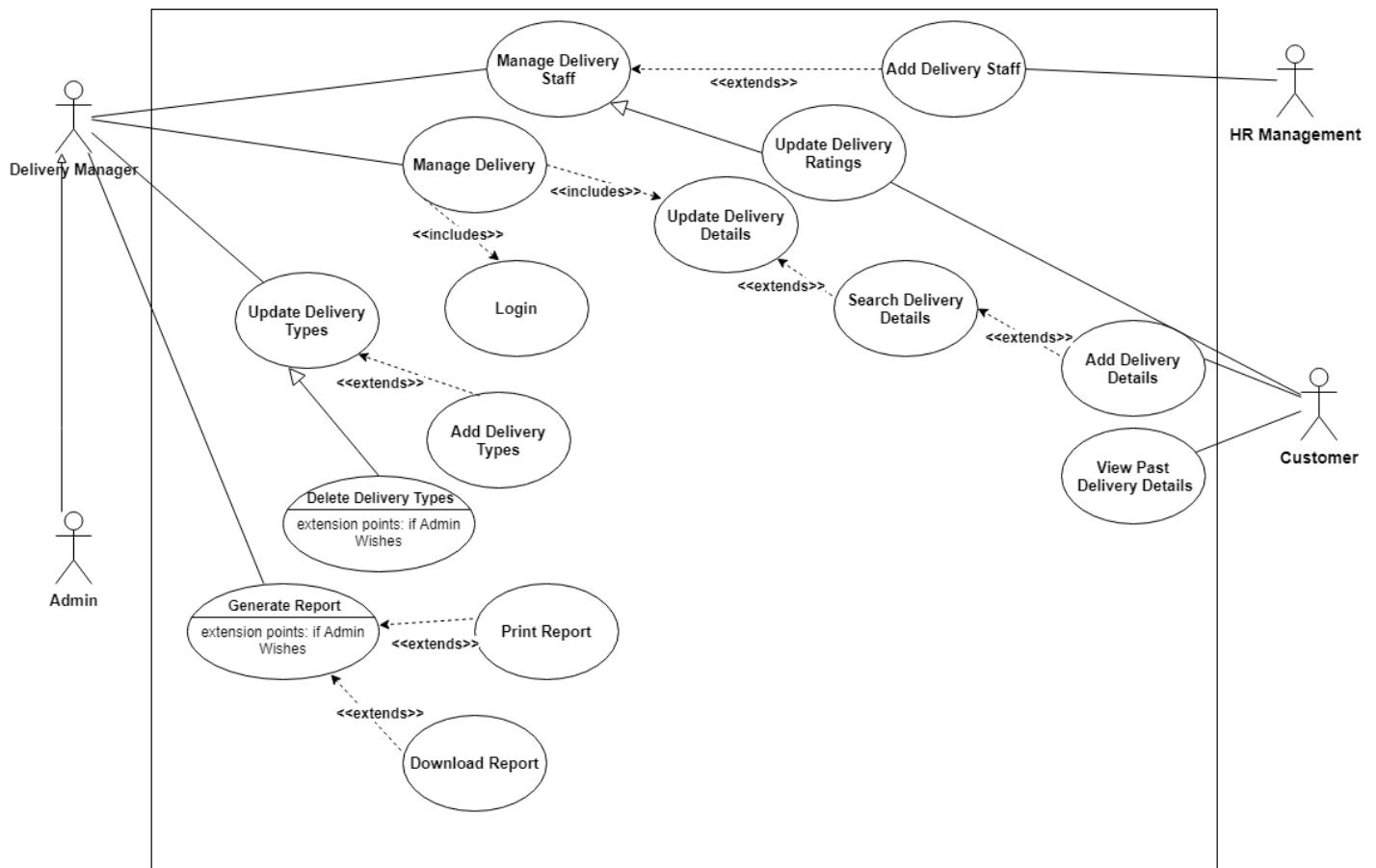


Admin

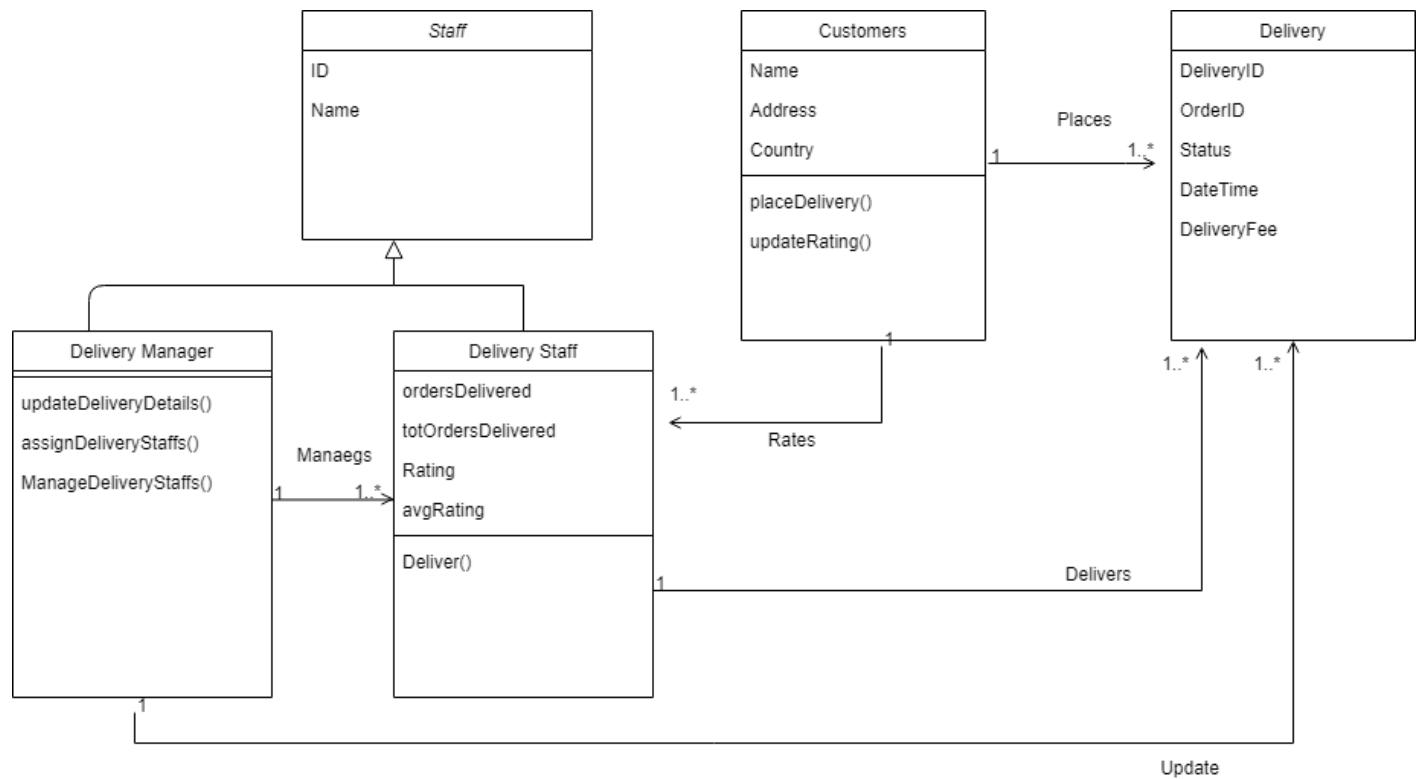


Delivery Management

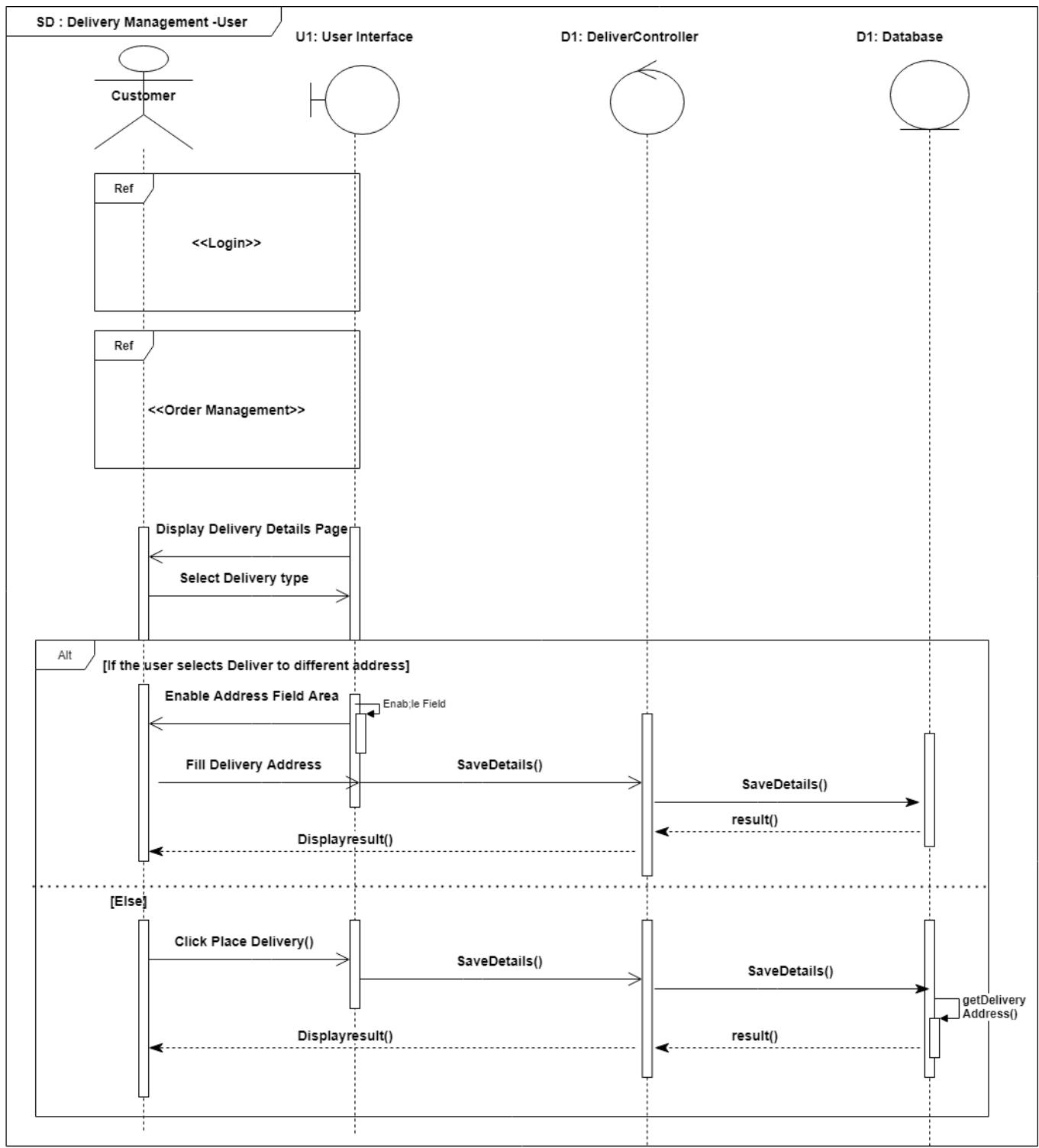
Use Case Diagram

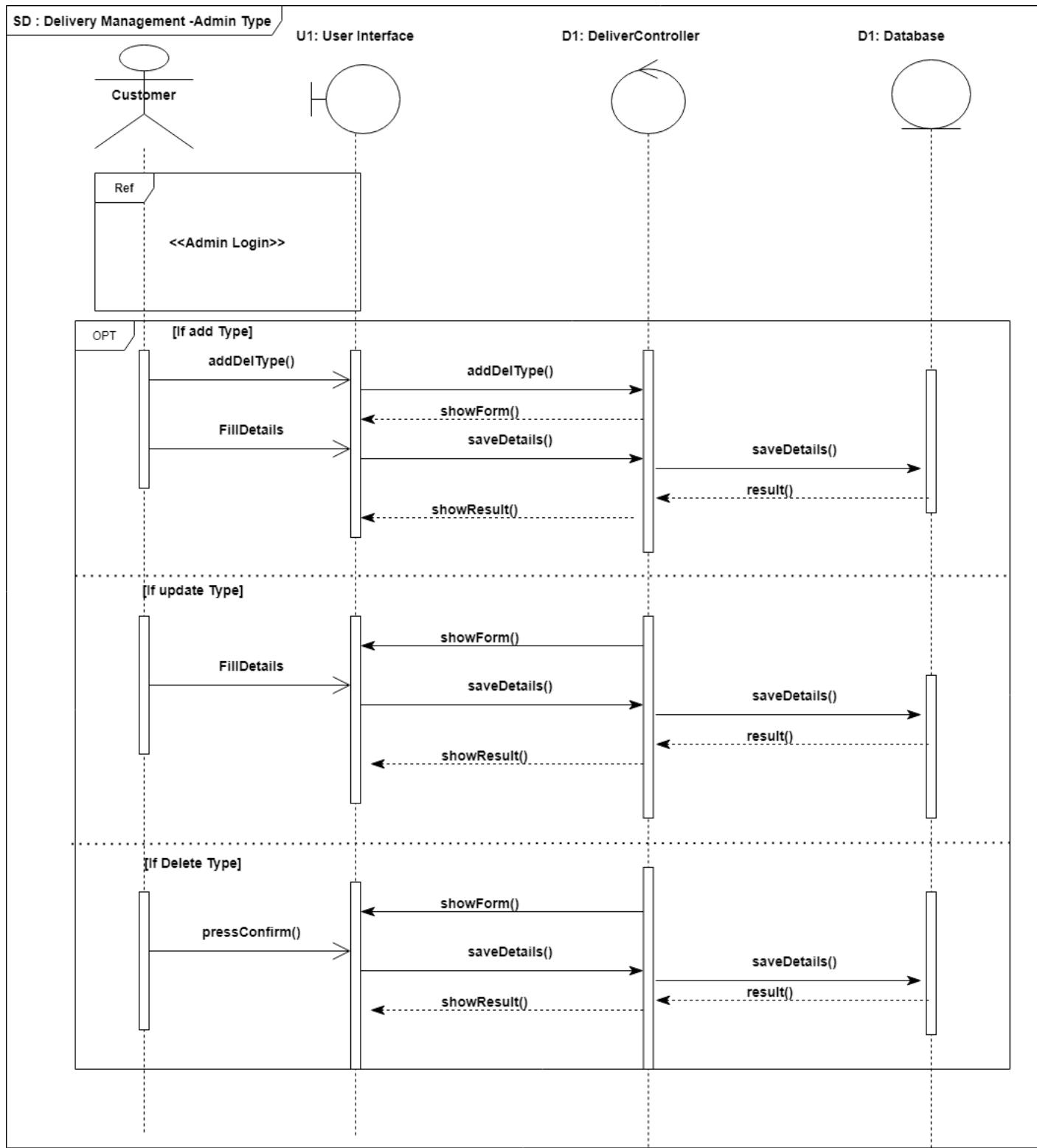


Class Diagram



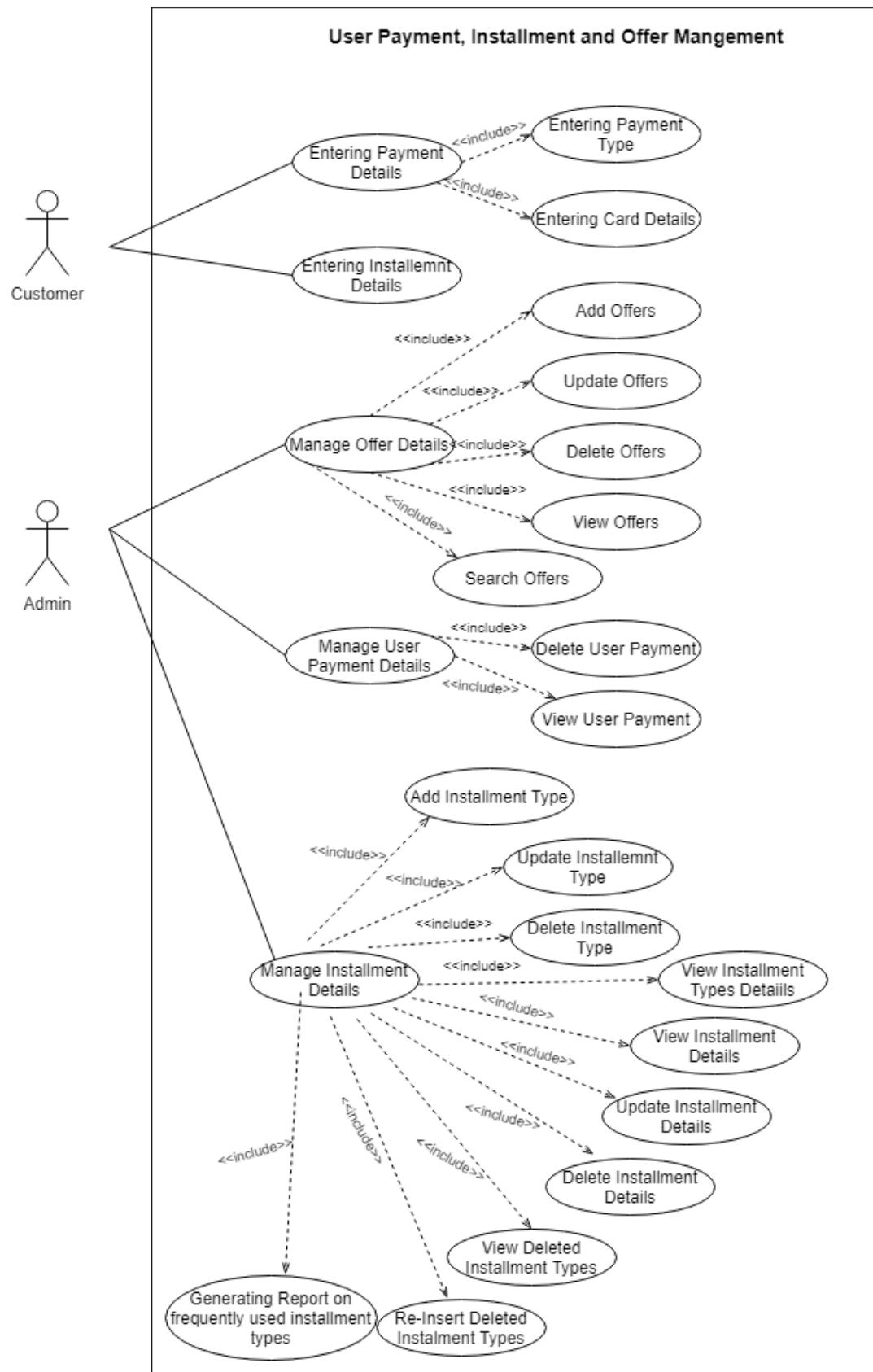
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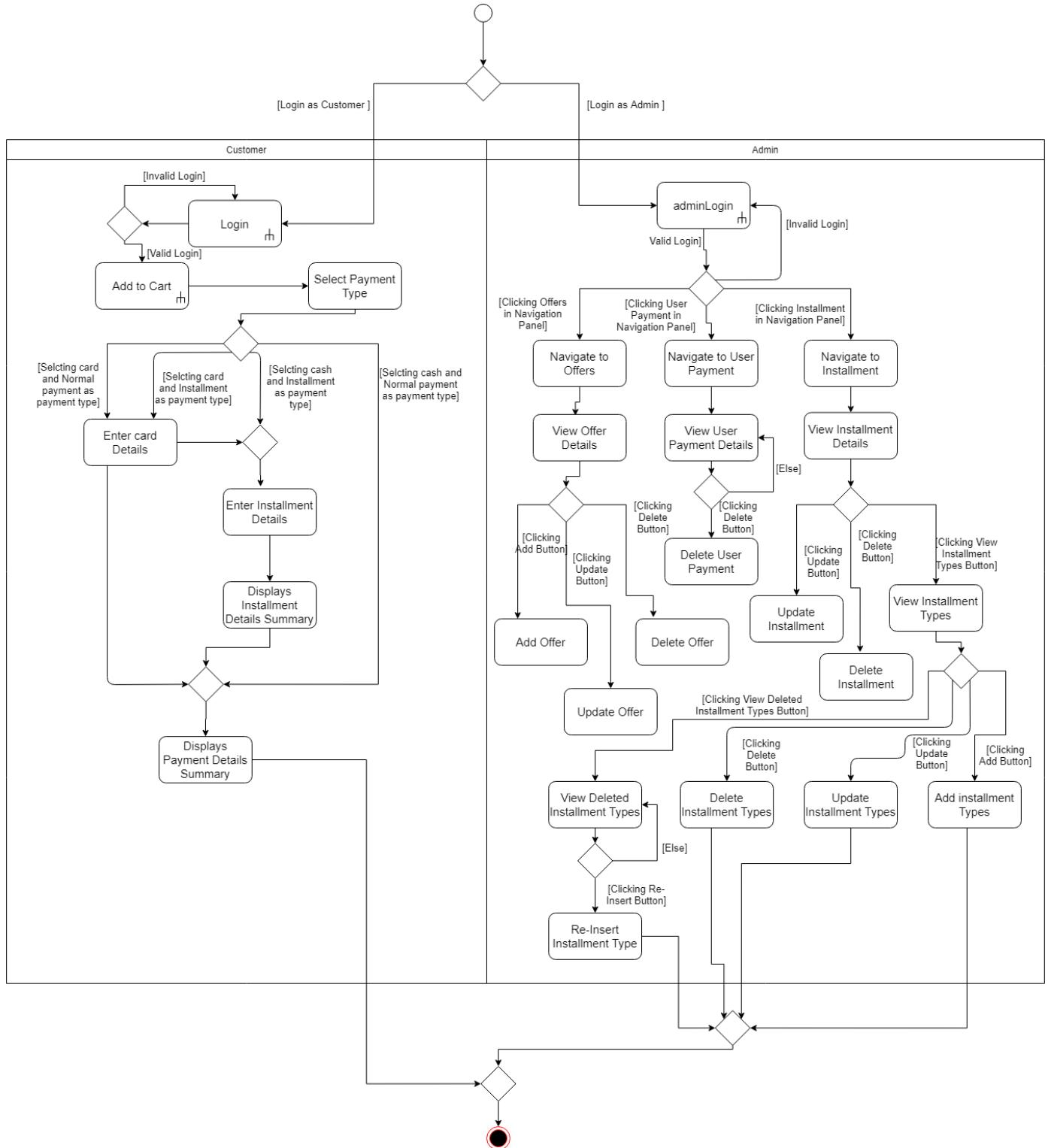


Payment Management

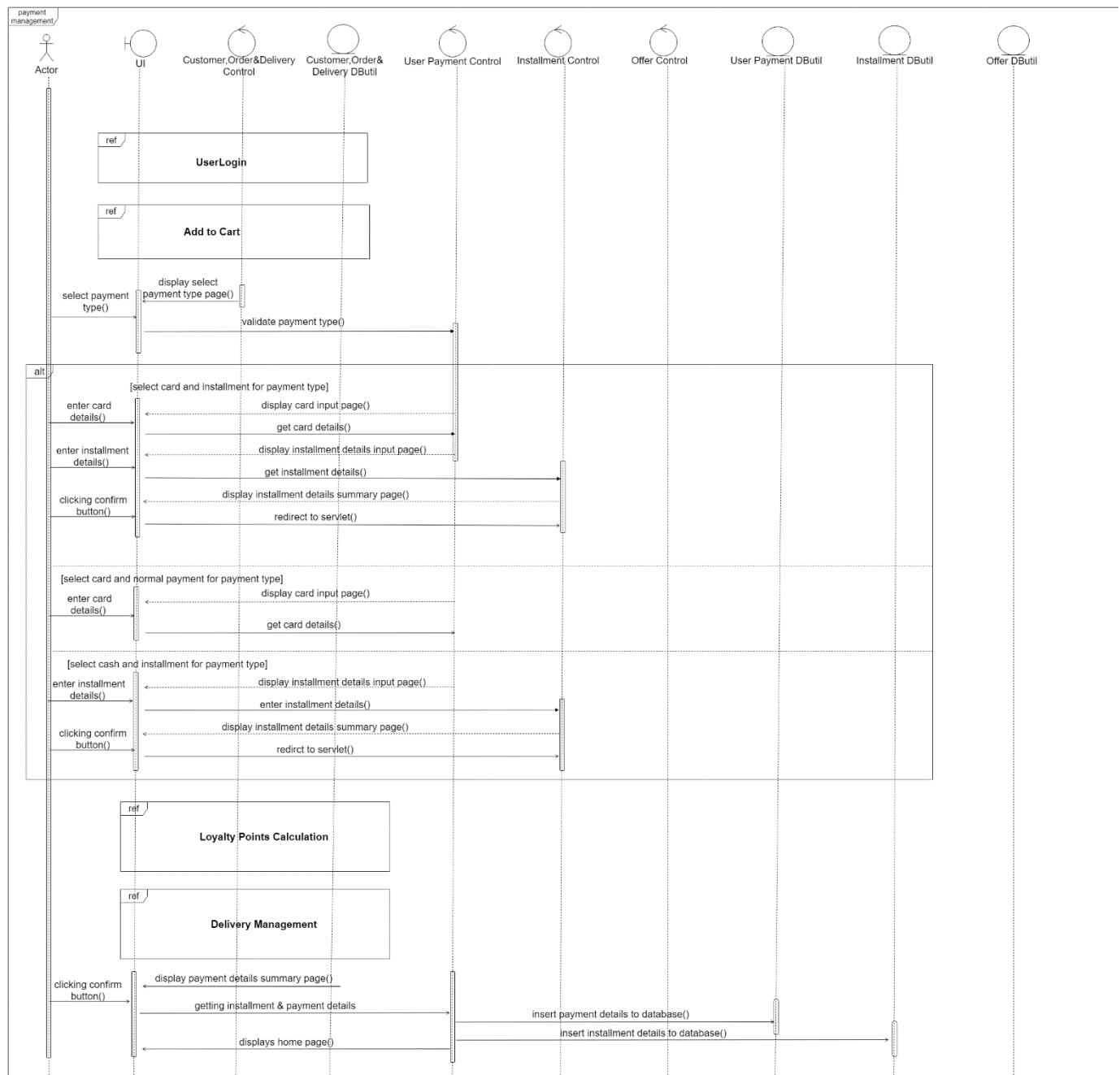
Use Case Diagram

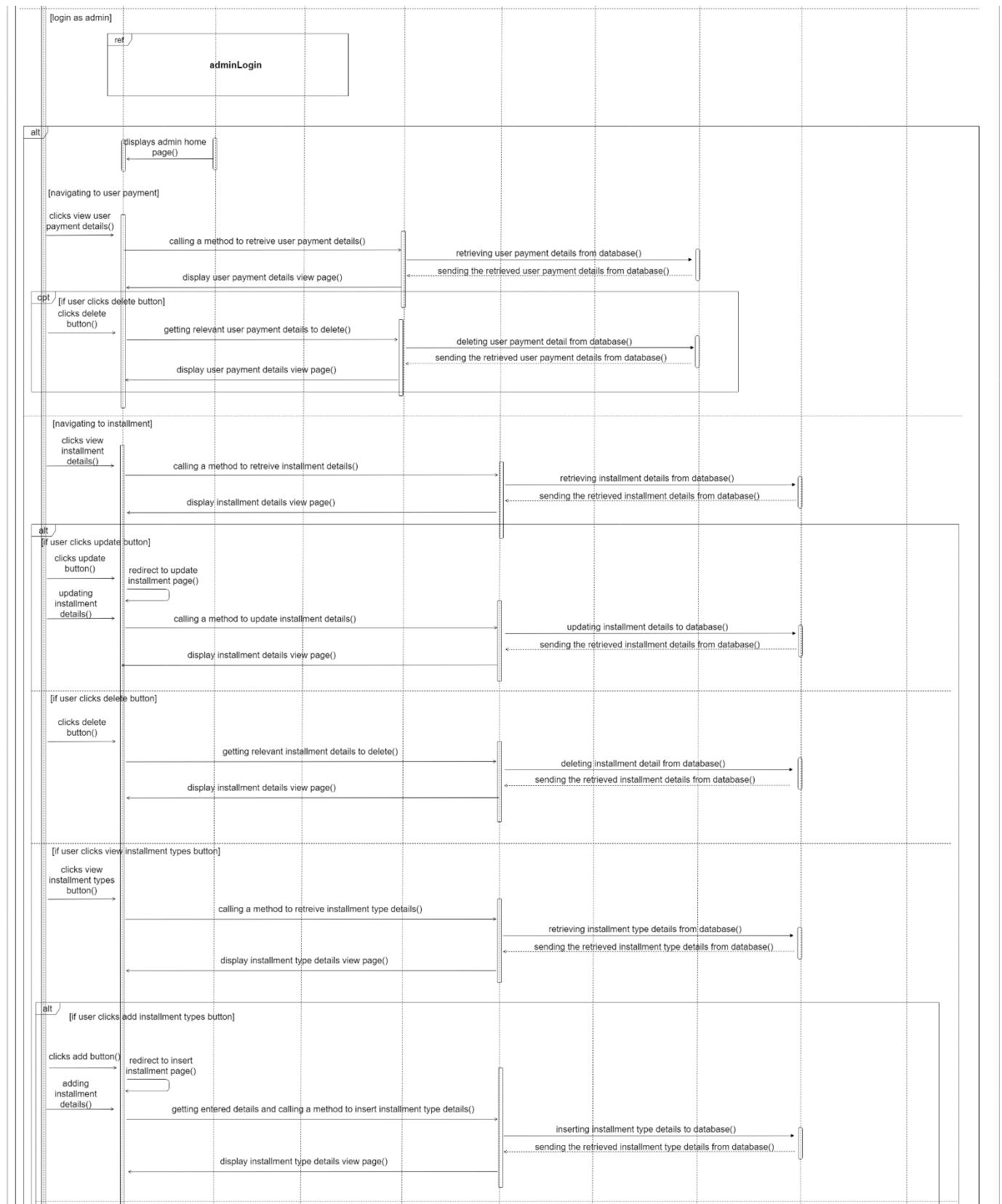


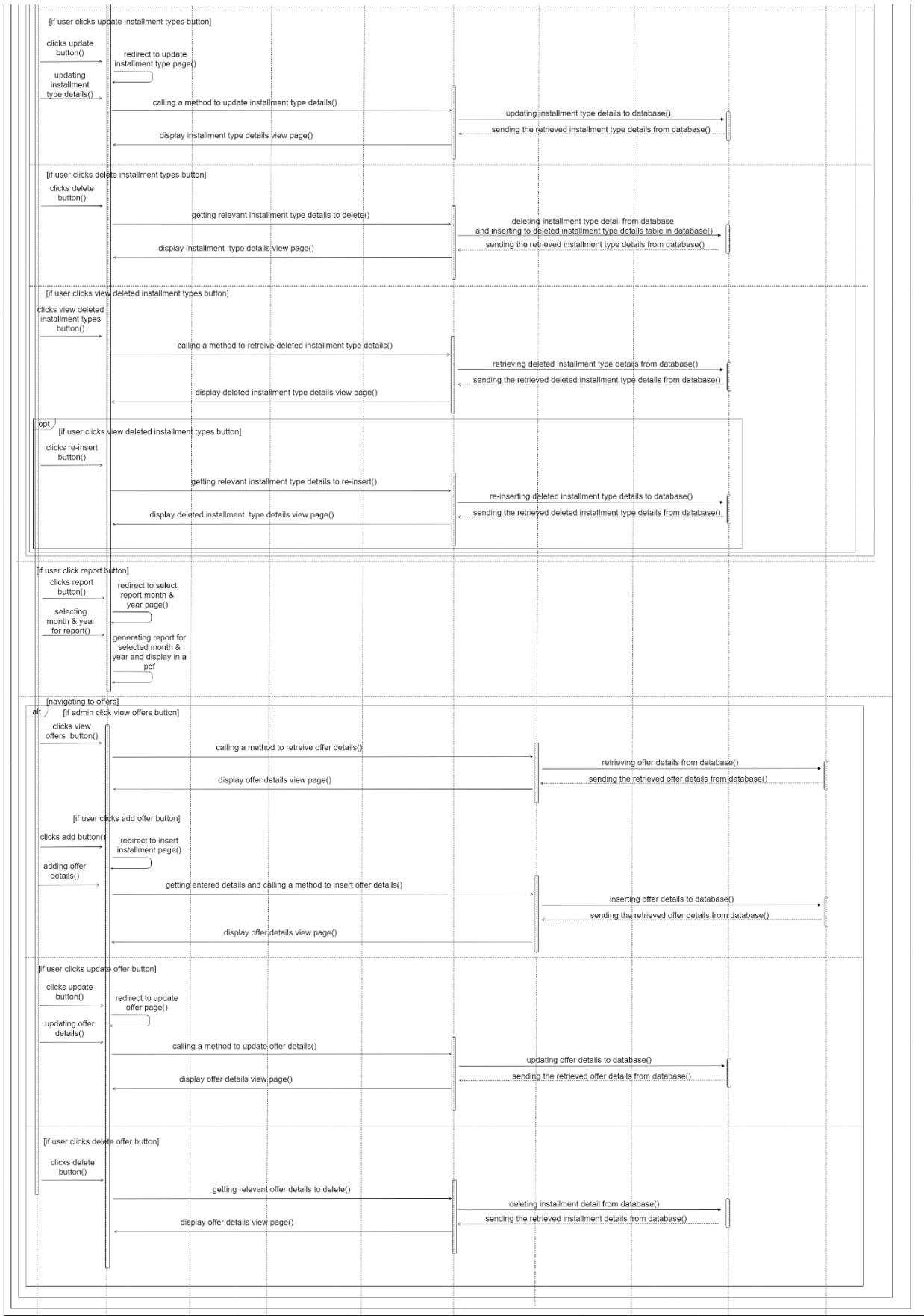
Activity Diagram



Sequence Diagram







2.3 Implementation

Supplier Management

1 . Registering a new supplier

The screenshot shows the 'Insert New Suppliers' page of the UDS Supermarket system. The left sidebar contains navigation links for Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main area has a search bar and a 'View Suppliers' button. A 'Demo' button is visible at the top right. The form fields include: Supplier Name (Lanka Sugars), Status (enabled), Supplier Address (27 Melbourne Ave, Colombo 00400), Supplier Email (lankasugars@gmail.com), Supplier Phone Number (0112500674), Other Phone Number (Enter the Phone Number), and Description (Sugar Stocks). At the bottom are 'Submit' and 'Reset' buttons.

Figure 1

In our UDS supermarket system, a new supplier must be inserted through this registration page. Here we record the supplier's name, address, email, contact number, description (if any specific information's to be recorded) and additionally the status. Which will be initially set up to 'enabled'.

2 . View the details of all the suppliers

SupplierId	Supplier-Name	Status	Address	Email	Phone Number			
SUP000001	Pyramid Wilmar	enabled	No. 04-2/1 Lauries Place, Colombo 04	pwilmar@gmail.com	0114542910	View Stocks	Edit	Delete
SUP000002	Marina Foods (Pvt) Limited	enabled	Dr. Danister De Silva Mawatha, Colombo-09	nmkhelpdesk@nmk.lk	0112673332	View Stocks	Edit	Delete
SUP000003	M.G.M.Distributors & Co	enabled	279, Wolfendhal Street, Colombo-13	mgm@mgm.foods.com	0112338727	View Stocks	Edit	Delete
SUP000004	Fonterra	enabled	No. 100 New Kandy Rd, Kaduwela 11650	fbl@fonterra.com	0112488032	View Stocks	Edit	Delete
SUP000005	Milco (Pvt) Ltd	enabled	No: 45,Nawala Road,Narathenpita,Colombo 05	info@milco.lk	0112582331	View Stocks	Edit	Delete
SUP000006	A.Baur & Co.(Pvt)Ltd	enabled	P.O. Box 115, Upper Chatham Street, Colombo 1	baur@baur.com	0114732600	View Stocks	Edit	Delete
SUP000007	Lanka Milk Foods PLC	enabled	Lanka Milk Foods (CWE) PLC, Welisara, Ragama	lakspray@lmfgroup.lk	0112956263	View Stocks	Edit	Delete
SUP000008	Unilever Srilanka	enabled	258 M. Vincent Perera Mawatha, Colombo 01	usl@unilever.com	0777002700	View Stocks	Edit	Delete
SUP000009	Lorealparisusa	enabled	No: 02 New Kandy Rd, Ntambuwa	lorealsl@gmail.com	0777895675	View Stocks	Edit	Delete
SUP000010	Essentials (PVT) LTD	enabled	871, Kotte Road, Athul Kotte	tresemesml@tresemme.lk	0773575766	View Stocks	Edit	Delete
SUP000012	Hemas Holdings	enabled	75, Braybrooke Place, Colombo 02	info@hemas.com	0114731731	View Stocks	Edit	Delete
SUP000013	Colgate Srilanka	enabled	Nihals Mawatha, colombo 07	colgate@gmail.com	0116365521	View Stocks	Edit	Delete
SUP000014	DRN Associates	enabled	Stafford Avenue No 10	drn@drn@gmail.com	0113326663	View Stocks	Edit	Delete
SUP000015	Stassen Group	enabled	833,S.B.Mawatha,P.O.Box 1970, Colombo 14	drn@gmail.com	0115224200	View Stocks	Edit	Delete
SUP000016	Onex	enabled	512, W.E. Bastian Mawatha, Colombo 12	info@onex.lk	0777129412	View Stocks	Edit	Delete
SUP000017	K.A. Dinapala & Sons	enabled	No.80, Kotugodella Street, Kandy	dina@dinapala.lk	0812221550	View Stocks	Edit	Delete
SUP000018	Singer PLC	enabled	No. 112, Havelock Road, Colombo 5	singer@singersl.com	0115400400	View Stocks	Edit	Delete
SUP958967	Lanka Sugars	disabled	27 Melbourne Ave, Colombo 00400	lankasugars@gmail.com	0112500674	View Stocks	Edit	Delete

Figure 2

After a successful registration process, the system will direct admin to this page, where the admin can view all the details of the suppliers. And also, the search function (Search by supplier name) is also implemented in this page. Here the admin can view the stocks supplied by all the suppliers, can edit the supplier details and also can delete that supplier.

3 . View the stocks supplied by a specific supplier

The screenshot shows the 'Stock' section of the UDS Super App. On the left is a sidebar with various menu items. In the center, there is a table titled 'View Suppliers' showing stock items. The table has columns for 'Supplier-Name', 'Stock-Name', and 'Stock-Size'. All items listed belong to 'Stassen Group'.

Supplier-Name	Stock-Name	Stock-Size
Stassen Group	Snickers	0.15
Stassen Group	Mars	0.15
Stassen Group	Twix	0.15
Stassen Group	Bounty	0.15

Figure 3

In this page the admin can view all the stocks supplied by a certain supplier. And this page will be helpful for the admin in any urgent causes.

4 . View the deleted supplier

The screenshot shows the 'Deleted Suppliers' section of the UDS Super App. On the left is a sidebar with various menu items. In the center, there is a table titled 'View Deleted Suppliers' showing two entries. The table has columns for 'SupplierId', 'Supplier-Name', 'Status', 'Address', 'Email', and 'Phone Number'. Each entry includes a 'Re-Insert Supplier' button.

SupplierId	Supplier-Name	Status	Address	Email	Phone Number
SUP000016	Onex	enabled	512, W.E. Bastian Mawatha, Colombo 12	info@onex.lk	0777129412
SUP958967	Lanka Sugars	disabled	27 Melbourne Ave, Colombo 00400	lankasugars@gmail.com	0112500674

Figure 4

After deleting a certain supplier, that supplier entry will be inserted into another alternate table using triggers. The reason behind having this alternate table is that, in future if we need the service of a deleted supplier then the admin has to just ‘Re-Insert’ the supplier, so that the system avoids another registration process for the same supplier whom we registered earlier.

5 . Supplier Report

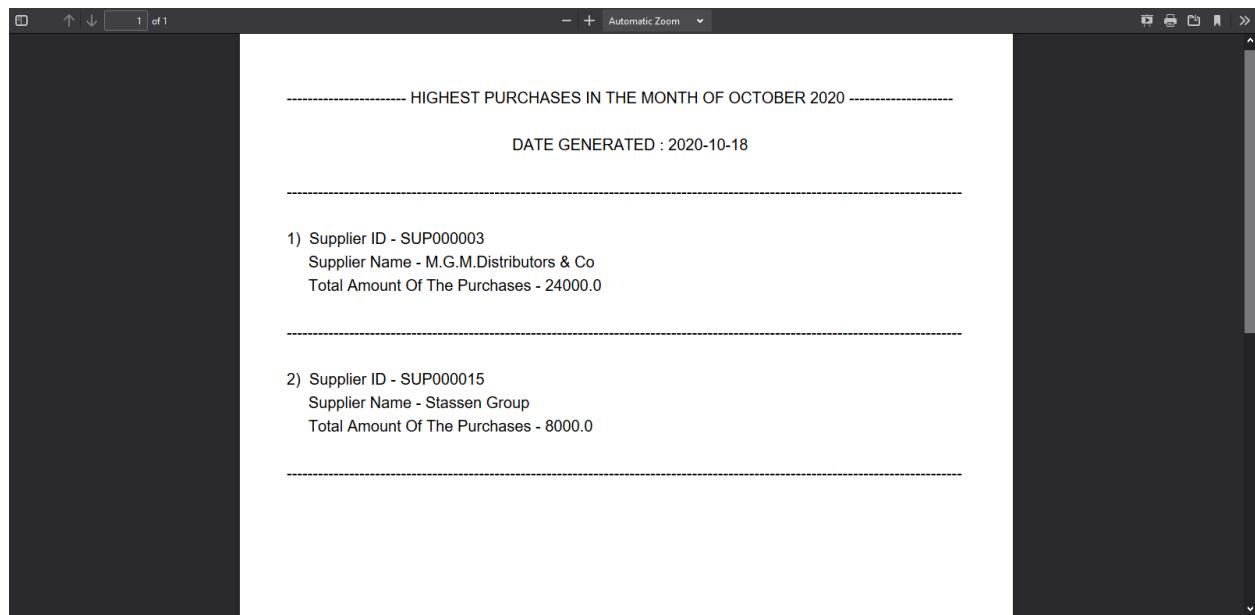


Figure 5

At the end of a certain month the admin can generate a report regarding the top suppliers from whom the highest purchases have been done in that specific month. The report contains the date, supplier ID, name and the sum of the total purchases done during that specific month.

Supplier Payment Management

6 . Inserting the primary records regarding a payment for a certain stock supplied on a certain month.

The screenshot shows a user interface for inserting a new supplier payment. The main title is "Insert New Supplier Payment". Below it is a button labeled "View Suppliers Payment". The form contains the following fields:

- Stock Name: Sustagen - 1.0
- Discount Type: discount
- Discount Percentage: 10
- Total Amount: 10000

At the bottom of the form are two buttons: "Submit" (green) and "Reset" (blue).

Figure 6

The primary records such as the, discount type, discount percentage and the total amount for a certain stock supplied on a certain month are recorded in this insertion page.

7 . Recording the details of a completed payment

The screenshot shows the 'Add Supplier Payment' interface. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The 'Supplier Payment' item is currently selected. At the top right are search and notification icons. The main form has a dark blue header 'Add Supplier Payment' and a 'View Suppliers Payment' button. The form contains five input fields: 'Supplier Pay ID' (SPY480212), 'Paying Date' (10/14/2020), 'Cheque Number' (1103), 'Payment Amount' (12000.0), and 'Invoice Number' (IN004). A 'Demo' button is visible above the first field. At the bottom is a green 'Confirm Payment' button.

Figure 7

After recording the primary details, the admin can record the details of a certain payment which has been completed recently. The reason behind this record updation is that, when multiple payments are done for a certain stock supplied on a certain month then the record must be updated frequently, so this process can be done using this page.

8 . Viewing the supplier payments

The screenshot shows the UDS Super Admin Dashboard. On the left, there is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The 'Supplier Payment' item is highlighted. At the top right, there is a search bar and some notification icons. In the center, there is a table titled 'View Suppliers Payment' with the following data:

Pay ID	Supplier	Stock	Size	Supplied Date	Invoice Number	Last Payed Date	Net Amount	Due Amount	Action	Action	Action
SPY480212	M.G.M.Distributors & Co	Mogrills	1.0	2020-10-12	IN004	2020-10-14	20000.0	8000.0	View Details	Pay Supplier	Delete
SPY317098	Fonterra	Anchor	1.0	2020-09-13	42opiu4	2020-10-14	25500.0	24500.0	View Details	Pay Supplier	Delete
SPY245647	M.G.M.Distributors & Co	Mogrills	1.0	2020-10-12			3600.0	3600.0	View Details	Pay Supplier	Delete
SPY931003	Stassen Group	Snickers	0.15	2020-10-01			7200.0	7200.0	View Details	Pay Supplier	Delete

Figure 8

In this page the admin can view the payments done for the suppliers in respective months for the respective stocks supplied during that month. Here the admin can search any payment using the supplied date. The net amount and the due amount are being calculated and displayed here.

9 . Viewing a specific payment detail

The screenshot shows the 'Add Supplier Payment' page of the UDS Super application. The left sidebar contains navigation links such as Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main form has the following fields:

Field	Value
Supplier Pay ID	SPY480212
Stock ID	STK000005
Discount Type	free
Discount Percent	0.0
Total Amount	20000.0
Cheque Number	1103
Paid Amount	12000.0

At the bottom right of the form is a green 'Return Back' button.

Figure 9

Admin can view the additional payment details such as the payment ID, stock ID, discount type, discount percent, total amount, cheque number(if exist) and the paid amount for a certain stock supplied on a certain month.

Stock Management

Category Insertion

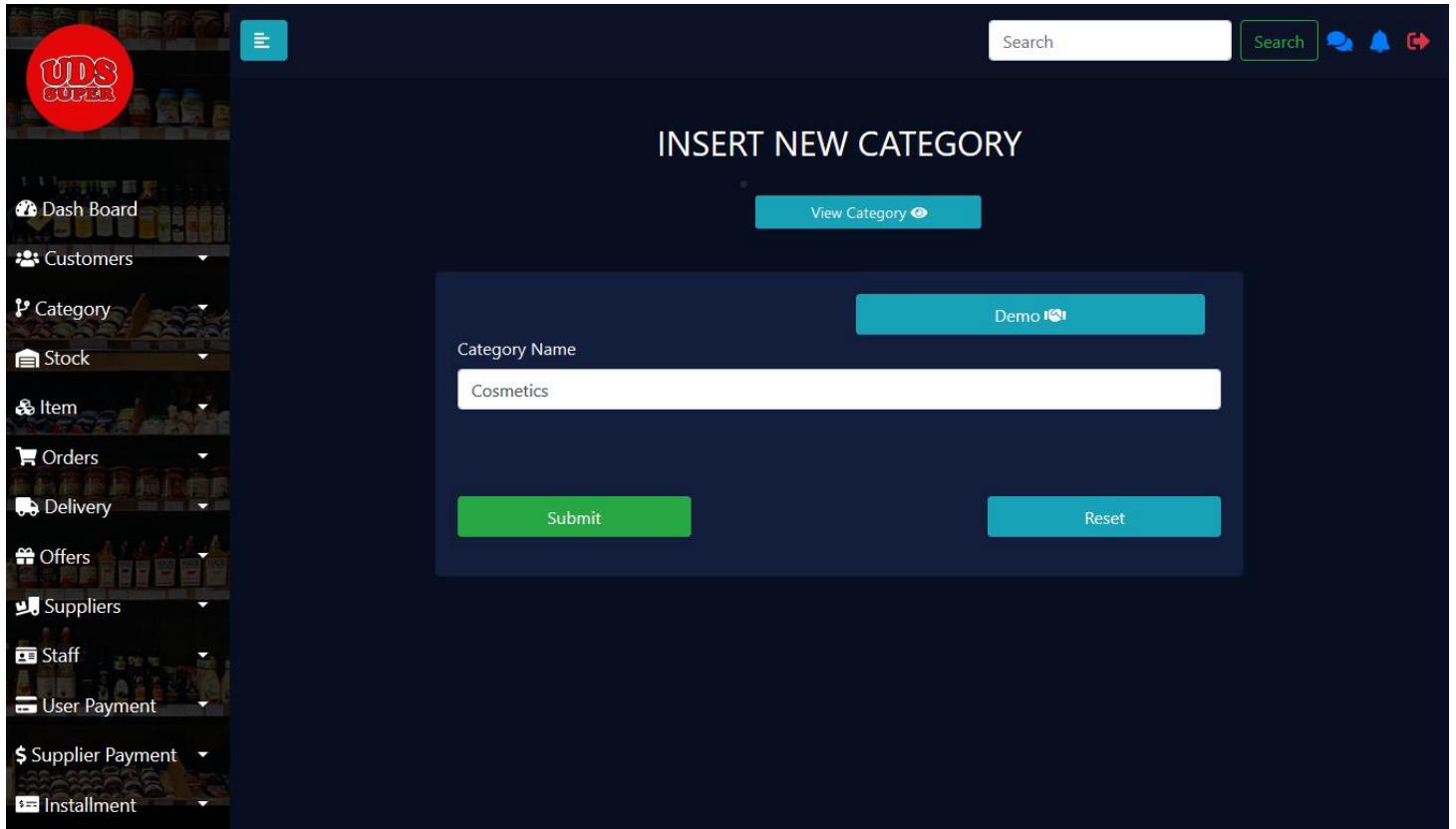


Figure 10

The above GUI facilitates the user to **add the category of items** in the store from time to time.

View & Manage Category

The screenshot shows the 'View & Manage Category' screen of the UDS SUPER mobile application. At the top, there is a navigation bar with a logo, a search bar, and notification icons. On the left, a vertical sidebar lists various menu items such as Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main content area displays a table of categories with columns for ID and Category Name, along with edit and delete buttons. A large blue button at the bottom right allows users to add new categories.

ID	Category Name	Edit	Delete
CAT00001	Sugar		
CAT00002	Flour		
CAT00003	Oil		
CAT00004	MilkPowder		
CAT00005	ToothPaste		
CAT00006	Soap		
CAT00007	Shampoo		
CAT00008	Butter		
CAT00009	Biscuit		
CAT00010	Choclate		
CAT00011	Noodles		
CAT00012	TeaPowder		
CAT00013	HomeAppliances		

Add Category

Figure 11

This interface enables user to view category of items by **searching** them with the category name and proceed with the **edit** and **delete** functions.

Stock Insertion

The screenshot shows a user interface for inserting new stock. At the top right, there is a search bar with a magnifying glass icon and a green 'Search' button. To the right of the search bar are icons for notifications, messages, and a red arrow. On the far left, there is a vertical sidebar with a logo for 'UDS SUPER' and a list of menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main area is titled 'INSERT NEW STOCK' and contains a form with the following fields:

- CategoryName: A dropdown menu labeled 'Select Category'.
- Stock Name: An input field labeled 'Name'.
- Stock Size: An input field labeled 'Size'.
- Quantity Supplied: An input field labeled 'Quantitye'.
- Supplied Date: An input field labeled 'mm / dd / yyyy'.
- Store Quantity: An input field labeled 'Quantity'.
- Supplier Name: A dropdown menu labeled 'Select Supplier'.
- Stock Image: A file input field labeled 'Choose File' with a 'Browse' button to its right.

At the bottom of the form are two buttons: a green 'Submit' button on the left and a teal 'Reset' button on the right. There is also a 'Demo' button with a gear icon at the top right of the form area.

Figure 12

This interface facilitates user to **insert new stock** to the warehouse by adding details such as name of stock, size, category, quantity supplied to warehouse, supplied date, quantity sent to store, stock image and supplier name.

Stock Update

CategoryName
CAT000010

Stock ID
STK002923

Stock Name
Twix

Available Quantity
25000

Stock Size
0.125

ReOrder Level
36000

Quantity Supplied
480000

Supplied Date
10/21/2020

Store Quantity
280000

Supplier Name
SUP015

Set Stock Reorder Level

Figure 13

This interface ensures to provide the facility to **update the stock** in warehouse by providing two alternatives. The user can either update the stock along with **setting the reorder level** or else the user can update the stock details without setting the reorder level.

Assigning Stock Reorder Level

The screenshot shows a mobile application interface with a dark blue header bar. In the top left corner is a white checkmark icon followed by the text "Set Stock Reorder Level". In the top right corner is a teal button labeled "Demo" with a small icon. Below the header, the main title "Set Stock ReOrder Level" is centered in a white font. The interface contains several input fields and labels:

- A label "Maximum Units Sold" above a white input field containing the text "maximum".
- A label "Lead Time" above a white input field containing the text "leadTime in Days".
- A label "Average Units Sold" above a white input field containing the text "average".
- A large central button labeled "Calculate ReOrder Quantity" in white.
- A label "Average Lead Time" above a white input field containing the text "Average leadTime in Days".
- A green button at the bottom labeled "Update Stock" in white.

Figure 14

Through this interface the user could set the reorder level of a stock based on the demand of a particular stock. When proceeding the logic behind this the following concepts were taken into consideration

Reorder level – The point at which a stock purchase should be made.

Lead Time – The time taken for a product to reach the warehouse upon making a request to the supplier.

Safety stock – The stock amount that helps to maintain an uninterrupted flow of goods despite fluctuations in demand of products.

Reorder quantity – The stock quantity that should be purchased when reorder level is reached.

Calculations: - Safety Stock = (Maximum Sold Units – Average Sold Units) * Lead Time

Reorder Level = (Maximum Sold Units * Lead Time) + Safety Stock

Reorder Quantity = Average Sold Units * Average Lead Time

Stock Report

The screenshot shows the UDS Super app's interface. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock (selected), Item, Orders, Delivery, Offers, Suppliers (selected), Staff, User Payment, Supplier Payment, and Installment. At the top right are a search bar, a green 'Search' button, and notification icons. The main area has a dark blue header with the text 'MAXIMUM SUPPLIED STOCK'. Below the header is a sub-header: 'Lets Analyze the stock supplied to the warehouse based on the QUANTITY OF STOCK SUPPLIED'. There are two input fields for dates: 'Starting Date' and 'Ending Date', both labeled 'mm / dd / yyyy'. At the bottom are two buttons: a green 'Submit' button and a teal 'Reset' button.

Figure 15

The above interface provides the facility for the user to enter time period that the user wishes to **generate a report** in order to analyze the maximum sold stock for the needed time period.

View & Manage Stock

The screenshot shows a user interface for managing stock. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main area has a header with a search bar, a 'View Stock' button, and notification icons. Below is a table listing five items:

Stock Name	QtySupplied	Supplied Date	Stock Size	ReOrderLevel	Store Quantity	Supplier Name	QtyAvailable	Image	Edit	Delete
Twix	480000	2020-10-21	0.125	36000	280000	SUP015	25000		<button>Edit</button>	<button>Delete</button>
Raththi	50000	2020-10-14	1.0	36000	6000	SUP004	44000		<button>Edit</button>	<button>Delete</button>
Sustagen	50000	2020-10-14	2.0	36000	5000	SUP006	45000		<button>Edit</button>	<button>Delete</button>
KitKat	50000	2020-10-26	0.25	36000	7000	SUP015	43000		<button>Edit</button>	<button>Delete</button>
Fortune	60000	2020-10-21	2.0	36000	35000	SUP001	25000		<button>Edit</button>	<button>Delete</button>

Figure 16

This interface enables user to view stock of items by **searching** them with the stock name and proceed with the **edit** and **delete** functions.

Item Insertion

The screenshot shows the 'UDS Super' mobile application interface. On the left is a vertical navigation menu with items like Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. At the top right are icons for Search, Notifications, and Logout. The main area is titled 'INSERT NEW ITEMS' and contains a form with the following fields:

- CategoryName: A dropdown menu labeled 'Select Category'.
- Item Name: An input field labeled 'Name'.
- Item Size: An input field labeled 'Size'.
- ItemPrice: An input field labeled 'Price'.
- Quantity Available: An input field labeled 'Quantity'.
- Item Status: A dropdown menu labeled 'AV'.
- Item Offer: A dropdown menu labeled 'Select Offer'.
- Item Image: A file input field labeled 'Choose File' with a 'Browse' button.

At the bottom are two buttons: a green 'Submit' button and a blue 'Reset' button.

Figure 17

This interface facilitates user to **insert new items** to the store by adding details such as name of item, size, price, quantity available in store, item status, offer applicable to the item and item image.

View and Manage Items

The screenshot shows a user interface for managing items in a store. At the top left is a red circular logo with 'UDS SUPER' text. To its right are navigation icons for search, notifications, and account management. Below the header is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main content area has two buttons: 'View Active Items' and 'View Deactivated Items'. A table lists five items with columns for ID, Item Name, Item Size, BarcodeID, Item Price, Quantity Available, Item Status, Item Offer, Category Name, and Image. Each item row includes 'Edit' and 'Deactivate' buttons.

ID	Item Name	Item Size	BarcodeID	Item Price	Quantity Available	Item Status	Item Offer	Category Name	Image	Edit	Deactivate
ITM119084	Sustagen	2.0	BOO834988468	3000.0	20000	AV	OFF000004	CAT000004		<input checked="" type="button"/> Edit	<input type="button"/> Deactivate
ITM357692	KitKat	0.25	BOO141251703	490.0	20000	AV	OFF000005	CAT000010		<input checked="" type="button"/> Edit	<input type="button"/> Deactivate
ITM361143	Fortune	0.5	BOO189085780	470.0	20000	AV	OFF000001	CAT000003		<input checked="" type="button"/> Edit	<input type="button"/> Deactivate
ITM417546	Raththi	0.4	BOO803480399	375.0	20000	AV	OFF000004	CAT000004		<input checked="" type="button"/> Edit	<input type="button"/> Deactivate
ITM427873	Tresemme	2.0	BOO221059304	6000.0	20000	AV	OFF000004	CAT000007		<input checked="" type="button"/> Edit	<input type="button"/> Deactivate

Figure 18

This interface enables user to **view active items** and **deactivated items** of the store by **searching** them with the item name and proceed with the **edit** and **delete** functions.

Item Report

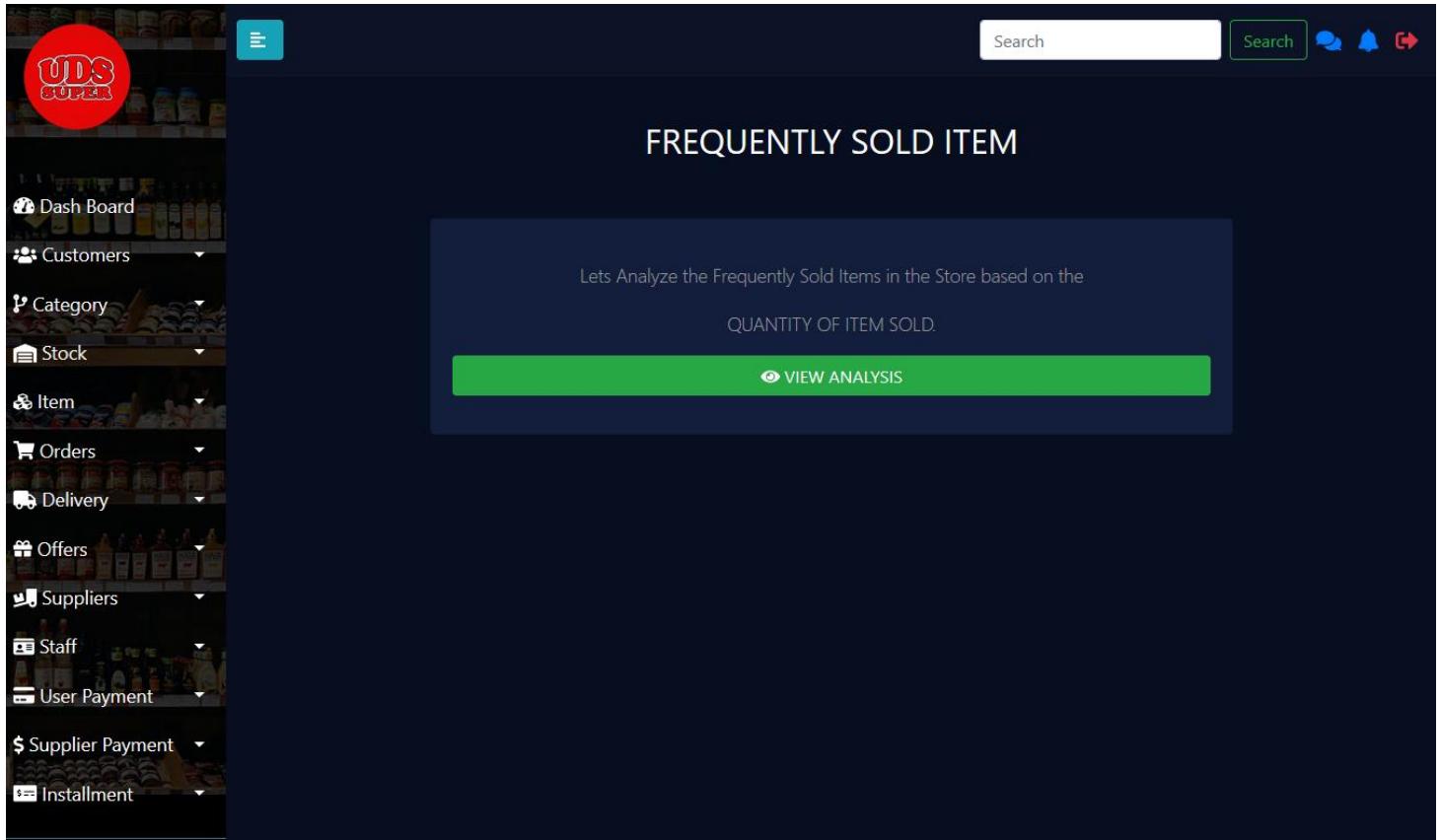


Figure 19

The above interface provides the facility for the user to analyze the frequently sold items in the store.

Stock Notifications.

The screenshot shows a user interface titled "STOCK NOTIFICATIONS" with a subtitle "Ensure Stock Re-shelfing before the deadline". On the left is a sidebar with a logo for "UDS SUPER" and a list of menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. At the top right are search and notification icons. A blue button labeled "View Notifications" is visible. Below the title is a table with the following data:

ID	Stock Name	Supplier Name	ReOrder Level	Stock Size	Re Shelfing Deadline	Re-Order Quantity	Action
6	Bounty	SUP002	36000	0.35	2020-09-16	10000	<button>Dismiss</button>
15	Marina	SUP001	36000	1.5	2020-10-09	10000	<button>Dismiss</button>
16	Marina	SUP001	36000	1.5	2020-10-09	10000	<button>Dismiss</button>
19	Twix	SUP015	36000	0.125	2020-10-10	10000	<button>Dismiss</button>
21	Raththi	SUP007	36000	2.0	2020-10-13	10000	<button>Dismiss</button>

Figure 20

This interface enables user to **view notifications** of stock that should be re shelfed and provides the ability to **search** any notification details and **dismiss it**.

HR Management

1. Insert Staff

The screenshot shows the 'UDS Super' application interface. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff (selected), Add, View, Reports, User Payment, Supplier Payment, and Installment. The main area is titled 'INSERT NEW STAFF'. It contains a 'View Staff List' button and a 'Demo' button. The form fields include:

- First Name: Lucifer
- Last Name: Perera
- Address: Gardens Rd,Kandy
- Email address: lud@gmail.com
- Mobile Number: 0771111116
- Home Number: 0811111116
- Date of birth: 04 / 09 / 1990
- Gender: Male (radio button selected)
- NIC number: 981111116V
- Profile Image: A placeholder box with a browse button and a Muslim religion dropdown.
- Religion: Muslim
- Joined Date: 07 / 06 / 2020
- EPF number: 6
- Job Title: Admin
- Basic Salary: 40000
- User Name: lp123
- Password: lp123

At the bottom are 'Submit' and 'Reset' buttons.

Figure 21

By clicking the staff menu and Add sub-menu in the sidebar this page can be viewed. This is the employee registration page of the system here the necessary details of the employees will be entered to the form and stored in the Database after clicking the submit button.

2. Staff List

Staff ID	First Name	Last Name	User Name	Address	Job Title	Basic Salary	Image	Mobile No	Home No			
STF098464	Mohomad	Zaharain	Madawala,303 Road	Cashier	25000.0		0771111113	0811111113		Profile	Edit	Delete
STF165251	Nimal	Gopal	58/7,Batharamula	Sales	30000.0		0771111112	0811111112		Profile	Edit	Delete
STF504919	Shehan	Bandara	Katugasthota,1	Sales	35000.0		0771111114	0811111114		Profile	Edit	Delete
STF554043	Agil	Yathushan	Peradeniya	Cashier	20000.0		0771111111	0811111111		Profile	Edit	Delete
STF608176	Agil	Yathushan	Peradeniya,Rd Kandy	Cashier	35000.0		0773111111	0831711112		Profile	Edit	Delete
STF617236	Alan	Walker	Hanthana,9/11	Admin	40000.0		0771111115	0811111115		Profile	Edit	Delete
STF727658	Vithyashagar	Thiyaganadan	Katugasthota, 22/4	Delivery Staff	35000.0		0773411111	0811311112		Profile	Edit	Delete
STF868477	Lucifer	Perera	Gardens Rd,Kandy	Stock Manager	40000.0		0771111136	0811111116		Profile	Edit	Delete
STF912665	Radesh	Hilalry	VC,310 mpitay	Admin	60000.0		0773151111	08111117112		Profile	Edit	Delete
STF966182	Jochim	Viraj	VC,310 Ampitiya	Delivery Staff	40000.0		0772111116	0821111112		Profile	Edit	Delete

Figure 22

By clicking the view staff list button or the view sub-menu under the staff in the sidebar, the admin can view all the employees who are currently registered in to the system and this table displays some of the important details of the employees. There are three buttons Profile, Edit and Delete at the right corner of the table. The profile button will navigate to the profile (Staff Profile) page of that particular employee. Edit button will

navigate to the edit employee information (Staff Update) page and the delete button will navigate to the view employee delete information page (Staff Delete).

3. Staff Profile

STAFF PROFILE

View Staff List

ID
74

Staff ID
STF098464

First Name
Mohomad

Last Name
Zaharain

User Name
mz

Password
mz

Address
Madawala,303 Road

Email Address
zara@gmail.com

Date Of Birth
1998-05-09

NIC
981111113V

Religion
Hindu

Gender
F

EPF
3

Joined Date
2020-08-03

Job Title
Cashier

Basic Salary
25000.0

Mobile Number
0771111113

Phone Number
0811111113

Profile Image

Figure 23

This is the staff profile view page here additional information such as joined date, birthdate, etc.. Which were not displayed in the staff list table page can be viewed if necessary.

4. Staff Update

The screenshot shows the 'UPDATE STAFF' form within the UDS Super application. The left sidebar contains a navigation menu with items like Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main form area has the following fields:

- First Name: Mohomad
- Last Name: Zaharain
- Staff ID: 74
- Staff ID: STF098464
- Address: Madawala,303 Road
- Email address: zara@gmail.com
- Mobile Number: 0771111113
- Home Number: 0811111113
- Date of birth: 05 / 09 / 1998
- Gender: F
- NIC number: 981111113V
- Choose a book image: An input field with a 'Browse' button and a placeholder 'Upload image input'. A note below says: 'The image uploaded will be rendered inside the box below.'
- Religion: Hindu
- Image preview: A placeholder for the uploaded image, showing a woman's face.
- Joined Date: 08 / 03 / 2020
- EPF number: 3
- Job Title: Cashier
- Basic Salary: 25000.0
- User Name: mz
- Password: mz

At the bottom are two buttons: a green 'Submit' button and a blue 'Reset' button.

Figure 24

By clicking the update button, the staff list table, the admin can navigate to this page. Here an employee's details can be updated if necessary and by clicking the submit the details can be updated to the database.

5. Staff Delete

The screenshot shows a mobile application interface for 'UDS SUPER'. The top navigation bar includes a search bar, a green 'Search' button, and notification icons. On the left is a vertical sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main content area has a title 'INSERT NEW CATEGORY' and a 'View Staff List' button. The form contains fields for ID (74), Staff ID (STF098464), First Name (Mohomad), Last Name (Zaharin), User Name (mz), Password (mz), Address (Madawala,303 Road), Email Address (zara@gmail.com), Date Of Birth (1998-05-09), NIC (981111113V), Religion (Hindu), Gender (F), EPF (3), Joined Date (2020-08-03), EPF (3), Job Title (Cashier), Basic Salary (25000.0), Mobile Number (0771111113), and Phone Number (0811111113). Below the form is a placeholder for 'Profile Image' with a photo of a woman, and at the bottom is a blue 'Delete Staff' button.

Figure 25

By clicking the delete button which is in the staff list table the admin can navigate to this(StaffDelete) page. Here the admin can verify the details of the staff to be removed and by clicking the Delete Staff button the

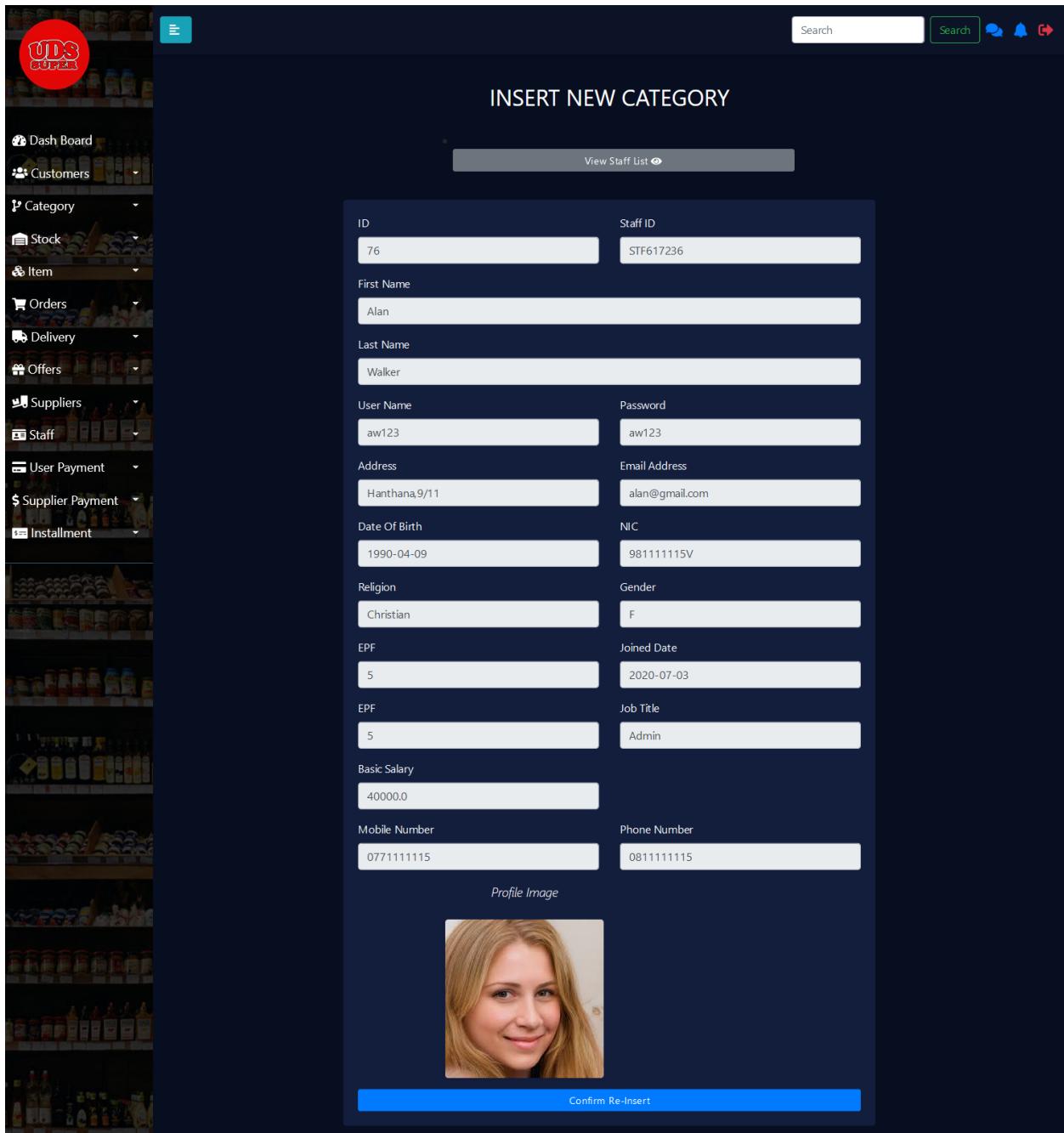
details can be removed from the staff table. The details which are removed will be stored in another table using a trigger.

6. Staff Delete List

Staff ID	First Name	Last Name	User Name	Address	Job Title	Basic Salary	Image	Mobile No	Home No
STF000001	Nimal	nk	Negambo	Cashier	20000.0		0771111112	0811111112	<button>Confirm Staff Re-Insert</button>
STF868477	Lucifer	lp123	Gardens Rd,Kandy	Stock Manager	40000.0		0771111136	0811111116	<button>Confirm Staff Re-Insert</button>

By clicking the view delete staff button the admin can view all deleted staff or the details of the staff who have already resigned. If any resigned staff who was registered to the system rejoins to the shop there is no need to register again to the system but by just clicking the confirm-re insert button the staff details can be inserted back to the working staff table.

7. Confirm Reinsert



The screenshot shows a mobile application interface for managing a supermarket. The top navigation bar includes a logo, a search bar, and notification icons. On the left, a vertical sidebar lists various categories: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main content area is titled "INSERT NEW CATEGORY". It contains a form with the following fields:

ID	76	Staff ID	STF617236
First Name	Alan		
Last Name	Walker		
User Name	aw123	Password	aw123
Address	Hanthana,9/11	Email Address	alan@gmail.com
Date Of Birth	1990-04-09	NIC	981111115V
Religion	Christian		
EPF	5	Joined Date	2020-07-03
EPF	5	Job Title	Admin
Basic Salary	40000.0		
Mobile Number	0771111115	Phone Number	0811111115
<i>Profile Image</i>			
			
Confirm Re-Insert			

Figure 26

After clicking the confirm staff Re-insert button which was at the deleted staff list table the admin can view this page, here all the details of the relevant staff will be displayed before reinsertion. After the admin has verified the details by clicking the Confirm Re-insert button the details will be inserted to the staff table.

8. Salary Dashboard

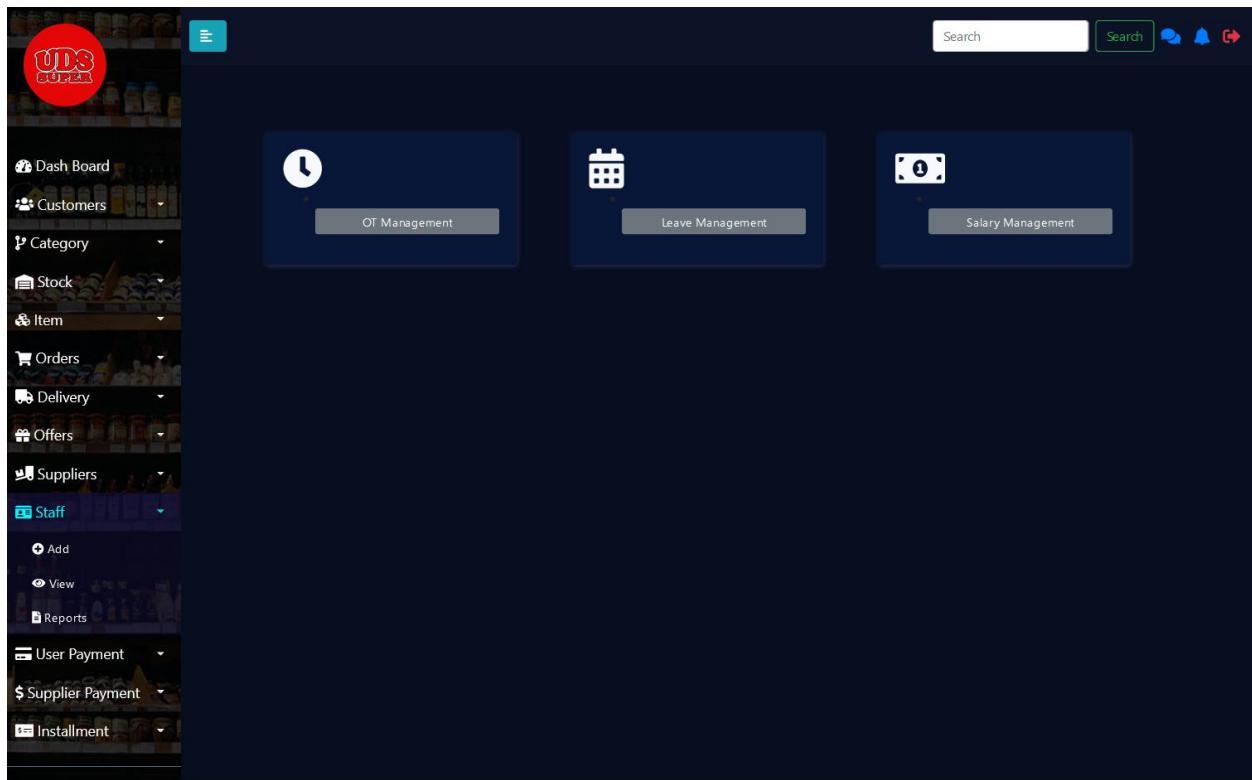
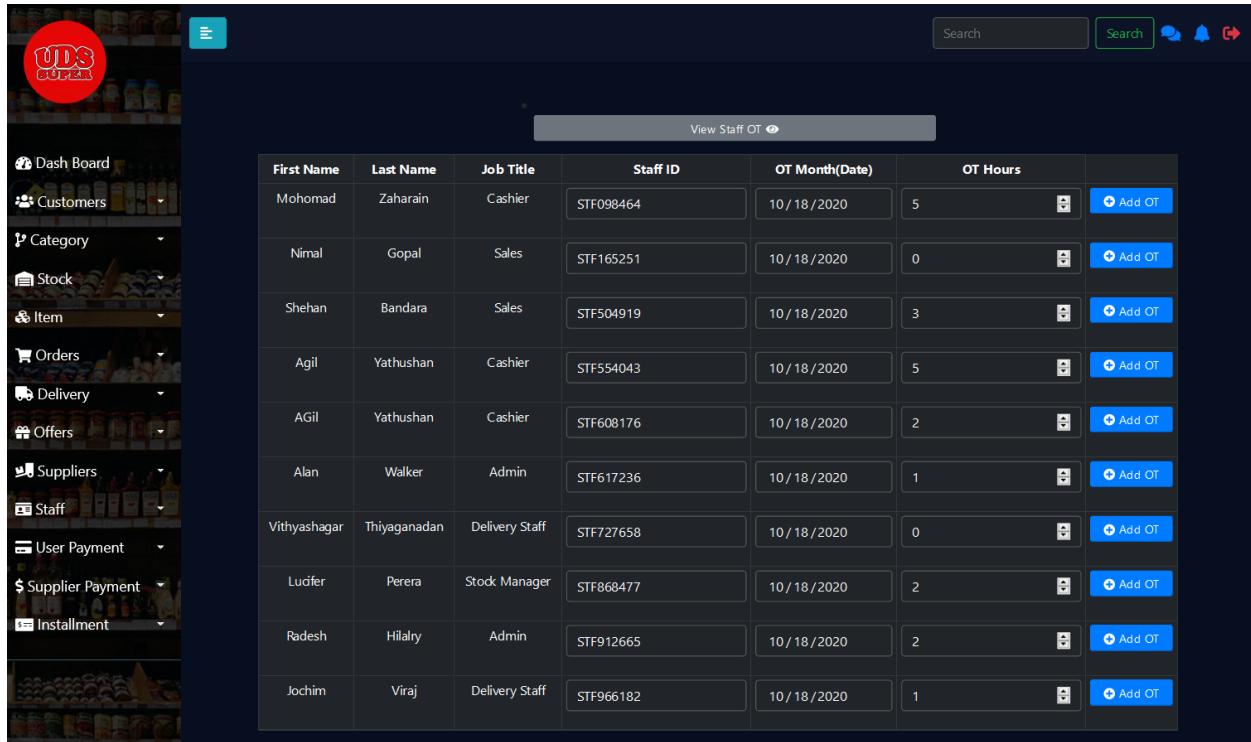


Figure 27

This page (Salary Dashboard) can be viewed by clicking the Reports sub-menu which is under the staff menu in the sidebar. The page displays three buttons OT Management, Leave Management and Salary Management. By clicking the OT Management button the admin can navigate to the OT insertion page, by clicking the Leave Management button the admin can navigate to the Leave insertion page and by clicking on the Salary Management table the admin can navigate to the View Salaries page.

9. Staff OT Insert



First Name	Last Name	Job Title	Staff ID	OT Month(Date)	OT Hours	
Mohomad	Zaharain	Cashier	STF098464	10/18/2020	5	
Nimal	Gopal	Sales	STF165251	10/18/2020	0	
Shehan	Bandara	Sales	STF504919	10/18/2020	3	
Agil	Yathushan	Cashier	STF554043	10/18/2020	5	
AGIL	Yathushan	Cashier	STF608176	10/18/2020	2	
Alan	Walker	Admin	STF617236	10/18/2020	1	
Vithyashagar	Thiyaganadan	Delivery Staff	STF727658	10/18/2020	0	
Lucifer	Perera	Stock Manager	STF868477	10/18/2020	2	
Radesh	Hilalry	Admin	STF912665	10/18/2020	2	
Jochim	Viraj	Delivery Staff	STF966182	10/18/2020	1	

Figure 28

By clicking the OT management button in the Salary Dashboard page, the admin can view this page. Here for a staff the admin can add OT hours for a particular date. By clicking the View Staff OT button which is at the top of the page the admin can navigate to the View staff OT List page.

10. Staff OT List

First Name	Last Name	Staff ID	OT Date	OT Hours
Mohomad	Zaharin	STF098464	2020-12-23	1
Nimal	Gopal	STF165251	2020-12-23	2
Shehan	Bandara	STF504919	2020-12-23	3
Agil	Yathushan	STF554043	2020-12-23	0
AGil	Yathushan	STF608176	2020-12-23	4
Alan	Walker	STF617236	2020-12-23	2
Alan	Walker	STF617236	2020-12-23	2
Vithyashagar	Thiyaganadan	STF727658	2020-12-23	2
Lucifer	Perera	STF868477	2020-12-23	1
Radesh	Hilalry	STF912665	2020-12-23	1
Jochim	Viraj	STF966182	2020-12-23	1
Mohomad	Zaharin	STF098464	2020-12-24	1
Nimal	Gopal	STF165251	2020-12-24	2
Shehan	Bandara	STF504919	2020-12-24	3
Agil	Yathushan	STF554043	2020-12-24	0
AGil	Yathushan	STF608176	2020-12-24	4
Alan	Walker	STF617236	2020-12-24	2
Vithyashagar	Thiyaganadan	STF727658	2020-12-24	2
Lucifer	Perera	STF868477	2020-12-24	1
Radesh	Hilalry	STF912665	2020-12-24	1
Jochim	Viraj	STF966182	2020-12-24	1
Mohomad	Zaharin	STF098464	2020-12-30	1
Nimal	Gopal	STF165251	2020-12-30	2
Shehan	Bandara	STF504919	2020-12-30	3
Agil	Yathushan	STF554043	2020-12-30	0
AGil	Yathushan	STF608176	2020-12-30	4
Alan	Walker	STF617236	2020-12-30	2
Vithyashagar	Thiyaganadan	STF727658	2020-12-30	2
Lucifer	Perera	STF868477	2020-12-30	1
Radesh	Hilalry	STF912665	2020-12-30	1
Jochim	Viraj	STF966182	2020-12-30	1

Figure 29

This is the Staff OT List page here by selecting the month and the year the admin can view the OT history details of the employees of a particular month. Here the OT hours are orderly displayed by date along with the staff information.

11. Staff Leave Insert

View Staff Leaves							
First Name	Last Name	Staff ID	Leave Month(Date)	Working days	Total No of Leave days	Total No of Half days	
Mohomad	Zaharain	STF098464	12/29/2020	31	1	3	<button>Add Leave</button>
Nimal	Gopal	STF165251	12/29/2020	31	1	2	<button>Add Leave</button>
Shehan	Bandara	STF504919	12/29/2020	31	0	2	<button>Add Leave</button>
Agil	Yathushan	STF554043	12/29/2020	31	1	1	<button>Add Leave</button>
AGil	Yathushan	STF608176	12/29/2020	31	0	0	<button>Add Leave</button>
Alan	Walker	STF617236	12/29/2020	31	3	2	<button>Add Leave</button>
Vithyashagar	Thiyagandan	STF727658	12/29/2020	31	4	6	<button>Add Leave</button>
Lucifer	Perera	STF868477	12/29/2020	31	1	4	<button>Add Leave</button>
Radesh	Hilaly	STF912665	12/29/2020	31	4	2	<button>Add Leave</button>
Jochim	Viraj	STF966182	12/29/2020	31	5	2	<button>Add Leave</button>

Figure 30

By clicking on the Leave Management button in the Salary Dash Board page the admin can navigate to this page here the admin can insert a leave or leaves on particular staff by inserting the total no of working days of the month, total no of leave days and the total number of half days. By clicking the View Staff Leaves button the admin can navigate to the Staff Leave List page.

12. Staff Leave List

The screenshot shows the 'Staff Leave List' page. At the top right, there is a search bar with a green 'Search' button and three small icons. Below the search bar, there are two dropdown menus: 'Select Salary Month' set to December and 'Select Year' set to 2020. A blue button labeled 'View Staff Leave History' is located below these dropdowns. On the left side, there is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main area displays a table with the following data:

First Name	Last Name	Staff ID	Leave Month(date)	Working days	Leave days	Half days
Mohomad	Zahairain	STF098464	2020-12-29	31	1	3
Nimal	Gopal	STF165251	2020-12-29	31	1	2
Shehan	Bandara	STF504919	2020-12-29	31	0	2
Agil	Yathushan	STF554043	2020-12-29	31	1	1
Agil	Yathushan	STF608176	2020-12-29	31	0	0
Alan	Walker	STF617236	2020-12-29	31	3	2
Vithyashagar	Thiyaganadan	STF727658	2020-12-29	31	4	6
Ludfer	Perera	STF868477	2020-12-29	31	1	4
Radesh	Hilalny	STF912665	2020-12-29	31	4	2
Jochim	Viraj	STF966182	2020-12-29	31	5	2

Figure 31

By clicking the View Staff Leaves button the admin can navigate to this page (Staff Leave List). Here by selecting the month and year the admin can view the Leaves and half days of employees in a particular month.

13. Salary

The screenshot shows a web-based salary management system. On the left is a vertical sidebar menu with icons for Dashboard, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff (selected), Add, View, Reports, User Payment, Supplier Payment, and Installment.

The main content area has a dark header with a search bar and notification icons. It contains two dropdown menus: "Select Salary Month" (with "Select a month" placeholder) and "Select Year" (with "Select an Year" placeholder). Below these are two buttons: "Generate Salary" and "Salary Reports".

The central part of the page displays a table of employee salary data:

First Name	Last Name	Staff ID	Basic Salary	(EPF) Employer	(EPF) Employee	EPF	ETF	OT Hours	OT Rate	OT Amount	Leaves	Leave deducts	Halfdays	Halfday deducts	Salary
Mohomad	Zaharain	STF098464	25000.0	3000.0	2000.0	5000.0	750.0	3	156.25	468.75	1	806.45	3	1209.68	21452.62
Nimal	Gopal	STF165251	30000.0	3600.0	2400.0	6000.0	900.0	6	187.5	1125.0	1	967.74	2	967.74	26789.52
Shehan	Bandara	STF504919	35000.0	4200.0	2800.0	7000.0	1050.0	9	218.75	1968.75	0	0.0	2	1129.03	33039.72
Agil	Yathushan	STF554043	20000.0	2400.0	1600.0	4000.0	600.0	0	125.0	0.0	1	645.16	1	322.58	17432.26
Agil	Yathushan	STF608176	35000.0	4200.0	2800.0	7000.0	1050.0	12	218.75	2625.0	0	0.0	0	0.0	34825.0
Alan	Walker	STF617236	40000.0	4800.0	3200.0	8000.0	1200.0	8	250.0	2000.0	3	3870.97	2	1290.32	33638.71
Vithyashagar	Thiyaganadan	STF727658	35000.0	4200.0	2800.0	7000.0	1050.0	6	218.75	1312.5	4	4516.13	6	3387.1	25609.27
Lucifer	Perera	STF868477	40000.0	4800.0	3200.0	8000.0	1200.0	3	250.0	750.0	1	1290.32	4	2580.65	33679.03
Radesh	Hilary	STF912665	60000.0	7200.0	4800.0	12000.0	1800.0	3	375.0	1125.0	4	7741.94	2	1935.48	46647.58
Jochim	Viraj	STF966182	40000.0	4800.0	3200.0	8000.0	1200.0	3	250.0	750.0	5	6451.61	2	1290.32	29808.07

Below the table are three buttons: "View Total (EPF) Employer Contribution" (43200.00), "View Total ETF" (10800.00), and "View Total Salary" (302921.78). A large red button at the bottom center says "View Gross Out Flow" with the value "356921.78".

Figure 32

By clicking the Salary Management button which is at the Salary Dashboard page the admin can view this page. Here the admin can view all information related to the month end salary. By clicking the Salary Report button, the admin can navigate to the Salary Report Page.

14. Salary Report

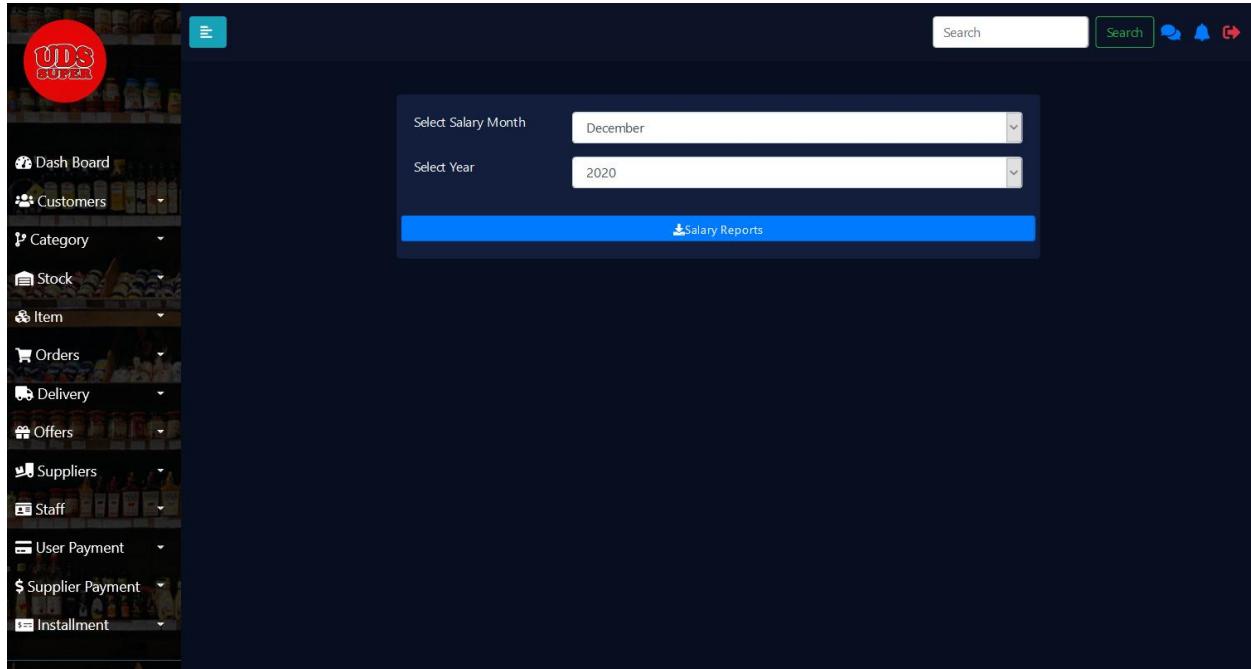


Figure 33

In this page by selecting the month and year the admin generates the month end salary report.

15. Salary Report pdf

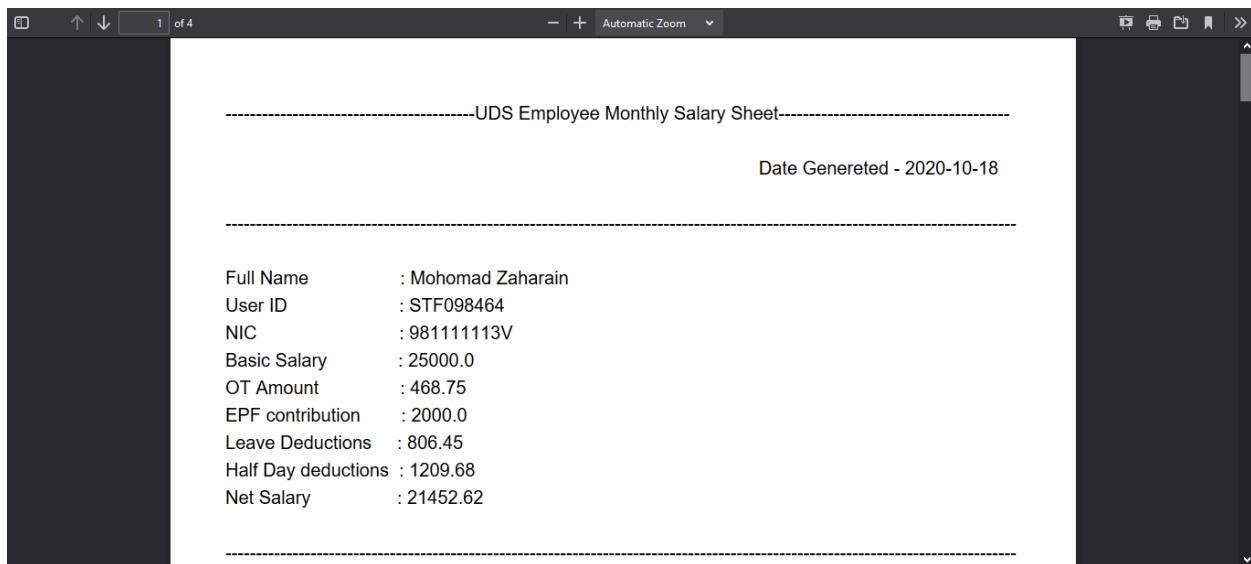


Figure 34

This is the downloadable salary report page.

Customer Management

1. Customer Registration Interface

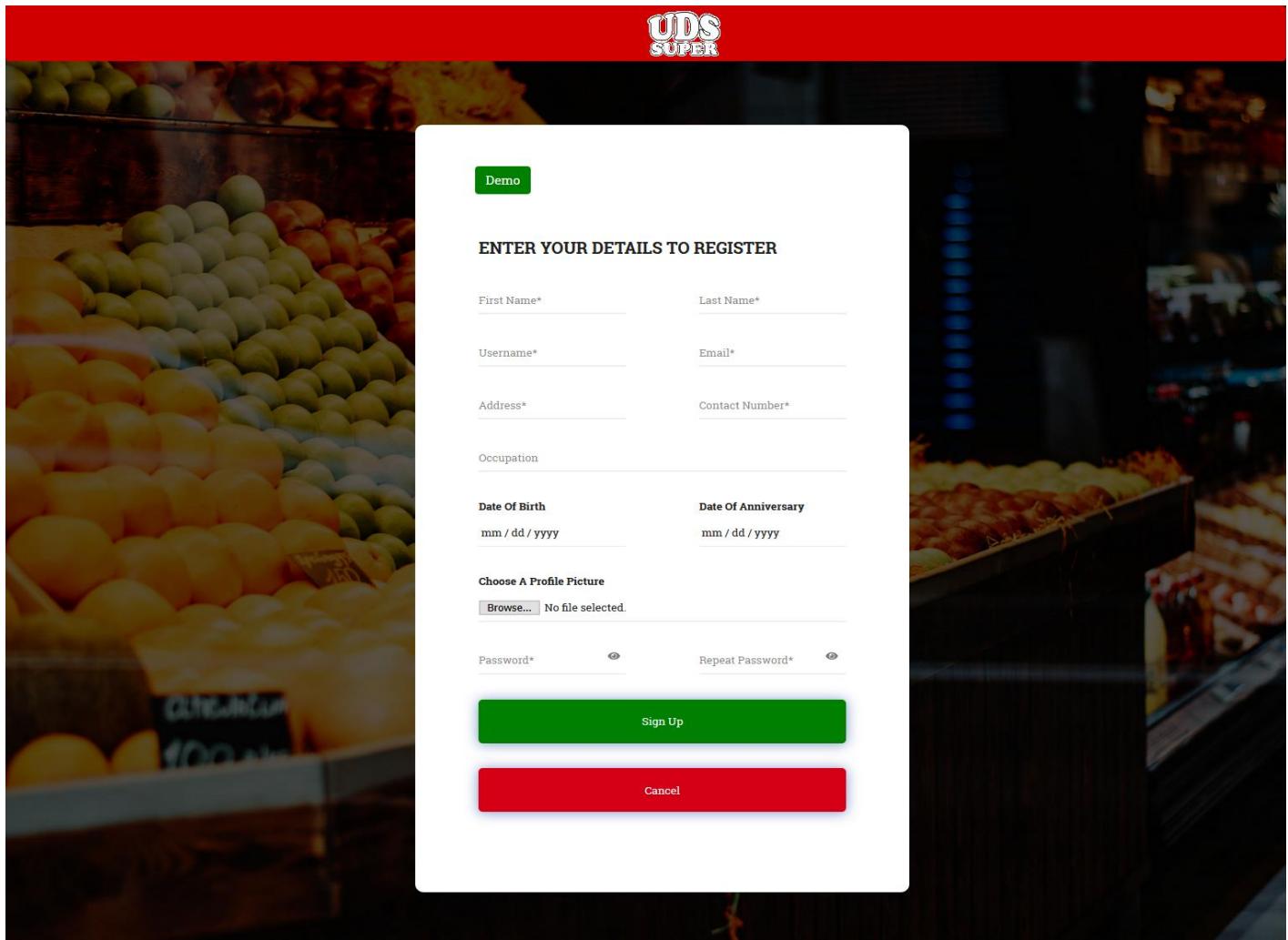


Figure 35

This represents the customer registration interface which is necessarily required in order to shop online. All customers registering online are considered to be loyalty customers, considering the fact that any supermarket system stores a customer detail only if the customer is a loyalty card holder. In order to register, the customer is required to provide the requested details and will be unable to register with the same username, email and contact number. The results of the process will be indicated using alerts and on success it will redirect to login page after the display of alert.

2. Customer Login Interface

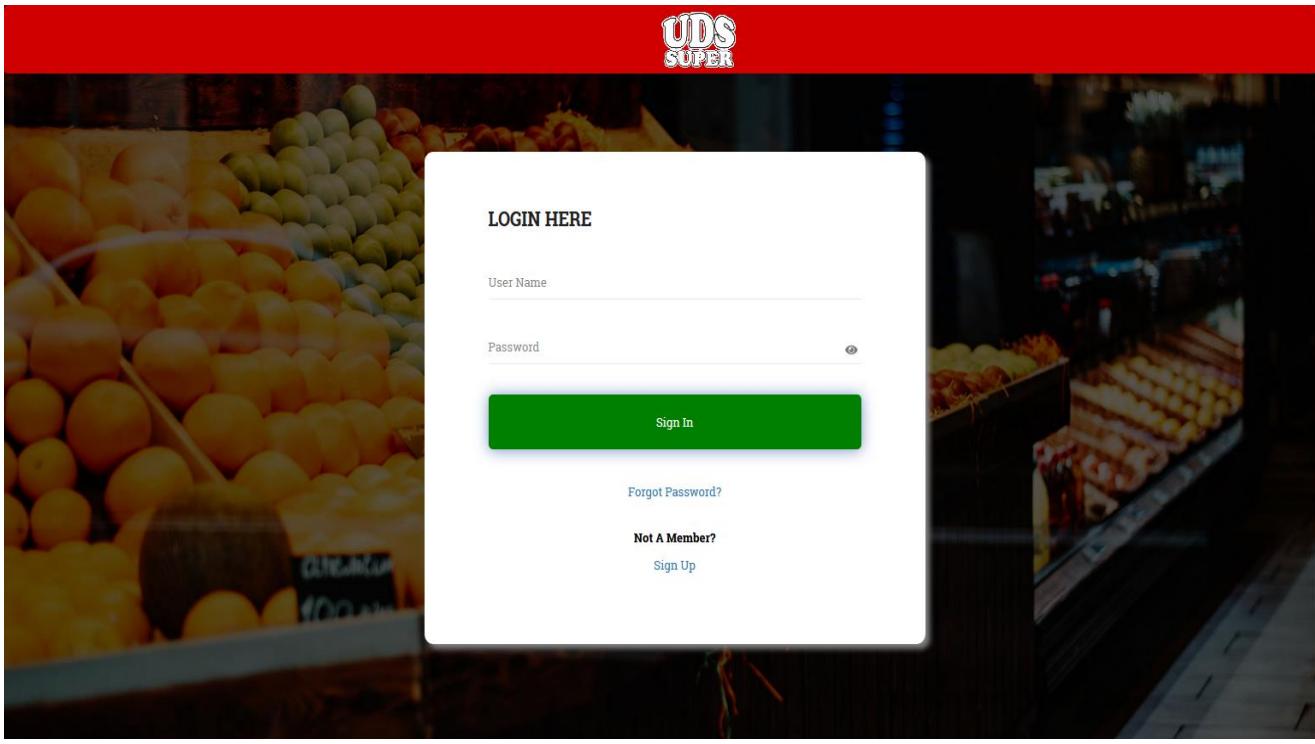


Figure 36

The registered customers are allowed to login to the system by providing the username and password. If any provided credentials are invalid an error alert will be displayed. On valid credentials, a success alert message will be displayed and redirect to the home page of the portal.

3. User Profile Interface

The screenshot shows the User Profile interface of a web application. At the top, there is a red header bar with the following navigation links: Home, About Us, Shop With Us, Contact Us, Logout, and User Profile. On the left side, there is a vertical sidebar with the following menu items: My Profile (selected), Change password, Loyalty Details, Order Details, Payment Details, and Delivery Details. The main content area displays a grid of user details:

1	User ID	CUS428536
2	User Name	Krystle_d
3	First Name	Krystle
4	Last Name	De Souza
5	Date Of Birth	1992-03-01
6	Date Of Anniversary	2020-01-13
7	Occupation	Business Analyst
8	Address	45,Wattala,Kandy
9	Email	krystle.d@gmail.com
10	Phone	0771893222
#	Edit My Details	<button>Edit My Details</button>

Figure 37

On click of the user profile navigation menu in the header, a registered customer can view their user profile. From user profile the customer is facilitated to view his/her personal information and edit the details when required. The side bar facilitates the customer view other information like the loyalty points information, order history and delivery details and change password if required.

4. Update Interface

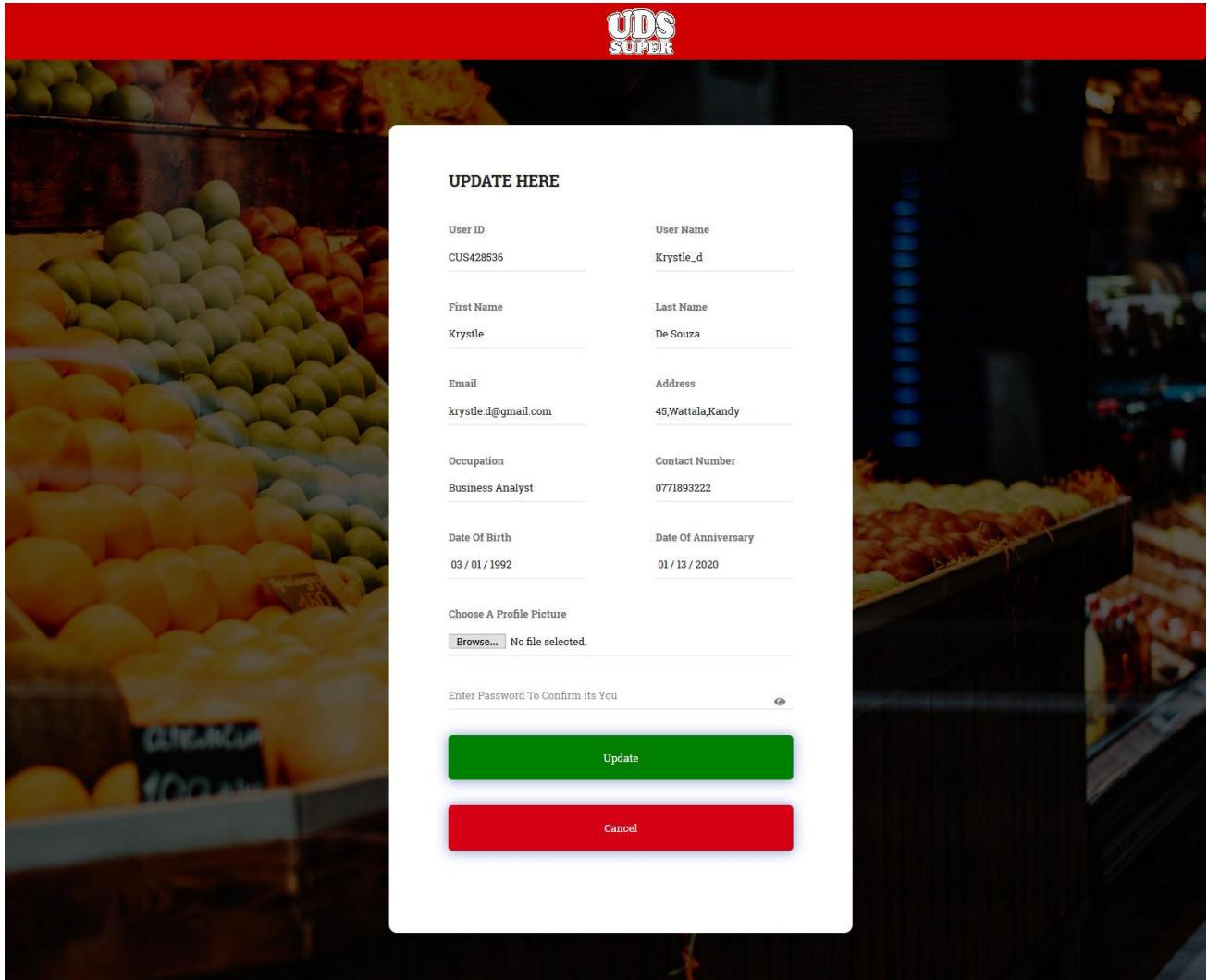


Figure 38

This represents the customer interface to update the details when required. All details provided earlier will be retrieved and the customer can update the necessary fields. The user id and the username cannot be changed. The processed results will be displayed using alert messages. On successful update of details, it will redirect to user profile.

5. Change Password Interface

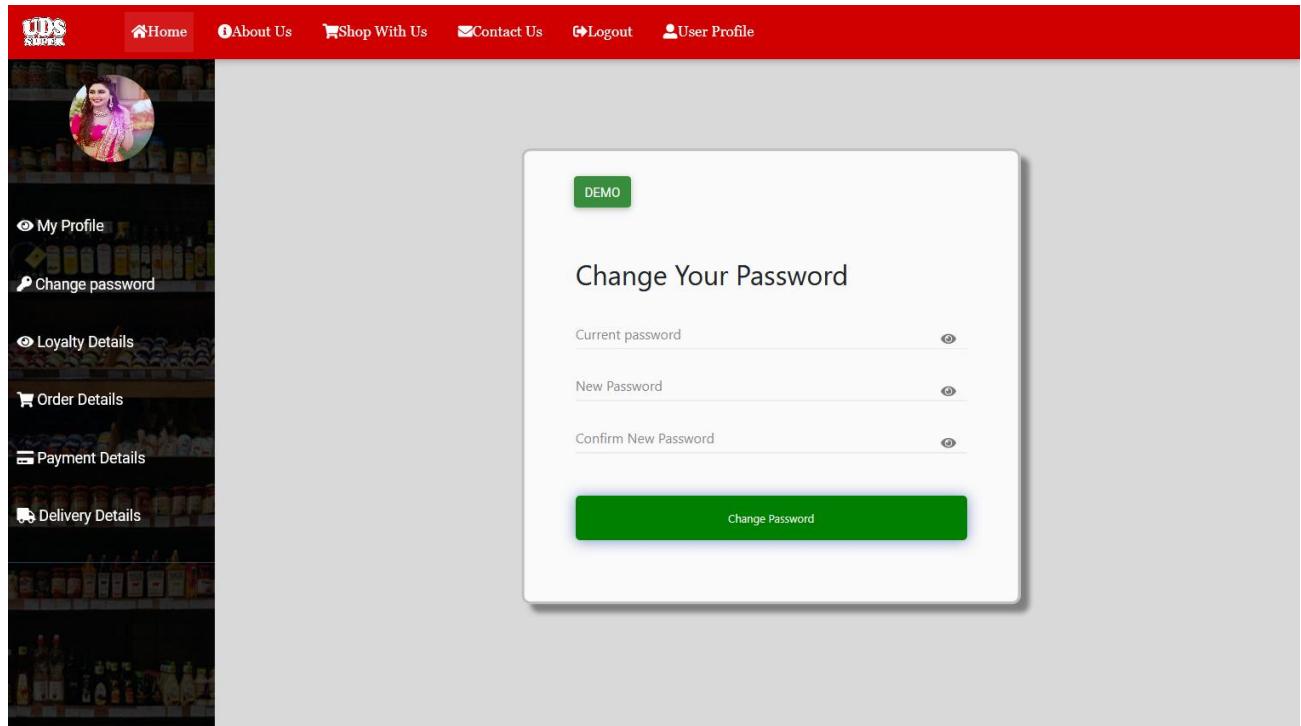


Figure 39

When customer prefers to change his/her password, it can be done by providing the old password, the new password and reconfirming the new password. Under valid inputs the customer will be automatically logged out from the system.

6. Forgot Password Interface

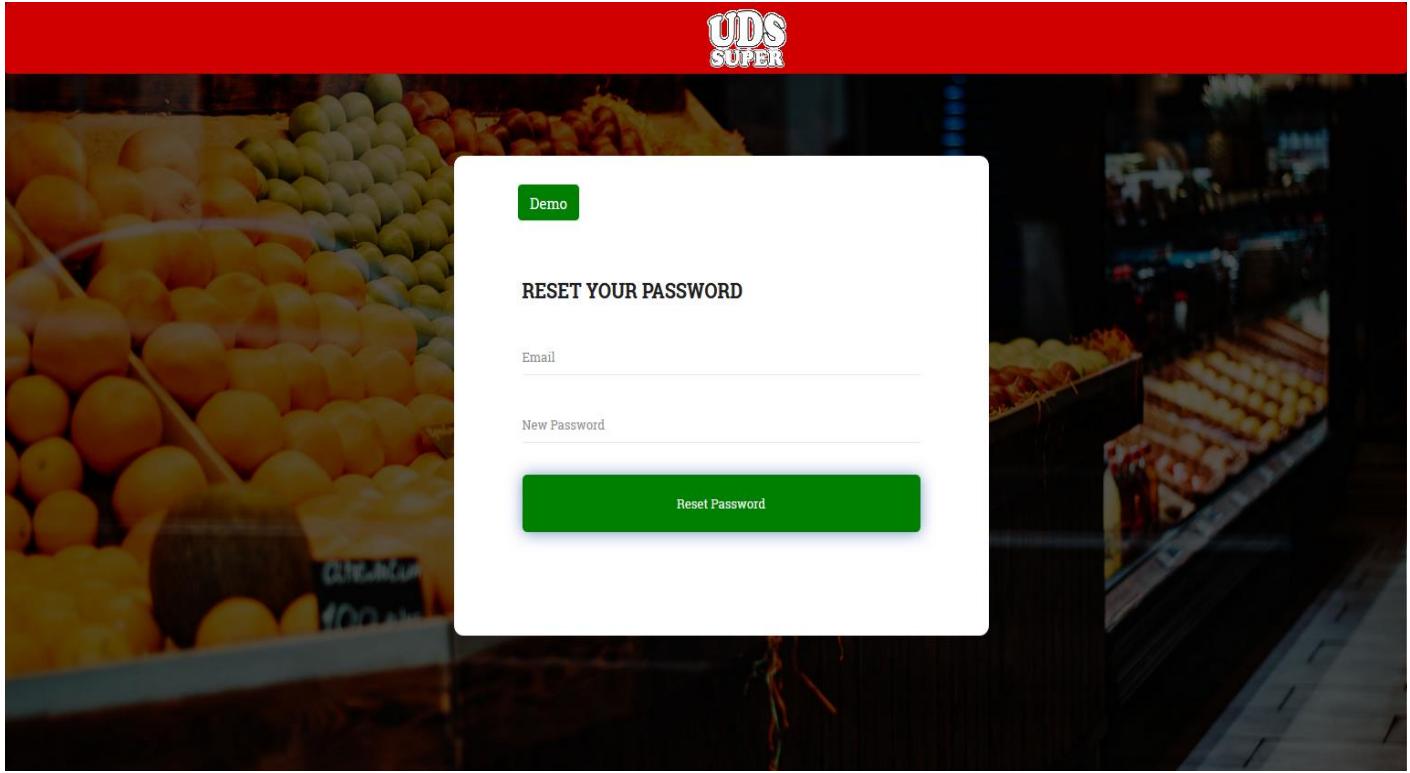


Figure 40

When a customer is logged out from the system, if he/she tends to forget the password, system facilitates the customer to reset their password by providing the email and a new password. On successful reset the user will be redirected back to login page with a success alert. Else, an error alert will be displayed, and the user can re-reset the password.

7. Loyalty Calculation Interface

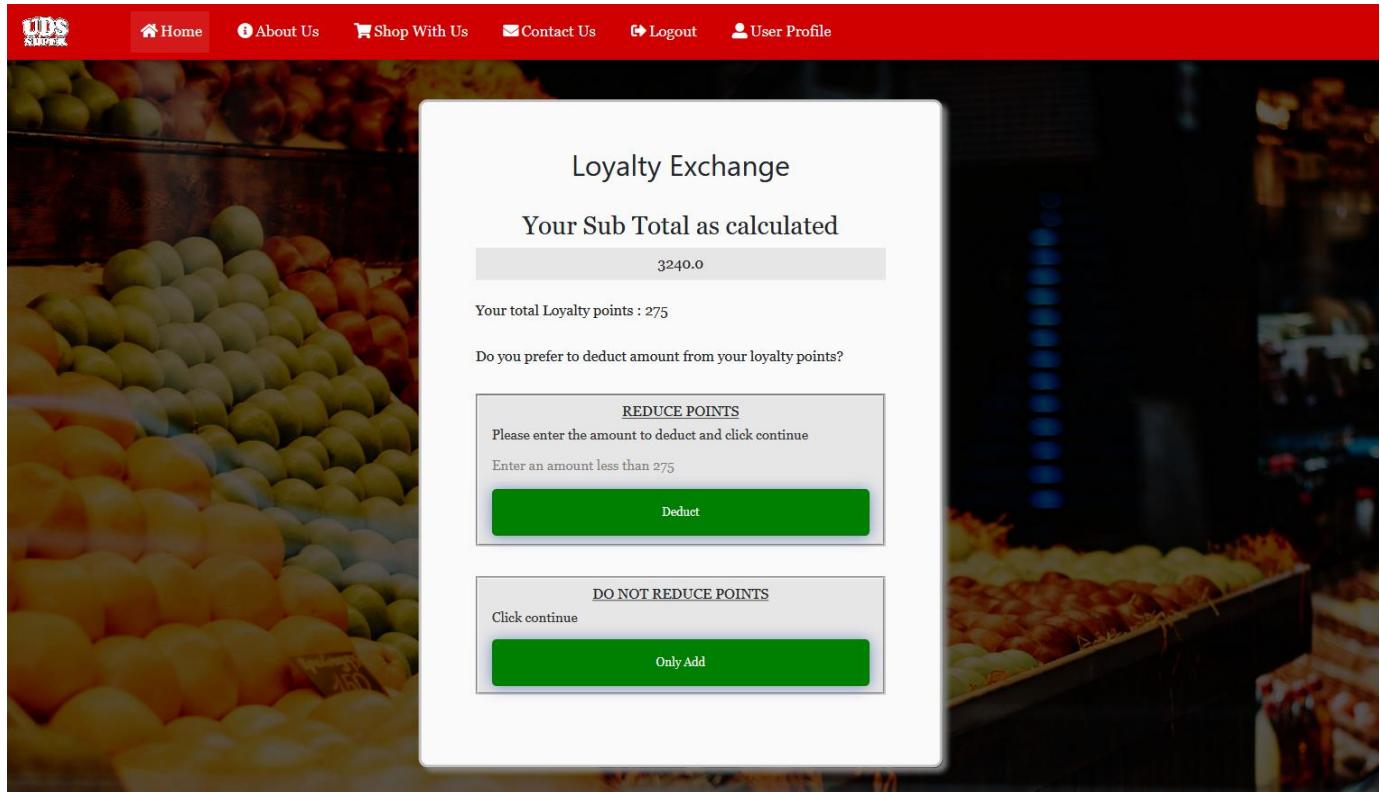


Figure 41

This represents the interface to get the preference of user when calculating loyalty points. If user clicks add the loyalty points to be added will be calculated and loyalty points will be increased by the calculate amount. If the user prefers to deduct bill amount by using the loyalty points the user can enter the points to deduct and the respective points will be deducted from bill, while the points will be first added for the respective bill amount and then deducted from available loyalty points.

8. Administrator Login Interface

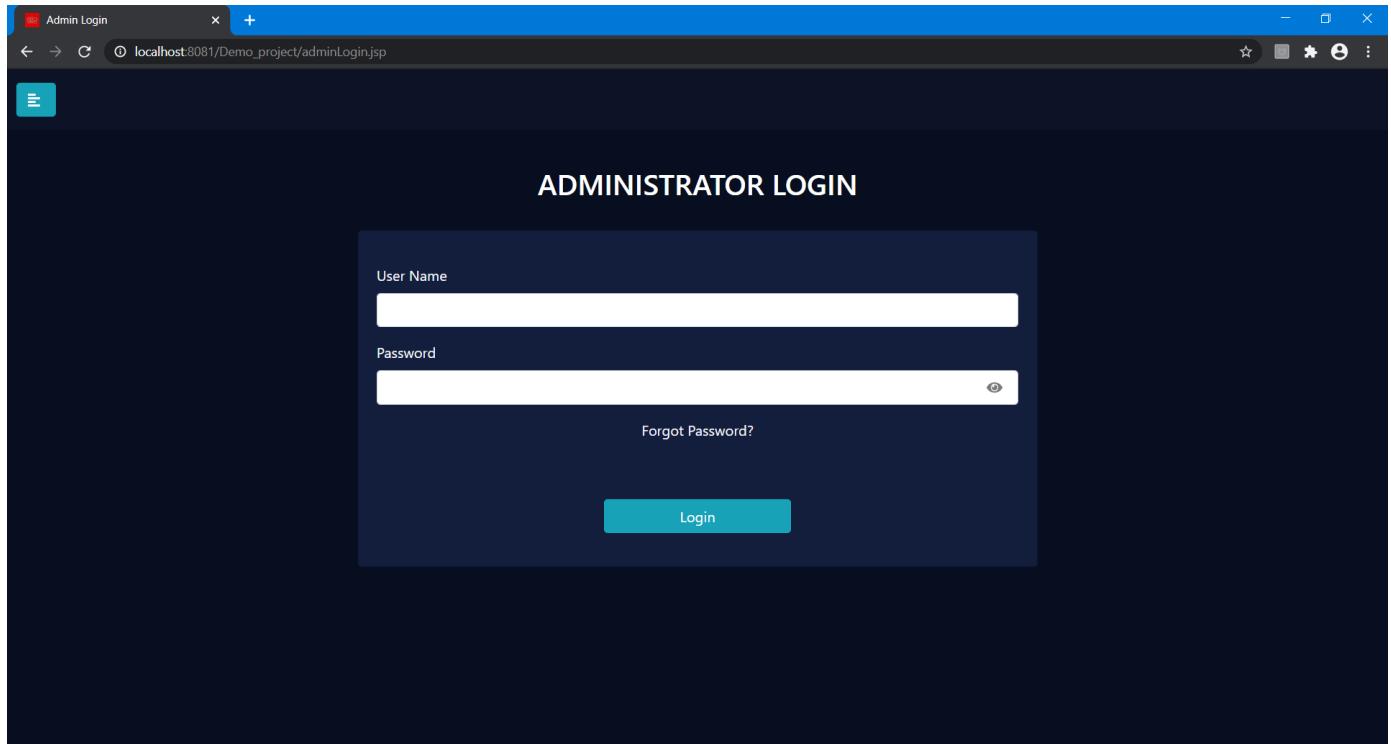


Figure 42

The employee who is registered as the administrator of the system can login to the system by providing the credentials. If the credentials are valid, it will redirect to Admin dashboard after a success alert. Invalid credentials lead to the re entering of username and password after an error alert.

9. View Customers Interface

The screenshot shows a web-based application interface titled "View Users" at the top left. The URL is "localhost:8081/Demo_project/viewActiveUserServlet". The header includes a search bar and icons for notifications and refresh. On the left, there's a sidebar with a logo for "UDS SUPPLY" and a navigation menu with items like "Dash Board", "Customers", "Category", "Stock", "Item", "Orders", "Delivery", "Offers", "Suppliers", and "Staff". The main content area has a title "View Customers" in a blue button. Below it is a table with the following data:

User ID	User Name	Address	Email	Contact	Date Of Birth	Order ID	Order Date	Loyalty Card number	Loyalty Expiry	Loyalty Points	Action
CUS428536	Krystle_d	45,Wattala,Kandy	krystle.d@gmail.com	0771893222	1992-03-01	ODD078	2020-10-13	UDS8453579	2021-10-10	275	<button>Delete</button>
CUS220183	Hermi	11,Peradeniya, Kandy	hermi11@gmail.com	0723441356	1998-11-06	ODD995	2020-10-12	UDS4390007	2021-10-09	65	<button>Delete</button>
CUS000005	Krushi.Y	11,Peradeniya rd, Kandy	krushi.k@gmail.com	0776532789	1999-12-11	ODR111	2020-10-11	UDS8762563	2021-01-01	250	<button>Delete</button>
CUS995511	Malki11	23, Aniwatte, Kandy	malki.11@gmail.com	0779263748	1995-02-09	ODR176	2020-09-08	UDS1345672	2021-01-01	45	<button>Delete</button>

Figure 43

The customer details will be retrieved in the interface along with the order detail of the order that was placed last. If the last ordered date is greater than 10 months the customer is considered to be inactive and the administrator can delete the information of such customers from the table. Through a trigger on deletion these details will inserted to another table for restore purposes.

10. View Deleted Customers

The screenshot shows a web application window titled "View Users" with the URL "localhost:8081/Demo_project/viewDeletedUserServlet". The left sidebar contains a navigation menu with items like Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. A red circular icon with "UDS" is visible at the top left. The main content area has a search bar and a button labeled "View Deleted Users". Below is a table with the following data:

User ID	User Name	First Name	Last Name	Address	Email	Contact	Date Of Birth	Anniversary	Occupation	Action
CUS000006	Maheesa.m	Maheesa	Maneesh	Kandy	mahi.m@gmail.com	0812475216	1990-11-11	2013-12-12	Businesswomen	<input type="checkbox"/> Restore
CUS000007	Jagan.k	Jagan	Kalinda	39,Peradeniya,Kandy	jagan.k@gmail.com	0771927465	1990-02-11	2010-09-08	Sales Analyst	<input type="checkbox"/> Restore
CUS000008	Kasun.m	Kasun	Maheshwari	34,Madawala,Kandy	kasun.m@gmail.com	0725577889	1993-03-12	2010-09-08	Business Analyst	<input type="checkbox"/> Restore
CUS000004	Abhi.m	Abhi	Mehra	11,Kurugoda,Kandy	Abhi.m@gmail.com	0776138035	1992-02-11	2012-05-06	Journalist	<input type="checkbox"/> Restore
CUS000013	Manvi.c	Manvi	Choudary	14,Mawanella,Kandy	mannu@gmail.com	0771199123	1995-02-11	2015-10-08	Doctor	<input type="checkbox"/> Restore
CUS000011	Shamitha	Shamitha	Anu	19,Peradeniya,Kandy	shami11@gmail.com	0779876543	1998-02-11	2019-09-08	Baker	<input type="checkbox"/> Restore
CUS902674	Layanal	Layanal	Peiris	kandy	layan.l@gmail.com	0774536289	1990-01-01	2012-04-18	Doctor	<input type="checkbox"/> Restore

Figure 44

Administrator can view the details of the deleted customers from this interface. If the customer manually requests to restore his/her details the administrator is allowed to restore the details. This action will automatically delete the details from the table and store it back in the customer table.

11. Search

The screenshot shows a web-based application interface titled "View Users" with the URL "localhost:8081/Demo_project/viewDeletedUserServlet". The left sidebar contains a navigation menu with items such as Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. A red circular icon with "UDS SUPER" is visible at the top left. The main content area features a search bar with the text "jaga" and a "Search" button. Below the search bar is a blue button labeled "View Deleted Users". A table displays user information with the following data:

User ID	User Name	First Name	Last Name	Address	Email	Contact	Date Of Birth	Anniversary	Occupation	Action
CUS000007	Jagan.k	Jagan	Kalinda	39,Peradeniya,Kandy	jagan.k@gmail.com	0771927465	1990-02-11	2010-09-08	Sales Analyst	<input checked="" type="checkbox"/> Restore

Figure 45

For restoration purposes the administrator can search the customer by providing the email.

12. Report Interface

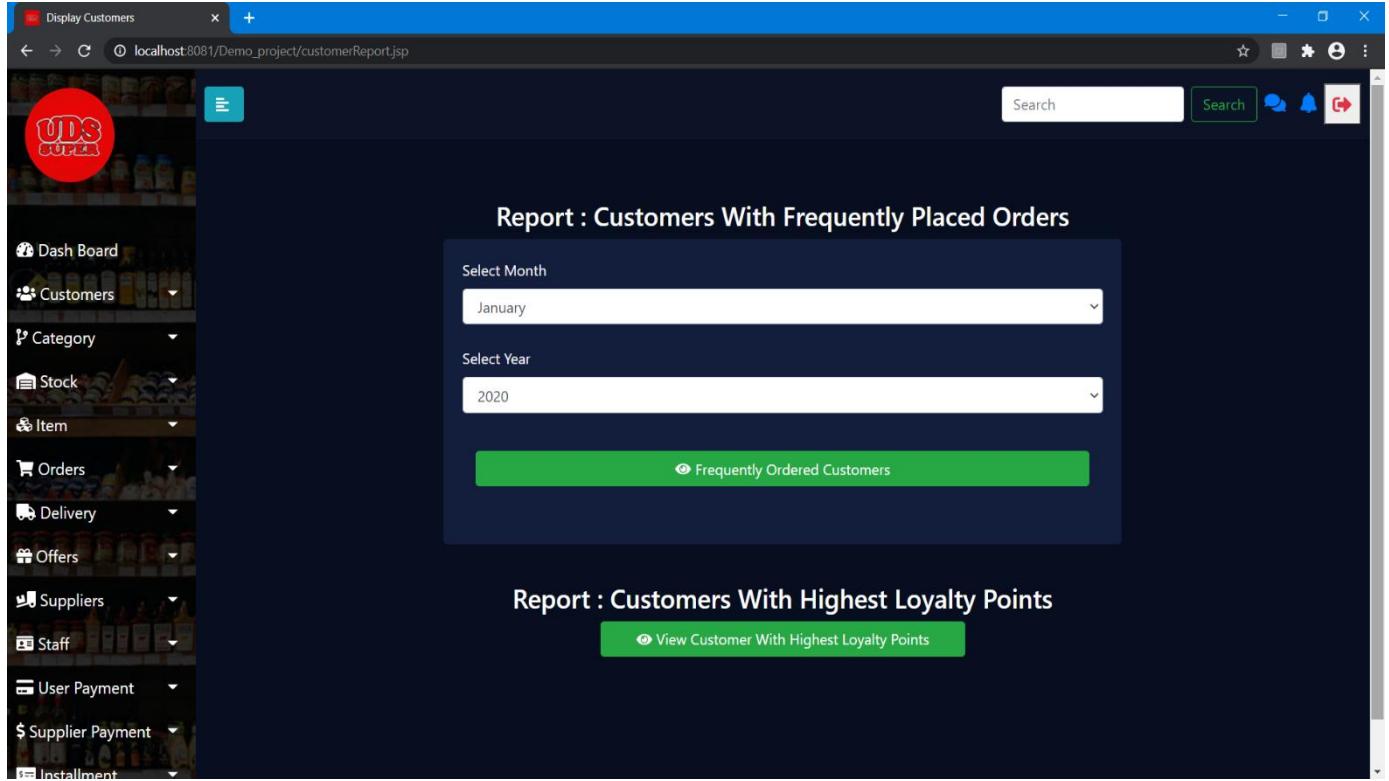


Figure 46

The administrator can generate reports of customers on the basis of two factors. The report for customers with the highest loyalty can be generated by clicking the button alone. To generate the report to find the customers who have been frequent users for a month, the administrator is required to provide the month and year before the button click.

Order Management

1. View orders

The screenshot shows the 'Offers and Promos' section of the UDS Super website. At the top, there is a navigation bar with links: Home, About Us, Item Categories, Contact Us, Logout, and User Profile. Below the navigation bar, the title 'Offers and Promos' is displayed over a background image of various grocery items. The page features a grid of nine promotional offers, each with a thumbnail image and a descriptive label:

- MD Products Saver
- UDS20off (20% OFF)
- Summer Sale (Steam Summer Sale -75%)
- Kist Mega Savings
- Maliban Big Deals
- UDS10off (10% OFF)
- UDS40off (SALE 40% OFF)
- Prima Super Saver
- October Savings (October Special!)
- EHOffer

At the bottom of the page, there is a footer with sections for 'QUICK LINKS' (Home, About Us, Shop With Us, Contact Us) and 'CONTACT' information (Address: 20/1 A, Wattegama Road, Madawala 20260, Email: info@gmail.com, Phone: +94 77 7828512, Operating hours: 8 a.m to 9 p.m). The footer also includes social media icons for Facebook, Twitter, and YouTube.

Figure 47

This is customer's offers page where the customer can view all the offers and they can flip them to view description and the discount percentage. This page allows user to get better idea about the offers and place orders.

2. View Categories



Figure 48

The offers' page has been facilitated to view all the categories of items, so that user can select specific category to view items.

3. View items

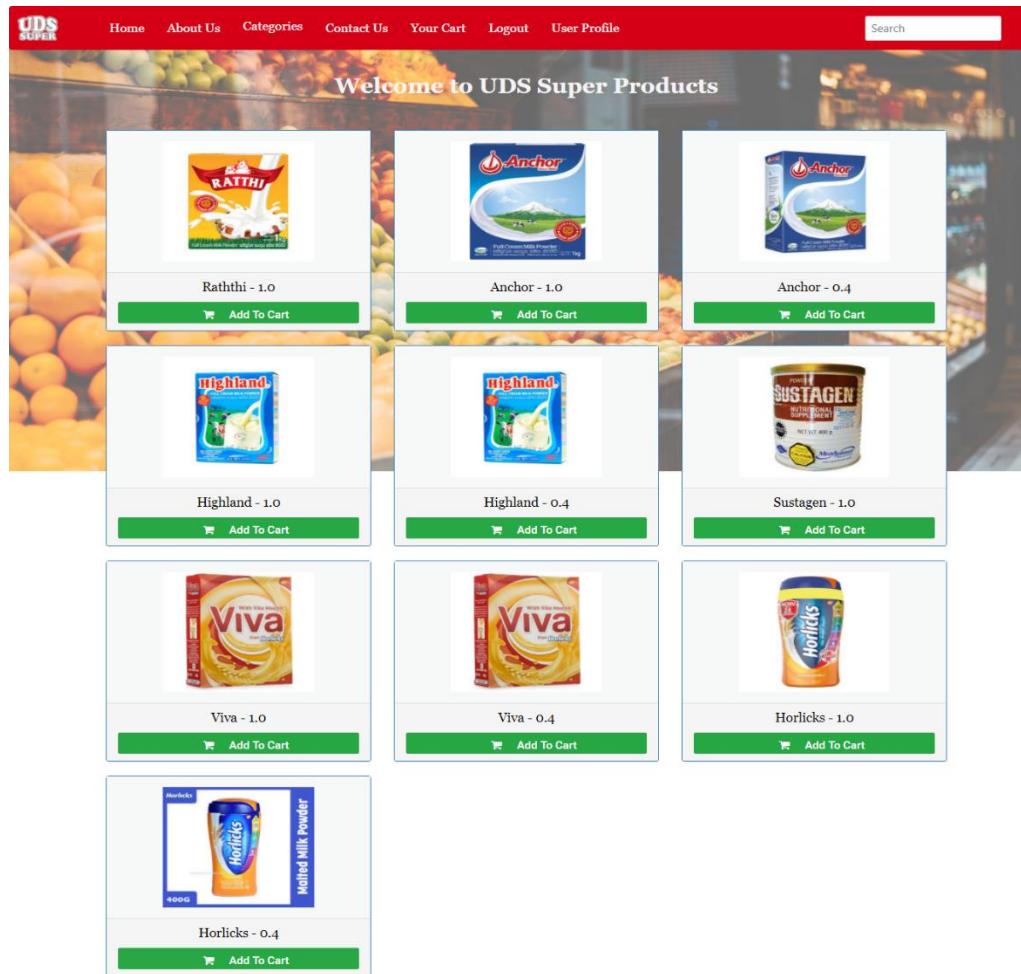


Figure 49

Users can view items, according to the user's category selection. And, users can view the price, size, offer and discount using the flip. This page allows user to add the item to the cart with the confirmation.

4. Search item

The screenshot shows the homepage of the UDS Super website. At the top, there is a red navigation bar with links for Home, About Us, Categories, Contact Us, Your Cart, Logout, and User Profile. A search bar on the right contains the text "sustagen". Below the navigation bar is a large banner image of a grocery store fruit section. Overlaid on the banner is a white search result card for "Sustagen - 1.0". The card features a small image of a Sustagen product container, the text "Sustagen - 1.0", and a green "Add To Cart" button.

UDS SUPER

Welcome to UDS Super Products

Sustagen - 1.0

Add To Cart

QUICK LINKS

[Home](#)
[About Us](#)
[Shop With Us](#)
[Contact Us](#)

CONTACT

□ 2D/1 A, Wattegama Road, Madawala 20260.
□ info@gmail.com
+94 77-7828512
Operating hours 8 a.m to 9 p.m

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Figure 51

Users can search items according to the user preference and add them to cart.

5.Add item to the cart

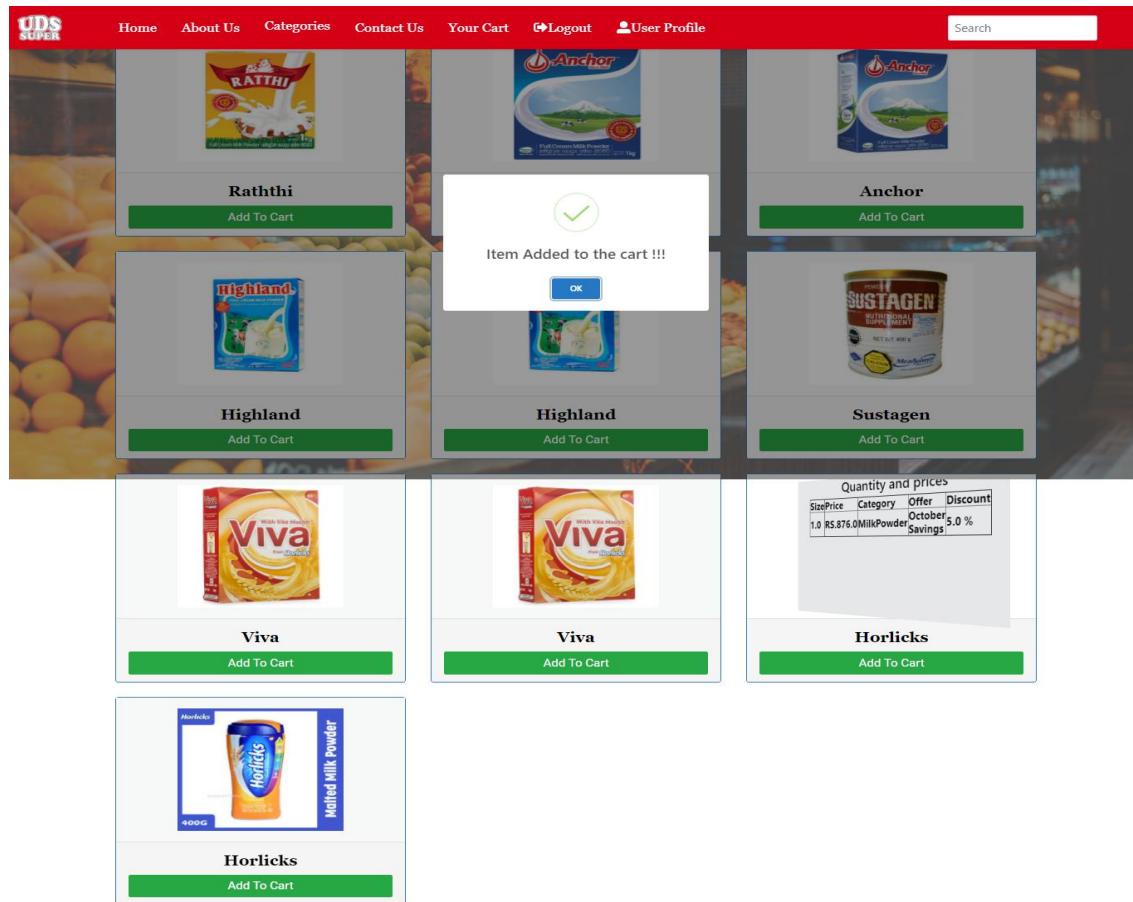


Figure 52

When the user clicks ‘Add to cart’ button, success alert will be displayed to let the user know about it.

6.Order summary

The screenshot shows the 'Cart Summary' page of the UDS Super website. At the top, there's a red header bar with the 'UDS SUPER' logo, navigation links (Home, About Us, Categories, Contact Us, Your Cart, Logout, User Profile), and a search bar. Below the header is a banner image of a grocery store interior. The main content area is titled 'Cart Summary' and contains two tables: 'Your Basket' and 'Your cart'.
Your Basket: A table showing four items: Anchor (540.0), Marina (982.0), Samsung microwave (9990.0), and Twix (600.0). Each row has a 'change quantity' button and a 'Delete Item' button.
Your cart: A table showing the same four items with their respective prices and quantities. The total amount is listed as RS.10811.0.
At the bottom of the page, there are buttons for '+ Add Items', 'PLACE ORDER', and 'Check out'.

Item	Quantity	Price(Rs.)	Discount	Subtotal	
1 Anchor	1	540.0	10.0	RS.486.0	<input type="button" value="change quantity"/> <input type="button" value="Delete Item"/>
2 Marina	1	982.0	10.0	RS.884.0	<input type="button" value="change quantity"/> <input type="button" value="Delete Item"/>
3 Samsung microwave	1	9990.0	10.0	RS.8991.0	<input type="button" value="change quantity"/> <input type="button" value="Delete Item"/>
4 Twix	1	600.0	25.0	RS.450.0	<input type="button" value="change quantity"/> <input type="button" value="Delete Item"/>

Total Amount : RS.10811.0

Item	RS.
Anchor	RS.486.0
Marina	RS.884.0
Samsung microwave	RS.8991.0
Twix	RS.450.0

Total Amount (RS) RS.10811.0

UDS SUPER
Now you can order grocery products and household products online and get a delivery to your doorstep.

QUICK LINKS
[Home](#)
[About Us](#)
[Shop With Us](#)
[Contact Us](#)

CONTACT
20/1 A, Wattegama Road, Madawala
20260.
info@gmail.com
+94 77-7828512
Operating hours 8 a.m to 9 p.m

1/2 2020 Copyright: UDS Super (Pvt) Ltd

Figure 53

When the user clicks the 'Your cart' in the header, users can view all the added items in a single page as an order summary. This page allows user to change the quantity of an item and delete the item if the user wishes. And also, users can add more items. The total amount of the order is calculated and displayed. The place order button is provided for the user to place order.

7.Update quantity

UDS SUPER

Home About Us Shop With Us Contact Us Logout User Profile

Select ur Quantity

ID
1

ITEM NAME
Anchor

PRICE
870.0

DISCOUNT PERCENTAGE
20.0

QUANTITY
- 3 +

DONE

UDS SUPER

Now you can order grocery products and household products online and get a delivery to your doorstep.

QUICK LINKS

Home About Us Shop With Us Contact Us

CONTACT

20/1 A, Wattegama Road, Madawala 20260.

info@gmail.com +94 77-7828512

Operating hours 8 a.m to 9 p.m

1/1 2020 Copyright: UDS Super (Pvt) Ltd

Figure 54

This page is to change the quantity of a particular item. Total amount and the net amount also will be updated when updating the quantity.

8.Place order

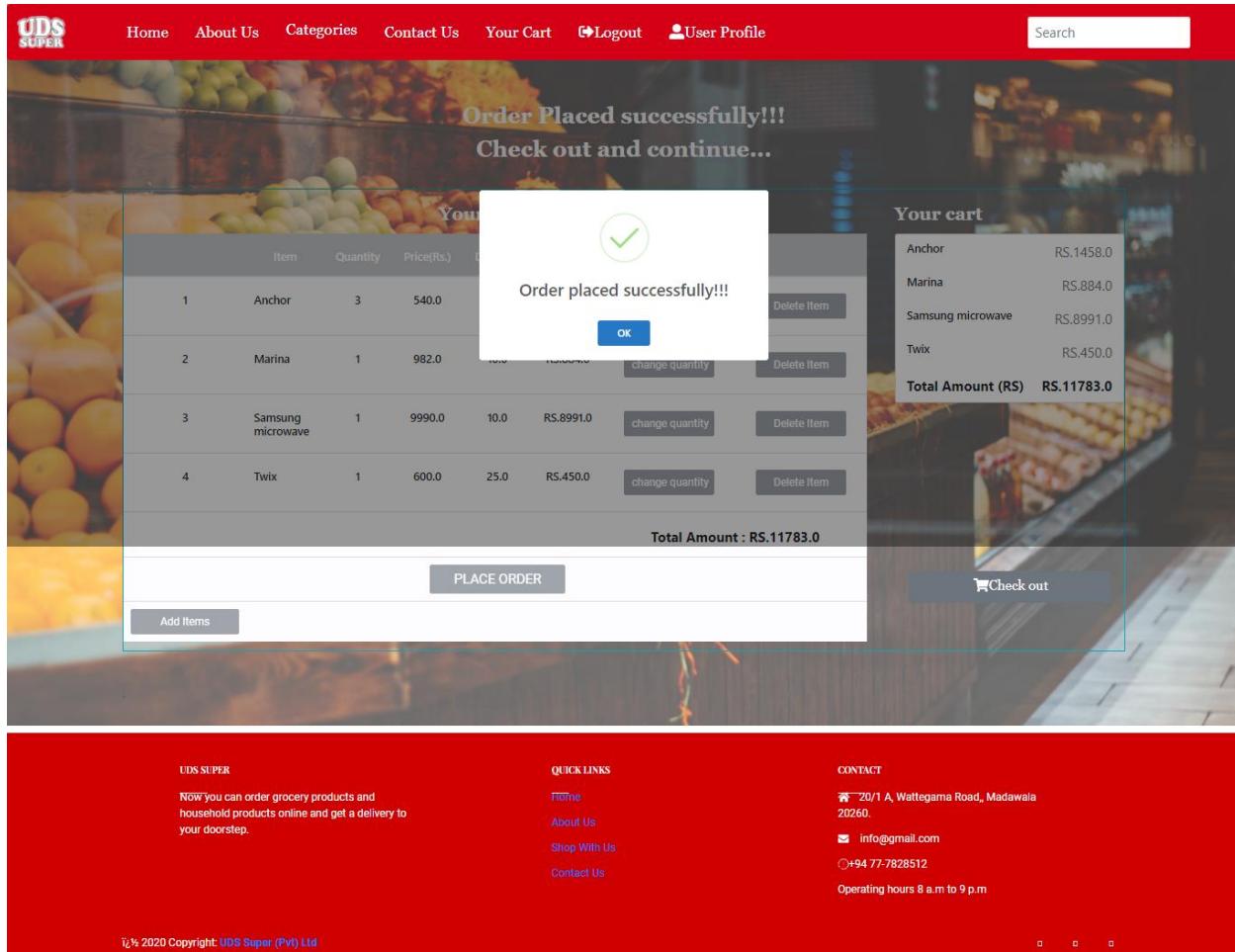


Figure 55

When the user clicks ‘Place order’ button, success alert will be displayed to let the user know about it.

9.Success order and check out

The screenshot shows a successful order placement message: "Order Placed successfully!!! Check out and continue...". Below this, the "Your Basket" section displays the following items:

	Item	Quantity	Price(Rs.)	Discount	Subtotal
1	Anchor	3	540.0	10.0	RS.1458.0
2	Marina	1	982.0	10.0	RS.884.0
3	Samsung microwave	1	9990.0	10.0	RS.8991.0
4	Twix	1	600.0	25.0	RS.450.0

Total Amount : RS.11783.0

PLACE ORDER

+ Add Items

Your cart

Anchor	RS.1458.0
Marina	RS.884.0
Samsung microwave	RS.8991.0
Twix	RS.450.0
Total Amount (RS)	RS.11783.0

Check out

UDS SUPER
Now you can order grocery products and household products online and get a delivery to your doorstep.

QUICK LINKS
[Home](#)
[About Us](#)
[Shop With Us](#)
[Contact Us](#)

CONTACT
20/1 A, Wattegama Road, Madawala 20260
info@gmail.com
+94 77-7828512
Operating hours 8 a.m to 9 p.m

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Figure 56

This page provides a success message, and all the buttons will be disabled except check out button to continue with payment procedures.

10. User profile with orders

The screenshot shows the UDS Super user profile page. At the top, there is a navigation bar with links: Home, About Us, Shop With Us, Contact Us, Logout, and User Profile. On the left, a sidebar menu includes: My Profile, Change password, Loyalty Details, Order Details (selected), Orders On Progress, Dispatched Orders, Payment Details, and Delivery Details. The main content area displays a table of user details:

1	User ID	CUS00001
2	User Name	krish
3	First Name	Krushi
4	Last Name	Yadushika
5	Date Of Birth	1999-03-14
6	Date Of Anniversary	2020-04-12
7	Occupation	Student
8	Address	Matale
9	Email	krush_i_y@gmail.com
10	Phone	0763888911
#	Edit My Details	Edit My Details

At the bottom of the page, there is a footer section with the company name "UDS SUPER", a message about ordering online, quick links (Home, About Us, Shop With Us, Contact Us), contact information (address, email, phone, operating hours), and social media icons.

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Figure 57

The user profile page is facilitated for the users to view their orders on progress as well as dispatched orders.

11. Orders on progress for the deletion

Your Orders On Progress

Order ID	Total amount	Date	Offer ID
ODD000001	RS. 300.0	2020-10-11	OFF032651
ODD000002	RS. 400.0	2020-10-10	OFF032651
ODD000003	RS. 350.0	2020-10-09	OFF032651
ODD000004	RS. 450.0	2020-10-07	OFF032651

UDS SUPER
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QUICK LINKS
Home About Us Shop With Us Contact Us

CONTACT
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info@gmail.com +94 77-7828512
Operating hours 8 a.m to 9 p.m

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Figure 58

Users can use this page to view orders on progress and they can delete if they wish, with the confirmation.

12. Orders Dispatched

The screenshot shows a user profile page for 'Delivered Orders'. At the top, there's a navigation bar with links for Home, About Us, Shop With Us, Contact Us, Logout, and User Profile. Below the navigation is a banner featuring a fruit stand with various fruits like oranges and apples. Overlaid on the banner is a table titled 'Delivered Orders' with four rows of data.

Order ID	Total amount	Date	Offer ID
ODD000013	RS. 1500.0	2020-09-26	OFF032651
ODD000014	RS. 1245.0	2020-09-26	OFF357841
ODD000015	RS. 1650.0	2020-09-25	OFF357841

Below the table, there are three columns of footer information: 'UDS SUPER' (with a note about online grocery delivery), 'QUICK LINKS' (Home, About Us, Shop With Us, Contact Us), and 'CONTACT' (address, email, phone number, and operating hours). The footer also includes social media icons for Facebook, Instagram, and YouTube.

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Figure 59

Users can view all their dispatched orders.

13. Orders on progress for Deletion (Admin)

The screenshot shows the 'Orders On Progress' section of the UDS Super App Admin interface. The left sidebar contains navigation links for Dash Board, Customers, Category, Stock, Item, Orders (selected), Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installation. The main content area has a search bar and notification icons at the top right. A large blue button labeled 'View Orders In Progress' is centered above a table. The table has columns for Order_ID, Total, Date, UID, OFFER_ID, and a Delete button. There are four rows of data:

Order_ID	Total	Date	UID	OFFER_ID	Action
ODD000001	RS. 300.0	2020-10-11	CUS000001	OFF032651	Delete
ODD000002	RS. 400.0	2020-10-10	CUS000001	OFF032651	Delete
ODD000003	RS. 350.0	2020-10-09	CUS000001	OFF032651	Delete
ODD000004	RS. 450.0	2020-10-07	CUS000001	OFF032651	Delete

Figure 60

If the user request admin to delete the order, this page allows admin to delete the order, with the confirmation. Once the delete button pressed, alert will be shown about success or failure of the deletion.

14. Search Order

Orders On Progress

View Orders In Progress

Order_ID	Total	Date	UID	OFFER_ID	
ODD000003	RS. 350.0	2020-10-09	CUS000001	OFF032651	

Figure 61

Admin can search a particular order for the deletion in order to make the use of ease.

15. Dispatched orders (Admin)

The screenshot shows the Admin dashboard of the UDS Super App. The left sidebar contains various menu items such as Dash Board, Customers, Category, Stock, Item, Orders (Orders On Progress, Dispatched Orders), Reports, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main content area is titled "Orders Dispatched" and features a blue button labeled "View Dispatched Orders". Below this is a table with columns: Order_ID, Total, Date, UID, and OFFER_ID. The table lists 15 dispatched orders with the following data:

Order_ID	Total	Date	UID	OFFER_ID
ODD000007	RS. 390.0	2018-10-02	CUS902674	OFF032651
ODD000008	RS. 450.0	2020-10-01	CUS000004	OFF032651
ODD000009	RS. 900.0	2020-04-02	CUS995511	OFF357841
ODD000010	RS. 1200.0	2020-04-03	CUS995511	OFF032651
ODD000011	RS. 3000.0	2020-04-04	CUS995511	OFF032651
ODD000012	RS. 2300.0	2020-04-05	CUS995511	OFF032651
ODD000013	RS. 1500.0	2020-09-26	CUS000001	OFF032651
ODD000014	RS. 1245.0	2020-09-26	CUS000001	OFF357841
ODD000015	RS. 1650.0	2020-09-25	CUS000001	OFF357841

Figure 62

Admin can view all the dispatched orders of all the users.

16. Report on orders with higher amounts

The screenshot shows the UDS Super application's interface. At the top left is the logo 'UDS SUPER'. On the right side are icons for search, notifications, and account management. The main menu on the left includes 'Dash Board', 'Customers', 'Category', 'Stock', 'Item', 'Orders' (selected), 'Reports', 'Delivery', 'Offers', 'Suppliers', 'Staff', 'User Payment', 'Supplier Payment', and 'Installment'. The central area has a title 'ORDERS WITH HIGHER AMOUNTS'. Below it is a form with two date inputs: 'Starting Date' set to '04/18/2020' and 'Ending Date' set to '10/18/2020'. There are 'Submit' and 'Reset' buttons at the bottom of the form.

Figure 63

This page allows admin to input the start date and end date of a particular time, to view the orders with highest amounts to motivate those customers by offering them special offers to place more orders.

17. Report Downloadable format

-----ORDERS WITH HIGHER AMOUNTS FROM 2020-04-18 TO 2020-10-18-----			
DATE GENERATED - 2020-10-18			

1)	Order ID - ODD213323	Total Amount - RS. 10911	Order Date - 2020-10-13
	User ID - CUS000001	Offer ID - OFF002	

2)	Order ID - ODD403585	Total Amount - RS. 5844	Order Date - 2020-10-18
	User ID - CUS000001	Offer ID - OFF002	

3)	Order ID - ODD298777	Total Amount - RS. 1836	Order Date - 2020-10-12
	User ID - CUS000001	Offer ID - OFF002	

4)	Order ID - ODD000015	Total Amount - RS. 1650	Order Date - 2020-09-25
	User ID - CUS000001	Offer ID - OFF357841	

5)	Order ID - ODD000013	Total Amount - RS. 1500	Order Date - 2020-09-26
	User ID - CUS000001	Offer ID - OFF032651	

Figure 64

This page provides downloadable file which contains, a report on orders with higher amounts

Delivery Management

1.Add DeliveryType Form

The screenshot shows a dark-themed web application interface for 'UDS SUPER'. On the left is a vertical sidebar with navigation links: Dash Board, Customers, Category, Stock, Item, Orders, Offers, Suppliers, Staff, User Payment, and Supplier Payment. At the top right are icons for search, notifications, and user profile. The main content area has a title 'INSERT NEW DELIVERY TYPE' and a 'View Delivery Types' button. A sub-form is displayed with fields for 'Delivery Type' (labeled 'Type') and 'Charges' (labeled '50.00'). Below the form are 'Submit' and 'Reset' buttons. A note 'Click to Auto Fill' is visible above the 'Delivery Type' field.

Figure 65

Here the admin can add new Delivery Type.

2. Generate Report

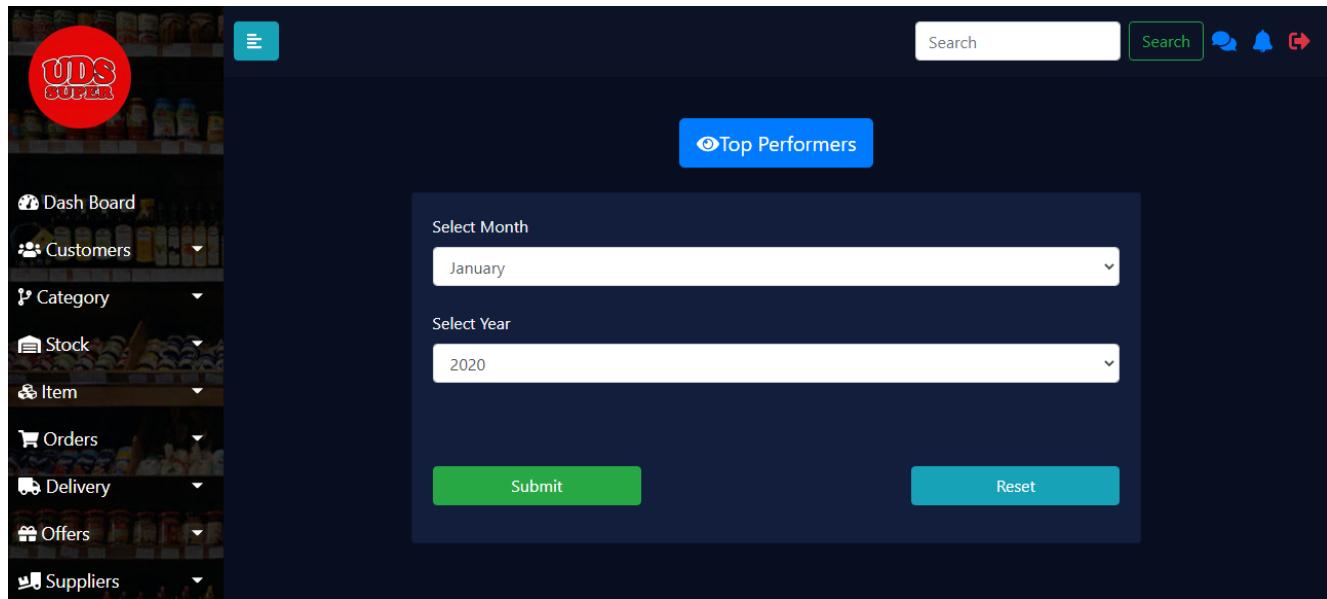
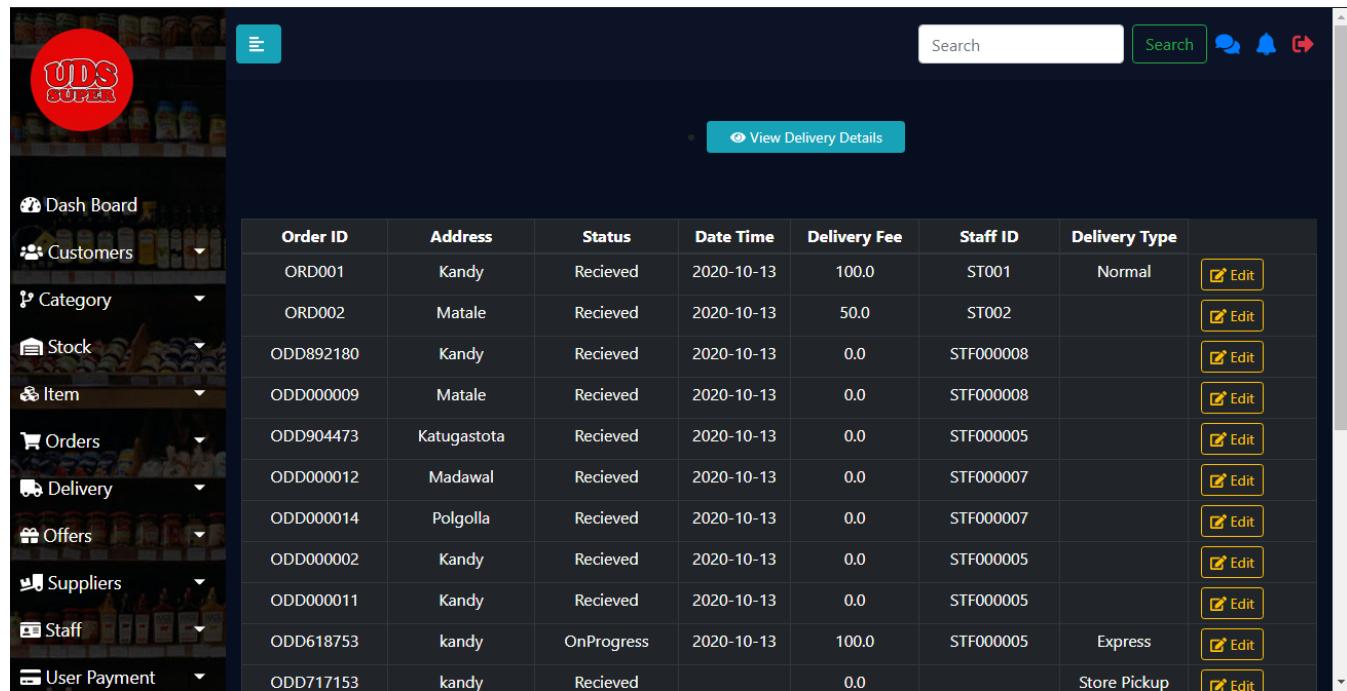


Figure 66

From the above page admin can generate the report

3. View Delivery Details



The screenshot shows the UDS Super Admin Dashboard. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, and User Payment. At the top right are search fields and notification icons. A large button labeled "View Delivery Details" is centered above a table. The table has columns for Order ID, Address, Status, Date Time, Delivery Fee, Staff ID, Delivery Type, and Edit buttons. The data in the table is as follows:

Order ID	Address	Status	Date Time	Delivery Fee	Staff ID	Delivery Type	Edit
ORD001	Kandy	Received	2020-10-13	100.0	ST001	Normal	<input checked="" type="checkbox"/> Edit
ORD002	Matale	Received	2020-10-13	50.0	ST002		<input checked="" type="checkbox"/> Edit
ODD892180	Kandy	Received	2020-10-13	0.0	STF000008		<input checked="" type="checkbox"/> Edit
ODD000009	Matale	Received	2020-10-13	0.0	STF000008		<input checked="" type="checkbox"/> Edit
ODD904473	Katugastota	Received	2020-10-13	0.0	STF000005		<input checked="" type="checkbox"/> Edit
ODD000012	Madawal	Received	2020-10-13	0.0	STF000007		<input checked="" type="checkbox"/> Edit
ODD000014	Polgolla	Received	2020-10-13	0.0	STF000007		<input checked="" type="checkbox"/> Edit
ODD000002	Kandy	Received	2020-10-13	0.0	STF000005		<input checked="" type="checkbox"/> Edit
ODD000011	Kandy	Received	2020-10-13	0.0	STF000005		<input checked="" type="checkbox"/> Edit
ODD618753	kandy	OnProgress	2020-10-13	100.0	STF000005	Express	<input checked="" type="checkbox"/> Edit
ODD717153	kandy	Received		0.0		Store Pickup	<input checked="" type="checkbox"/> Edit

Figure 67

Admin can View All the Delivery Related details here.

4. View Delivery Types

The screenshot shows the 'Delivery' section of the UDS Super application. On the left is a sidebar with various navigation options: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, and User Payment. The main area has a dark header with a search bar and a 'Search' button. Below the header is a teal button labeled 'View Types'. To its right is a green button labeled '+ Add Type'. The central part of the screen displays a table with three rows of delivery types:

Delivery Type	Charges	Edit	Delete
Express	100.0	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>
Normal	50.0	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>
Store Pickup	0.0	<input type="button" value="Edit"/>	<input type="button" value="Delete"/>

Figure 68

Admin can view the added Delivery types from here.

5. View Delivery Staffs

The screenshot shows the UDS Super Admin Dashboard. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, and User Payment. The 'Staff' item is currently selected. At the top right are a search bar, a 'Search' button, and notification icons. In the center, there is a table titled 'View Staff' with the following data:

Staff ID	Name	Orders Delivered	Total Orders Delivered	Rating	Average Rating
STF000005	Mahela	0	0	0.0	0.0
STF000007	Dino	0	0	0.0	0.0
STF000008	Kelya	0	0	0.0	0.0
STF001	Hillary	15	20	5.0	5.0
STF002	Viraj	5	11	4.9	4.95
STF003	Agil	5	11	4.9	4.95

Figure 69

Here the admin can view about the Delivery Staffs

6. Generated Report

The screenshot shows a web page titled "DeliveryRateReport.jsp". At the top right, there is a navigation bar with icons for refresh, download, and print. The main content area has a header "-----BEST RATED DELIVERY STAFF FOR THE MONTH-----". Below it, the date "DATE GENERATED - 2020-10-23" is displayed. The page lists three delivery staff members with their details:

- Staff ID - STF001
Staff Name - Hillary
Rating - 5
Total Orders Delivered - 15
- Staff ID - STF002
Staff Name - Viraj
Rating - 4.9
Total Orders Delivered - 5
- Staff ID - STF003
Staff Name - Agil
Rating - 4.9
Total Orders Delivered - 5

On the right side of the content area, there are three circular buttons with symbols: a magnifying glass, a plus sign, and a minus sign.

Figure 70

This is a screen shot of a generated report regarding the Delivery Staffs

User

7. Add Delivery Details

The screenshot shows a user interface for adding delivery details. At the top, there is a red navigation bar with the UDS Super logo and links for Home, About Us, Shop With Us, Contact Us, Logout, and User Profile. Below the navigation bar is a white form area with a dark header bar containing the text "Delivery Details". The form includes fields for "Delivery Type" (with "Express" selected), a checkbox for "My Delivery address is different than the Billing address", and a large input field for "Delivery Address". A note at the bottom states "*Delivery charges may vary according to the distance". A green "PLACE ORDER" button is located at the bottom right of the form.

Figure 71

From the above page Customer can add his delivery by selecting the type and address.

8. View Past Delivery Details

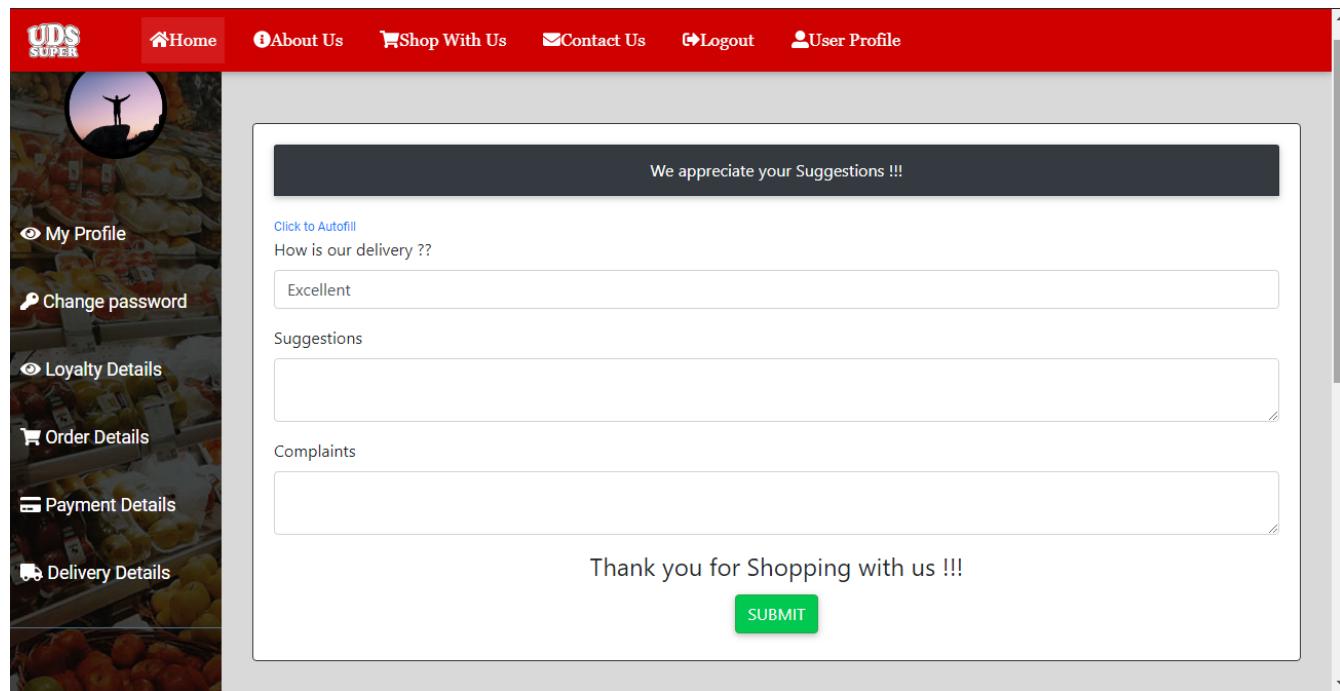
The screenshot shows a mobile application interface for 'UDS SUPER'. At the top, there is a red navigation bar with links: Home, About Us, Shop With Us, Contact Us, Logout, and User Profile. On the left side, there is a vertical sidebar with icons and labels: My Profile, Change password, Loyalty Details, Order Details, Payment Details, and Delivery Details. The main content area displays a table of past delivery details:

Order ID	Status	Date	Delivery Type	Rate Delivery
ODD000008	Received	2020-10-13		<button>★ RATE DELIVERY</button>
ODD000014	Received	2020-10-13		<button>★ RATE DELIVERY</button>
ODD166002				<button>★ RATE DELIVERY</button>
ODD390469	Received		Express	<button>★ RATE DELIVERY</button>
ODD483286	OnProgress	2020-10-14	Express	<button>★ RATE DELIVERY</button>
ODD618753	OnProgress	2020-10-13	Express	<button>★ RATE DELIVERY</button>

Figure 72

Here the Customer can view the past Delivery Details.

9. Rate Delivery



The screenshot shows a mobile application interface for 'UDS SUPER'. At the top, there's a red navigation bar with icons for Home, About Us, Shop With Us, Contact Us, Logout, and User Profile. On the left, there's a sidebar with a profile picture of a person standing on a hill at sunset, and links for My Profile, Change password, Loyalty Details, Order Details, Payment Details, and Delivery Details. The main content area has a dark header bar with the text 'We appreciate your Suggestions !!!'. Below it, there's a text input field with the placeholder 'How is our delivery ??' containing the word 'Excellent'. There are also two empty text input fields for 'Suggestions' and 'Complaints'. At the bottom, there's a message 'Thank you for Shopping with us !!!' and a green 'SUBMIT' button.

Figure 73

From the above form customer can provide feedback to the delivery staffs.

Payment Management

1. Select Payment Type

The screenshot shows a user interface for selecting payment types. At the top, there is a red header bar with the UDS Super logo and navigation links: Home, About Us, Shop With Us, Contact Us, and Logout. Below the header, there is a large background image of a grocery store shelf filled with various fruits like apples and oranges. A white modal window is centered over the image. The modal has a green 'DEMO' button at the top left. The main content area contains two sections: 'Choose your Payment Type' with two radio button options ('Card Payment' and 'Cash Payment'), and 'Choose your Paying Type for Household Appliances' with two radio button options ('Installment Payment' and 'Normal Payment'). At the bottom of the modal is a green 'Next' button.

UDS SUPER

Now you can order grocery products and household products online and get a delivery to your doorstep.

QUICK LINKS

[Home](#)
[About Us](#)
[Shop With Us](#)
[Contact Us](#)

CONTACT

20/1 A. Wattegama Road.,
Madawala 20260.
info@gmail.com
+94 77-7828512
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Figure 74

In this page user will select payment type for household appliances and other appliances. For household appliances user can pay with installment basis.

2. Card Details Input

UDS SUPER

Now you can order grocery products and household products online and get a delivery to your doorstep.

QUICK LINKS

- Home
- About Us
- Shop With Us
- Contact Us

CONTACT

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Figure 75

In this page user should enter the card details if user pays with card. And in this page card numbers is validated according to user selecting card type.

3. Installment Details Input

UDS SUPER

Now you can order grocery products and household products online and get a delivery to your doorstep.

QUICK LINKS

- Home
- About Us
- Shop With Us
- Contact Us

CONTACT

- 20/1 A, Wattegama Road,, Madawala 20260,
- info@gmail.com
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Figure 76

In this page user should enter the installment details if the user pays household appliances in installment basis. And in this I have validated that the down payment should be more than 10% of total installment amount.

4. Installment Details Summary

The screenshot shows a modal window titled "Installment Details Summary" centered over a background image of a grocery store shelf filled with fruit. The modal contains the following information:

Installment Item Value:	Rs.19000.0
Installment Period:	6 months
Monthly Installment:	Rs.2416.67

At the bottom of the modal is a green "Confirm" button.

UDS SUPER

Now you can order grocery products and household products online and get a delivery to your doorstep.

QUICK LINKS

- [Home](#)
- [About Us](#)
- [Shop With Us](#)
- [Contact Us](#)

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Figure 77

This page displays the installment details summary of the user's order with monthly installment amount.

- Monthly Installment = (Total Installment amount – Down payment) / Installment type(months)

5. Payment Details Summary

The screenshot shows a web page titled "Payment Details Summary" from the "UDS SUPER" website. The page has a red header with navigation links: Home, About Us, Shop With Us, Contact Us, and Logout. The main content area displays the following payment details:

Installment(Down Payment for Household Products)	Rs.4500.0
Total Amount(Non Installment Products)	Rs.23000.0
Delivery Charges	Rs.100
20% Discount	(Rs.5500.0)
Final Bill Amount	Rs.22000.0

A green "Confirm" button is located at the bottom of the summary box. Below the summary box, the website's footer contains sections for "UDS SUPER", "QUICK LINKS", and "CONTACT".

UDS SUPER

Now you can order grocery products and household products online and get a delivery to your doorstep.

QUICK LINKS

Home
About Us
Shop With Us
Contact Us

CONTACT

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info@gmail.com
+94 77-7828512
Operating hours 8 a.m to 9 p.m

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Figure 78

This page displays the payment summary for the order placed by user with down payment for installment (household products), total amount of other products, delivery charges, discount amount with percentage and the total amount.

- Final Bill amount = (Down Payment + Total Amount (Non-Installment Products) + Delivery Charges) – Discount Amount

6. Insert Offer

The screenshot shows the UDS application's 'INSERT NEW OFFERS' page. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers (selected), Suppliers, Staff, User Payment, Supplier Payment, and Installment. The main area has a title 'INSERT NEW OFFERS' and a 'View Offers' button. The form fields include: 'Offer Name' (placeholder 'Enter a Offer Name'), 'Description' (placeholder 'Enter Offer Description'), 'Discount Percentage' (placeholder 'Enter the Discount Percentage for Offer'), 'Min Amount' and 'Max Amount' (both labeled 'Minimum Amount'), 'Status' (set to 'Enable'), 'Offer Image' (with a 'Browse...' button and placeholder 'No file selected.'), and an 'UPLOADED IMAGE RESULT' container. At the bottom are 'Submit' and 'Reset' buttons.

Figure 79

To add offer user should enter offer name, description, discount percentage, status and an image. And the minimum and maximum amount should be only filled for order offer not required for item offers. Admin can view the inserting image in the Upload Image Result container.

7. View Offers

ID	Offer ID	Name	Description	Discount Percentage	Status	Order Minimum Amount	Order Maximum Amount	Image	
1	OFF032651	MD Products Saver	8% discount for all MD products only	8.0	en	Rs.0.0	Rs.0.0		<button>Edit</button> <button>Delete</button>
20	OFF144383	Winter Special	20% discount for purchases above Rs.35000	20.0	en	Rs.35000.0	Rs.50000.0		<button>Edit</button> <button>Delete</button>
6	OFF215585	UDS20off	20% discount for all purchases above Rs.25000	20.0	en	Rs.25000.0	Rs.38000.0		<button>Edit</button> <button>Delete</button>
3	OFF248589	Summer Sale	25% discount for all purchases above Rs.38000 in this summer season	25.0	ds	Rs.38000.0	Rs.50000.0		<button>Edit</button> <button>Delete</button>
4	OFF254985	Kist Mega Savings	15% discount for selected Kist products	15.0	en	Rs.0.0	Rs.0.0		<button>Edit</button> <button>Delete</button>
7	OFF314455	Maliban Big Deals	6% discount for all Maliban products	6.0	en	Rs.0.0	Rs.0.0		<button>Edit</button> <button>Delete</button>
8	OFF355589	UDS10off	10% discount for all purchases above Rs.10000	10.0	en	Rs.10000.0	Rs.25000.0		<button>Edit</button> <button>Delete</button>
2	OFF357841	UDS40off	40% discount for all purchases above Rs.50000	40.0	en	Rs.50000.0	Rs.75000.0		<button>Edit</button> <button>Delete</button>
5	OFF532454	Prima Super Saver	12% discount for selected Prima products	12.0	en	Rs.0.0	Rs.0.0		<button>Edit</button> <button>Delete</button>
9	OFF651655	October Savings	5% discount for all purchases above 5000 in this october month	5.0	en	Rs.5000.0	Rs.10000.0		<button>Edit</button> <button>Delete</button>
10	OFF685418	EHOffer	5% discount for all Elephant House Products	5.0	en	Rs.0.0	Rs.0.0		<button>Edit</button> <button>Delete</button>

Figure 80

Admin can view the all the offer details in this page. And by clicking edit button admin can edit the relevant row's offer details and by clicking delete button admin can delete the relevant offer. To add offer admin should click add button. And admin can search offer by entering the offer name in search bar.

8. View User Payment

ID	Payment ID	Receipt No	Payment Type	Payment Date	Total Bill Amount	Order ID	
9	UPY481512	REC354785	cash	2020-09-03	3500.0	ORD237689	
8	UPY658412	REC415230	card	2020-09-08	5000.0	ORD231689	
5	UPY684655	REC741086	card	2020-09-19	19000.0	ORD145689	
1	UPY741852	REC741525	card	2020-10-10	15000.0	ORD235689	
2	UPY753521	REC463152	card	2020-10-03	8000.0	ORD200689	
7	UPY845121	REC852963	cash	2020-09-12	39100.0	ORD240689	
4	UPY894651	REC874152	cash	2020-09-22	26000.0	ORD277689	
3	UPY946531	REC799465	cash	2020-09-29	5000.0	ORD239999	
6	UPY968465	REC741852	cash	2020-09-17	62500.0	ORD230989	

Figure 81

In this page admin can view the payment details. And by clicking delete button admin can delete the relevant payment details.

9. View Installment Details

ID	Installment ID	Payment ID	Total Installment Amount	Down Payment	Remaining Installments	Type ID	Edit	Delete
8	INS261651	UPY658412	9000.0	1000.0	4	ITY501238	Edit	Delete
22	INS412829	UPY230302	19000.0	10000.0	6	ITY257894	Edit	Delete
2	INS452331	UPY753521	22000.0	5000.0	2	ITY257894	Edit	Delete
7	INS741845	UPY845121	78500.0	35000.0	8	ITY900245	Edit	Delete
5	INS741852	UPY684655	62000.0	15000.0	1	ITY257894	Edit	Delete
3	INS784615	UPY946531	8000.0	3000.0	6	ITY501238	Edit	Delete
4	INS845129	UPY894651	37000.0	25000.0	2	ITY235796	Edit	Delete
10	INS846525	UPY415224	29000.0	3500.0	7	ITY900245	Edit	Delete
1	INS852515	UPY741852	45000.0	10000.0	3	ITY235796	Edit	Delete
6	INS963745	UPY968465	69000.0	50000.0	5	ITY501238	Edit	Delete

Figure 82

Admin can view the installment details in this page. And by clicking edit button admin can update installment details but admin can update remaining installments only and by clicking delete button admin can delete installment details for the relevant row. To view installment type details admin should click view installment types button.

10. Insert Installment Types

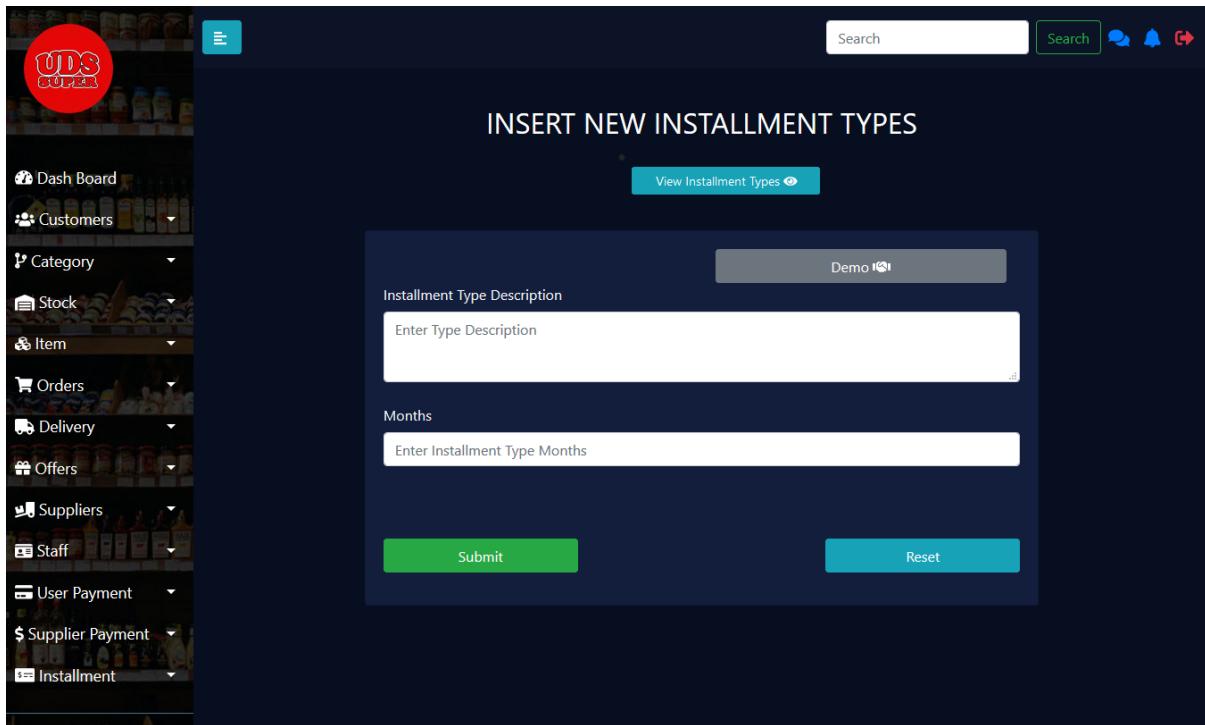
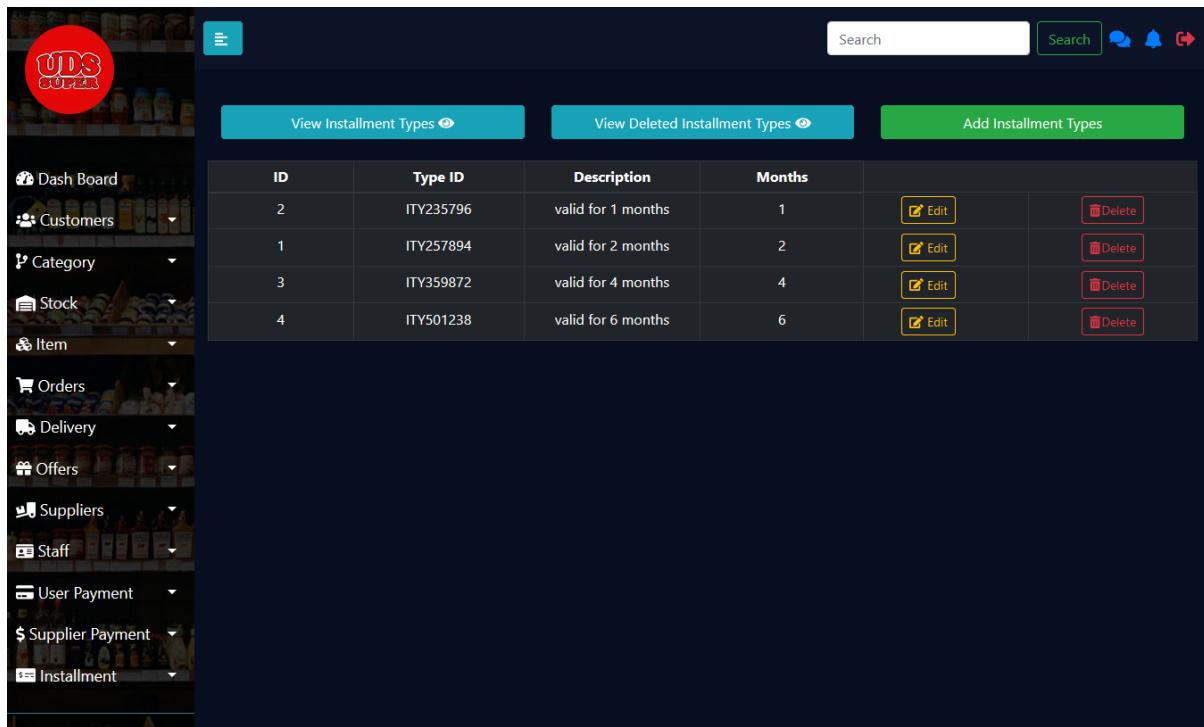


Figure 83

In this page admin can add installment type by entering the installment type description and months.

11. Insert Installment Types



The screenshot shows the UDS Super Admin Dashboard. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The 'Installment' item is currently selected. The main content area has three buttons at the top: 'View Installment Types' (highlighted in blue), 'View Deleted Installment Types', and 'Add Installment Types'. Below these buttons is a table with four columns: ID, Type ID, Description, and Months. The table contains four rows of data:

ID	Type ID	Description	Months	Edit	Delete
2	ITY235796	valid for 1 months	1		
1	ITY257894	valid for 2 months	2		
3	ITY359872	valid for 4 months	4		
4	ITY501238	valid for 6 months	6		

Figure 84

Admin can view installment type details in this page. And he can edit or delete by clicking the relevant button. To view deleted installment types admin should click view deleted installment types button and to add new installment types admin should click add installment types button.

12. View Deleted Installment Types

The screenshot shows the UDS Super Admin dashboard. On the left is a sidebar with various menu items: Dash Board, Customers, Category, Stock, Item, Orders, Delivery, Offers, Suppliers, Staff, User Payment, Supplier Payment, and Installment. The 'Installment' item is currently selected. At the top right are a search bar, a 'Search' button, and notification icons. Below the header are three buttons: 'View Installment Types' (blue), 'View Deleted Installment Types' (highlighted in teal), and 'Add Installment Types' (green). The main content area displays a table with two rows of data:

ID	Type ID	Description	Months	Action
5	ITY900245	valid for 9 months	9	<button>Re-Insert Type</button>
26	ITY911759	Valid for 5 months	5	<button>Re-Insert Type</button>

Figure 85

Admin can view deleted installment types in this page. Admin can delete the installment type in deleted installment type and can insert in view installment type by clicking re insert type button.

13. Generate Report

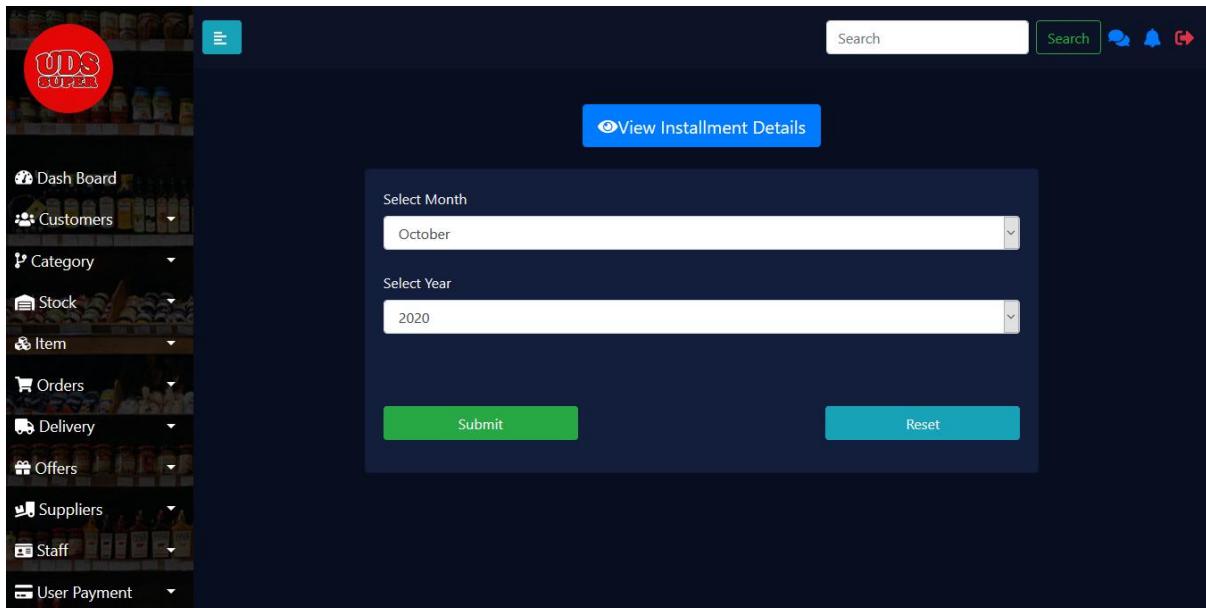


Figure 86

In this page admin should select the month and year and should click the submit button to view the frequently used installment types with the current date of report generated.

2.4 Testing

Function	Test ID	Test Input	Expected output	Actual output	Result Pass/Fail	Description
Supplier Management	01	Supplier Name: CBL Status: enabled Supplier Address: No.02/4 colombo12 Supplier Email: cbl@gmail.com Phone Number: 011-22113344 Other Number: Null Description: Null	Display error message “Phone number cannot exceed 10 numbers”	Display error message “Phone number cannot exceed 10 numbers”	Pass	Test Successful
	02	Stock Name: Null Discount Type: discount Discount Percentage: 10 Total Amount 10000	Display error message “Please select the stock name”	Display error message “Please select the stock name”	Pass	Test Successful
Stock Management	01	Stock Available quantity updated to be less than stock reorder level	Notification regarding stock re shelving added to Notification page	Notification regarding stock deficit available with details	Pass	Test successful

	02	Admin deactivates an item which is no more available in store	Item added to deactivated items list with message “Item deactivated successfully”	Item added to items in deactivated list and “Item deactivated successfully” message appeared	Pass	Test successful
	03	Admin checks the checkbox to set reorder level of stock	New form to set reorder level appeared and after setting reorder level “Stock update successful” message appears	Reorder level form visible after checking the checkbox and after reorder level is set “Stock update successful” message appears	Pass	Test successful
Staff Management	01	First Name: Nimal Last Name: Kumarasinghe Address: VC 310,Ampitiya Email address: nimal@gmail.com Mobile Number: 0771212121 Home Number: 0812212121 Date of Birth: 11/12/2002 Gender: Male NIC Number: 983601995aV Profile image: image1.jpg Joined date: 22/03/2020 EPF number: 6 Job title: Admin Basic Salary: 40000 User Name: ip1234	Display error message “NIC number does not match required format”	Display error message “NIC number does not match required format”	Pass	Test Successful

		Password: niaml123				
	02	Date: 12/02/2020 Total no of working days: NULL Total no of leave days: 3 Total no of half days: 1	Display error message “Total working days cannot be empty”	Display error message “Total working days cannot be empty”	Pass	Test Successful
Customer Management	01	Username: Krystle_d Password: kryst123	Display an error alert saying ‘Incorrect username or password’	Displays an error alert saying ‘Incorrect username or password’	Pass	This test scenario focuses functions related to a user authentication . Test result is successful.
	02	First name: Avon Last name: Mark Username: avon_m Email: avon.m@gmail.com Address : 23,Branes Place, Kandy Phone: Date of Birth : 03/11/1990 Date of anniversary: 02/01/2011 Occupation: Businessman Password: avon123 Repeat Password : avon123	Display a message saying ‘Please enter phone number’	Display a message saying ‘Please enter phone number’	Pass	This test scenario focuses functions related to validations during registration process. Test result is successful.
Order Management	01	Item ID: ITM000001	Display success message:	Display success message:	Pass	Item added to the cart. values

		Item Name: Anchor Price: 480 Discount (%): 1 Quantity: 1 Net Total: 480 Offer : summer sale category: Milk Powder	“Item added to the cart”	“Item added to the cart”		inserted to the table.
	02	Order Id: ODD000001 Total: 480 Date: 19/21/2020 Username: krish111 Offer ID: OFF000002 Order Id: ODD000001 Item Name: Anchor Quantity: 1	Display success message: “Order placed successfully”	Display success message: “Order placed successfully”	Pass	Order placed and values inserted to the order table. Ordered Items inserted to the order item table.
Payment Management	UPY001	Card Type: Master Card Card No: 361588679843 Expiry month:06 Expiry year:2026 CVC:3587	Display error message “Enter the correct Master Card Number”	Display error message “Enter the correct Master Card Number”	Pass	According to legal standard Master Card should have 16 digits and first two digits should be 51 or 52 or 53 or 54 or 55.
	INS001	Installment Amount:25000 Installment Type:6 months Down Payment:1000	Display error message “Invalid Down Payment Amount!!!”	Display error message “Invalid Down Payment Amount!!!”	Pass	A down payment for an installment should be more than 10% of total installment amount.

Delivery Management	01	Type Name: Normal Charges: 50.00	Display error message “Delivery Type Already Exists”	Display error message “Delivery Type Already Exists”	Pass	Test Successful
	02	Type Name: Drone Charges: 200.00	Display success message “Delivery Type Added Successfully ”	Display success message “Delivery Type Added Successfully ”	Pass	Test Successful

Table 1

3. Evaluation

3.1 Assessment of the project results

This system has been developed for UDS supermarket after a good analysis of the client requirements. As in general impression, the project was assessed to have covered all the client requirements, while providing some additional features. The user friendliness of the UI designs and the complete overall coverage of each of the functionalities can be quoted as the strongly evaluated points. Considering each of the individual functionalities, the group had identified seven different scopes. Each of these scopes had been implemented with all necessary logics. Moreover, the individual scopes were all achieved completely.

However, some weaknesses of the final product too could be evaluated. Based on the evaluators remarks, the system is expected to have been more professional. Further, the system was more complex to implement than expected, which paved the pathway to do minor changes in every functionality. Also, achieving a fully secured and fraudulent free product was an extremely hard challenge which can be evaluated as a project limitation.

Therefore overall, the project was at good standards and included all necessary requirements, logics and was fully functional. The identified weaknesses and limitations are planned to be resolved in the future and few additional implementations too are planned to be implemented, to make this product a complete software package

3.2 Lessons Learned

Learning and working effectively as part of a team or group is an extremely important skill, and one that is refined and used throughout working life. Group projects are among the most valuable and rewarding learning experiences. When considering the ITP group project, many factors helped the team members to further improve and enhance the personal carrier. More importantly, understanding and sharing the diverse perspectives among the members, allowed the team to focus on many wise decisions across the various phases of the project. Also, accepting and understanding the individual works and functions which were assigned in the beginning of the project and completing it successfully played a vital role in the development process of the project. This will enable the members to do the same in the future carrier projects as well. A main learning outcome was completing project on the scheduled date and time. This learning outcome is an essential characteristic which must be a major encouraging aspect on an individual's success. Finally, learning to compromise and communicate effectively with the team members helped the group to work productively towards a common goal.

3.3 Future Work

Many different adaptations, tests, and experiments have been left for the future due to lack of time. Future work concerns deeper analysis of particular mechanisms, new proposals to try different methods, or simply curiosity. New proposals include displaying new arrivals and coming soon products, which will increase the customers' interest and satisfaction. Another proposal is that developing the client side interfaces in a more professional way which will ultimately increase the customers' attraction towards our system. Moreover, a major proposal is the implementation of the tracking system for the delivery process which will safely guard a customer's order delivery. Also implementing payment gateway methods which will facilitate online payment transactions between customer and the organization has also been proposed. Finally facilitating the customers to provide suggestions and feedbacks which will eventually help the organization to improve, develop and implement the necessities of the customers which will ultimately increase the standard of the organization.

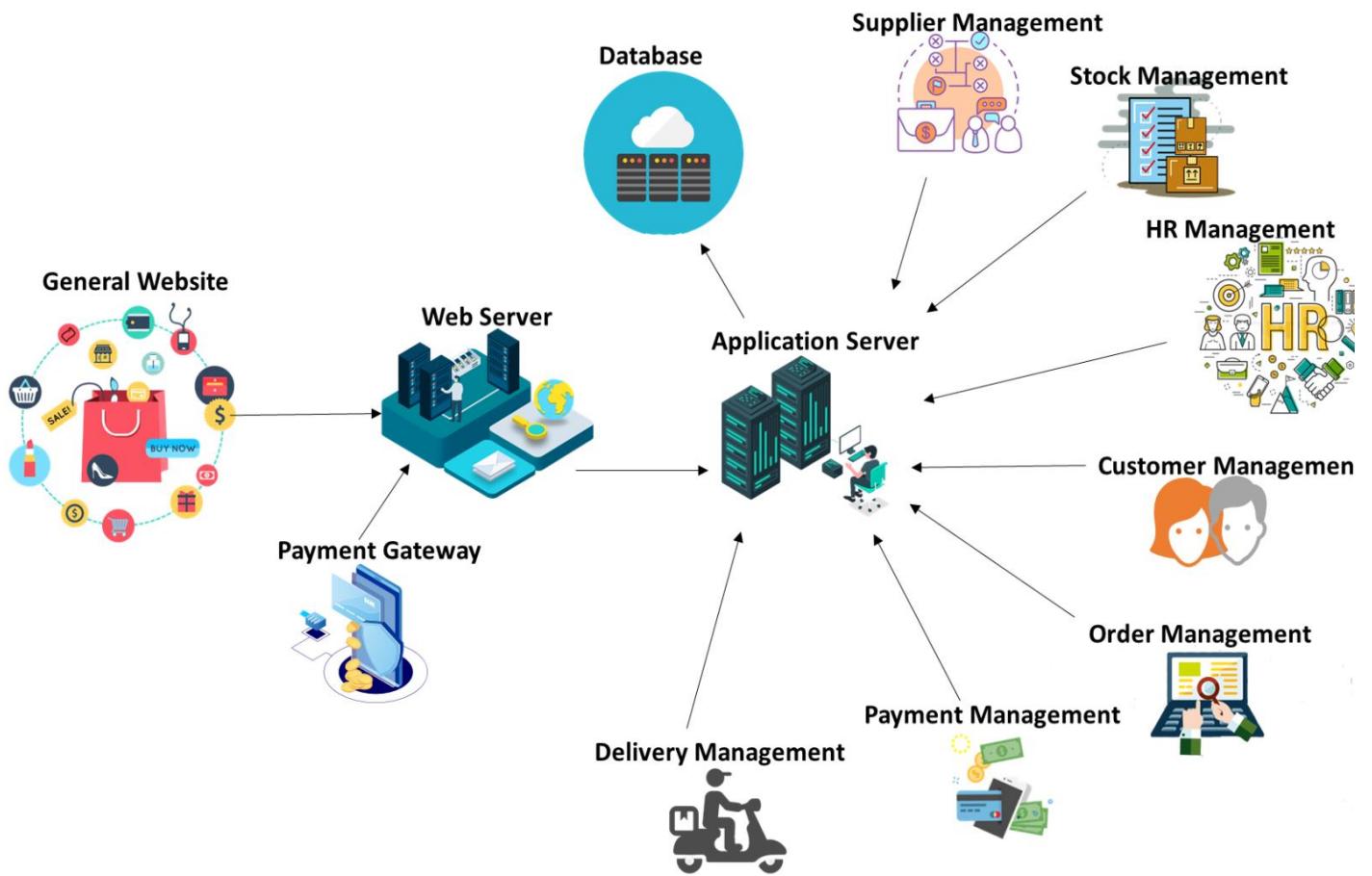
4. Conclusion

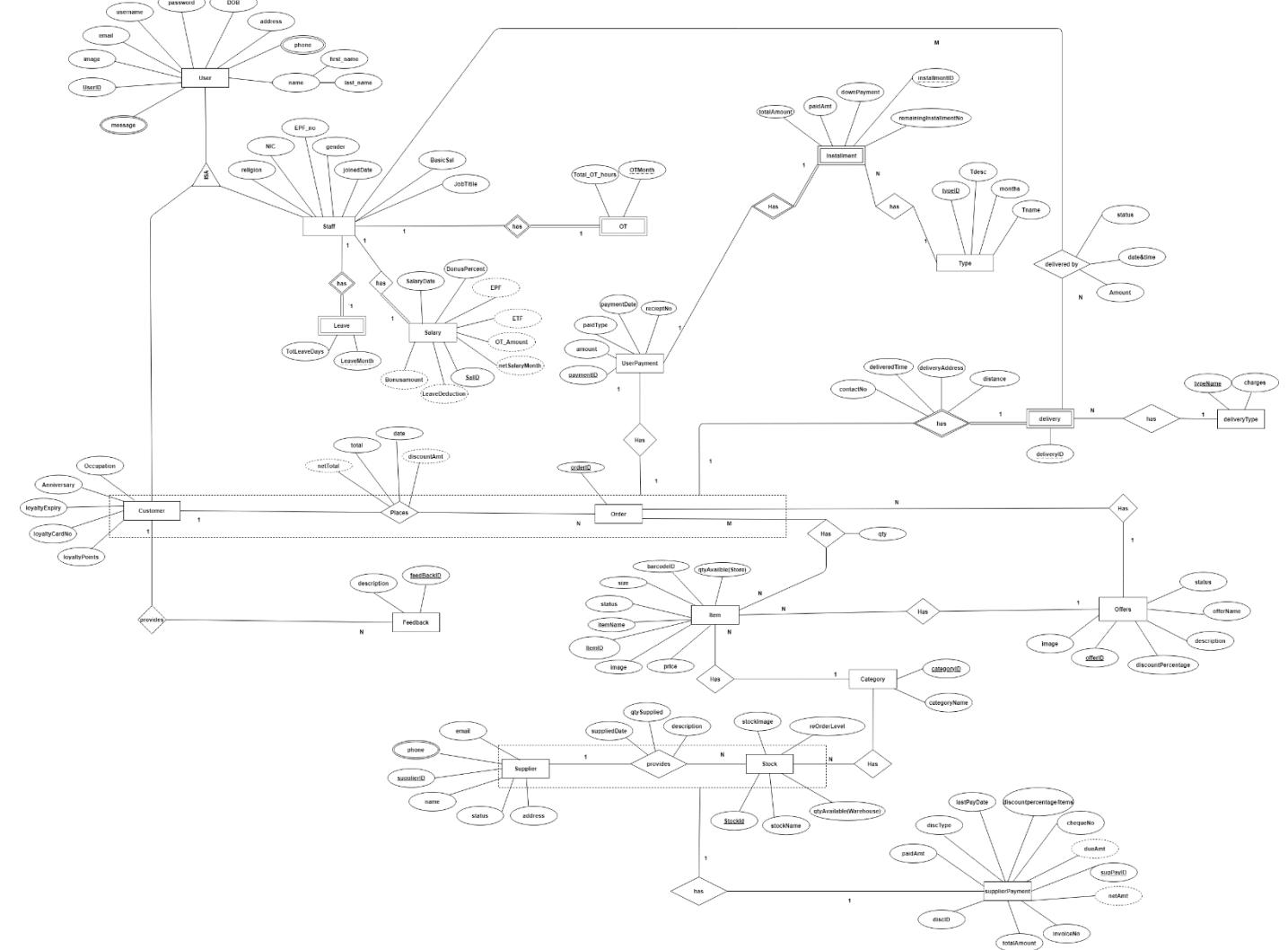
This project was designed for the client who owns the above-mentioned supermarket to automate the manual processes of handling the daily tasks of the supermarket. While gathering and analyzing the requirements, some potential issues of the prevailing system of the supermarket was discovered, and the main objective of developing this system was to automate the entire system, while providing the users of the system an interactive experience and allowing the management to facilitate their day to day tasks efficiently and easily. Furthermore, the system has been developed in correspond to customer-client requirements of the company. As the final system was presented to the client, the advocates concluded that the online system developed does enough justice to the client requirements.

However, some shortcomings like lack of professionalism and few could be identified in the system. As a team Future plans have been implemented to overcome them. Moreover, the system is fully automated but possess few limitations too. This system is developed using java language and developed using MVC architecture, while MySQL was used for database purposes, due to their flexibility, security, and performance. But these technologies are ever-changing and tends to become outdated. Also, building an entirely fool proof system is an extremely difficult task. Therefore, to overcome such limitations continuous maintenance is required.

Overall, as a conclusion it can be said that the designed system fulfils all functional and non-functional requirements of the client, provides additional features that were out of client requirements, and helps the organizations process by automation which has facilitated the minimization of errors and fraudulent activities. Therefore, the company can function more efficiently and productively.

Appendix A: Design Diagrams





Appendix C: Selected Code Listings

```
13 public class ShoppingCartDbUtil {
14     private static boolean isSuccess;
15     private static Connection con = null;
16     private static Statement stmt = null;
17     private static ResultSet rs = null;
18
19     public static boolean cartCreation(String username) {
20         boolean isSuccess = true;
21
22         String cartname = username + "cart";
23
24         final String Drop_table = "DROP TABLE IF EXISTS ".concat(cartname);
25
26         final String CREATE_TABLE_SQL = "CREATE TABLE ".concat(cartname)+ "("
27             + "id INTEGER AUTO_INCREMENT,"
28             + "Itemid VARCHAR(45) NOT NULL,"
29             + "Iname VARCHAR(45) NOT NULL,"
30             + "Iprice DOUBLE NOT NULL,"
31             + "Idiscount DOUBLE NOT NULL,"
32             + "Qty INTEGER NOT NULL,"
33             + "InetTotal INTEGER NOT NULL,"
34             + "OfferName VARCHAR(45),"
35             + "CategoryName VARCHAR(45),"
36             + "PRIMARY KEY (id)";
37
38         try {
39             con = DBManager.getConnection();
40             stmt = con.createStatement();
41
42             stmt.executeUpdate(Drop_table);
43             stmt.executeUpdate(CREATE_TABLE_SQL);
44             System.out.println("Table created");
45
46         } catch (Exception e) {
47             e.printStackTrace();
48         }
49     }
50 }
```



```
package Order_Management;
import java.io.IOException;
@WebServlet("/tempCartCreateServlet")
public class tempCartCreateServlet extends HttpServlet {
    private static final long serialVersionUID = 1L;

    protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {
        // TODO Auto-generated method stub
        HttpSession session = request.getSession();
        String LoggedUser = (String) session.getAttribute("LoggedUser");

        boolean isTrue;
        isTrue = ShoppingCartDbUtil.cartCreation(LoggedUser);

        try {
            List<Offer> offDetails = offerDbUtil.display(response);
            request.setAttribute("offDetails", offDetails);
        }
        catch(Exception e)
        {
            e.printStackTrace();
        }

        if(isTrue == true )
        {
            RequestDispatcher dis = request.getRequestDispatcher("search.jsp");
            dis.forward(request, response);
        }
    }
}
```

When the user logged into the system, user name will be stored in a session and when the user clicks the ‘shop with us’ , the temporary cart will be created for that particular user , and when the user add items to the cart , all the items will be stored in that temporary table.

```

//retrieving offer details from database
public static List<Offer> getOfferDetails(ServletResponse response)
{
    ArrayList<Offer> offer = new ArrayList<>();

    try {

        con=DBConnect.getConnection();
        PreparedStatement ps= con.prepareStatement("select * from offer2");
        ResultSet rs=ps.executeQuery();|
```

|

```

        while(rs.next())
        {
            int id=rs.getInt(1);
            String OfferId = rs.getString(2);
            String name = rs.getString(3);
            String desc = rs.getString(4);
            float discP = rs.getFloat(5);
            String status = rs.getString(6);
            double min = rs.getDouble(7);
            double max = rs.getDouble(8);
            Blob img = rs.getBlob(9);

            InputStream inputStream = img.getBinaryStream();
            ByteArrayOutputStream outputStream = new ByteArrayOutputStream();
            byte[] buffer = new byte[4096];
            int bytesRead = -1;

            while ((bytesRead = inputStream.read(buffer)) != -1) {
                outputStream.write(buffer, 0, bytesRead);
            }

            byte[] imageBytes = outputStream.toByteArray();

            String base64Image = Base64.getEncoder().encodeToString(imageBytes);

            inputStream.close();
            outputStream.close();

            Offer off1 = new Offer(id,OfferId,name,desc,discP,status,min,max,base64Image);
        }
    }
    catch(Exception ex) {
        ex.printStackTrace();
    }
    return offer;
}

```

Function to retrieve offer details with converting blob image to string base64 image.

