



SECP3204: Software Engineering WBL

## **System Design Descriptions (SDD)**

Vending Machine Inventory Management System

Version 1

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## 3. System Architectural Design

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### 3.1 Architecture Style and Rationale

The system is built with the MVC (Model-View-Controller) architecture at its core and is implemented in C# using the .NET Framework. Even though it's popular among .NET applications, the MVC pattern may be used with any language because it doesn't rely on any language's native features; instead, it explains how components of an application arrange and communicate with one another.

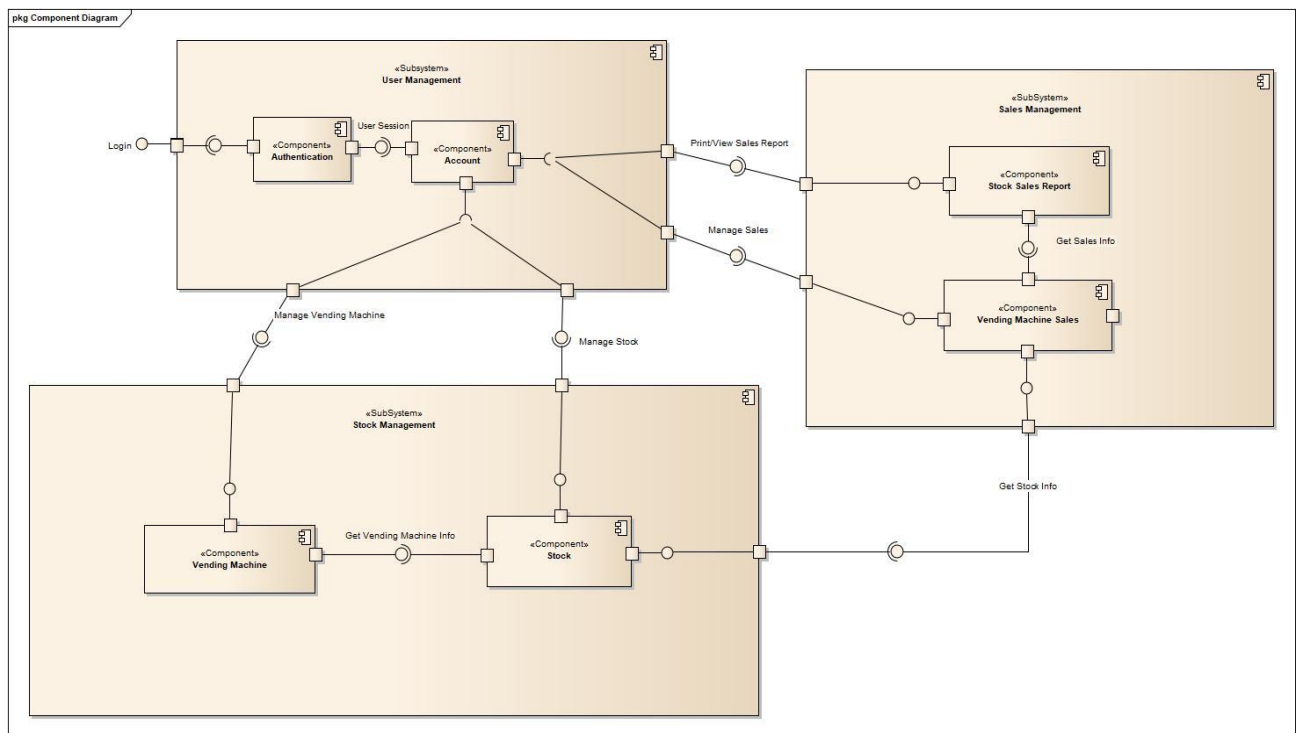
Model, View, and Controller, sometimes known as MVC, is a three-stage design. The Model, View, and Controller components are what the name implies. Users see data represented by models. The model will then represent classes in an object-oriented programming scenario that store the described class's attributes, or its properties. A User class, for instance, will have attributes like Name, User Id, and so forth. The model level of the MVC structure describes each of them in detail.

The visual representation of the system is determined by the view level. Simply stated, the view is where user interface development design takes place. The view element describes the layout and designs that are displayed to the user. As its name implies, the controller level functions as the middleware that links the model and view and establishes how the programme should behave. The controller builds object instances and performs logical operations using the model that has been specified before passing the results to the view level for the user to see. The controller is also in charge of what happens following the submission of a form, the pressing of a button, or even the execution of route guards. Because application logic is organised in the MVC design in these three distinct ways, developers have an unmatched advantage throughout the development process.

The development cycle is accelerated using MVC architecture. Individual developers can work on the same module in a development team at various levels, pipelining the development process. This method of parallel development not only encourages efficiency but also integrity because the team can progress together, one module at a time. Additionally, the MVC architecture promotes code reuse while enabling several views to utilise a single controller. This can significantly decrease code duplication, allowing developers to write less code to achieve the same effects. Additionally, code recycling can enhance debugging because it is easier to correct a single point of failure than a number of them. The MVC is distinctive in that the model and controller are separated. A class would typically have characteristics and methods, but MVC separates these into model and controller. As a change to the controller in this scenario won't have an impact on the model, this raises the system's resilience to change. Similar to how the view and controller are independent of one another, the model and controller will not be affected by changes to the user interface.

Last but not least, the MVC is a server-side solution that is SEO (Search Engine Optimization) friendly. This could improve how accurately search engines index the webpage and help it rise in search results. This is essential to a company since exposure can increase profits.

## 3.2 Component Model



**Figure 3.1: Component Diagram of Vending Machine Inventory Management System**

This system is made up of three subsystems in total, each of which has components that perform a certain function. Through an interface—a port—each component either communicates with other components outside of the subsystem or within it. User Management, Sales Management, and Stock Management are the three subsystems in this inventory management system.

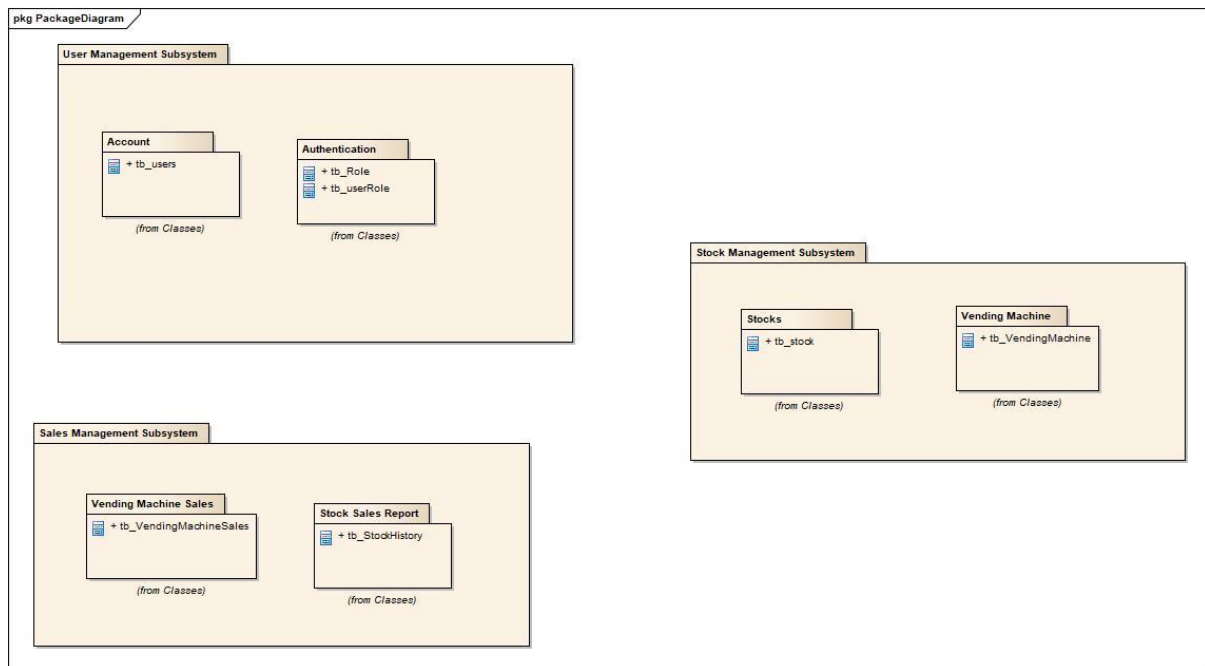
The components of the Authentication and Account subsystem make up User Management. Before granting the user specified access in the system, the Authentication component gets the login credentials from the user and authenticates the user type as well as the login credentials. Every time a user logs in, the Authentication component's Login function is invoked from the view level. The provider interfaces for the Login and User Session are also part of the authentication component. The CRUD (Create, Read, Update, and Delete) operations on user accounts are made possible by the Account component, which also enables the creation of new accounts. There are 4 provider interfaces in the Account component. The Employer can access the Print/View Sales interfaces and Vending Machine Sales interfaces, whereas the Employer and Employee can both access the Manage Vending Machine and Manage Stock interfaces.

The Sales Management subsystem consists of Stock Sales Report and Vending Machine Sales components. The Stock Sales Report component provides a Sales Report to the Employer. It generates sales reports from the Get Sales Info provider interface of the Vending Machine Sales component. The Vending Machine Sales Component also allows users to perform the CRUD (Create, Read, Update, and Delete) operations. Hence, the users are able to create a new sale, read and update an existing sale or delete a sale from the vending machine sales.

The Stock Management subsystem consists of Vending Machine and Stock Component. Both components allow users to perform CRUD (Create, Read, Update, and Delete) operations on vending machines and stock respectively. The Get Vending Machine Info interface of the Vending Machine component communicates with the Stock Component to calculate the Stock Value in the Inventory. Which in returns, the Stock components stock info via Get Stock Info interface to Vending Machine Sales component of Sales Management subsystem.

## 4. Detailed Description of Components

### 4.1 Complete Package Diagram



**Figure 4.1: Package Diagram for Vending Machine Inventory Management System**

As mentioned in the preceding part, the vending inventory system is divided into **3 subsystems**, each of which is explained in more detail in the following section. The classes of each component are shown in the above diagram.

## 4.2 Detailed Description

These tables will be used as reference for the sequence diagrams.

P001: User Management Subsystem			
UC001	Login/Logout	SD001	User Login/Logout
UC002	Manage Users	SD002	Create User
		SD003	Update User
		SD004	Delete User

**Table 1**

P002: Stock Management Subsystem			
UC003	Manage Stock	SD005	Create Stock
		SD006	View Stock
		SD007	Update Stock
		SD008	Delete Stock
UC004	Manage Vending Machine	SD009	Create Vending Machine
		SD010	View Vending Machine
		SD011	Update Vending Machine
		SD012	Delete Vending Machine

**Table 2**

P002: Sales Management Subsystem			
UC005	Manage Vending Machine Sales	SD013	Create Vending Machine Sales
		SD014	View Vending Machine Sales
		SD015	Update Vending Machine Sales
		SD016	Delete Vending Machine Sales
UC006	Manage Report	SD017	Create Stock History
		SD018	Update Stock History

**Table 3**

**\*\*Reports are generated based on Stock History**



#### 4.2.1 P001: User Management Subsystem

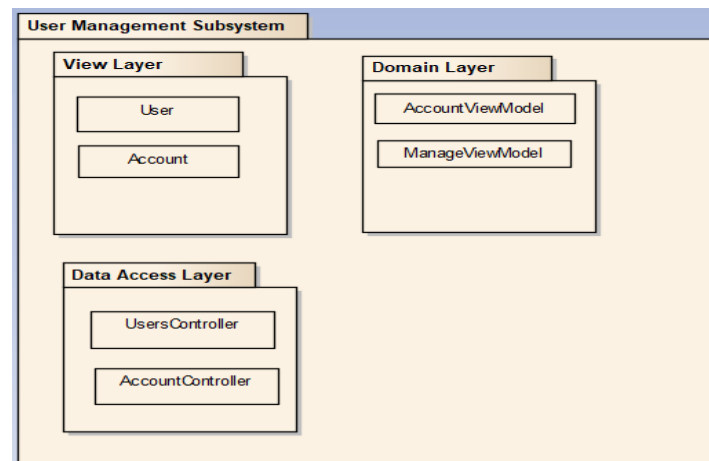


Figure 4.2: Package Diagram for User Management Subsystem

The User Management subsystem consists of View, Data Access and Domain layer which adheres to the MVC architecture.

##### 4.2.1.1 Class Diagram

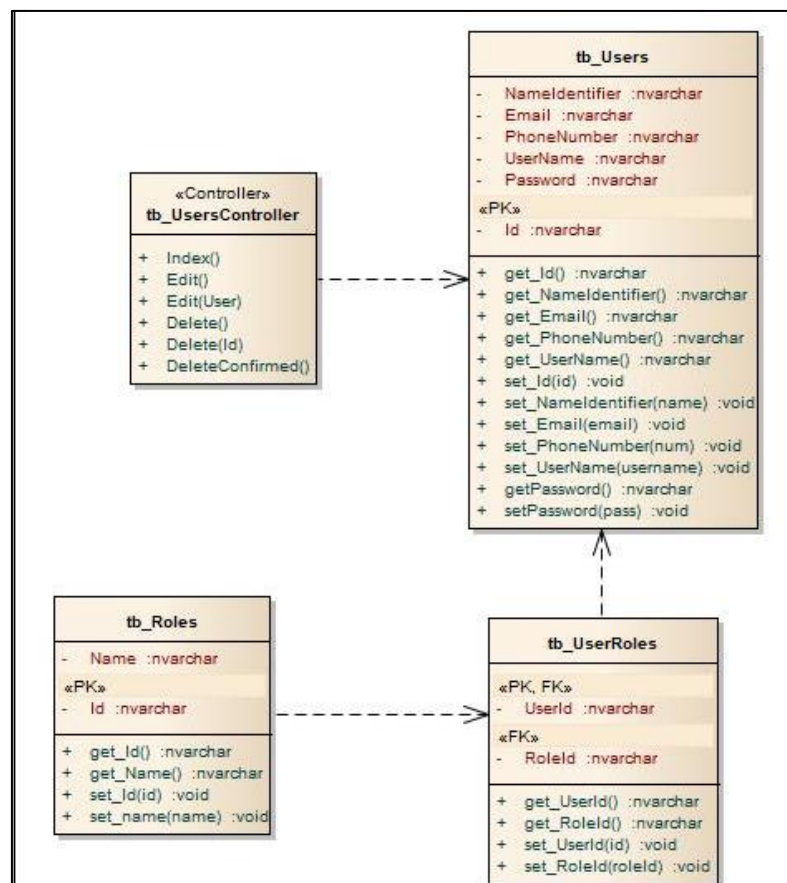


Figure 4.3: Class Diagram for User Management Subsystem

<b>Entity Name</b>	tb_users
<b>Method Name</b>	get_Id
<b>Input</b>	-
<b>Output</b>	List of user id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of all user id in the system</li> <li>3. Display the user id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	get_NameIdentifier
<b>Input</b>	-
<b>Output</b>	List of name identifier in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of name identifier in the system</li> <li>3. Display the name identifier in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	get_Email
<b>Input</b>	-
<b>Output</b>	List of user email in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of all user email in the system</li> <li>3. Display the user email in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	get_PhoneNumber
<b>Input</b>	-
<b>Output</b>	List of user phone number in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of all user phone number in the system</li> <li>3. Display the user phone number in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	get_UserName
<b>Input</b>	-
<b>Output</b>	List of user name in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of all user name in the system</li> <li>3. Display the user name in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	set_Id
<b>Input</b>	User id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new user id with provided information</li> <li>3. Add id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	set_NameIdentifier
<b>Input</b>	Name identifier to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new name identifier with provided information</li> <li>3. Add name to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	set_Email
<b>Input</b>	User email to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new user email with provided information</li> <li>3. Add email to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	set_PhoneNumber
<b>Input</b>	Phone number to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new phone number with provided information</li> <li>3. Add phone number to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	set_UserName
<b>Input</b>	User name to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new username with provided information</li> <li>3. Add username to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_users
<b>Method Name</b>	setPassword
<b>Input</b>	User password to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new user password with provided information</li> <li>3. Add password to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Roles
<b>Method Name</b>	get_Id
<b>Input</b>	-
<b>Output</b>	List of role id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of all role id in the system</li> <li>3. Display the role id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Roles
<b>Method Name</b>	get_Name
<b>Input</b>	-
<b>Output</b>	List of role name in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of all role name in the system</li> <li>3. Display the role name in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Roles
<b>Method Name</b>	set_Id
<b>Input</b>	Role id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new role id with provided information</li> <li>3. Add role id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Roles
<b>Method Name</b>	set_name
<b>Input</b>	Role name to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new role name with provided information</li> <li>3. Add role name to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_UserRoles
<b>Method Name</b>	get_UserId
<b>Input</b>	-
<b>Output</b>	List of user id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of all user id in the system</li> <li>3. Display the user id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_UserRoles
<b>Method Name</b>	get_RoleId
<b>Input</b>	-
<b>Output</b>	List of role id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of all role id in the system</li> <li>3. Display the role id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_UserRoles
<b>Method Name</b>	set_UserId
<b>Input</b>	User Id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new user id with provided information</li> <li>3. Add user id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_UserRoles
<b>Method Name</b>	set_RoleId
<b>Input</b>	Role id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new role id with provided information</li> <li>3. Add role id to the database</li> <li>4. End</li> </ol>

#### 4.2.1.2 Sequence Diagram

a) SD001: Sequence diagram for Login/Logout

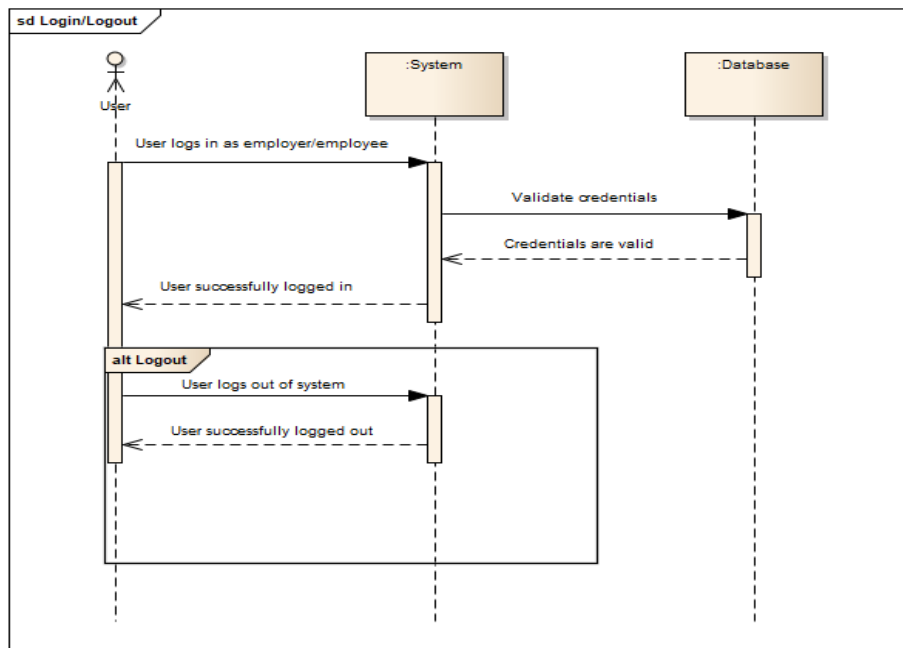


Figure 4.4: Sequence Diagram for Login/Logout

b) SD002: Sequence diagram for Create User

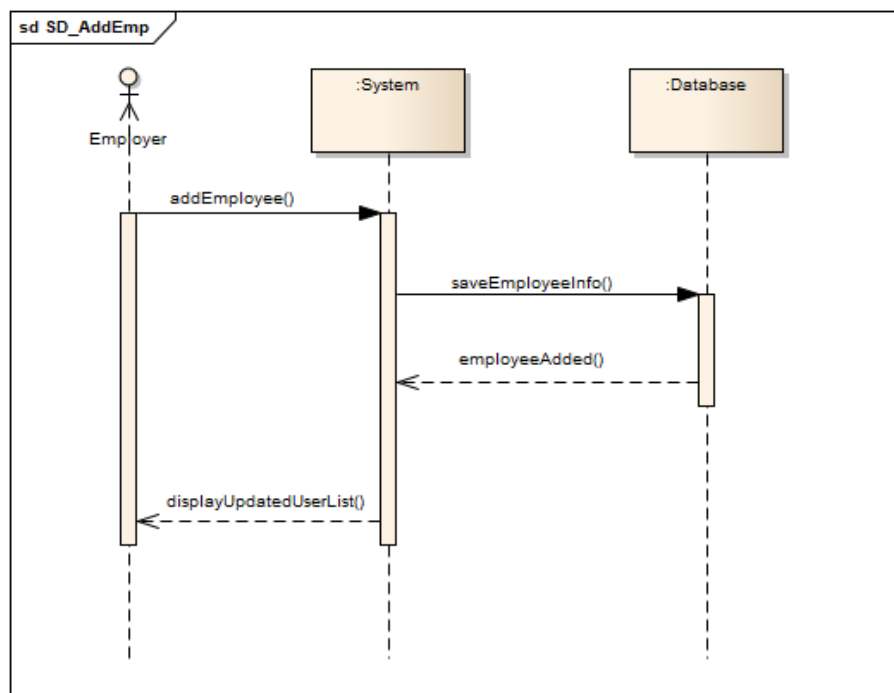
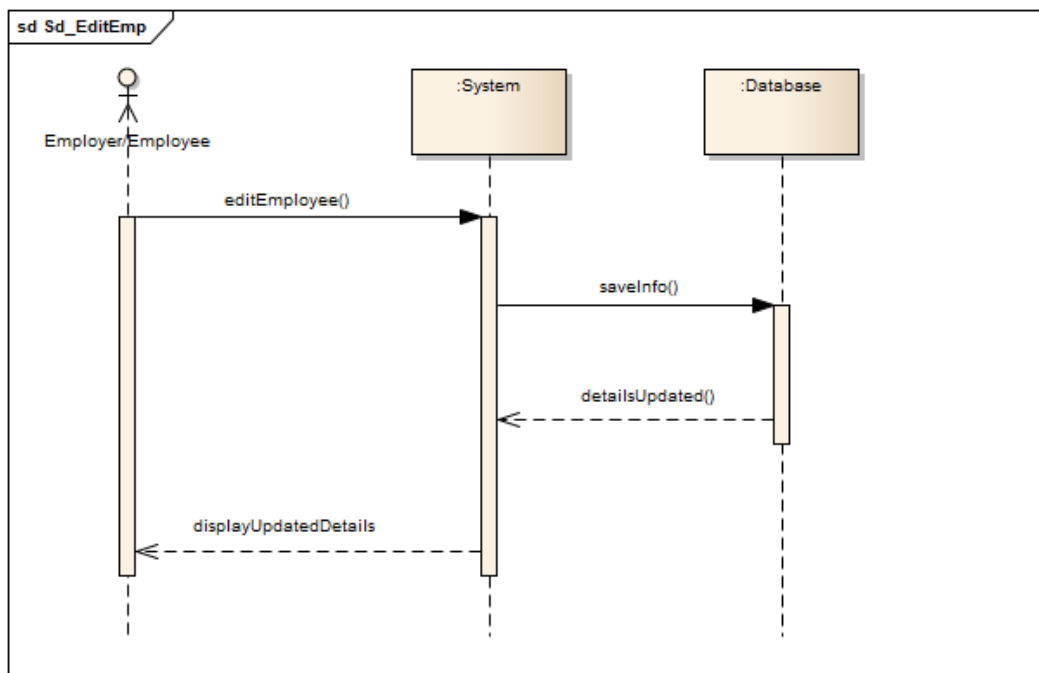


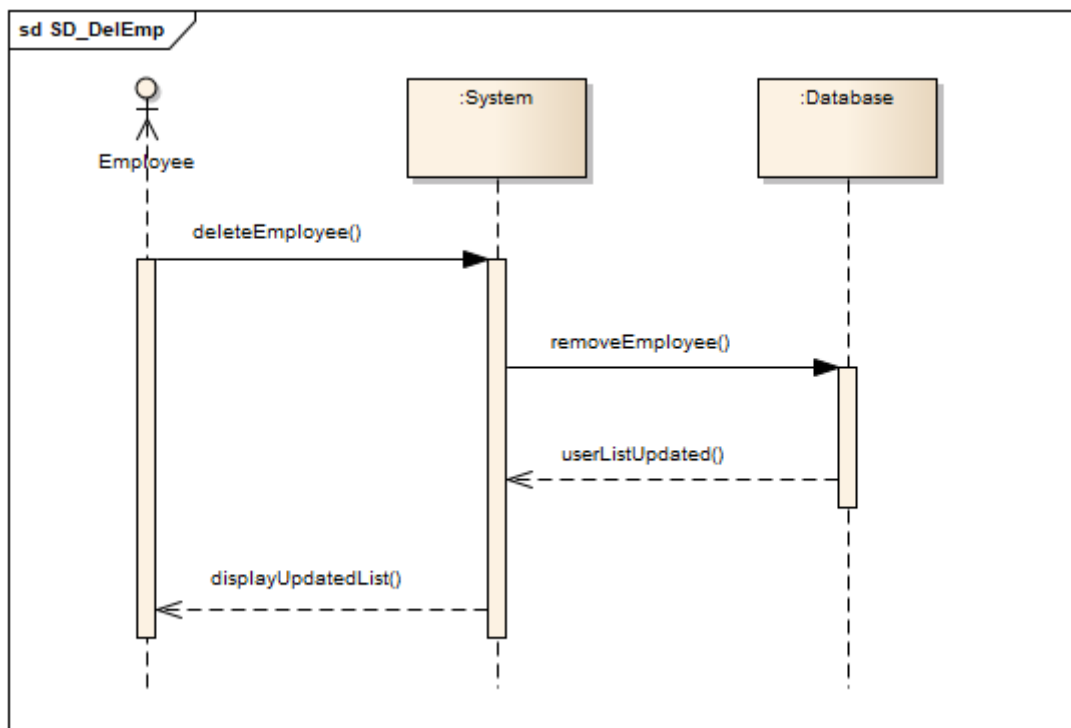
Figure 4.5: Sequence Diagram for Create User

c) SD003: Sequence diagram for Update User



**Figure 4.6: Sequence Diagram for Update User**

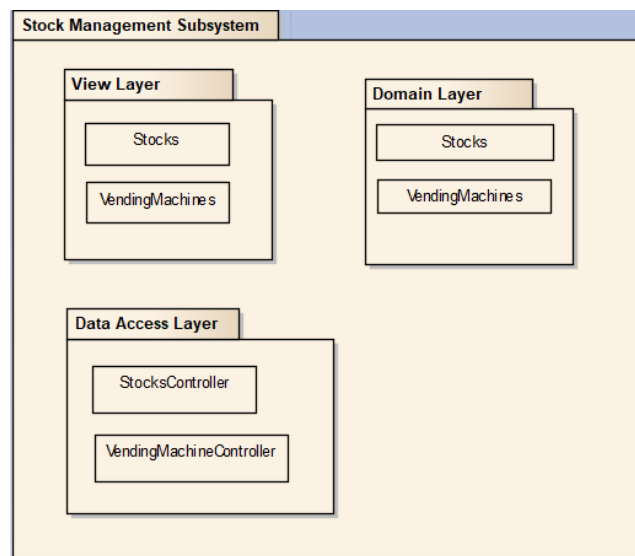
d) SD004: Sequence diagram for Delete User



**Figure 4.7: Sequence Diagram for Delete User**



#### 4.2.2 P002: Stock Management Subsystem



**Figure 4.8: Package Diagram for Stock Management subsystem**

The Stock Management subsystem consists of View, Data Access and Domain layer which adheres to the MVC architecture.

#### 4.2.2.1 Class Diagram

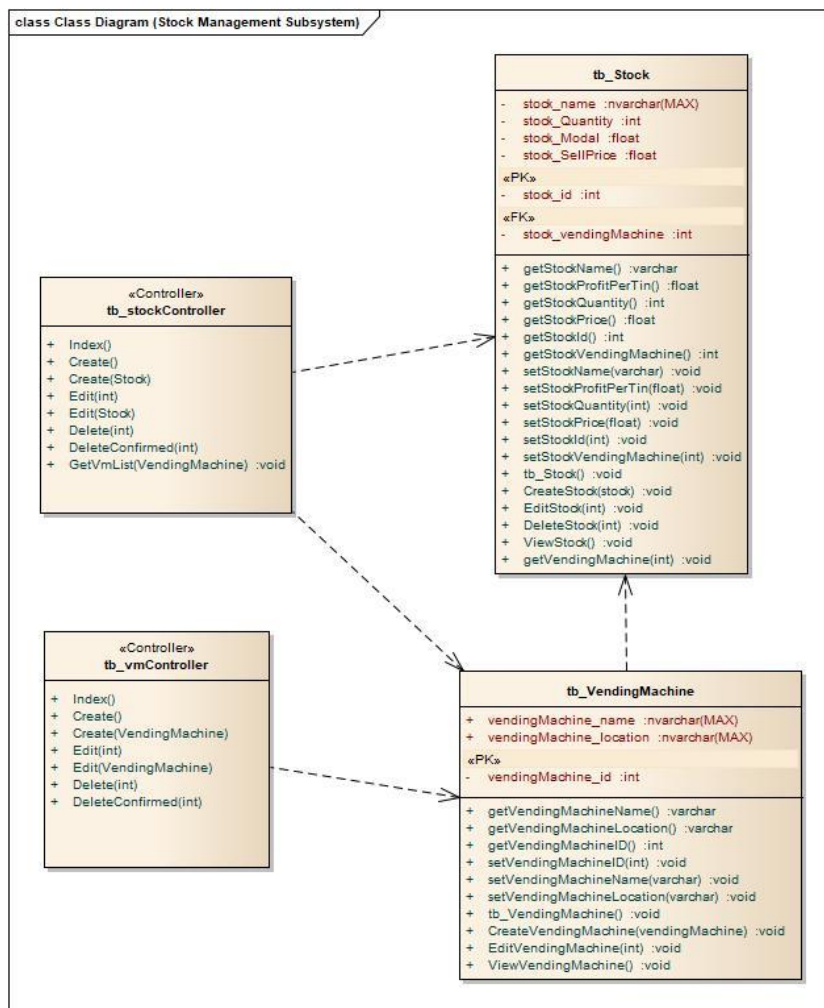


Figure 4.9: Class Diagram for Stock Management Subsystem

Entity Name	tb_Stock
Method Name	getStockName
Input	-
Output	List of stock name in the system
Algorithm	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock name in the system</li> <li>3. Display the stock name in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	getStockProfitPerTin
<b>Input</b>	-
<b>Output</b>	List of stock profit per tin in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock profit per tin in the system</li> <li>3. Display the stock profit per tin in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	getStockQuantity
<b>Input</b>	-
<b>Output</b>	List of stock quantity in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock quantity in the system</li> <li>3. Display the stock quantity in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	getStockPrice
<b>Input</b>	-
<b>Output</b>	List of stock price in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock price in the system</li> <li>3. Display the stock price in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	getStockId
<b>Input</b>	-
<b>Output</b>	List of stock id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock id in the system</li> <li>3. Display the stock id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	getStockVendingMachine
<b>Input</b>	-
<b>Output</b>	List of stocks in vending machine in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock in vending machine in the system</li> <li>3. Display the stocks in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	setStockName
<b>Input</b>	Stock Name to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock name with provided information</li> <li>3. Add name to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	setStockProfitPerTin
<b>Input</b>	Stock profit per tin to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock profit per tin with provided information</li> <li>3. Add stock profit per tin to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	setStockPrice
<b>Input</b>	Stock price to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock price with provided information</li> <li>3. Add price to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	setStockId
<b>Input</b>	Stock id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock id with provided information</li> <li>3. Add stock id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	setStockVendingMachine
<b>Input</b>	Vending machine stock to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine stock with provided information</li> <li>3. Add stocks to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	CreateStock
<b>Input</b>	stock to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Create new stock with provided information</li> <li>3. Add object to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	EditStock
<b>Input</b>	Stockid
<b>Output</b>	Stock details updated
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Find corresponding stock according to the stock id</li> <li>3. Update the student information according to desired information</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	DeleteStock
<b>Input</b>	Stockid
<b>Output</b>	Stock details deleted
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Find corresponding stock according to the stock id</li> <li>3. Remove the corresponding stock from database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	ViewStock
<b>Input</b>	Stockid
<b>Output</b>	Stock details displayed
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Find corresponding stock according to the stock id</li> <li>3. Display the corresponding stock details of the stock id.</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachine
<b>Method Name</b>	getVendingMachineName
<b>Input</b>	-
<b>Output</b>	List of vending machine name in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine name in the system</li> <li>3. Display the vending machine name in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachine
<b>Method Name</b>	getVendingMachineLocations
<b>Input</b>	-
<b>Output</b>	List of vending machine locations in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine locations in the system</li> <li>3. Display the vending machine locations in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachine
<b>Method Name</b>	getVendingMachineID
<b>Input</b>	-
<b>Output</b>	List of vending machine ID in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine id in the system</li> <li>3. Display the vending machine id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachine
<b>Method Name</b>	setStockVendingMachineID
<b>Input</b>	Vending machine id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine id with provided information</li> <li>3. Add vending machine id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_Stock
<b>Method Name</b>	setStockVendingMachineName
<b>Input</b>	Vending machine name to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine name with provided information</li> <li>3. Add vending machine name to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachine
<b>Method Name</b>	setStockVendingMachineLocation
<b>Input</b>	Vending machine location to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine location with provided information</li> <li>3. Add vending machine location to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachine
<b>Method Name</b>	CreateVendingMachine
<b>Input</b>	Vending machine id to be created
<b>Output</b>	Vending machine id created successfully
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Create new vending machine id with provided information</li> <li>3. Add object to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachine
<b>Method Name</b>	EditVendingMachine
<b>Input</b>	Vending machine id
<b>Output</b>	Vending machine details updated
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Find corresponding vending machine according to the vending machine id</li> <li>3. Update the vending machine information according to desired information</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachine
<b>Method Name</b>	ViewVendingMachine
<b>Input</b>	Vending machine id
<b>Output</b>	Vending machine details displayed
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>4. Start</li> <li>5. Find corresponding vending machine according to the vending machine id</li> <li>6. Vending machine details displayed</li> <li>4. End</li> </ol>



#### 4.2.2.2 Sequence Diagram

a) SD005: Sequence diagram for Create Stock

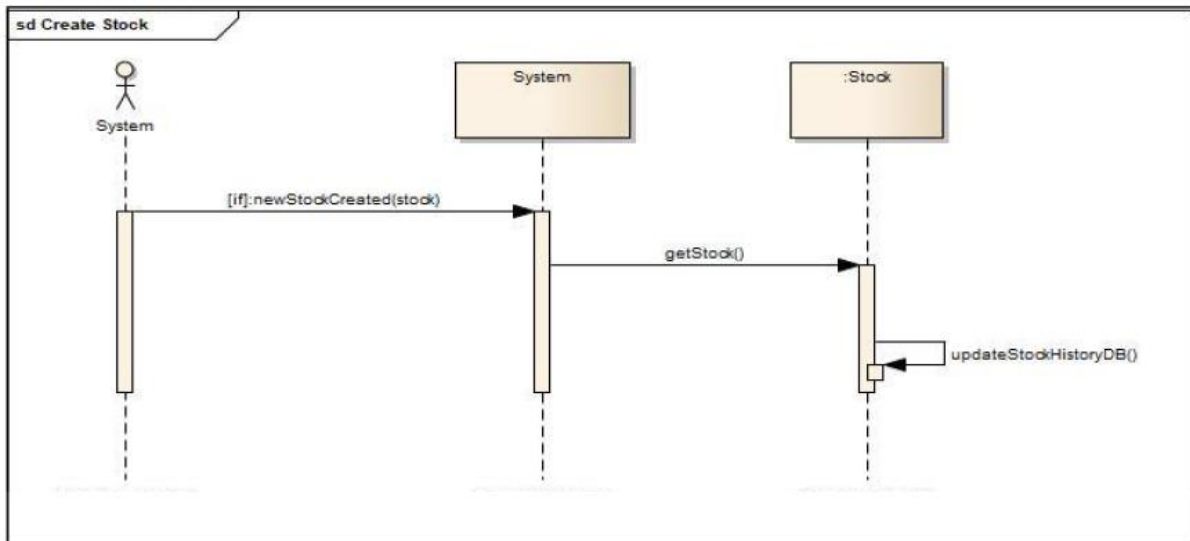


Figure 4.10: Sequence Diagram for Create Stock

b) SD006: Sequence diagram for View Stock

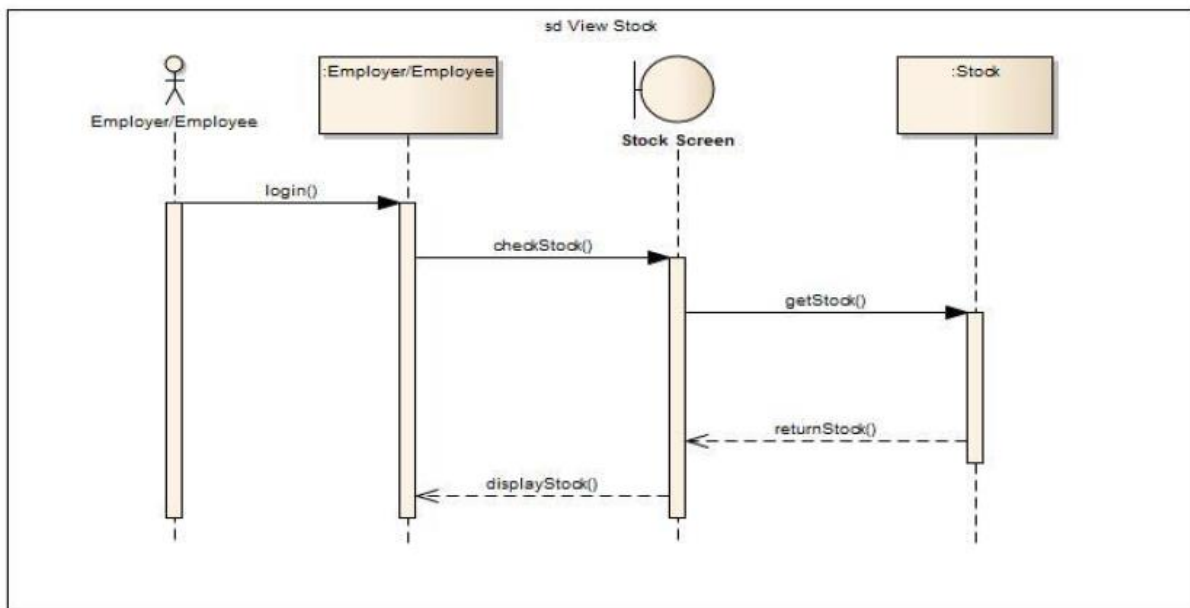


Figure 4.11: Sequence Diagram for View Stock

c) SD007: Sequence diagram for Update Stock

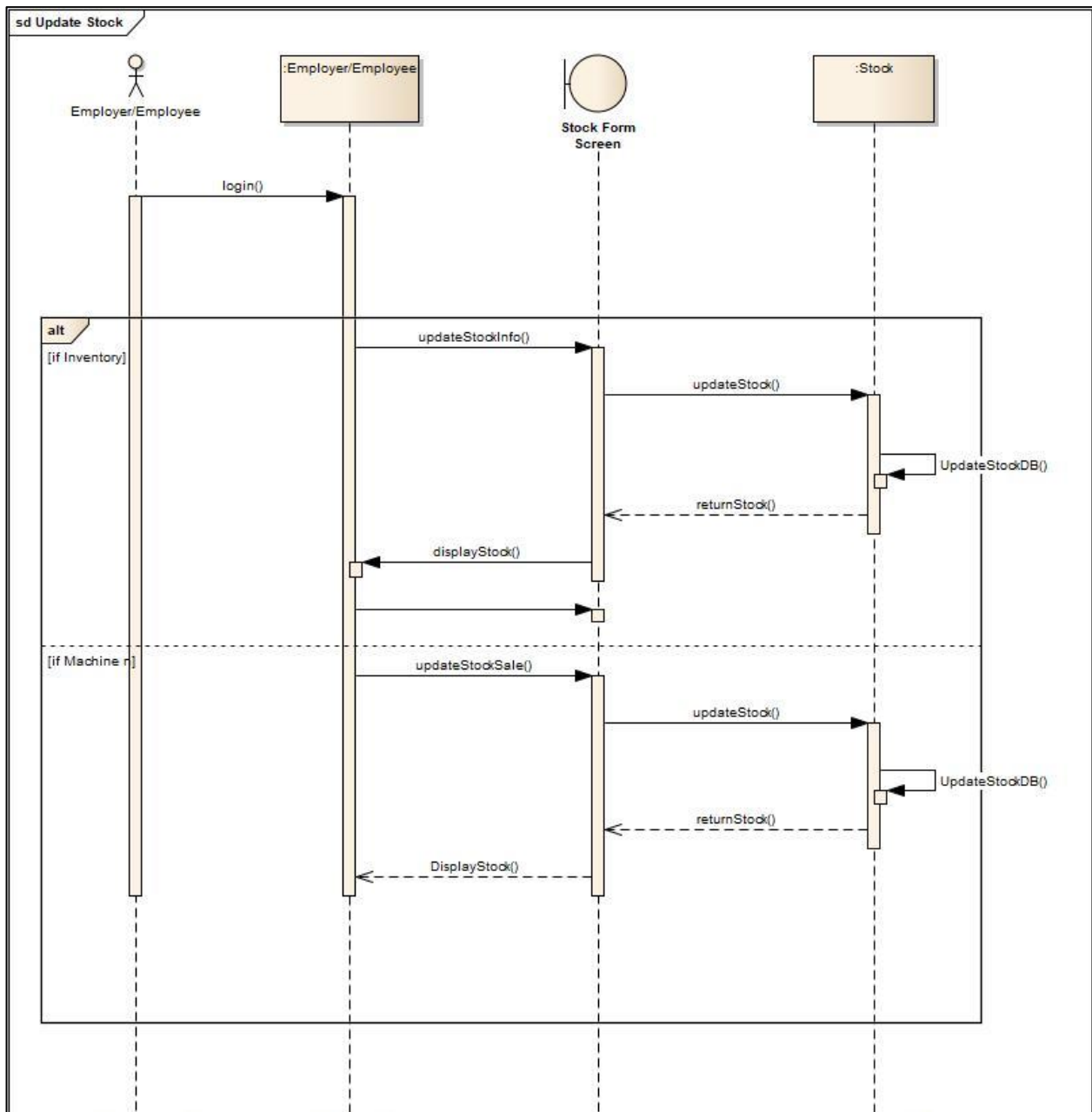


Figure 4.12: Sequence Diagram for Update Stock

d) SD008: Sequence diagram for Delete Stock

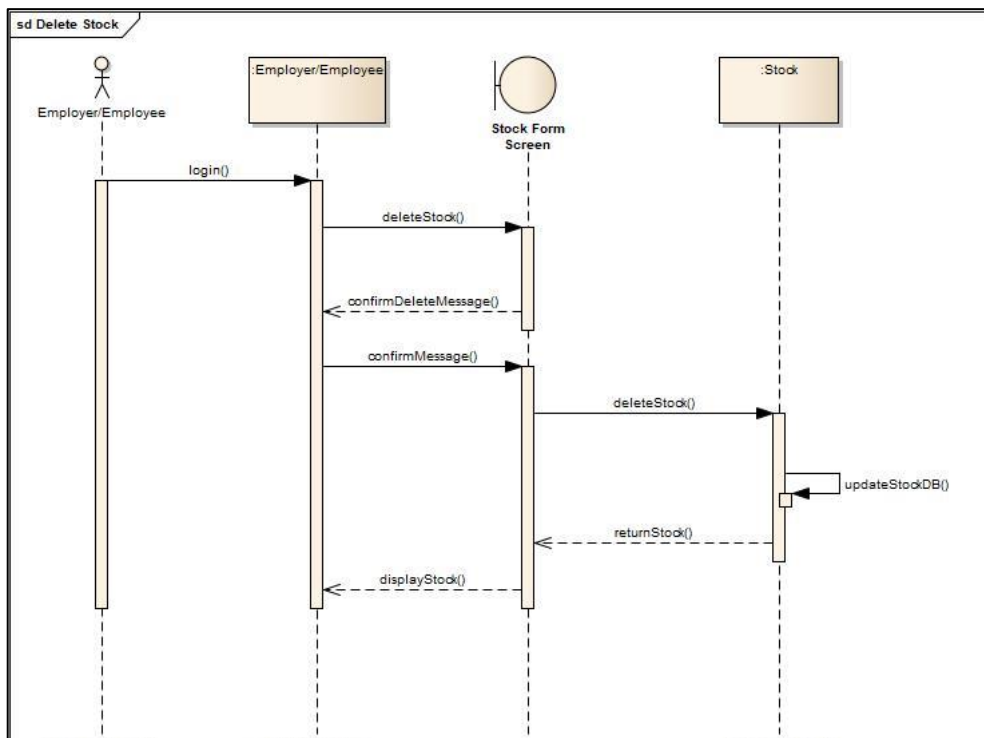


Figure 4.13: Sequence Diagram for Delete Stock

e) SD009: Sequence diagram for Create Vending Machine

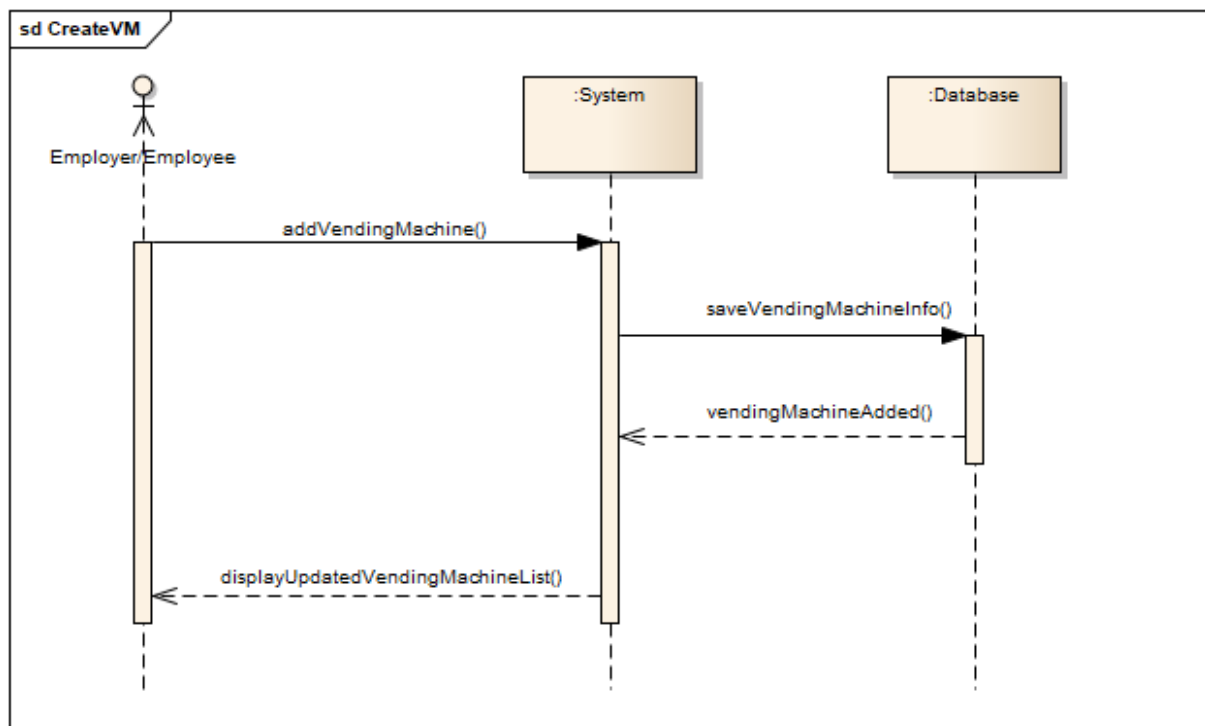


Figure 4.14: Sequence Diagram for Create Vending Machine

f) SD010: Sequence diagram for View Vending Machine

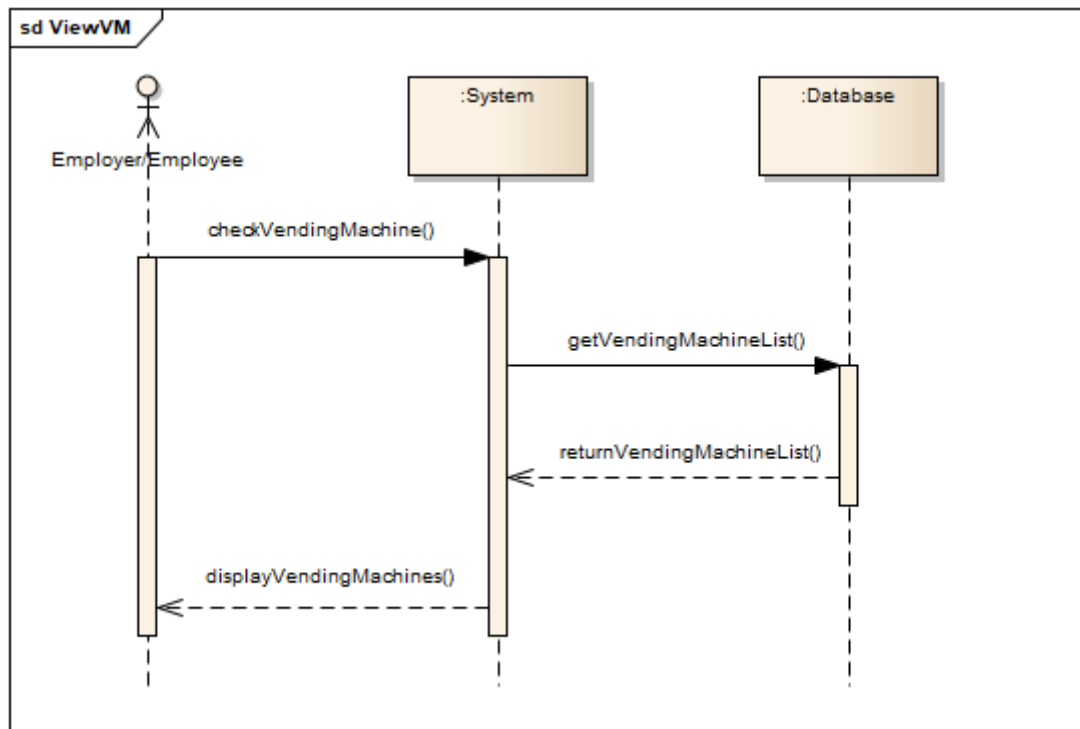


Figure 4.15: Sequence Diagram for View Vending Machine

g) SD011: Sequence diagram for Update Vending Machine

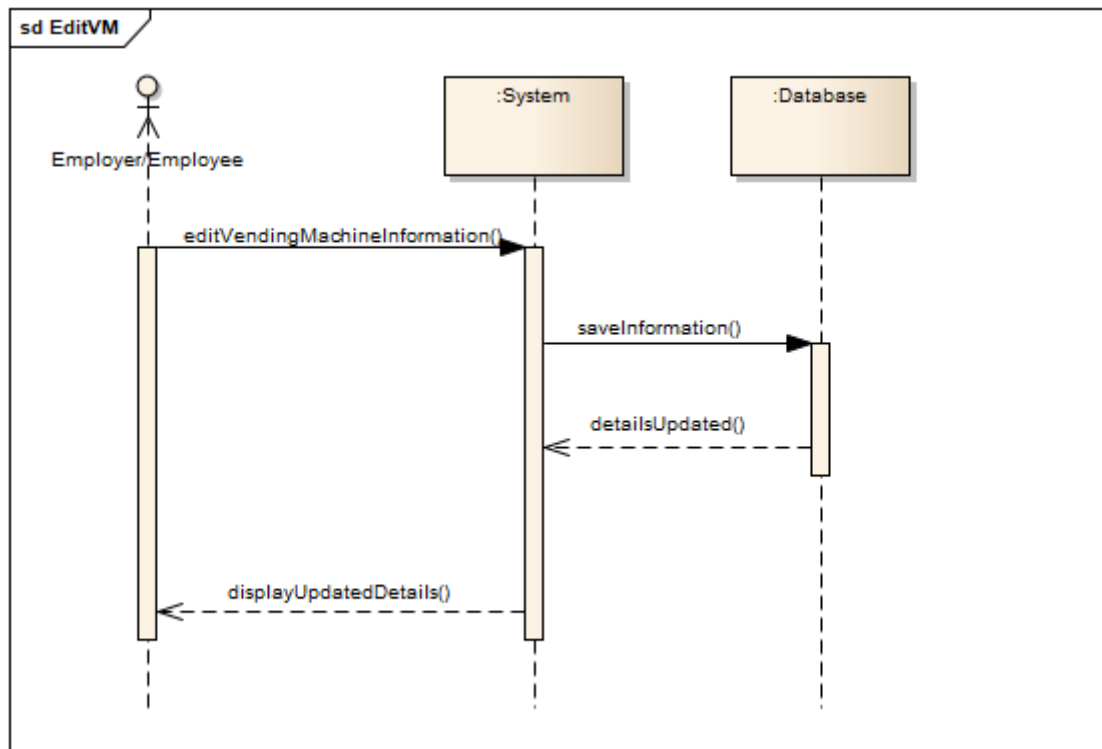


Figure 4.16: Sequence Diagram for Update Vending Machine

h) SD012: Sequence diagram for Delete Vending Machine

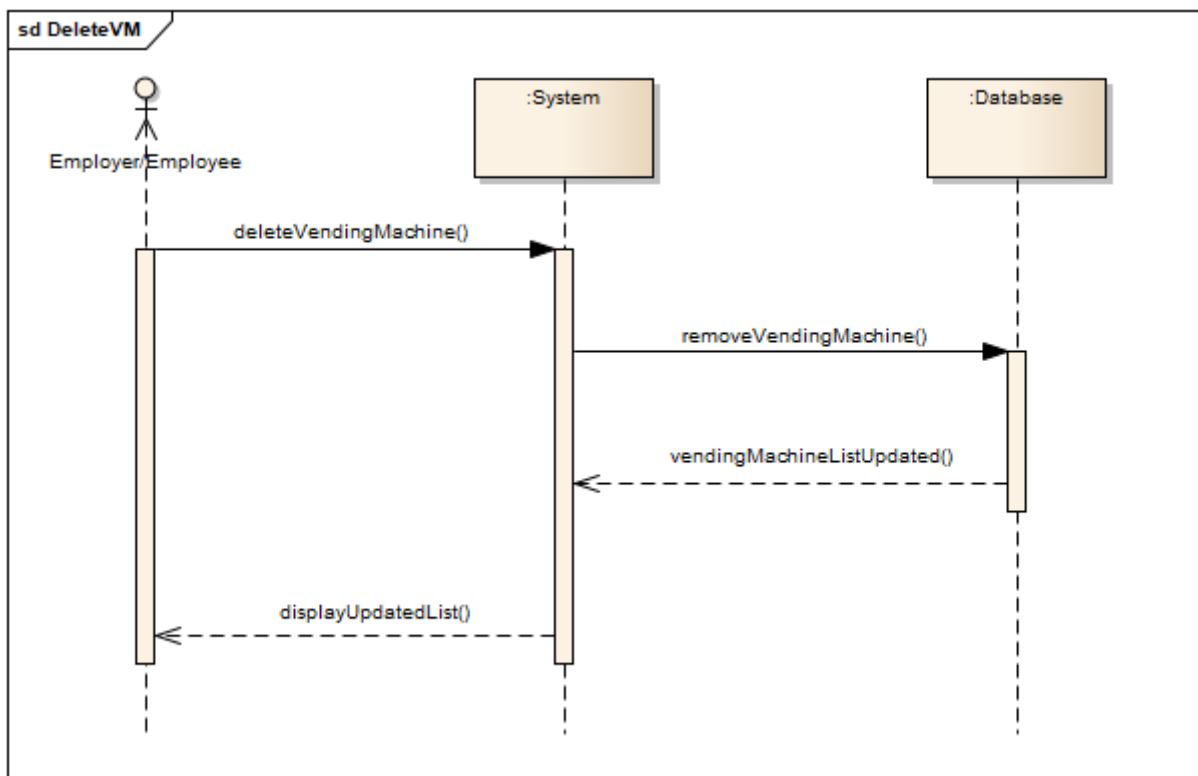
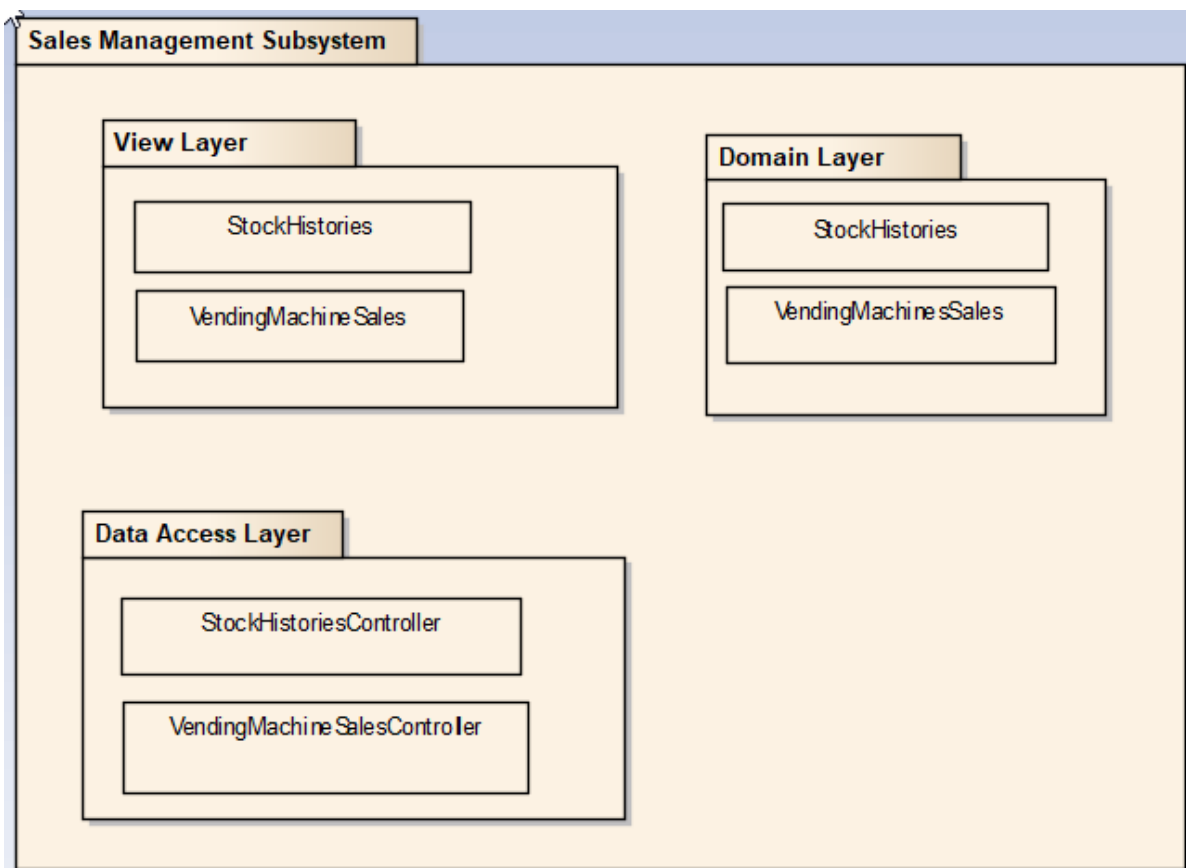


Figure 4.17: Sequence Diagram for Delete Vending Machine

#### 4.2.3 P003: Sales Management Subsystem



**Figure 4.18: Package Diagram for Sales Management subsystem**

The Sales Management subsystem consists of View, Data Access and Domain layer which adheres to the MVC architecture.

#### 4.2.3.1 Class Diagram

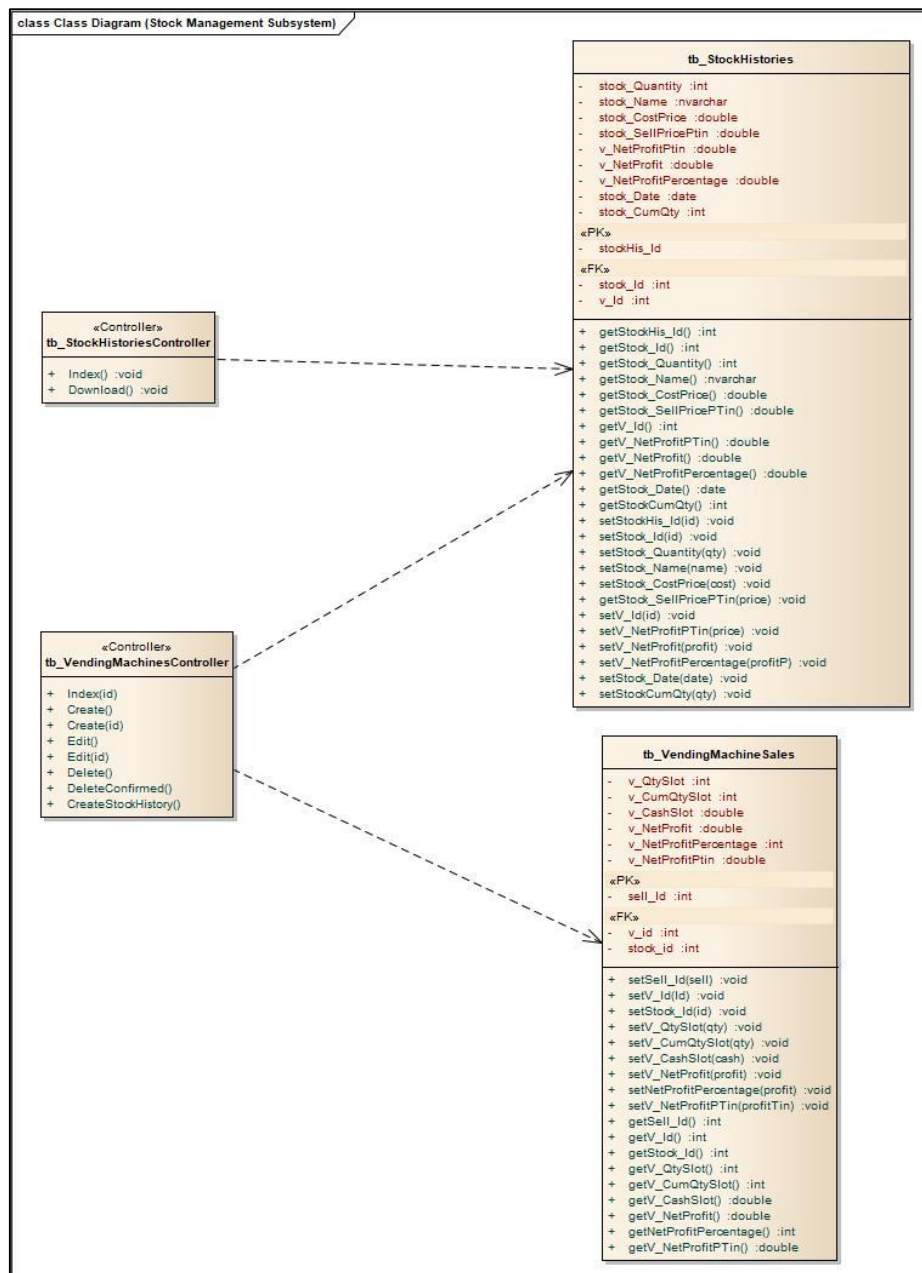


Figure 4.19: Class Diagram for Sales Management Subsystem

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStockHis_Id
<b>Input</b>	-
<b>Output</b>	List of stock history id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock history id in the system</li> <li>3. Display the stock history id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStock_Id
<b>Input</b>	-
<b>Output</b>	List of stock id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock id in the system</li> <li>3. Display the stock id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStock_Quantity
<b>Input</b>	-
<b>Output</b>	List of stock quantity in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock quantity in the system</li> <li>3. Display the stock quantity in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStock_Name
<b>Input</b>	-
<b>Output</b>	List of stock name in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock name in the system</li> <li>3. Display the stock name in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStock_CostPrice
<b>Input</b>	-
<b>Output</b>	List of stock cost price in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock cost price in the system</li> <li>3. Display the stock cost price in the view page</li> <li>4. End</li> </ol>



<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStock_SellPrice
<b>Input</b>	-
<b>Output</b>	List of stock sell price in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock sell price in the system</li> <li>3. Display the stock sell price in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getV_Id
<b>Input</b>	-
<b>Output</b>	List of vending machine id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine id in the system</li> <li>3. Display the vending machine id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getV_NetProfitPTin
<b>Input</b>	-
<b>Output</b>	List of vending machine net profit per tin in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine net profit per tin in the system</li> <li>3. Display the vending machine net profit per tin in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getV_NetProfit
<b>Input</b>	-
<b>Output</b>	List of vending machine net profit in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine net profit in the system</li> <li>3. Display the vending machine net profit in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getV_NetProfitPercentage
<b>Input</b>	-
<b>Output</b>	List of vending machine net profit percentage in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine net profit percentage in the system</li> <li>3. Display the vending machine net profit percentage in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStock_Date
<b>Input</b>	-
<b>Output</b>	List of date of stock sold in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of date of stock sold in the system</li> <li>3. Display the date of stock sold in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStockCumQty
<b>Input</b>	-
<b>Output</b>	List of stock cumulative sold quantity in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock cumulative sold quantity in the system</li> <li>3. Display the stock cumulative quantity sold in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	getStock_SellPricePTin
<b>Input</b>	-
<b>Output</b>	List of stock selling price per tin in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock selling price per tin in the system</li> <li>3. Display the stock selling price per tin in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setStockHis_Id
<b>Input</b>	Stock history id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock history id with provided information</li> <li>3. Add stock history id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setStock_Id
<b>Input</b>	Stock id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock id with provided information</li> <li>3. Add stock id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setStock_Quantity
<b>Input</b>	Stock Quantity to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock quantity with provided information</li> <li>3. Add stock quantity to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setStock_Name
<b>Input</b>	Stock name to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock name with provided information</li> <li>3. Add stock name to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setStock_CostPrice
<b>Input</b>	Stock cost price to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock cost price with provided information</li> <li>3. Add stock cost price to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setStock_SellPrice
<b>Input</b>	Stock sell price to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock sell price with provided information</li> <li>3. Add stock sell price to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setV_id
<b>Input</b>	Vending machine id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine id with provided information</li> <li>3. Add vending machine id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setV_NetProfitPTin
<b>Input</b>	Vending machine net profit per tin to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine net profit per tin with provided information</li> <li>3. Add vending machine net profit per tin to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setV_NetProfitPercentage
<b>Input</b>	Vending machine net profit percentage to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine net profit percentage with provided information</li> <li>3. Add vending machine net profit percentage to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setStock_Date
<b>Input</b>	Stock sold date to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock sold date with provided information</li> <li>3. Add stock date to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_StockHistories
<b>Method Name</b>	setStockCumQty
<b>Input</b>	Stock cumulative sold quantity to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock cumulative sold quantity with provided information</li> <li>3. Add cumulative stock sold quantity to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	setSell_Id
<b>Input</b>	Sales id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new sales id with provided information</li> <li>3. Add sales id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	setV_Id
<b>Input</b>	Vending machine id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine id with provided information</li> <li>3. Add vending machine id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingmachineSales
<b>Method Name</b>	setStock_id
<b>Input</b>	stock id to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new stock id with provided information</li> <li>3. Add stock id to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingmachineSales
<b>Method Name</b>	setV_QtySlot
<b>Input</b>	Vending machine slot quantity to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine slot quantity with provided information</li> <li>3. Add vending machine slot quantity to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingmachineSales
<b>Method Name</b>	setV_CumQtySlot
<b>Input</b>	Vending machine cumulative quantity slot to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine cumulative quantity slot with provided information</li> <li>3. Add vending machine cumulative quantity slot to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingmachineSales
<b>Method Name</b>	setV_CashSlot
<b>Input</b>	Vending machine cash slot to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine cash slot with provided information</li> <li>3. Add vending machine cash slot to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingmachineSales
<b>Method Name</b>	setV_NetProfit
<b>Input</b>	Vending machine net profit to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new vending machine net profit with provided information</li> <li>3. Add vending machine net profit to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingmachineSales
<b>Method Name</b>	setNetProfitPercentage
<b>Input</b>	Net profit percentage be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new net profit percentage with provided information</li> <li>3. Add net profit percentage to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingmachineSales
<b>Method Name</b>	setV_NetProfitPTin
<b>Input</b>	Net profit per tin to be created
<b>Output</b>	-
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Set new net profit per tin with provided information</li> <li>3. Add net profit per tin to the database</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	getSell_Id
<b>Input</b>	-
<b>Output</b>	List of sell id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of sell id in the system</li> <li>3. Display the sell id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	getV_Id
<b>Input</b>	-
<b>Output</b>	List of vending machine id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine id in the system</li> <li>3. Display the vending machine id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	getStockl_Id
<b>Input</b>	-
<b>Output</b>	List of stock id in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of stock id in the system</li> <li>3. Display the stock id in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	getV_QtySlot
<b>Input</b>	-
<b>Output</b>	List of vending machine quantity slot in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine quantity slot in the system</li> <li>3. Display the vending machine quantity slot in the view page</li> <li>4. End</li> </ol>



<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	getV_NetProfit
<b>Input</b>	-
<b>Output</b>	List of vending machine net profit in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine net profit in the system</li> <li>3. Display the vending machine net profit in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	getNetProfitPercentage
<b>Input</b>	-
<b>Output</b>	List of net profit percentage in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of net profit percentage in the system</li> <li>3. Display the net profit percentage in the view page</li> <li>4. End</li> </ol>

<b>Entity Name</b>	tb_VendingMachineSales
<b>Method Name</b>	getV_NetProfitPTin
<b>Input</b>	-
<b>Output</b>	List of vending machine net profit per tin in the system
<b>Algorithm</b>	<ol style="list-style-type: none"> <li>1. Start</li> <li>2. Fetch the information of vending machine net profit per tin in the system</li> <li>3. Display the vending machine net profit per tin in the view page</li> <li>4. End</li> </ol>

#### 4.2.3.2 Sequence Diagram

h) SD013: Sequence diagram for Create Vending Machine Sales

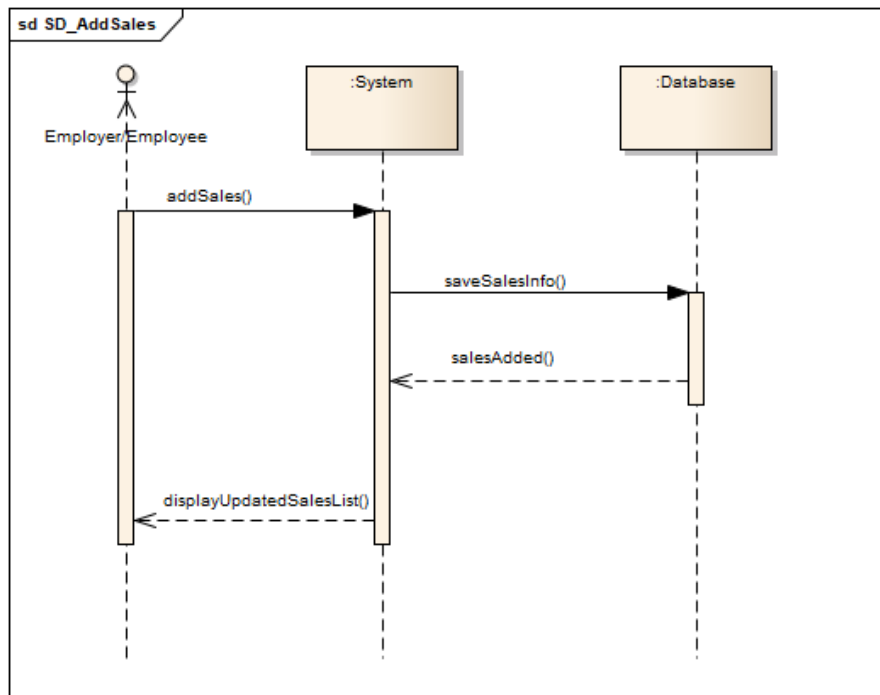


Figure 4.20: Sequence Diagram for Create Vending Machine Sales

h) SD014: Sequence diagram for View Vending Machine Sales

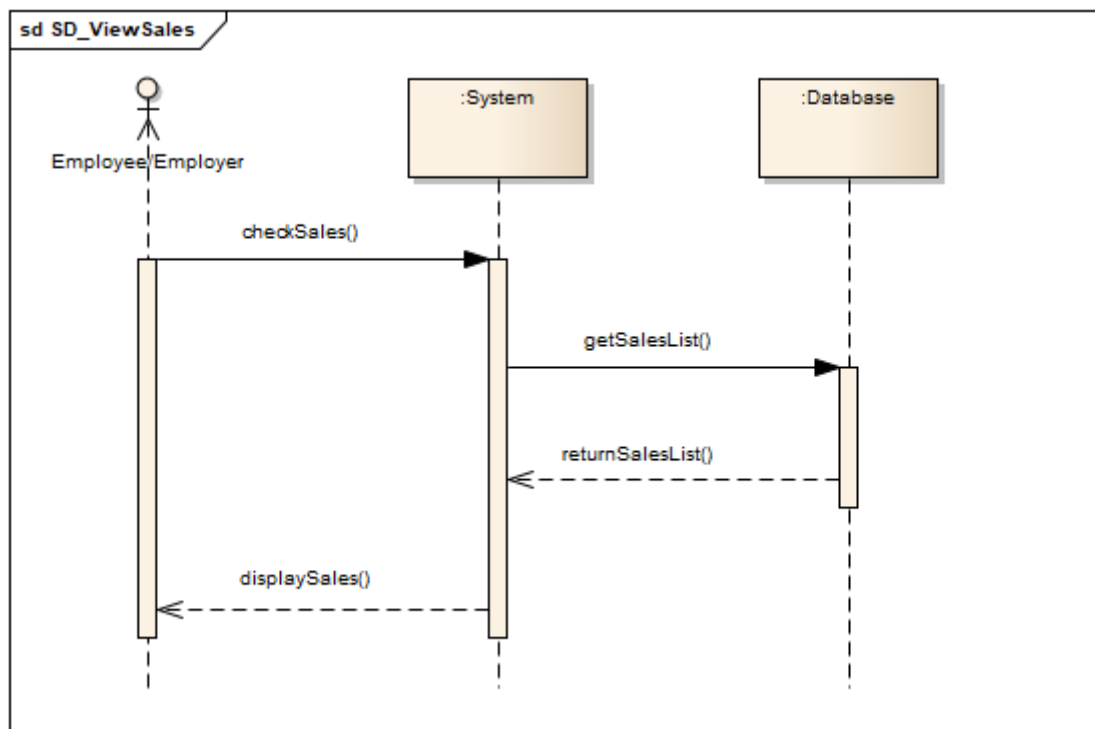
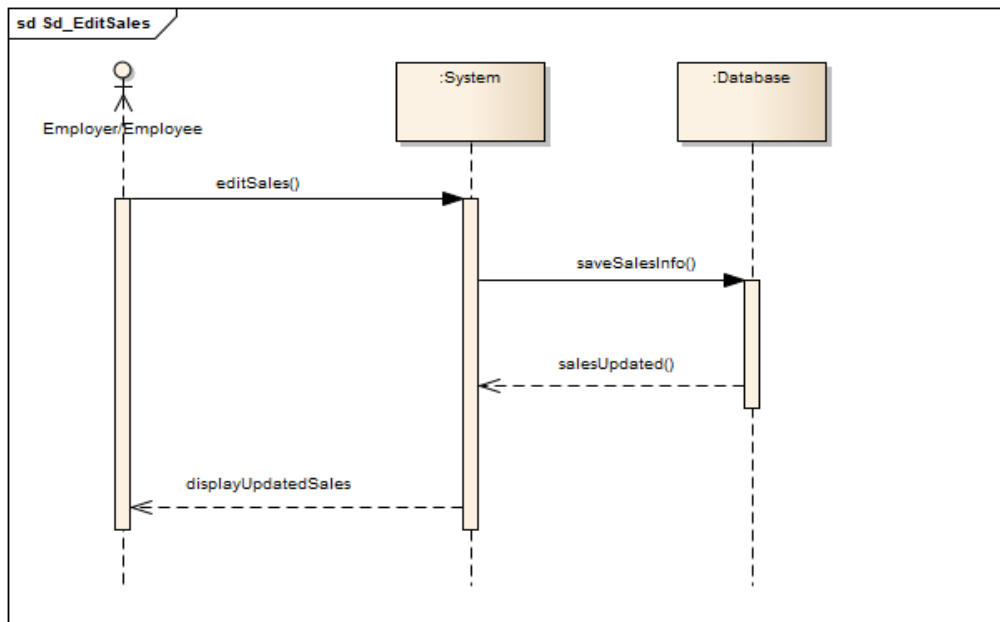


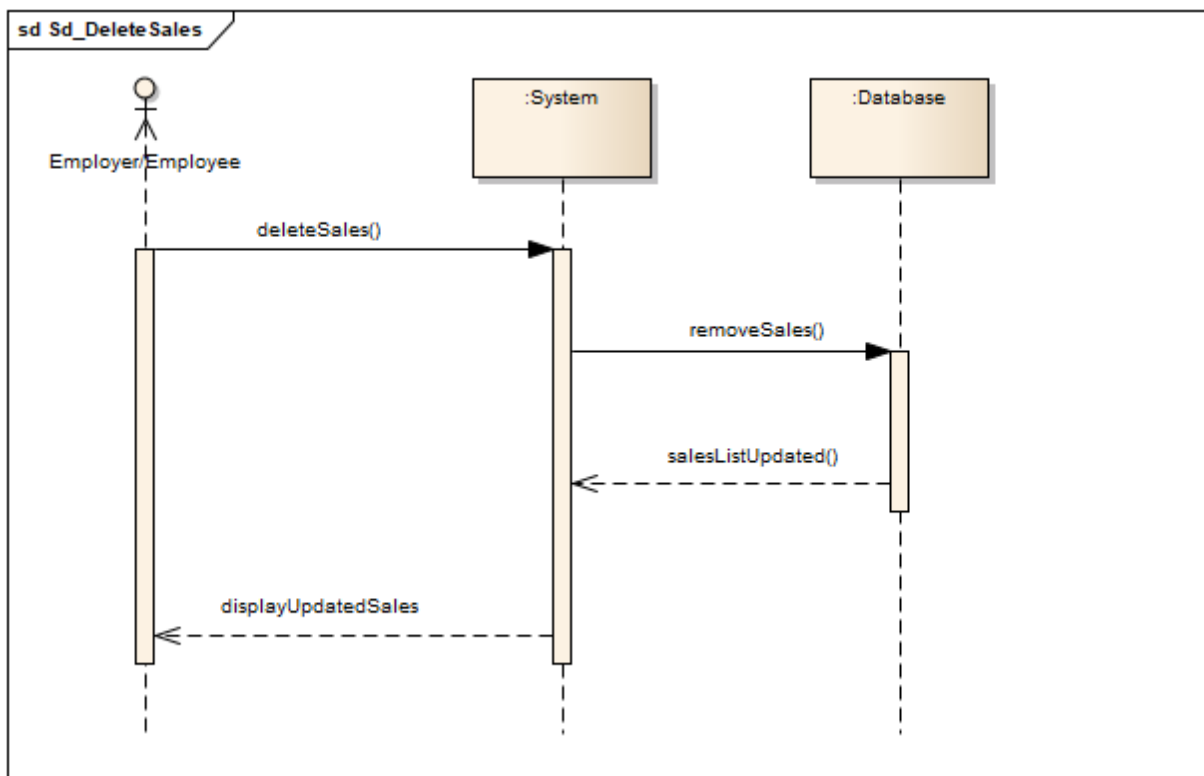
Figure 4.21: Sequence Diagram for View Vending Machine Sales

h) SD015: Sequence diagram for Update Vending Machine Sales



**Figure 4.22: Sequence Diagram for Update Vending Machine Sales**

h) SD016: Sequence diagram for Delete Vending Machine Sales



**Figure 4.23: Sequence Diagram for Delete Vending Machine Sales**

h) SD017: Sequence diagram for Create Stock History

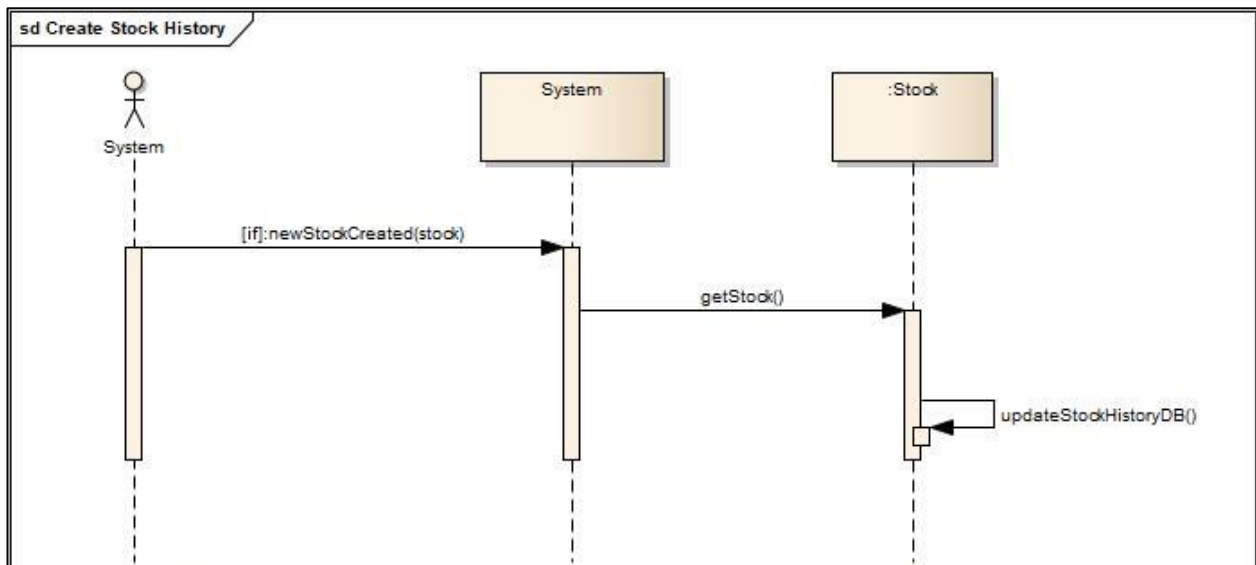


Figure 4.24: Sequence Diagram for Create Stock History

h) SD018: Sequence diagram for Update Stock History

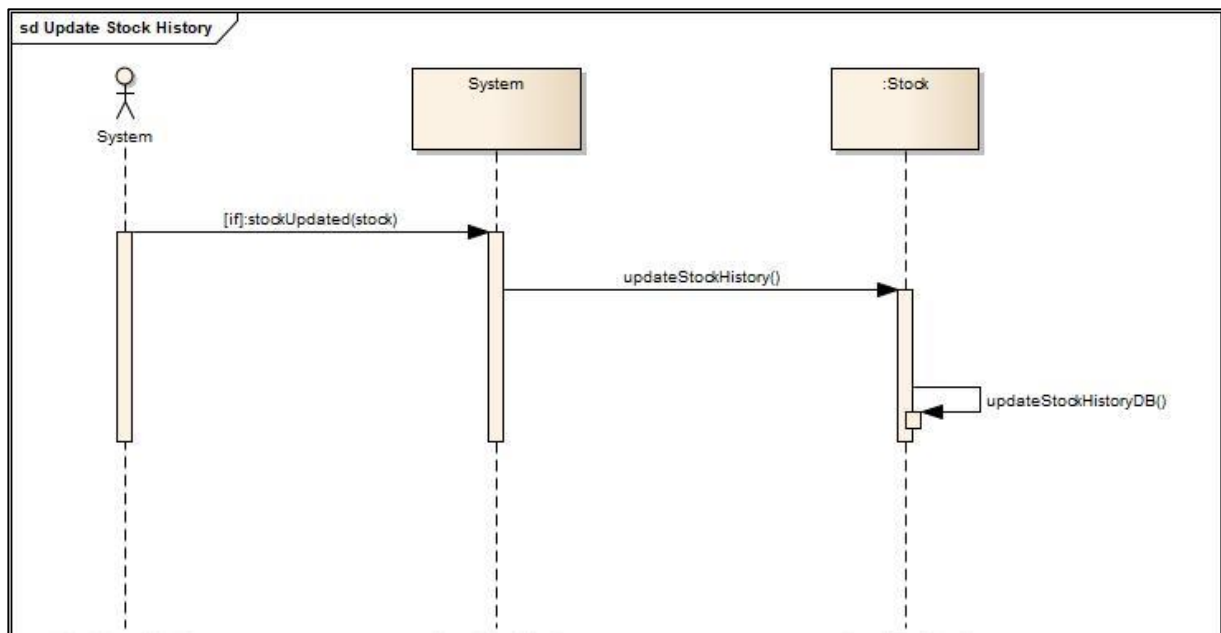


Figure 4.25: Sequence Diagram for View Stock History

## 5. Data Design

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### 5.1 Data Description.

The main systems or data entities are processed and arranged into **7 entities** as indicated in Table 5.1, then saved in a relational database called **StockDB6.2**.

**Table 5.1: Description of Entities in the Database**

No.	Entity Name	Description
1	AspNetRoles	List of roles used in the system
2	AspNetUserRoles	List of UserId and RoleId.It is used as a mapping table
3	AspNetUsers	List of users in the system
4	StockHistories	List of stocks sold details including quantity and calculated net profit
5	Stocks	List of stocks in the system
6	VendingMachineSales	List of vending machine sales in the system
7	VendingMachine	List of vending machine details

### 5.2 Data Dictionary

#### 5.2.1 Entity: <AspNetRoles>

Attribute Name	Type	Description
Id {PK}	Int	Unique Id for roles
Name	Nvarchar	Name of roles
Discriminator	Nvarchar	Distinguish between persistent classes

#### 5.2.2 Entity: <AspNetUserRoles>

Attribute Name	Type	Description
UserId {PK} {FK}	Nvarchar	Foreign Key to the AspNetUsers entity
RoleId{FK}	Nvarchar	Foreign Key to the AspNetRoles entity

### 5.2.3 Entity: <AspNetUsers>

Attribute Name	Type	Description
Id {PK}	Nvarchar	Unique Id for users
NameIdentifier	Nvarchar	Name of users
Email	Nvarchar	Email of users
PasswordHash	Nvarchar	Hashed password of users
SecurityStamp	Nvarchar	A random value that must change whenever a user's credentials change
PhoneNumber	Nvarchar	Phone number of the user
UserName	Nvarchar	Username of users

### 5.2.4 Entity: <StockHistories>

Attribute Name	Type	Description
StockHisId {PK}	int	Unique id for stocks history
StockId {FK}	Nvarchar	Foreign Key to the Stock entity
StockQuantity	int	Quantity of the stocks
StockName	Nvarchar	Quantity of the stocks
StockModall	Nvarchar	Model price of the stocks
Vid {FK}	int	Foreign Key to the VendingMachine entity
StockSellPricePtin	float	Selling price of the stocks per tin
VnetProfitPtin	float	Net profit per tin based on vending machine
VnetProfit	float	Net profit of the vending machine
VnetProfitPercentage	float	Net profit percentage of the vending machine
Date	date	Date of the stocks sold
StockCumqty	int	Stock sold cumulative quantity

### 5.2.5 Entity: <Stock>

Attribute Name	Type	Description
stock_id {PK}	int	Unique id for stocks
stock_name	Nvarchar	Name of the stocks
stock_quantity	Nvarchar	Quantity of the stocks
stock_model	Nvarchar	Model price of the stocks
V_id {FK}	int	Foreign Key to the VendingMachine entity
stock_sellPrice	float	Selling price of the stocks
v_netProfit	float	Net profit of vending machine
v_netProfitPercentage	float	Net profit percentage of vending machine
Date	date	Date of the stocks sold
StockCumQty	int	Stock sold cumulative quantity

### 5.2.6 Entity: <VendingMachineSales>

Attribute Name	Type	Description
SellId {PK}	int	Unique id of sales
Vid {FK}	int	Foreign Key to the VendingMachine entity
StockId {FK}	int	Foreign Key to the Stock entity
VqtySlot	int	Vending machine quantity slot
CuVqtySlot	int	Cumulative vending machine quantity slot
VcashSlot	int	Cash slot of vending machine
Vnetprofit	float	Net profit of vending machine
VnetProfitPercentage	float	Net profit percentage of vending machine
VnetProfitPtin	float	Net profit of vending machine per tin

### 5.2.4 Entity: <VendingMachine>

Attribute Name	Type	Description
vendingmachine_id {PK}	int	Unique id for vending machines
vendingmachine_name	Nvarchar	Name of the vending machine
vendingmachine_location	Nvarchar	Location of the vending machine

## 6. User Interface Design

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### 6.1 Overview of User Interface

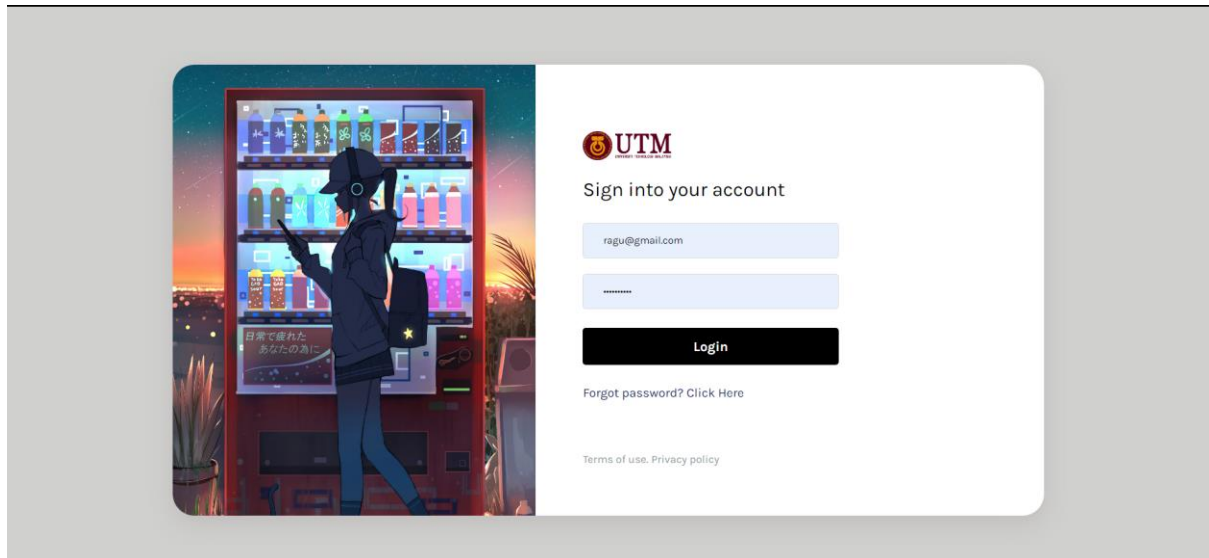
The user interface is divided into 2 different roles based on the role view-based access control. System administrator, employer, and employee are some of these jobs. Two navigation bars are present on the default landing page of the user interface. The overhead navigation bar is the initial navigation bar and provides buttons for user account registration and login. The username will then be shown in the navigation bar above if the user is successful in logging in to the system. Based on the two functions indicated above, the second navigation bar is divided. Based on the modules and functionalities, the side navigation bar is limited. The system consists of a single login page that automatically connects users to the relevant site based on their user type. The Employer will be sent to the Employer dashboard, for instance.

Five primary modules are located on the admin/employer panel and are accessible to this user type. These modules include the Manage Users Module, which enables admins/employers to control system users, the Manage Stock Module, which controls vending machine stock, the Manage Vending Machine Module, which controls the vending machines, the Manage Report Module, which controls the reports generated and the Manage Vending Machine Sales Module, which controls vending machine sales. The Employer will also have access to the dashboard which will give an overview of the company's business. Three primary modules are present on the Employee panel and are accessible to Employee user types. These modules include the Manage Stock Modules, which enable employees to manage vending machine stock, the Manage Vending Machine Module, which controls the vending machines and the Manage Vending Machine Sales Module, which enables employees to manage vending machine sales. The employee will not have access to the Manage Users module, the Manage Report Module or the dashboard. This is because these modules contain sensitive information that is only accessible to the Employer.

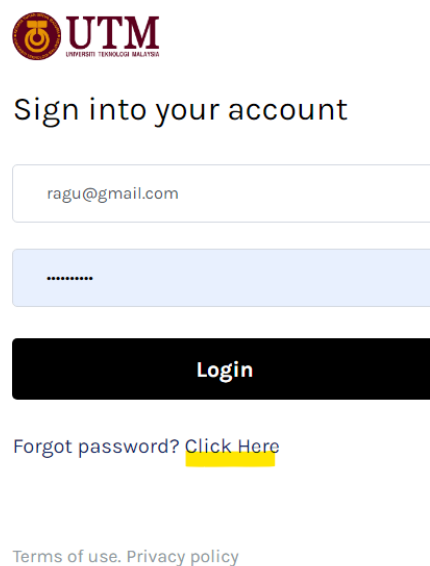


## 6.2 Screen Images

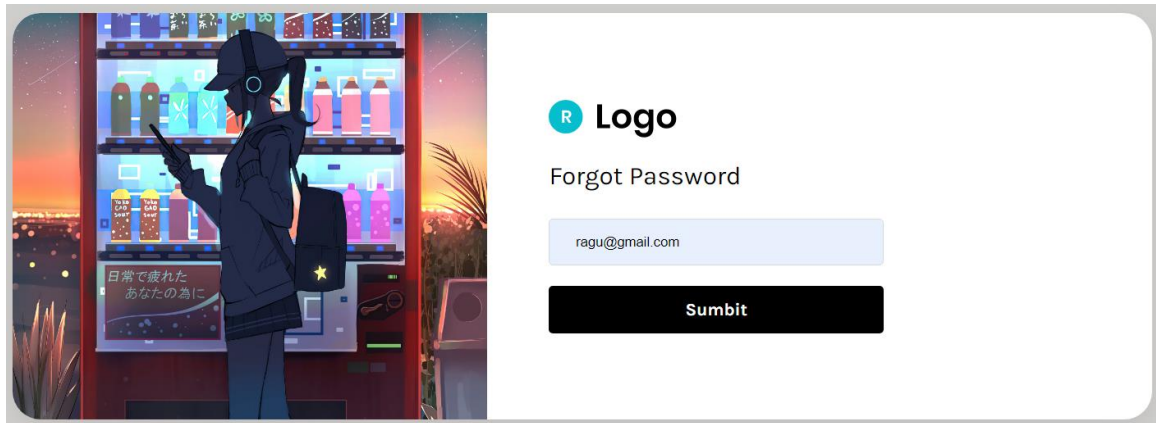
### User Management Subsystem



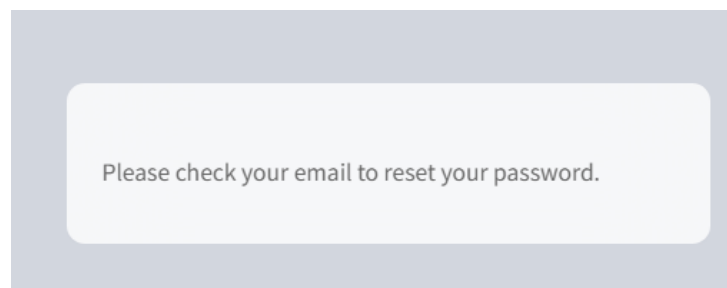
*Figure 6.1 : Screenshot of Login interface*



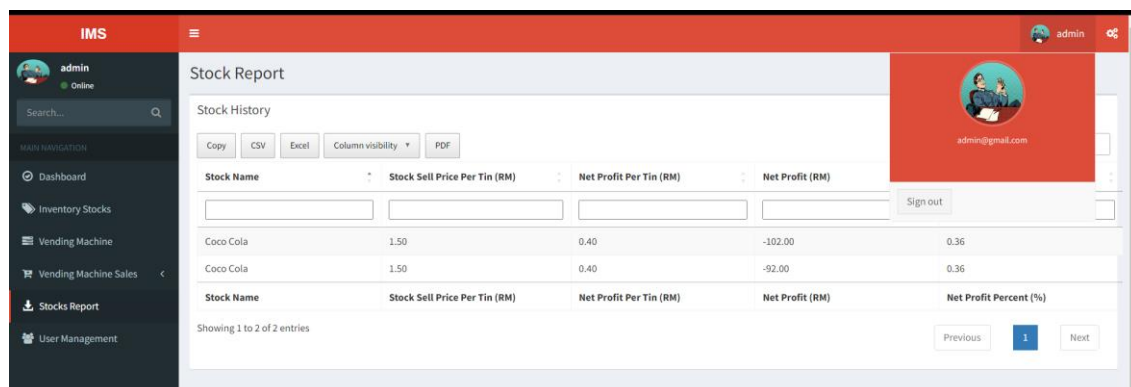
*Figure 6.2 : Screenshot of Click Here Button*



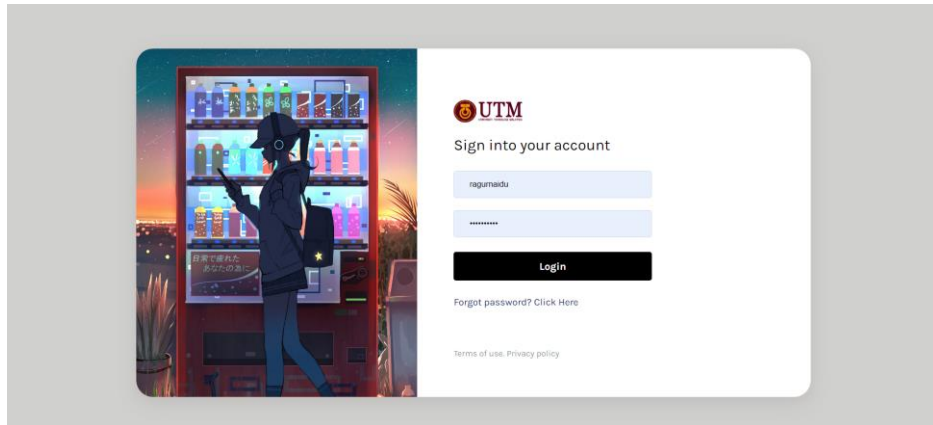
**Figure 6.3 :Screenshot of Forget Password Interface**



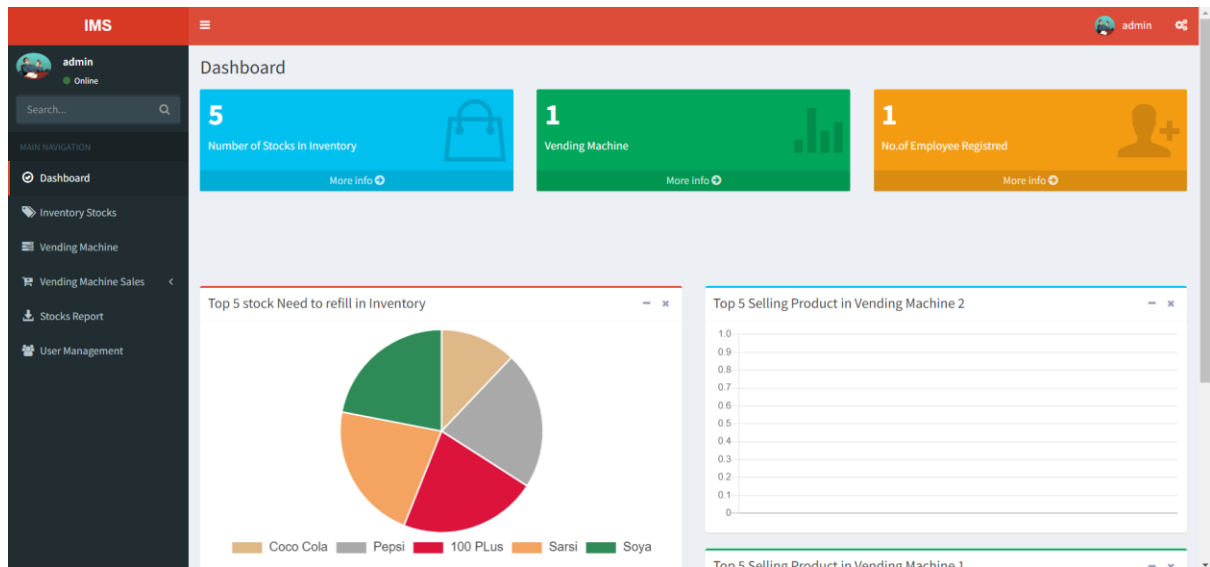
**Figure 6.4 : Screenshot of Forgot Password Notification**



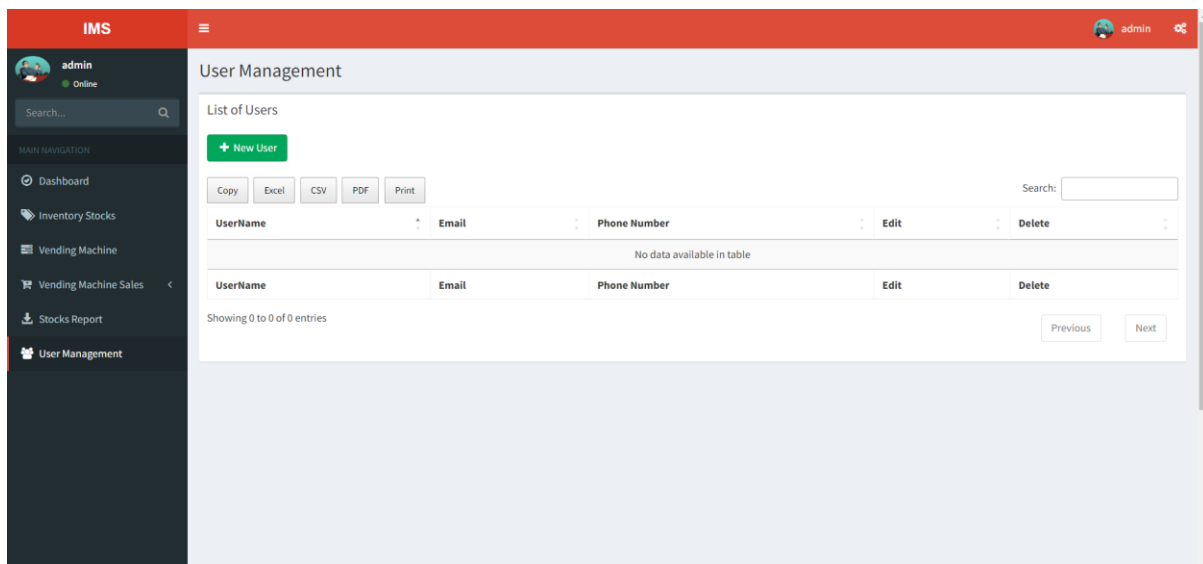
**Figure 6.5 : Screenshot of Logout Button**



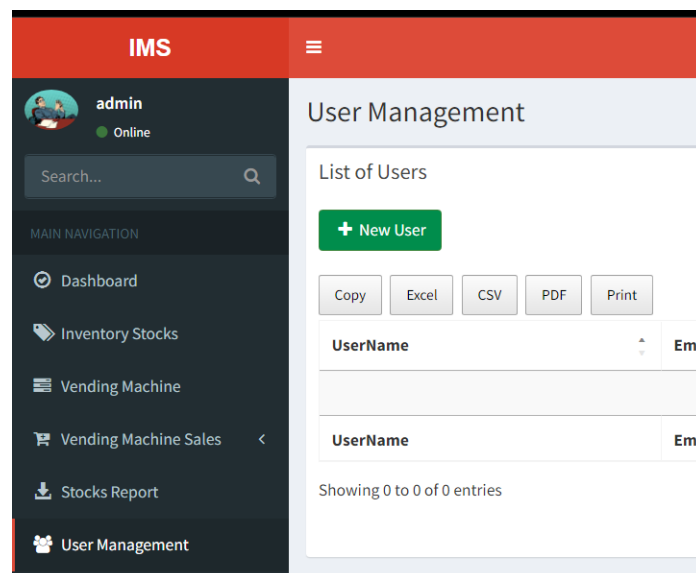
**Figure 6.6 : Screenshot of User redirected to Login Page**



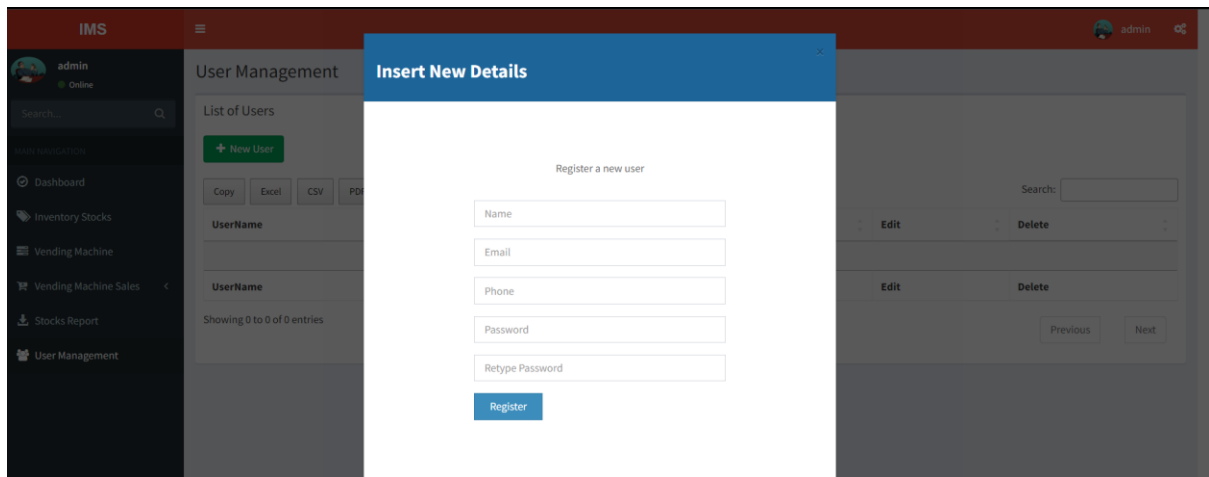
**Figure 6.7 : Screenshot of Dashboard interface**



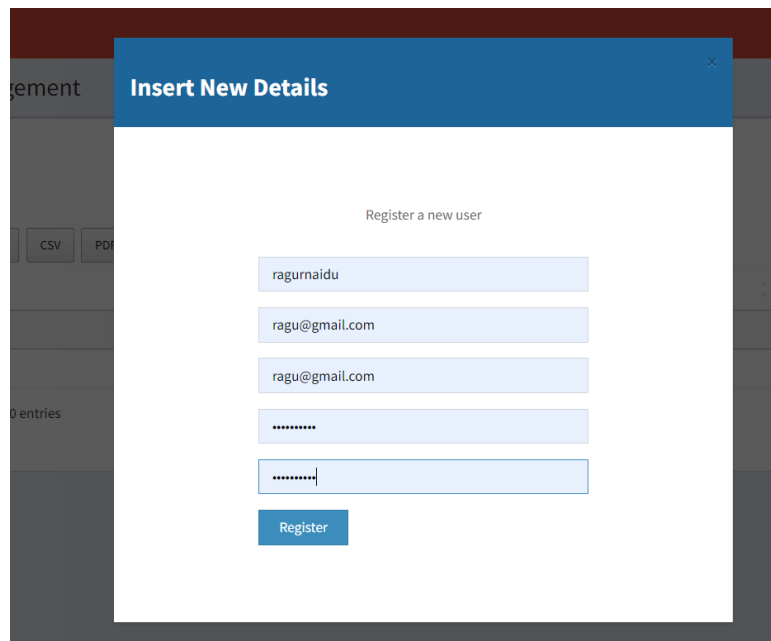
*Figure 6.8 : Screenshot of Manage user interface*



*Figure 6.9 : Screenshot of New User Button*



**Figure 6.10 : Screenshot of Insert New Details Form**



**Figure 6.11 : Screenshot of Inserting new user page**

## Edit User Details

Edit

Edit User

Email: tshelby2805@gmail.com

PhoneNumber: 0198762345

UserName: tshelby2805@gmail.com

Name: Tommy

Save

[Back to List](#)

*Figure 6.12 : Screenshot of Edit User*

### User Management

List of Users

+ New User

Username	Email	Phone Number
all	tshelby2805@gmail.com	
all	tshelby2805@gmail.com	
all	tshelby2805@gmail.com	
all	tshelby2805@gmail.com	

Showing 1 out of 4 entries

### User Delete

Are you sure you want to delete this?

User

Name: tshelby2805@gmail.com

Email: tshelby2805@gmail.com

PhoneNumber: 0198762345

Delete

*Figure 6.13 : Screenshot of Delete User interface*

## Stock Management Subsystem

IMS

admin Online

Search...

MAIN NAVIGATION

- Dashboard
- Inventory Stocks
- Vending Machine
- Vending Machine Sales
- Stocks Report
- User Management

Inventory

Stocks

+ New Stocks

Copy Excel CSV PDF Print

Search:

Stock Name	Stock Quantity	Stock Cost Price	Stock Sell Price(RM)	Edit	Delete
100 PLUS	100	100.00	1.30	Edit Stocks	Delete Stocks
Coco Cola	55	110.00	1.50	Edit Stocks	Delete Stocks
Pepsi	100	110.00	1.60	Edit Stocks	Delete Stocks
Sarsi	100	90.00	1.30	Edit Stocks	Delete Stocks
Soya	100	75.00	1.20	Edit Stocks	Delete Stocks

Showing 1 to 5 of 5 entries

Previous 1 Next

Figure 6.14 : Screenshot of Manage Stock interface

IMS

admin Online

Search...

MAIN NAVIGATION

- Dashboard
- Inventory Stocks
- Vending Machine
- Vending Machine Sales
- Stocks Report
- User Management

Inventory

Stocks

+ New Stocks

Copy Excel CSV PDF Print

Stock Name	Stock Quantity
100 PLUS	100
Coco Cola	55
Pepsi	100
Sarsi	100

Figure 6.15 : Screenshot of New Stock Button

**IMS**

Inventory

Stocks

+ New Stock

Copy

Stock Name

100 PLUS

Coco Cola

Pepsi

Sarsi

Soya

Stock Name

Stock Quantity

Stock Cost Price

Stock Sell Price(RM)

**Insert New Stock Details**

Stock Name

Stock Quantity

Stock Cost Price

Price Per Tin (RM)

Stock Sell Price(RM)

Net Profit Per Tin (RM)

Create

*Figure 6.16 : Screenshot of Insert New Stock Details Form*

**Inventory**

Stocks

+ New Stock

Copy

Stock Name

100 PLUS

Coco Cola

Pepsi

Sarsi

Soya

Stock Name

Stock Quantity

Stock Cost Price

Stock Sell Price(RM)

**Insert New Stock Details**

Stock Name

Red Bull

Stock Quantity

100

Stock Cost Price

300

Price Per Tin (RM)

3

Stock Sell Price(RM)

4.00

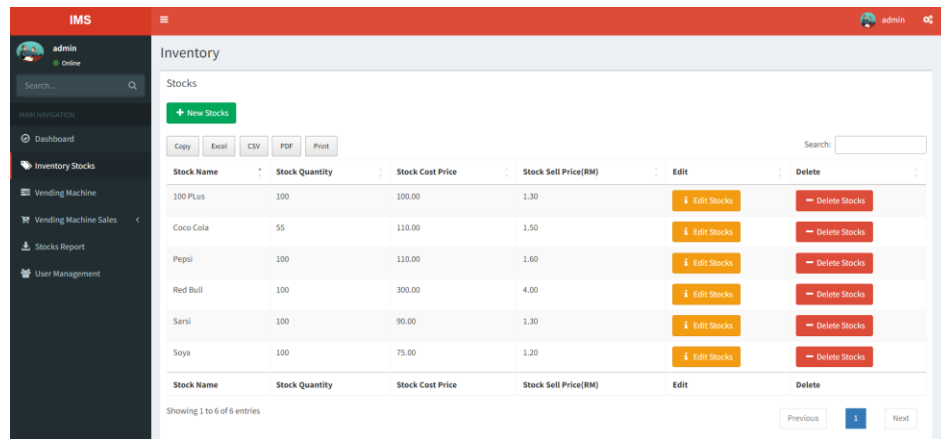
Net Profit Per Tin (RM)

1

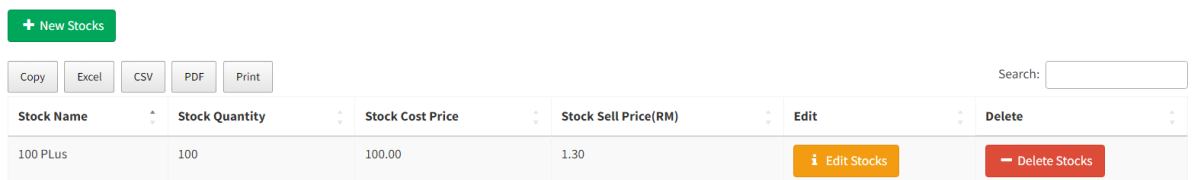
Create

*Figure 6.17 : Screenshot of Inserting new stock page*

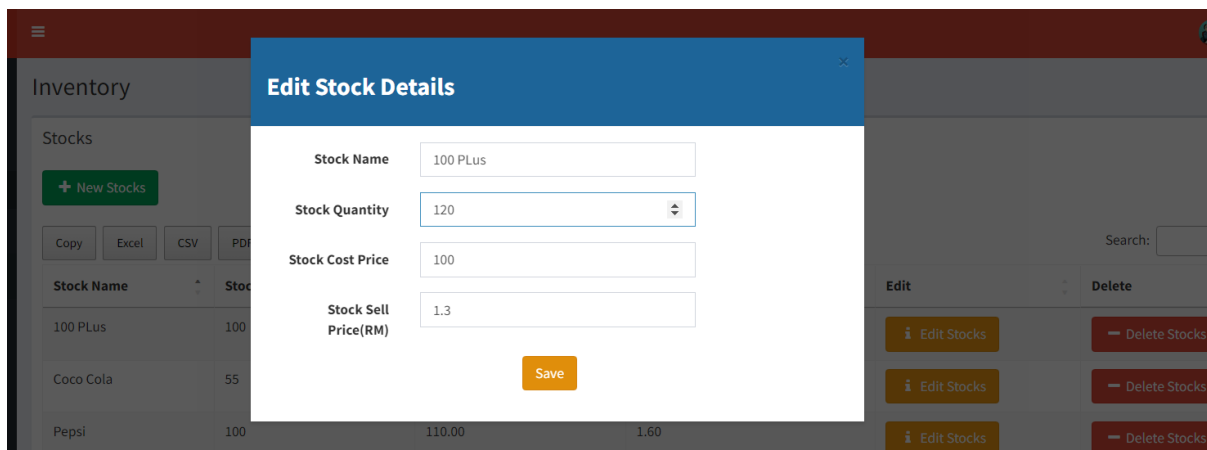




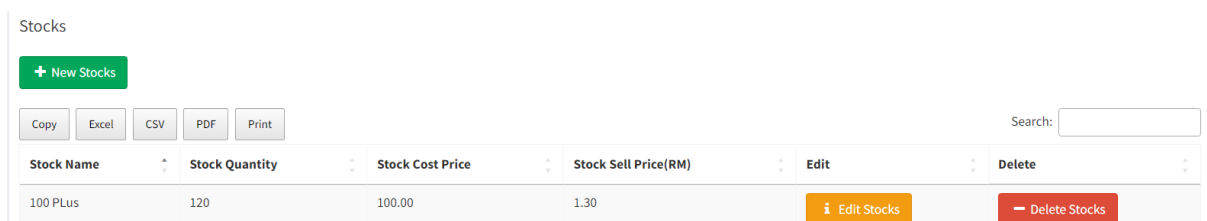
**Figure 6.18 : Screenshot of Users being redirected to Inventory Page**



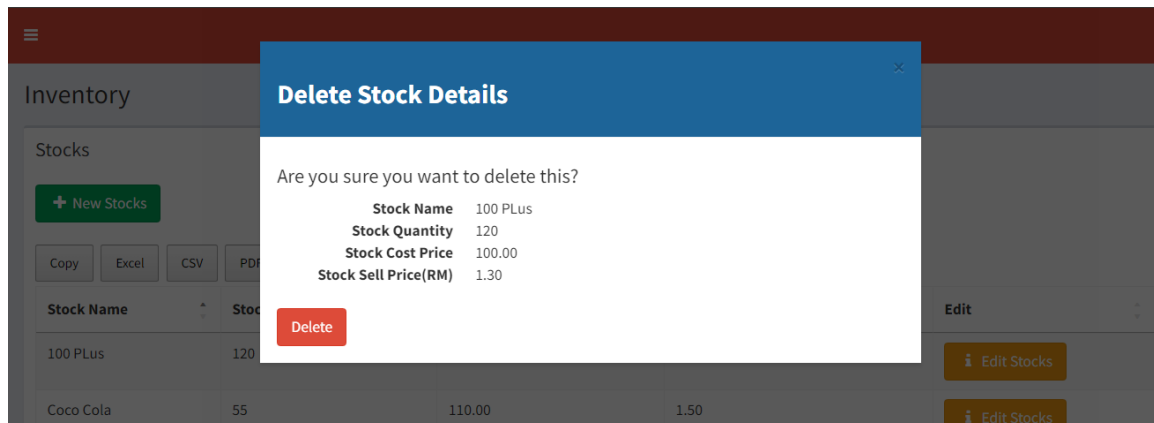
**Figure 6.2.19 : Screenshot of Edit Button**



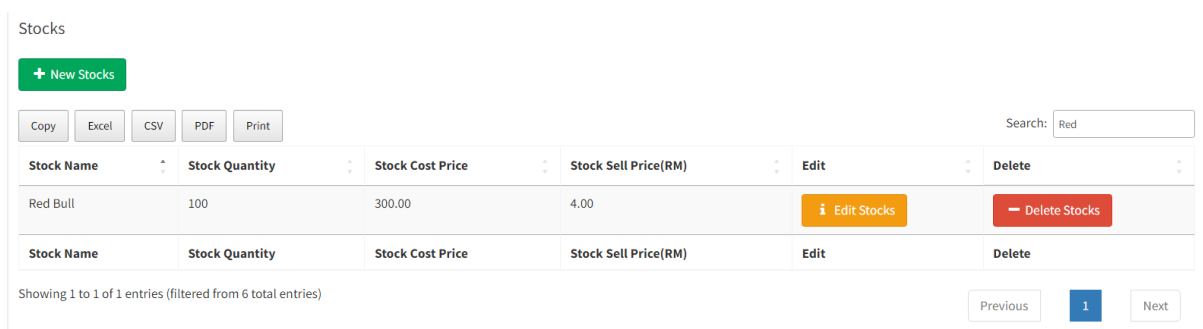
**Figure 6.20 : Screenshot of Editing stock page**



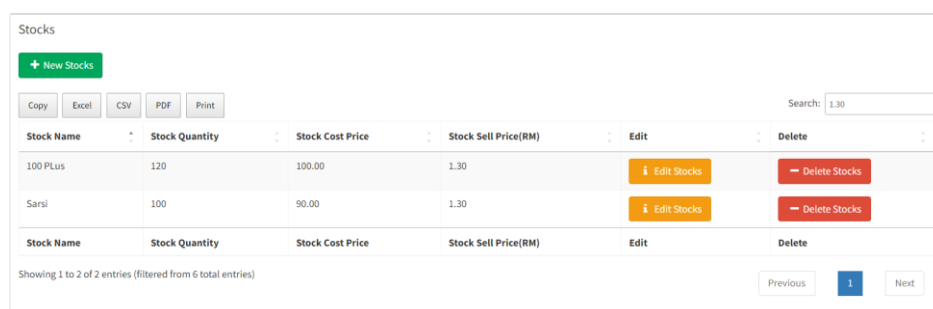
**Figure 6.21 : Screenshot of Delete Button**



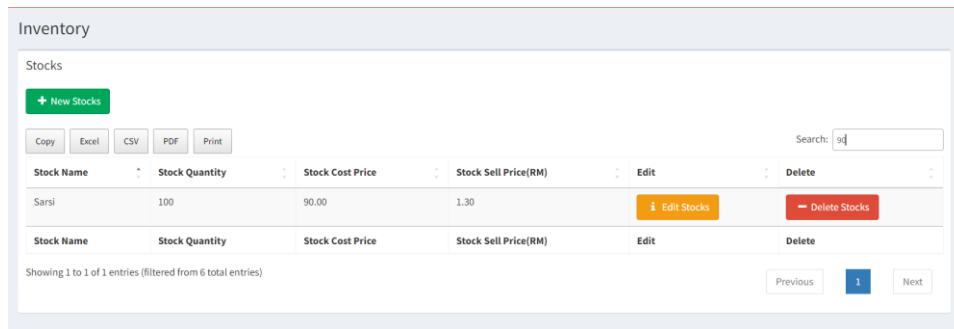
**Figure 6.22 : Screenshot of Deleting Stock Page**



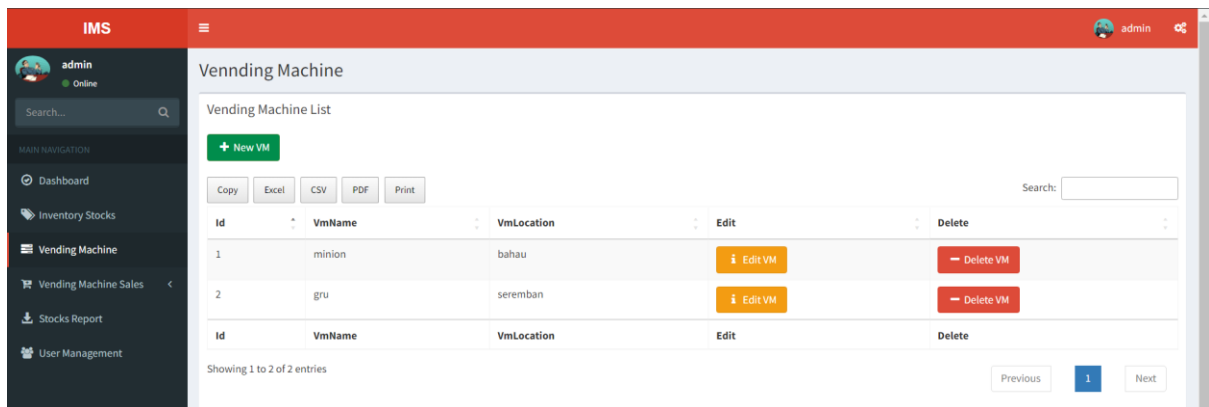
**Figure 6.23 : Screenshot of View Stock interface**



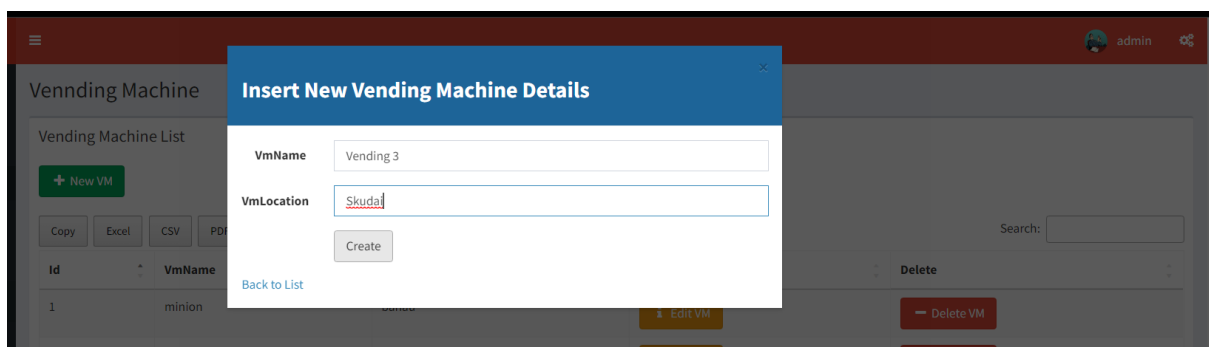
**Figure 6.24 : Screenshot of View Stocks by searching stock sell price**



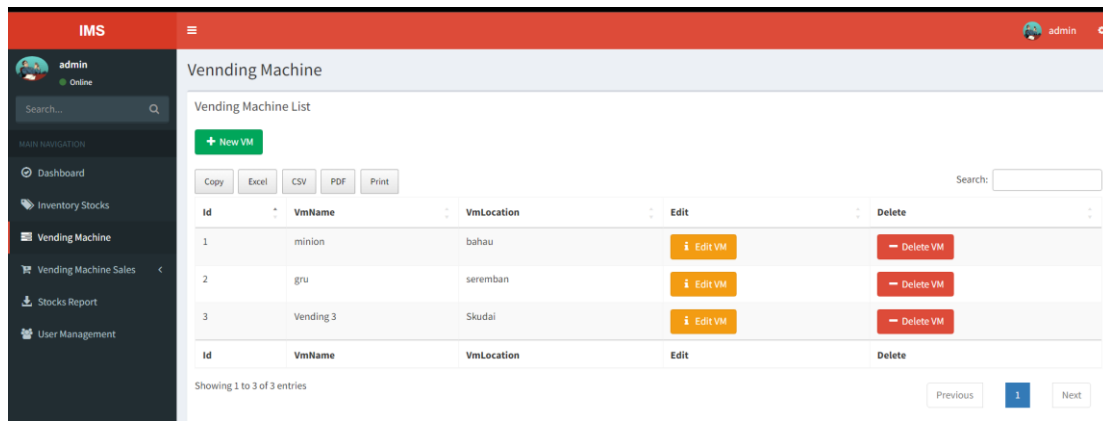
**Figure 6.25 : Screenshot of View Stocks by searching stock cost price**



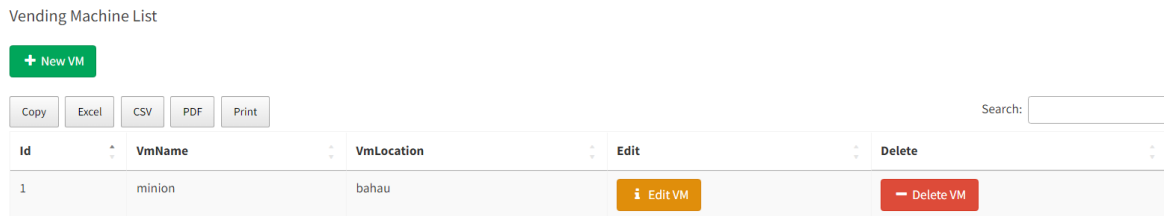
**Figure 6.26 : Screenshot of Manage Vending Machine Interface**



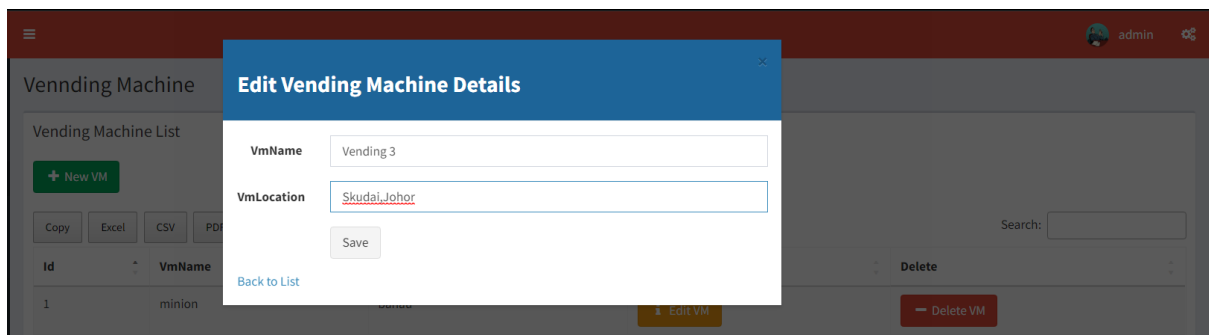
**Figure 6.27 : Screenshot of Inserting Vending Machine Page**



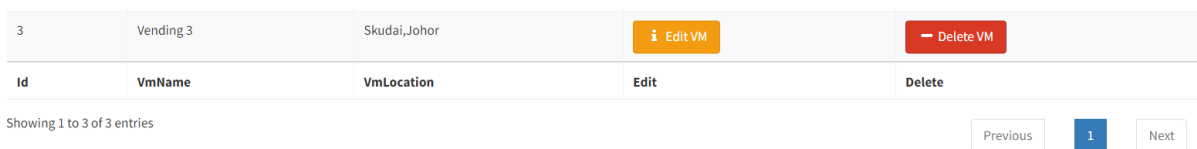
**Figure 6.28 : Screenshot of Users being redirected to Vending Machine Page**



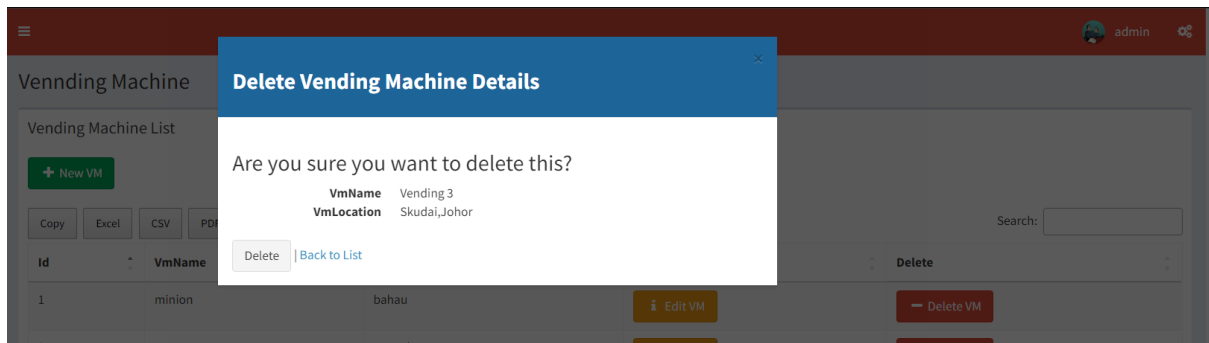
**Figure 6.29 : Screenshot of Edit Button of Vending Machine Page**



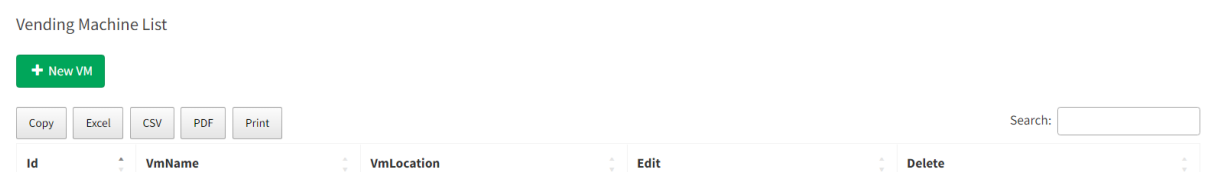
**Figure 6.30 : Screenshot of Editing Vending Machine Page**



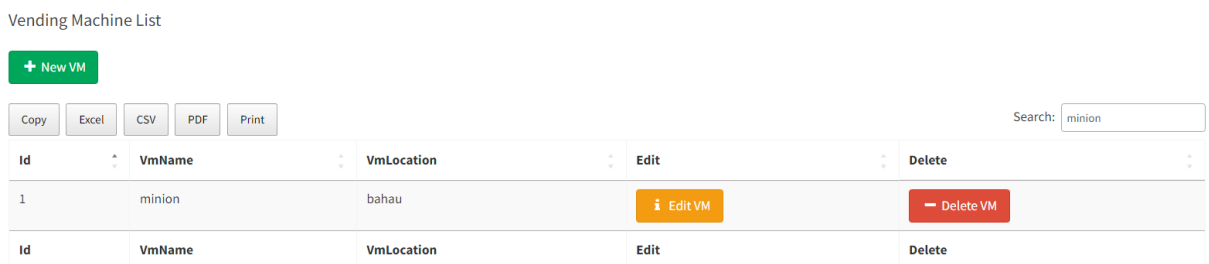
**Figure 6.31 : Screenshot of Delete Button of Vending Machine Page**



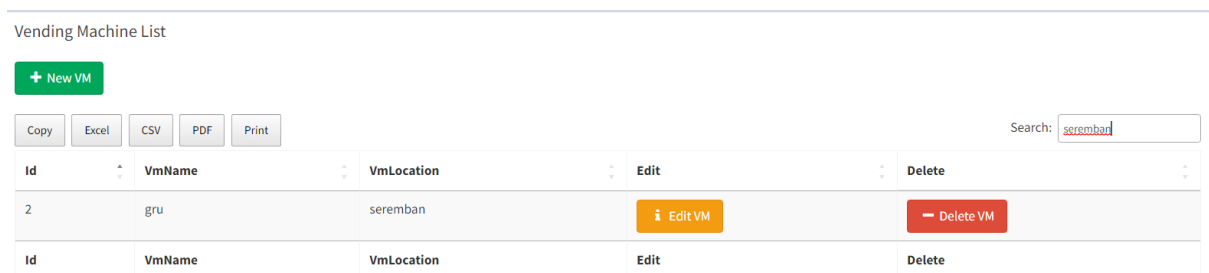
**Figure 6.32 : Screenshot of Deleting Vending Machine Page**



**Figure 6.33 : Screenshot of Search Bar of Vending Machine List**

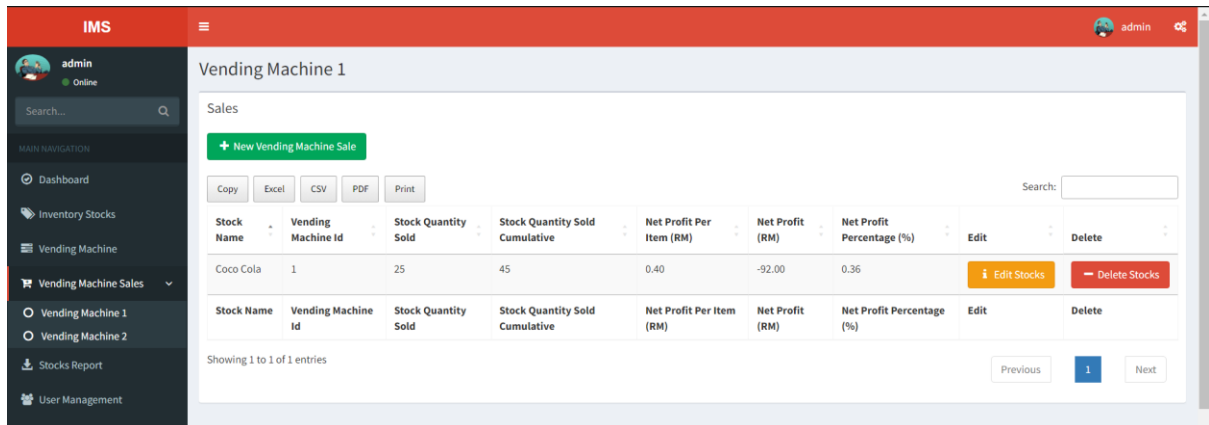


**Figure 6.34 : Screenshot of Search by VM Name**



**Figure 6.35 : Screenshot of Search by VM Location**

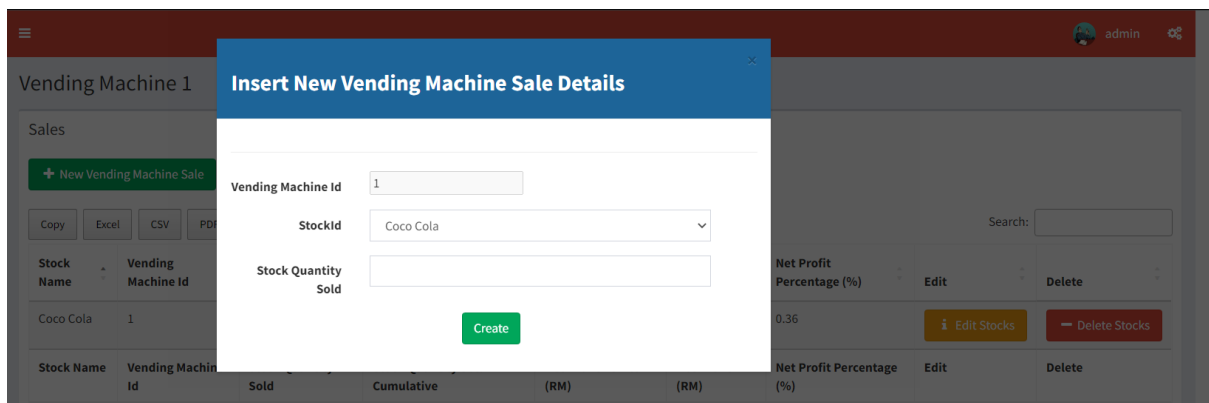
## Sales Management Subsystem



The screenshot displays the 'Vending Machine 1' interface. It features a sidebar with navigation options: Dashboard, Inventory Stocks, Vending Machine, Vending Machine Sales (selected), Vending Machine 1, Vending Machine 2, Stocks Report, and User Management. The main content area shows a 'Sales' section with a '+ New Vending Machine Sale' button. Below this is a table with columns: Stock Name, Vending Machine Id, Stock Quantity Sold, Stock Quantity Sold Cumulative, Net Profit Per Item (RM), Net Profit (RM), Net Profit Percentage (%), Edit, and Delete. The table contains one entry for 'Coco Cola' with Vending Machine Id 1, Stock Quantity Sold 25, and Stock Quantity Sold Cumulative 45. The Net Profit Per Item is 0.40, Net Profit is -92.00, and Net Profit Percentage is 0.36. There are buttons for 'Edit Stocks' and 'Delete Stocks' next to the entry. A search bar is located at the top right of the table area. The bottom of the table shows 'Showing 1 to 1 of 1 entries' and pagination controls for 'Previous', '1', and 'Next'.

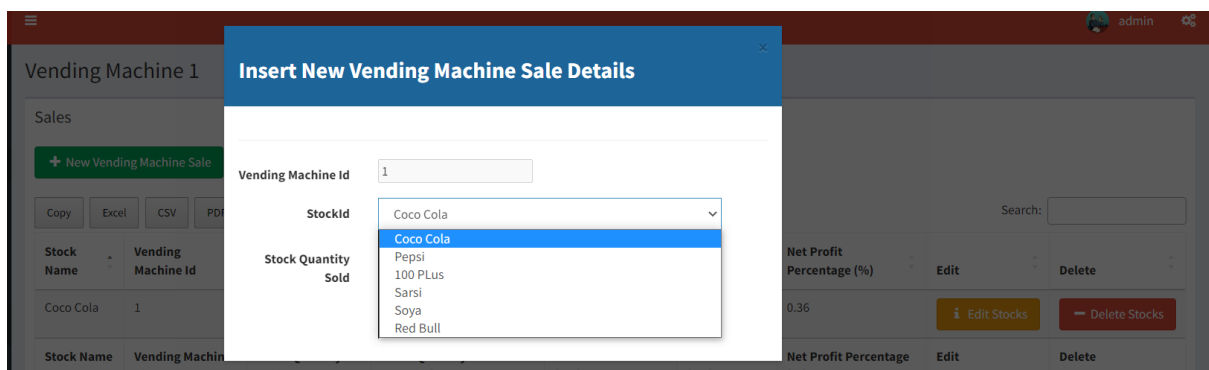
Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete
Coco Cola	1	25	45	0.40	-92.00	0.36	Edit Stocks	Delete Stocks

Figure 6.36 : Screenshot of Manage vending machine interface



The screenshot shows the 'Insert New Vending Machine Sale Details' form. It has a blue header with the title and a close button. The form contains three input fields: 'Vending Machine Id' with the value '1', 'StockId' with a dropdown menu showing 'Coco Cola', and 'Stock Quantity Sold' which is empty. A green 'Create' button is at the bottom right of the form. The background shows a blurred view of the 'Vending Machine 1' interface.

Figure 6.37 : Screenshot of Insert New Vending Machine Sales Details Form



The screenshot shows the 'Insert New Vending Machine Sale Details' form with the 'StockId' dropdown menu open. The dropdown list displays several options: 'Coco Cola' (highlighted), 'Pepsi', '100 PLUS', 'Sarsi', 'Soya', and 'Red Bull'. The background shows a blurred view of the 'Vending Machine 1' interface.

Figure 6.38 : Screenshot of Stock Id Dropdown Menu

**Insert New Vending Machine Sale Details**

Vending Machine Id: 1

StockId: Coco Cola

Stock Quantity Sold: 50

Create

*Figure 6.39 : Screenshot of Inserting new vending machine sales page*

**Vending Machine 1**

Sales

+ New Vending Machine Sale

Copy Excel CSV PDF Print

Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete
Coco Cola	1	25	45	0.40	-92.00	0.36	Edit Stocks	Delete Stocks
Coco Cola	1	50	50	0.40	-90.00	0.36	Edit Stocks	Delete Stocks

Showing 1 to 2 of 2 entries

Previous 1 Next

*Figure 6.40 : Screenshot of Users Being redirected to Vending Machine 1 Page*

**Vending Machine 1**

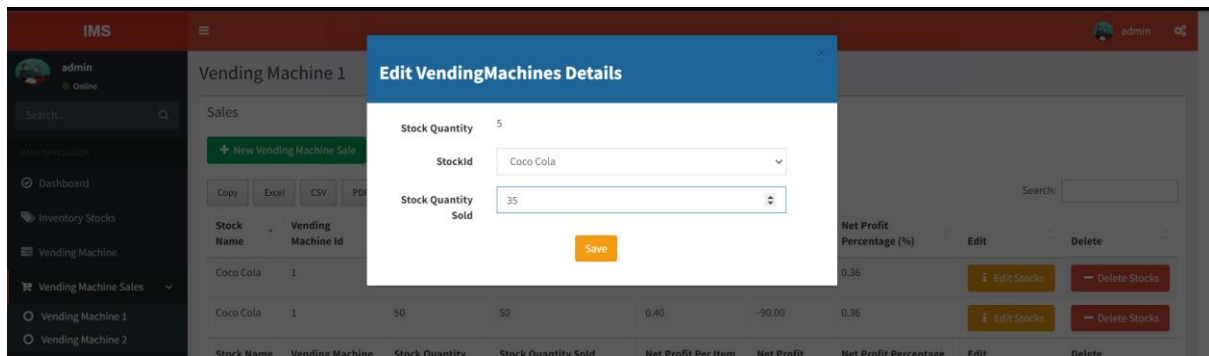
Sales

+ New Vending Machine Sale

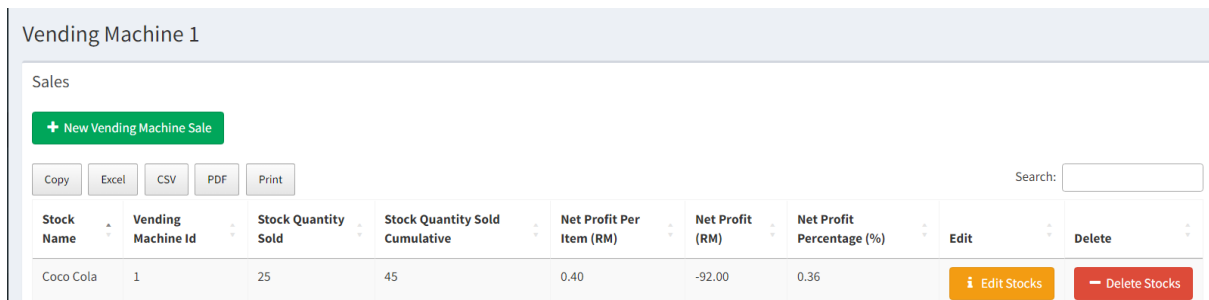
Copy Excel CSV PDF Print

Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete
Coco Cola	1	25	45	0.40	-92.00	0.36	Edit Stocks	Delete Stocks

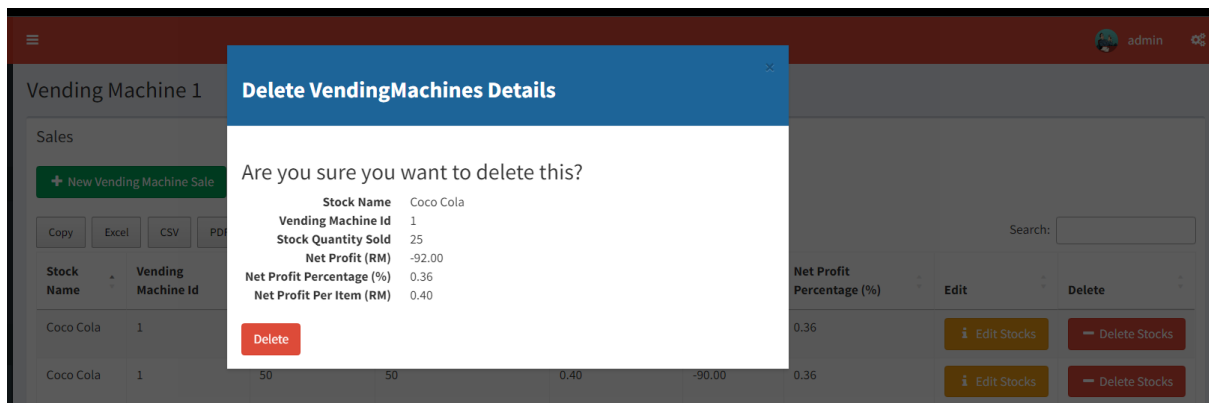
*Figure 6.41 : Screenshot of Edit Button of Vending Machine*



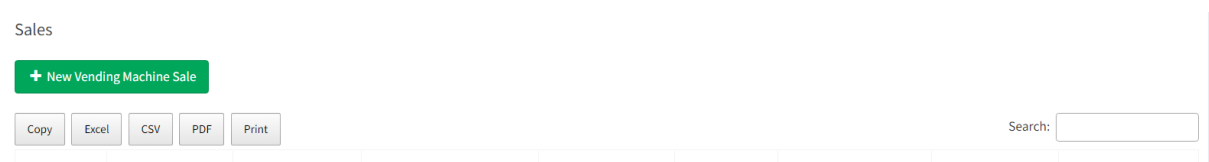
**Figure 6.42 : Screenshot of Editing vending machine sales page**



**Figure 6.43 : Screenshot of Delete Button of Vending Machine**



**Figure 6.44 : Screenshot of Deleting vending machine sales page**



**Figure 6.45 : Screenshot of Search Bar of Vending Machine Sales**



Sales

+ New Vending Machine Sale								
Copy	Excel	CSV	PDF	Print	Search: 50			
Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete
Coco Cola	1	50	50	0.40	-90.00	0.36	<a href="#">i Edit Stocks</a>	<a href="#">Delete Stocks</a>
Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete

**Figure 6.46 : Screenshot of View Vending Machine Sales by searching quantity sold**

Vending Machine 1								
Sales								
+ New Vending Machine Sale								
Copy	Excel	CSV	PDF	Print	Search: 45			
Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete
Coco Cola	1	25	45	0.40	-92.00	0.36	<a href="#">i Edit Stocks</a>	<a href="#">Delete Stocks</a>
Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete

**Figure 6.47 : Screenshot of View Vending Machine Sales by searching quantity sold cumulative**

Sales

+ New Vending Machine Sale								
Copy	Excel	CSV	PDF	Print	Search: 0.4			
Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete
Coco Cola	1	50	50	0.40	-90.00	0.36	<a href="#">i Edit Stocks</a>	<a href="#">Delete Stocks</a>
Coco Cola	1	25	45	0.40	-92.00	0.36	<a href="#">i Edit Stocks</a>	<a href="#">Delete Stocks</a>

**Figure 6.48 : Screenshot of View Vending Machine Sales by searching net profit per item**

Sales

+ New Vending Machine Sale								
Copy	Excel	CSV	PDF	Print	Search: -90			
Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete
Coco Cola	1	50	50	0.40	-90.00	0.36	<a href="#">i Edit Stocks</a>	<a href="#">Delete Stocks</a>
Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete

**Figure 6.49 : Screenshot of View Vending Machine Sales by searching net profit**

## Sales

[+ New Vending Machine Sale](#)

Copy Excel CSV PDF Print

Search: 0.36

Stock Name	Vending Machine Id	Stock Quantity Sold	Stock Quantity Sold Cumulative	Net Profit Per Item (RM)	Net Profit (RM)	Net Profit Percentage (%)	Edit	Delete
Coco Cola	1	50	50	0.40	-90.00	0.36	<a href="#">Edit Stocks</a>	<a href="#">Delete Stocks</a>
Coco Cola	1	25	45	0.40	-92.00	0.36	<a href="#">Edit Stocks</a>	<a href="#">Delete Stocks</a>

**Figure 6.50 : Screenshot of View Vending Machine Sales by searching net profit percentage**

IMS

admin Online

Search...

MAIN NAVIGATION

- Dashboard
- Inventory Stocks
- Vending Machine
- Vending Machine Sales
- Stocks Report
- User Management

### Stock Report

#### Stock History

Copy CSV Excel Column visibility PDF

Search:

Stock Name	Vending Machine ID	Stock Quantity	Stock Quantity Total	Stock Cost (RM)	Stock Sell Price Per Tin (RM)	Net Profit Per Tin (RM)	Net Profit (RM)	Net Profit Percent (%)	Stock Date
Coco Cola	1	20	20	110.00	1.50	0.40	-102.00	0.36	07/04/2022
Coco Cola	1	25	45	110.00	1.50	0.40	-92.00	0.36	07/04/2022
Coco Cola	1	50	50	110.00	1.50	0.40	-90.00	0.36	07/04/2022

Showing 1 to 3 of 3 entries

Previous 1 Next

**Figure 6.51 : Screenshot of Manage Report Interface**

### Stock Report

#### Stock History

Copy CSV Excel Column visibility PDF

Search:

Stock Name	Vending Machine ID	Stock Quantity	Stock Quantity Total	Stock Cost (RM)	Stock Sell Price Per Tin (RM)	Net Profit Per Tin (RM)	Net Profit (RM)	Net Profit Percent (%)	Stock Date
Coco Cola	1	20	20	110.00	1.50	0.40	-102.00	0.36	07/04/2022
Coco Cola	1	25	45	110.00	1.50	0.40	-92.00	0.36	07/04/2022
Coco Cola	1	50	50	110.00	1.50	0.40	-90.00	0.36	07/04/2022

Showing 1 to 3 of 3 entries

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Column visibility menu:

- Stock Name
- Vending Machine ID
- Stock Quantity
- Stock Quantity Total
- Stock Cost (RM)
- Stock Sell Price Per Tin (RM)
- Net Profit Per Tin (RM)
- Net Profit (RM)
- Net Profit Percent (%)
- Stock Date

**Figure 6.52 : Screenshot of Column Visibility**

Stock Name	Vending Machine ID	Stock Quantity	Stock Quantity Total	Stock Cost (RM)	Net Profit Per Tin (RM)	Net Profit (RM)	Net Profit Percent (%)	Stock Date
Coco Cola	1	20	20	110.00	0.40	-102.00	0.36	07/04/2022
Coco Cola	1	25	45	110.00	0.40	-92.00	0.36	07/04/2022
Coco Cola	1	50	50	110.00	0.40	-90.00	0.36	07/04/2022

*Figure 6.53 : Screenshot of Stock Report*