MAY 2025

TFB1033

OBJECT ORIENTED PROGRAMMING

GROUP PROJECT

LECTURER: DR M NORDIN B ZAKARIA

Group Members:

NO.	NAME	ID	COURSE
1.	Namunesswaran A/L Siva Perumal	24000043	CS
2.	Muhammad Faizzuddin Bin Mohd Nazli	24000085	CS
3.	Muhammad Luqman Hakim Bin Mohamad 'Asri	24000087	CS
4.	Lew Wei Cheng	24000270	CS

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TEAM ORGANISATION

Muhammad Faizzuddin Bin Mohd Nazli	Namunesswaran A/L Siva Perumal	Lew Wei Cheng	Muhammad Luqman Hakim Bin Mohamad 'Asri
24000085	24000043	24000270	24000087

To complete this project, each team member was assigned different parts to work on.

Muhammad Faizzuddin Bin Mohd Nazli - System Design and Logic Implementation

He was the one who planned how the whole system should work. He created the main design of the system and decided how each part should connect with each other. He also did the coding for the system logic that control how data move between different parts. Besides that, Faiz handled the setup of user interface using special libraries like Guna UI2 and Krypton Toolkit, so the design looks clean and modern.

Lew Wei Cheng – Sales Module and Functional Interface

He worked on everything related to sales. He built the sales form where users can record sales, input customer orders and process transactions. He made sure this part works together with the stock system, so when items are sold, the stock updates correctly. Wei CHENG also helped make the interface easy to use for this section.

Namunesswaran A/L Siva Perumal – Product Management Module

He focused on the product management part of the system. He created the forms and logic that let users add new products, edit product details and assign them to categories. He also handled the connection between product information and stock control, so when something is changed, it will show up properly in the system. Namu made sure the product data is saved and shown correctly in the product list.

Muhammad Luqman Hakim Bin Mohamad 'Asri – Reporting and Data Visualization

His job was to handle reports. He created the parts where users can view sales, inventory and stock summaries. He also made sure the reports are easy to read and clear to understand. He worked on the format and how the data should be shown in a simple way for the users.

DESCRIPTION OF THE PROJECT

This project is a Windows Forms-based Inventory Management System developed using C# in Visual Studio 2022. It is designed for small to medium-sized businesses to efficiently manage products, inventory stock levels, transactions, and sales. The application features a modular, multi-form architecture and uses Firebase Realtime Database for cloud-based storage and data synchronization.

Core Functionalities:

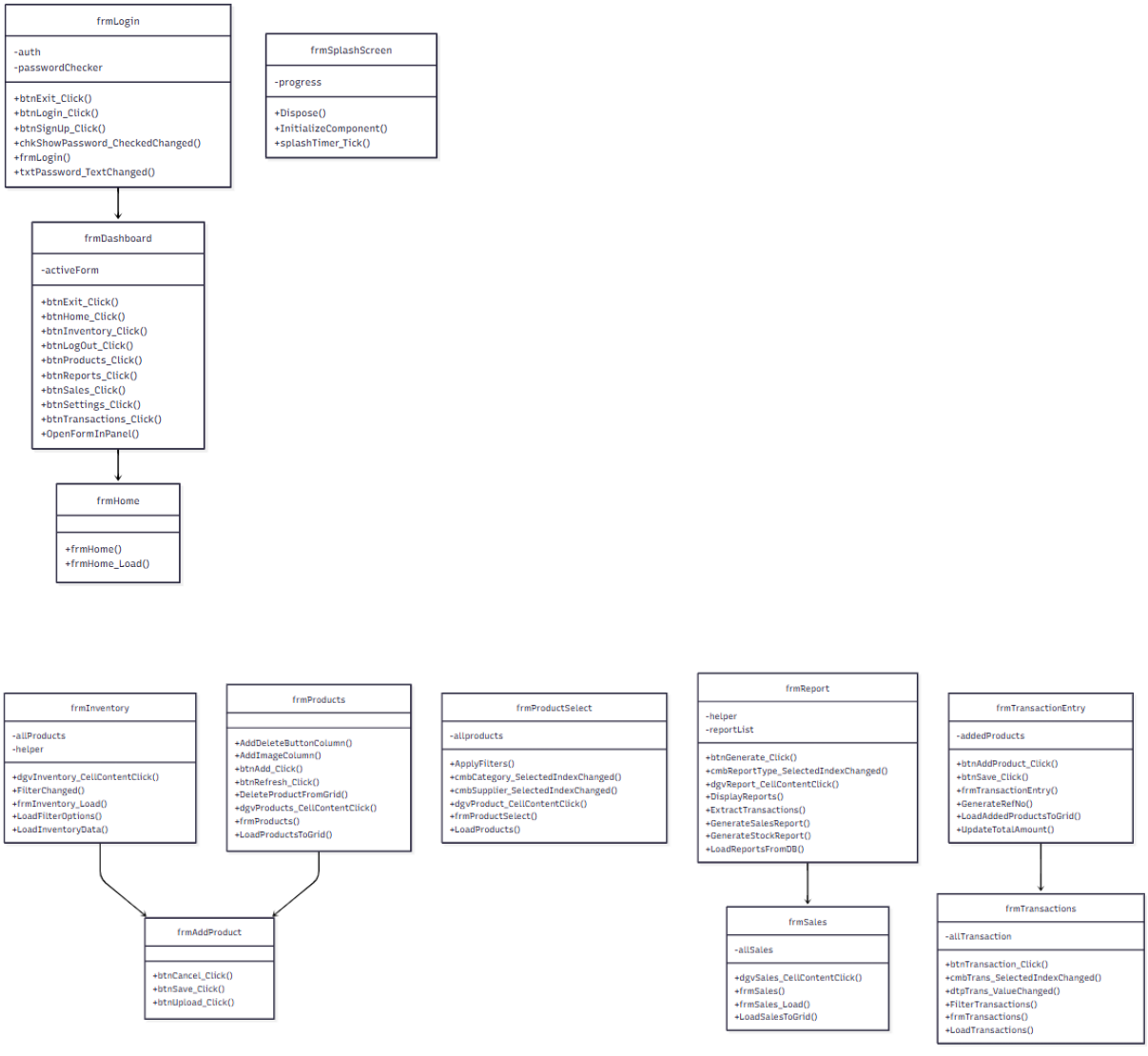
1. **Dashboard Navigation:**
    - Central control panel (frmDashboard) with navigation to submodules.
    - Panel loading system that opens each child form (frmHome, frmInventory, etc.) inside a container panel.
2. **Product Management:**
    - Add, update, and delete products.
    - Each product includes a unique ProductID, category, supplier, quantity, and price.
    - Category management using a list class and UI integration.
3. **Inventory Control:**
    - Manual stock adjustments and automated updates based on transactions.
    - Low-stock detection and real-time updates to Firebase.
4. **Transaction Management:**
    - Entry of 'Stock In' and 'Sale' transactions via frmTransactionEntry.
    - Transaction filtering by type, date, category, and supplier.
    - Auto-generated reference numbers and real-time total amount calculation.
5. **Sales and Reporting:**
    - Sales tracking and revenue computation.
    - Dynamic report generation for sales and stock, saved under a unified Reports node.
    - Integration of polymorphic Report, SalesReport, and StockReport classes with Firebase.
6. **Home Dashboard (frmHome):**
    - Real-time statistics display using lblProduct, lblTransactions, and lblSales labels.

- Data retrieved directly from Firebase using helper methods (GetProductCount(), etc.).

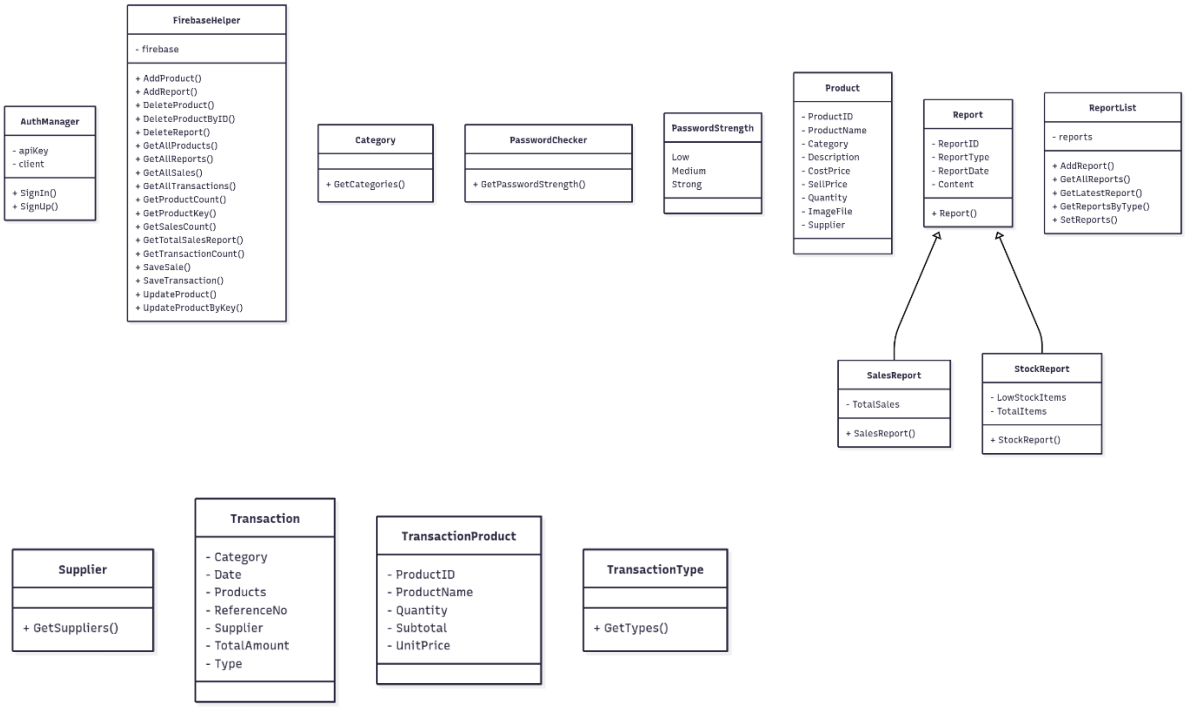
7. **Authentication and Navigation:**
   - Login system integration (via frmLogin) with session redirection upon exit or logout.

UML DIAGRAM

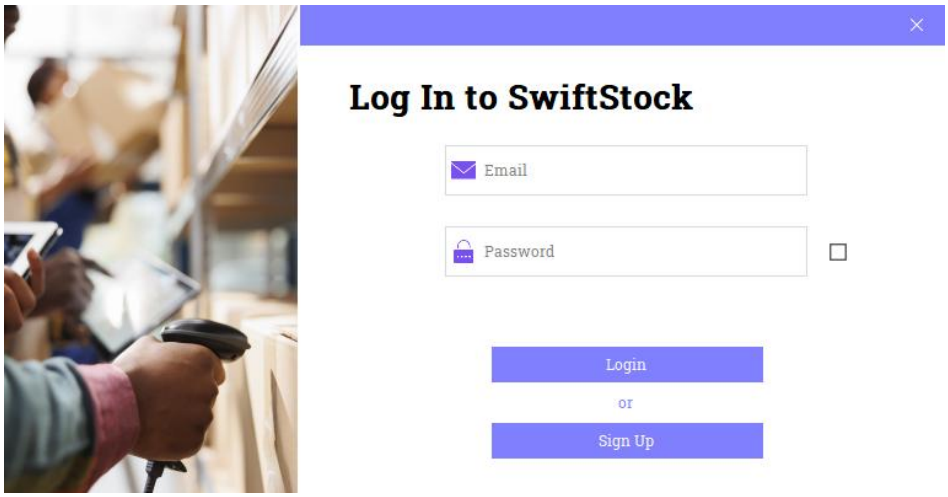
UML FOR FORMS (UI LAYER)

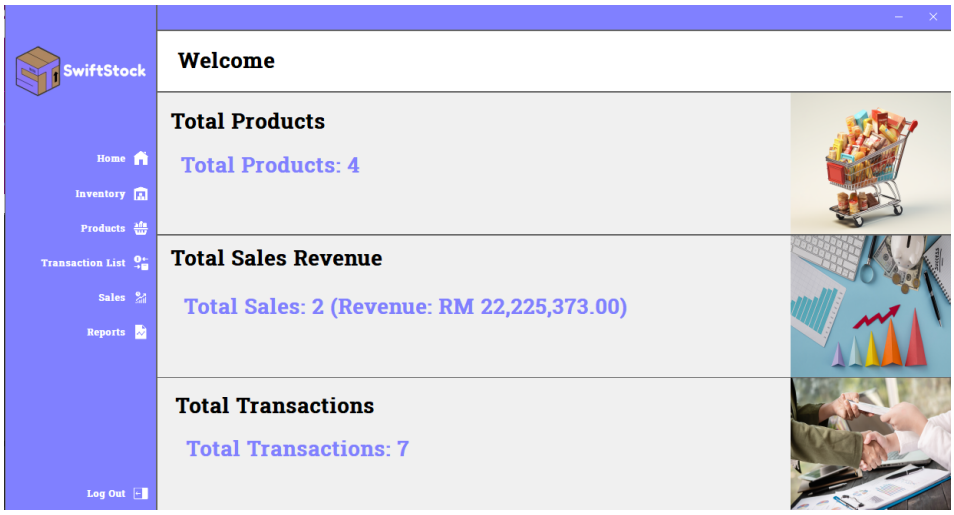


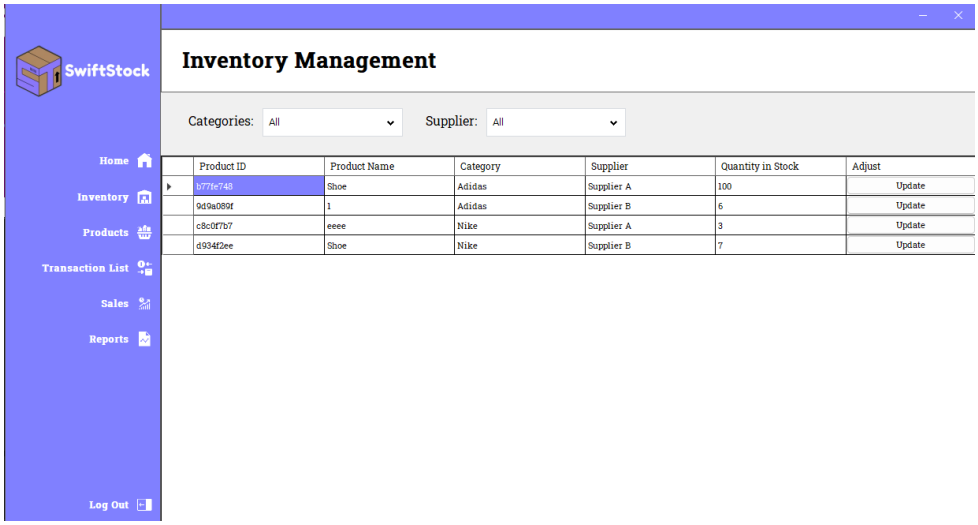
UML FOR CLASSES (LOGIC LAYER)

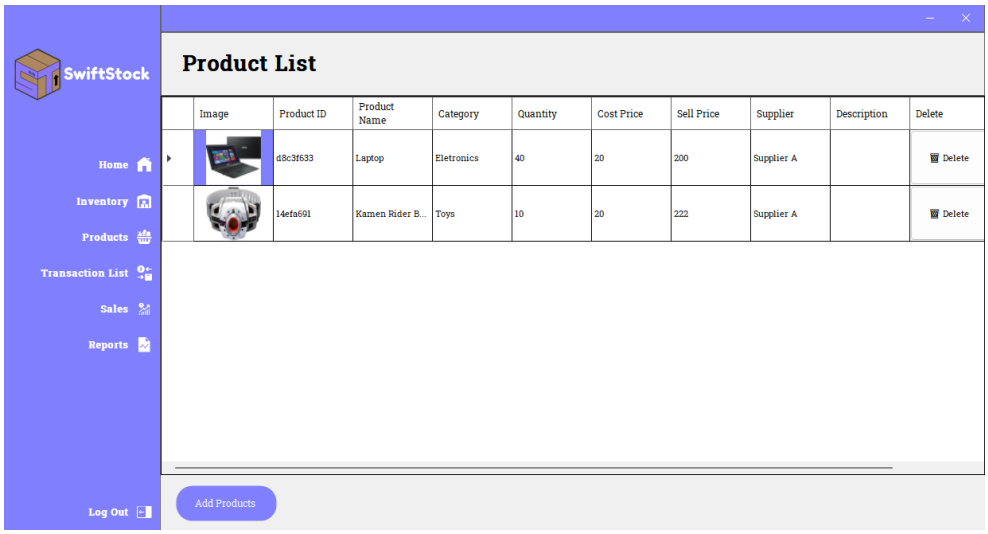


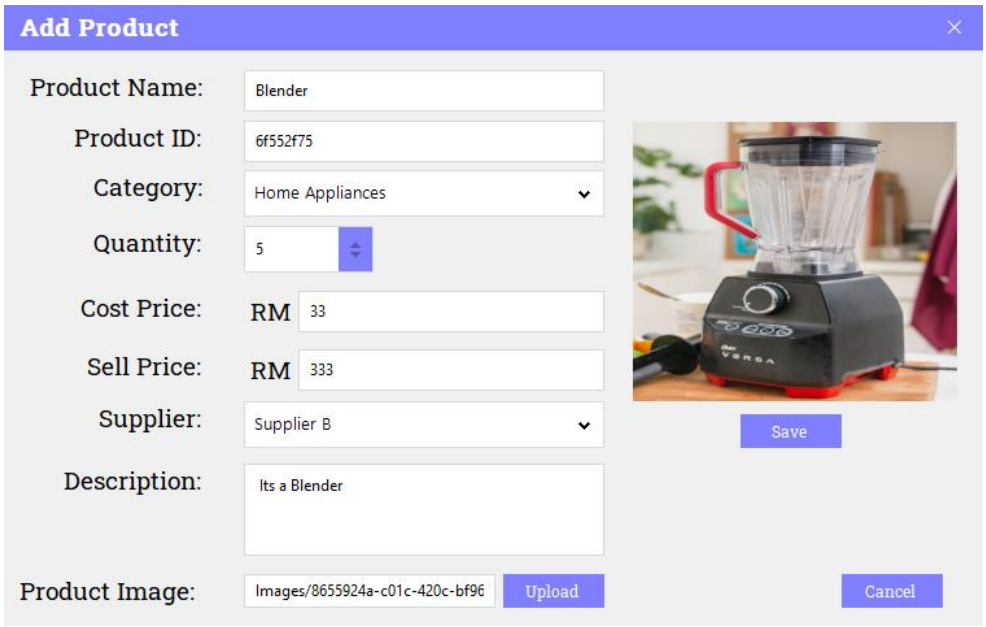
SCREENSHOT OF THE PROJECT

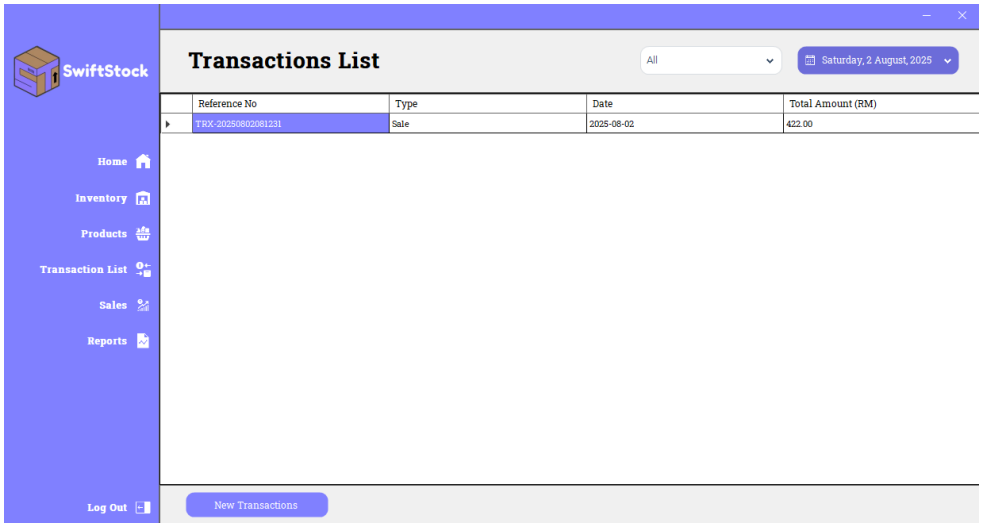


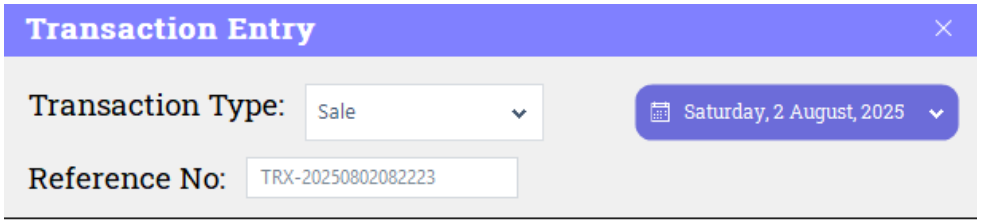


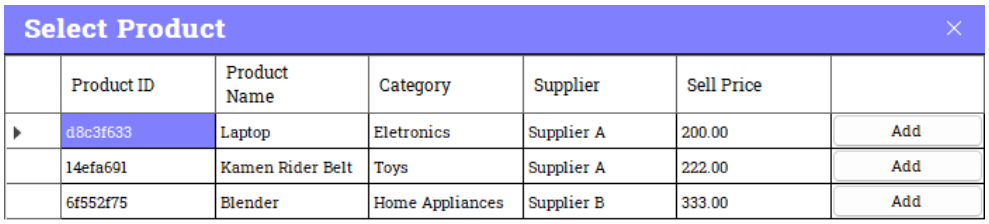

SwiftStock
Inventory Management
Categories: All
Supplier: All
Home
Inventory
Products
Transaction List
Sales
Reports
Log Out
Product ID | Product Name | Category | Supplier | Quantity in Stock | Adjust
b77fe748 | Shoe | Adidas | Supplier A | 100 | Update
9d9a089f | 1 | Adidas | Supplier B | 6 | Update
c8c0f7b7 | eeee | Nike | Supplier A | 3 | Update
d934f2ee | Shoe | Nike | Supplier B | 7 | Update


SwiftStock
Product List
Home
Inventory
Products
Transaction List
Sales
Reports
Log Out
Image | Product ID | Product Name | Category | Quantity | Cost Price | Sell Price | Supplier | Description | Delete
d8c3f633 | Laptop | Eletronics | 40 | 20 | 200 | Supplier A | Delete
14efa691 | Kamen Rider B... | Toys | 10 | 20 | 222 | Supplier A | Delete
Add Products

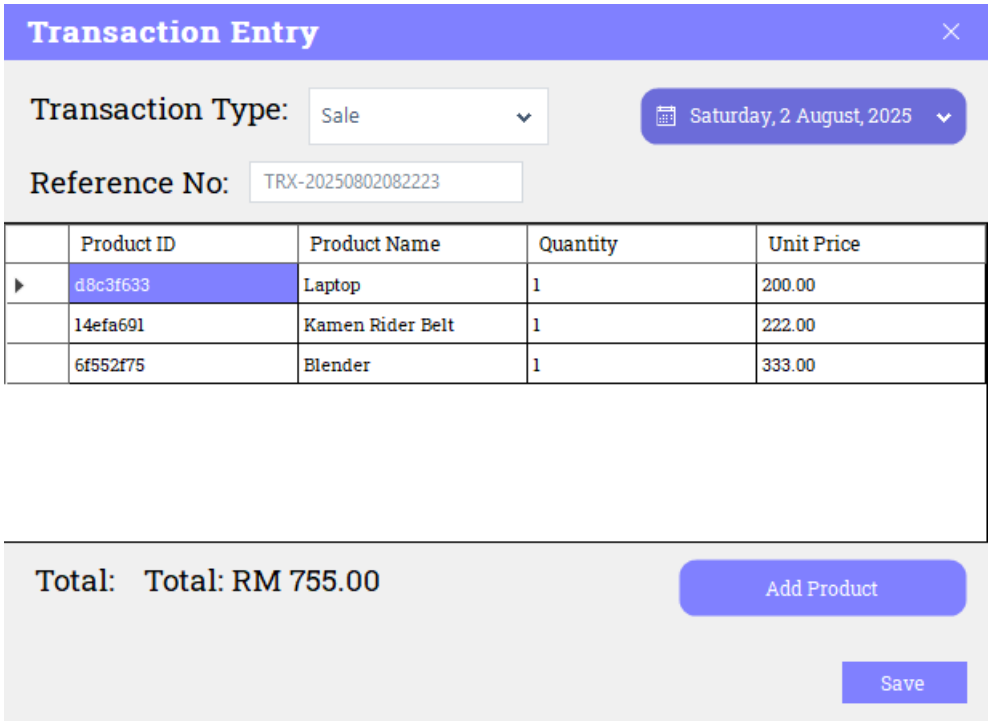

Add Product
Product Name: Blender
Product ID: 6f552f75
Category: Home Appliances
Quantity: 5
Cost Price: RM 33
Sell Price: RM 333
Supplier: Supplier B
Description: Its a Blender
Product Image: Images/8655924a-c01c-420c-bf96
Upload
Save
Cancel

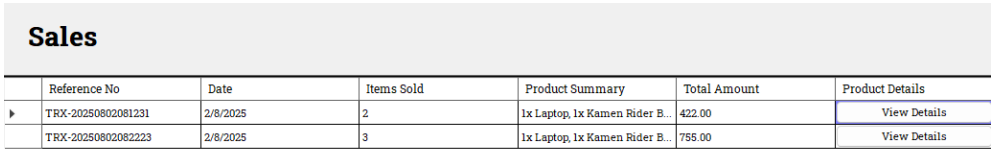


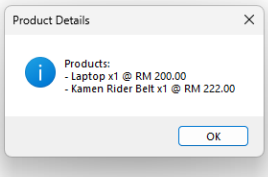


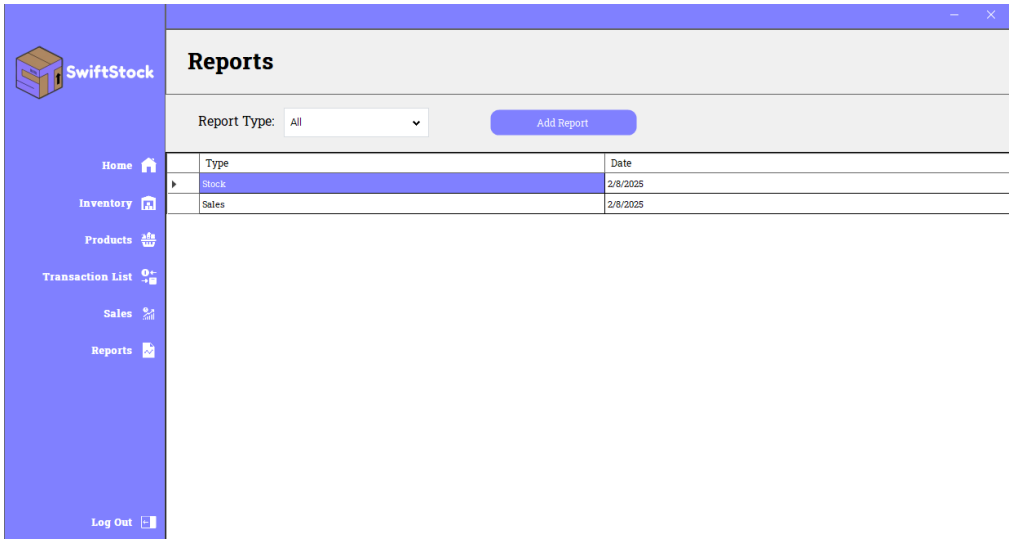


	Product ID	Product Name	Category	Supplier	Sell Price	
▶	d8c3f633	Laptop	Eletronics	Supplier A	200.00	Add
	14efa691	Kamen Rider Belt	Toys	Supplier A	222.00	Add
	6f552f75	Blender	Home Appliances	Supplier B	333.00	Add


Transaction Entry
Transaction Type:
Sale
Saturday, 2 August, 2025
Reference No:
TRX-20250802082223
Product ID
Product Name
Quantity
Unit Price
d8c3f633
Laptop
1
200.00
14efa691
Kamen Rider Belt
1
222.00
6f552f75
Blender
1
333.00
Total:
Total: RM 755.00
Add Product
Save


Sales
Reference No
Date
Items Sold
Product Summary
Total Amount
Product Details
TRX-20250802081231
2/8/2025
2
1x Laptop, 1x Kamen Rider B...
422.00
View Details
TRX-20250802082223
2/8/2025
3
1x Laptop, 1x Kamen Rider B...
755.00
View Details


Product Details
Products:
- Laptop x1 @ RM 200.00
- Kamen Rider Belt x1 @ RM 222.00
OK


SwiftStock
Reports
Report Type:
All
Add Report
Type
Date
Stock
2/8/2025
Sales
2/8/2025
Home
Inventory
Products
Transaction List
Sales
Reports
Log Out

Reports

Report Type: Sales

Add Report

	Report ID	Date	Total Sale	Sale Transactions
▸	76f4bcb7-bf8b-4820-8257-535ca367b374	2/8/2025	1177.00	2
	35348a3f-3157-476d-9af6-02a731ac4ea9	2/8/2025	422.00	1

Reports

Report Type: Stock

Add Report

	Report ID	Date	Total Products	Low Stock Items
▸	616b4554-e028-42f6-9818-780096ccac6f	2/8/2025	3	1
	f36c9eba-8a1d-4879-9589-5b7793b1550b	2/8/2025	2	0