

Sri Lanka Institute of Information Technology
Malabe



Project Proposal

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Supermarket Management System
for Ravishka Supermarket.

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Introduction

Company background

'Ravishka supermarket' is a Sri Lankan business which is operated over the last 10 years, delivering the freshest quality products serving thousands of Sri Lankans every week. Their business is act as an intermediate between a buyer, seller, and a supplier. A team of over 15 employees and stakeholders with long lasting partnerships are engaged with this supermarket which carries over 500 products to their customers. This supermarket hopes to launch an online shopping platform providing customers with the facility of home delivery. With the current system the company owner must write the supplying details, selling details, all the employees' financial details manually which is more paperwork and wastage of time. So, a user-friendly web application with a database would be create more manageable and securable background.



Problem statement

- Currently 'Ravishka Supermarket' is done their process manually. If someone wants to buy products, he needs to come to the shop and buy them. And the suppliers also need to come to the company and supply their goods manually. Therefore, the buyers, sellers and suppliers must waste their time.
- With the current system the company owner must write the supplying details, selling details, buying details manually. Because the owner has not a database to store the details. It wastes his time.
- When customers(buyers) need to know about the products, the owner needs to describe about them manually. Because of that, per a day the owner cannot handle many buyers, he can handle only several customers.
- The owner must handle the all the financial details manually as there is no accountant in the company. So, it is difficult to handle all the employees' financial details by himself. That consume the time unnecessarily.
- The existing system recording some details which are repeating all over the system.
- Because of the data redundancy, if the company requires update some details that will be more complex.

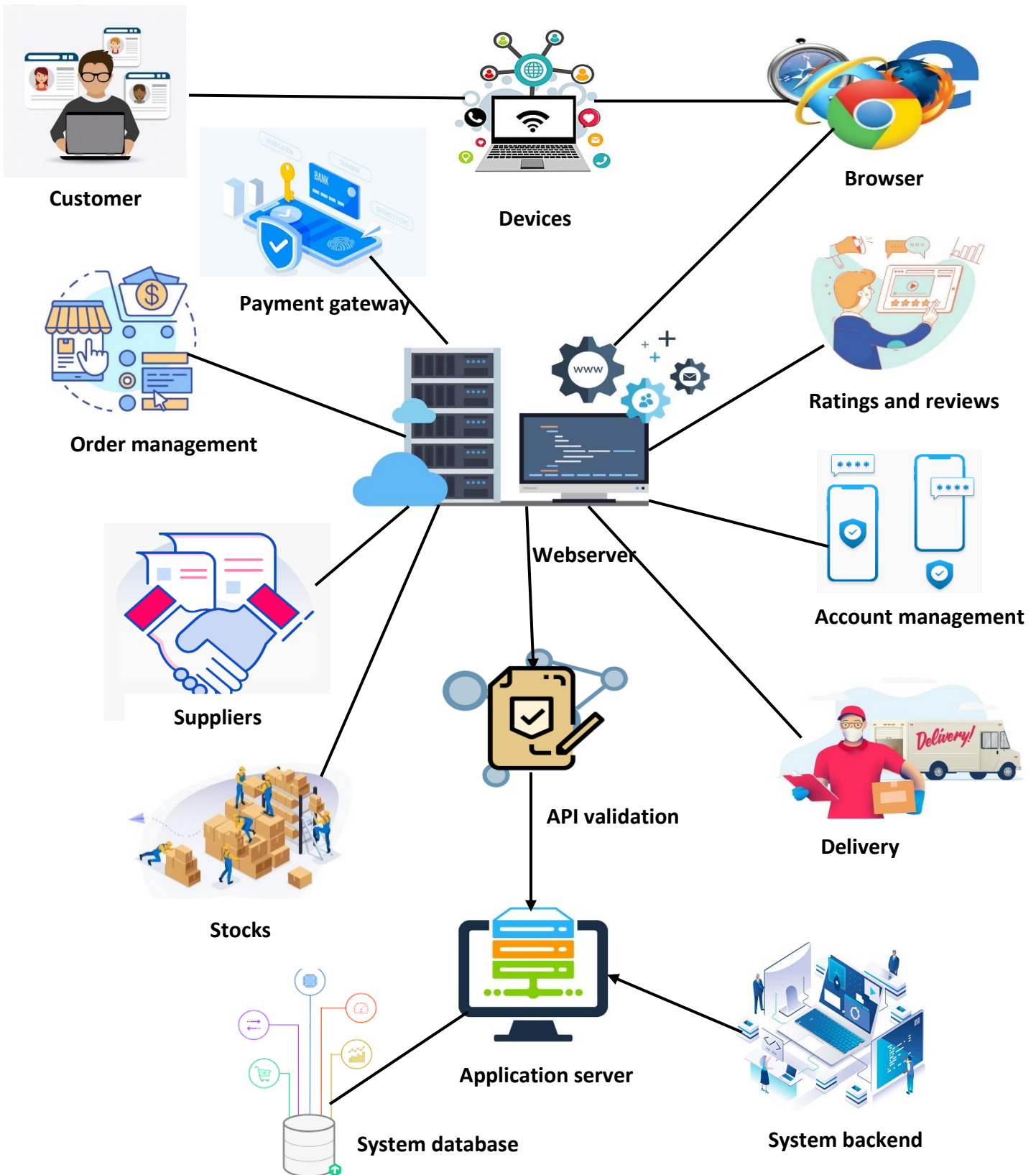
Solutions

- According to the requirements of the company, we decided to divide business operations into some sections. Those sections are mentioned below.
 - ✓ Order management for retail customers
 - ✓ Order management for wholesale buyers
 - ✓ Employee management
 - ✓ Stock management
 - ✓ Financial management
 - ✓ Transport management
 - ✓ Suppliers' management
 - ✓ Debtors' management
- According to those sections, the company requirements can be fulfilled by developing a web application.
- Providing a user-friendly interface for sellers and suppliers. So that, suppliers can easily supply items, sellers can easily sell items.
- Providing a database to store all the details of buyers and sellers which help to owner to manage the details easily without time wasting.
- Supplying a facility to sellers to write a description about their goods including prices. So that, the owner doesn't need to describe about the items for customers individually.
- Supplying the user profiles which can access by the employees (supplier, seller). So that, they see their products summary easily.
- Providing a confidential interface with a function to handle financial details of the business, therefore the owner can calculate profits, calculate salaries of the employees easily.

Benefits of the system

- **Efficiency** - Supermarket will be able to provide a fast and efficient service.
- **Accuracy** - All records and transactions are reported effectively.
- **Helps in avoiding unnecessary paperwork** - Fixed ownership of paper files to records when the system is used to perform normal administrative tasks. It leads to the conservation of natural resources and the keeping of a digital record of data. It also does not confuse the records that need to be kept.
- **Flexibility** - Provides simpler, faster, and more flexible.
- **Data security** - System ensures that everything is safe and secure over the Internet, important documents can't be stolen and lost. All finance details are secure from unauthorized persons.
- **User friendliness** - The stock manager, shop keeper, and customers can easily search view any details.
- **Helps in avoiding unnecessary paperwork** - All the unnecessary paper works are avoided. all necessary details are in the database.
- **Generate Reports** - Manage records and data easily as Decisions are effective.

System Overview



System Functions

01)Order management for retail customers

This is a main function of the system, by this function manages all the orders of retail customer. Here in this function the main goal is to manage the orders of daily customers who are buying something individually rather than wholesales. In this function there are different set of works. They are as follow,

- Record customer details.
- Record order details.
- Record delivery details (type and mode of the delivery).
- Issue bills for each retail order.
- Record customer ratings and reviews.
- Arrange offers, loyalty points for regular customers and let them know ahead of flash sales
- Generating daily sales reports and other relevant reports.

This function takes place once a customer is log into the system. When an individual buyer(customer) places an order, his details are recorded in the system so that it is easy to access the data again. And this function records all the order details. The most important thing done by this function is issuing bills. When a retail customer places an order, the necessary bills are issued by the system after applying all discounts and promotions. so that the customer can get an idea to do the payments. Not only that when a retail customer places an order, he /she can rate our products and the service of our system through this function. This function generates daily sales reports based on the orders of retail customers. By these reports it is easy to have a good understanding about the income of the company on daily basis.

CRUD operations of this functions are as follow,

- **Create**- Customer can create his profile by inserting his name, mobile number, address etc., Customer can add items to the cart, Customer can add reviews and ratings for the products.
- **Read**- Customer can search products, Customers can view their profiles by entering their credentials. Customer can view reviews and ratings of the products which are given by other customers.
- **Update** – Customer can update their details in his profile, Customer can update the quantity of items in the cart
- **Delete** - When a product is out of stock shopkeeper can delete that product, Customer can delete items from the cart.

02) Order management for wholesale buyers

In this function, record all order details and details of wholesale buyers. This function has a lot of impact on the profit and loss of the system. Then, first, it is essential that all wholesale buyers register into the system.

In this function processors the below,

- Register wholesale buyers.
- Get wholesale buyers' details.
- Add wholesale buyers.
- Add order details (buyer's quantity).
- Get delivery details.
- Give discount and price details.
- Generate reports of wholesale orders.
- Add wholesale buyer details to the database (update).

Register the wholesale buyers by getting their details. So that the shopkeeper can add them to the system database. After registering a wholesale buyer, this function gets all the order details. All the price verifications are recorded in this function like the discounts that are given to wholesale buyers. After an order is verified, this function gets the delivery details that the buyer wants. And it is sent to the transport manager. This function also generates reports regarding all the wholesale orders that are done through the system. And also, by this function, the shopkeeper can add and update the system database.

CRUD operations of this functions are as follow,

- **Create** - Register the wholesale buyers by getting their details. (NIC, address, name, e-mail, district, etc.). Then get order from registered wholesale buyers.
- **Read** - Wholesale buyer can view his details and order details.
- **Update** - Buyer can update his order details and information.
- **Delete** - Wholesale Buyer can remove his order details.

03)Employee management

This function maintains all the employee details. In this system the employees are required to register to the system first. When they want to register, they need to provide details such as their name, address, contact number, item code, item description, email. Once they finish providing the details, the admin (employee manager) should store those details into the database. And also, he should make the user profiles for employees by adding their details. After finishing this process, the employees can log into the system by entering their login credentials. When employees are login to the system admin need to check their login, credentials are valid or invalid. If the employees can log into the system successfully, they can access their user profiles. The admin also needs to add salary details, record items which sell or buy by the employees. employee manager gets the working hours as well as OT hours, and the number of holidays taken by employees. And when they work overtime, they must mark it in their profiles and then employee manager calculates them and generate final salary. And after monitoring those details shopkeeper need to generate relevant reports.

Through this function,

- The employees of the company can register to the system.
- Admin generates reports with the details of the registered employees.
- **Create**- Employee can create his user profile by inserting his name, contact number, address item code, item description etc.
- **Read**- Employees can search products, Employees can view their profiles by entering their credentials, Employees can view their salary reports.
- **Update** – Shopkeeper can update their details in his profile, admin can update the quantity of items in the cart.
- **Delete** – Shopkeeper can delete user details.

04) Stock management

In this function, process is doing by the stock manager. She/he is the administrator of the system. This function analyses all the stock details. First administrator needs to log into the system using his/her username and password.

Once the admin logs in to the system, he or she can view the available inventory products at the movement.

If the admin wants to add new items to the inventory admin can add the item details to the system database. Those item details add into the items table. In the item table, admin needs to add item details such as item name, price, quantity, item code. Through that, stock manager can add new item to inventory. If admin wants to remove items or update items like item quantity, he or she can update it.

When the order is received and arranging the order admin check inventory according to the purchased order and non-purchase orders. after that stock manager update inventory.

Finally, admin can generate relevant reports.

CRUD operations of this functions are as follow,

- **Create-** Stock manager can add new items by inserting item name, item code, description, quantity, expire date.
- **Read-** Stock manager can search products, can view the products that are available inventory at that moment.
- **Update-** Stock manager can update any item details in item table. And can update inventory according to the purchased order and non-purchased order.
- **Delete-** When item or product is expired stock manager can remove that item from the inventory

05) Financial Management

Finance Management function will be recorded all the finance performances according to incomes and expenses of the business to get total income and total expense to calculate monthly profit of the business. The main task of this function is to handle all the cash transactions done in a particular day range of the business.

Through this function,

- **Manage business incomes**

This function is facilitating for record all the income transactions. Transactions can be listed down such as sales income from retail customers, all the sales income from wholesale buyers, interest income, etc. Once each income is received on the relevant page, it is inserted into the finance database table.

- **Manage business expenses**

This function is facilitating for record all the expense transactions. Transactions can be listed down such as salary payments, electricity payments, transport expenses and other utility bills. Once each expense is received on the relevant page, it is inserted into the finance database table

- **Generate Reports**

The generating report include finance transactions which have been done throughout the week with total income and total expense and also calculate monthly gross profit. These reports demonstrate increment or decrement of the incomes and expenses related to the financial operations of the business organization.

Though these functions, finance manager can take decisions easily and can understand the maximization of the profit monthly in the business. Since the payments and incomes inserting to the system with a unique number, finance manager can search finance transactions related to the id.

CRUD operations of this functions are as follow,

- **Create**- Inserting each income and expenditure of the business into the finance database table.
- **Read** - View the weekly income and expenses of the business and view the monthly gross profit.
- **Update** - The monthly gross profit can be updated accordingly when income and expenses change.
- **Delete** - The monthly gross profit can be removed in case of miscalculation or other omission.

06)Transport management

In this web application, transport management manages all the transport activities. This includes managing the driver details, managing the vehicles used for transportation, record delivery status, generate deliver reports and so on. The main objective of this function is to deliver goods safely and on time to customers and wholesale buyers.

Basic functions of Transport management

- **Manage driver details**

This function records the details of the drivers who are transporting the items. The drivers of the company and the drivers of the courier service are used for the transportation. The details of these drivers are obtained by the transport manager, and we hope to include the name, date of birth, NIC number, address, mobile number, driving license details in the database. There we can update or delete the data if we want.

- **Manage vehicles**

This function is used by the transport manager to obtain the details of the vehicles used for transportation. For the relevant vehicles we hope to include vehicle type, vehicle number, manufacture year, revenue license details, insurance number in the database. There we can update or delete the data if required And We set up GPS trackers for all the vehicles in the shop as we want to ensure vehicle safety.

- **Record delivery status**

This function monitors the shipment of items from the company until they reach to the destination. That is, to check whether the items have departed, where the items are currently, and whether the items have reached the destination.

- **Generate delivery report**

This function creates a report on the items that were delivered. After the items are shipped, to whom were the items sent, the name of the item, the price of an item, the quantity, the total price, whether the items are in a good condition or damaged and whether the delivery has successfully done, will be recorded in the delivery report.

Through these functions, the transport manager can easily manage the transport activities of the company and gain a clear understanding of the changes that need to be made in the transport sector for the future development of the company.

- **Create** - Shopkeeper can add new vehicles and drivers for relevant table. inserting relevant details.

driver table - driver's name, date of birth, address, mobile number, driving license details

vehicle table - vehicles vehicle type, vehicle number, manufacture year, revenue license details, insurance number.

- **Read** - shopkeeper can search vehicles and drivers also shopkeeper can see vehicle & driver details.
- **Update** - shop keeper can update driver (driver Address, mobile number) and vehicle details (insurance number, vehicle number).
- **Delete** - If a vehicle is removed or a driver leaves a shop, those records are removed from the system.

07)Suppliers' management

In this function manage all supplier details. First Suppliers need to register in the system. Therefor suppliers give the personal details in the system. Such as username, password, NIC no, DOB, address, mobile number, item name, item code, quantity. The admin stores this detail in the system database. After that supplier can login to their own profile. The admin creates the supplier payment information and store in the system database. Supplier login the own profile their can view supplier details and payment information.

Through this function,

- Shopkeeper can store all payment information.
- Shopkeeper can generate payment information report

CRUD operations of this functions are as follow,

- **Create** - Supplier can add new suppliers by inserting their personal details like as username, password, NIC no, DOB, address, mobile number, item name, item code, quantity.
- **Read** - Shopkeeper can search suppliers. Supplier can view their Personal details.
- **Delete** – Suppliers are goes to the removed supplier list when remove from the regular list.
- **Update** - Shopkeeper can update payment information and supplier details.

08)Debtors' management

In Customers and wholesale buyers can borrow goods owing money to the shopkeeper but both of their must be regular customers. Meanwhile the customer and wholesale buyers details must be recorded (name of the debtor, date, price, no of items borrowed etc.). Updating and removing the customer couldn't pay their debts on due date ascertain interest rate will be tallied/added to the previous arrears. Though these function, shopkeeper can take decisions easily and can understand the people who didn't pay the debt of the business easily. shopkeeper can search debtors' details related to the id. Because of that, data redundancy is very low.

If a debtor has an outstanding payment that has passed the due date, there are a number of steps that the shop keeper can take in order to collect the money owed. invoice list will automatically update to show which payments from debtors are overdue, indicated by a due date that will become red. the shopkeeper can quickly filter the invoices to view only those that are unpaid, and the overdue invoices will be easily viewed. Though this function shopkeeper can take decisions easily and can understand the debtors who paid and non-paid weekly, monthly in the business.

- This function manages order details and the customer details of the debtors'
- shopkeeper can update and view debtors' details.
- shopkeeper can remove debtors' details after they paid their dept.
- shopkeeper maintains an interest plan for debtors.
- shopkeeper can generate debtors' information report.

CRUD operations of this functions are as follow,

- **Create**- Customers and wholesale buyers can create his profile by inserting his name of the debtor, date, price, no of items borrowed.
- **Read**- Customers and wholesale buyers can search debtors' profile by entering their credentials. Even shopkeeper can view all debtors' profiles.
- **Update** – shopkeeper can update debt details, such as reaming dept after the due date, interest rate etc.
- **Delete** - When shopkeeper can remove debtors' details after they paid their dept.

Tools and technology

To develop this web application, we are using PHP with Laravel framework.

- **HTML, CSS, Js**

Used to develop the client side (frontend) of the web application.

- **Laravel framework with PHP**

Used to develop the server side (backend) of the web application.

- **PHP my admin.**

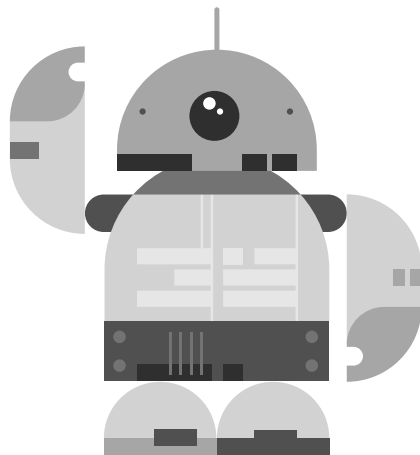
Used to create the database of the web application.

- **Visual studio code**

Used as the IDE to develop the web application.

- **xampp**

Used as the server.



Work distribution

	Name with Initials	Brief Description of the Function
1.	Jayasekara H.L	Order placement for retail customers This function records customer details such as the NIC, name, mobile number etc., and they can update these details anytime. Here we record order details such as order ID, item ID, quantity, etc. Customer can add, update, remove items in the cart. Also, this function must issue bills for each retail order, record customer ratings and reviews, arrange offers, loyalty points for regular customers and notify them ahead of flash sales, record delivery details (type and mode of delivery), generating daily sales reports and other relevant reports.
2.	Alahakoon A.M.D.P.S	Employee management This function maintains all the employee details. In this system the employees are required to register to the system first. When they want to register, they need to provide details such as their name, address, contact number, item code, item description, email. When the register buyers and sellers, Monitor details, create user profiles, add salary details, records items sold by each seller, leave and attendance approve. Once they finish providing the details, the admin (employee manager) should store those details into the database. Admin can create user profiles. Admin can update user details. Admin can delete user details. Admins generate reports with the details of the registered employees.
3.	Gunasekara P.G.A.I.P	Stock management Stock management is keeping a record of stock that comes into the supermarket and stock that leaves the store. In this Function stock manager analyses stock details, and add item details (Item code, Item name, quantity, item price etc.) to the database and, he or she can update those details and delete if it is required. After, arrange inventory including purchased order and non-purchase orders. And then Monthly Generate reports regarding all the stock details.

4.	Umendra T.A.H	<p>Order management for wholesale buyers</p> <p>This function, record all order details and details of wholesale buyers. Mainly this function, registers the wholesale buyers by getting their details. (NIC, address, name, e-mail, district), so that the admin can add them to the system database. After registering a wholesale buyer, gets all the order details, like the order quantity and capacity. All the price verifications are recorded in this function like, the discounts that are given to wholesale buyers. This function also generates reports regarding all the wholesale orders that are done through the system. And also, by this function the administrator can add and update the system database.</p>
5.	Rajapaksha R.C.P	<p>Finance management</p> <p>Finance Management function will be recorded all the finance performances according to incomes and expenses of the business to get total income and total expense to calculate monthly profit of the business. The main task of this function is to handle all the cash transactions done in a particular day range of the business. Here we enter the input details related to each function. (Sales income, Interest income, Commission income, Maintenance expense, Transportation expenses, Salary payments). You can update and delete the data entered the database to properly manage these functions. The generating report include finance transactions which have been done throughout the month with total income and total expense and also monthly gross profit.</p>
6.	Thilakarathne W.A.S.S	<p>Transport management</p> <p>Transport Management is a distribution platform that uses technology to design, execute, optimize, and assist businesses in the physical movement of outgoing goods. This includes managing the driver details, managing the vehicles used for transportation, record delivery status, generate deliver reports and so on. We mainly focus about supply a good service for our customers using this function. We hope to create table for driver and vehicle. Input data as for driver table (driver name, NIC, etc.) vehicle table (vehicle name, vehicle no, etc.). There manager can update or delete the data if required.</p>
7.	De Silva P.R. P	<p>Manage suppliers</p> <ul style="list-style-type: none"> • Insert, view, update by supplier. • admin can update and delete payment information. • Admin can remove suppliers. • Generating reports. <p>In this function manage all supplier details. First Suppliers need to register in the system. Therefor suppliers give the personal details in the system. Such as username, password, NIC No etc. supplier can view and update their personal details. Even admin</p>

		can manage all supplier and their payment information (Such as remove suppliers, update, and delete payment information). finally, admin can generate and easily manage payment information report regarding to the suppliers.
8.	Arachchi S.C.S	<p>Debtors' management</p> <ul style="list-style-type: none"> • Insert, view, update, delete customer's details • Report generating <p>Customers can borrow goods owing money to the shopkeeper. Meanwhile the customer details must be recorded (name of the debtor, date, price, no of items borrowed etc.). Updating and removing the customer couldn't pay their debts on due date a certain interest rate will be tallied/added to the previous arrears. Though these function, shopkeeper can take decisions easily and can understand the people who didn't pay the debt of the business easily. The shopkeeper can search debtors' details related to the id. Because of that, data redundancy is very low.</p>

Gannt chart

