



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

UNIVERSITI TEKNOLOGI MALAYSIA
SEMESTER 1, SESSION 2023/2024

Project Phase 1

(Proposal)

SECD2523 : DATABASE

SECTION 10

GROUP NAME : THOUSAND SUNNY

1. NUR IRDINA SYAFIQAH BINTI ABU BAKAR	B23CS0069
2. MUHAMMAD AFIQ KASYFI BIN NOR AZELAN	B23CS0049
3. MOHAMAD HAIRIL BIN ZAINAL	B23CS0045
4. AHMAD AFIF AISY BIN AHMAD RIZAL	B23CS0018

LECTURER'S NAME : MADAM ROZILAWATI BINTI DOLLAH @ MD. ZAIN

Marks :

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
2.0	BACKGROUND STUDY.....	2
3.0	PROBLEM STATEMENT	3
4.0	PROPOSED SOLUTIONS.....	4
5.0	OBJECTIVES	5
6.0	SCOPE	5
7.0	PROJECT PLANNING.....	6
7.1	HUMAN RESOURCE.....	6
7.2	WORK BREAKDOWN STRUCTURE (WBS)	7
7.3	GANTT CHART	8
8.0	REQUIREMENT ANALYSIS.....	9
8.1	CURRENT BUSINESS PROCESS	10
9.0	TRANSACTION REQUIREMENT	11
10.0	BENEFIT AND SUMMARY OF PROPOSED SYSTEM	12
11.0	SUMMARY	13

1.0 INTRODUCTION

E-commerce, short for electronic commerce, refers to the buying and selling of goods and services over the Internet. This digital business model has transformed the way people conduct trade and commerce, eliminating geographical barriers and enabling transactions to occur 24/7. E-commerce encompasses a wide range of activities, including online retail, online marketplaces, electronic payments, and business-to-business transactions.

The rise of e-commerce can be defined as improvements in technology, strengthened internet accessibility, and evolving consumer preferences. Customers can now browse, compare, and buy goods and services online from the comfort of their homes or mobile devices, making it a convenient and effective substitute for traditional brick-and-mortar retail.

The project task carried out by the Thousand Sunny group includes a system related to e-commerce, which is a system that provides services for purchasing groceries or consumer needs via online. With existing e-commerce such as Mydin Online and Lotus's Grocery Online, the TS Mart System can improve e-commerce by meeting the needs of customers, allowing them to buy items from more than one store or multiple destinations with just one payment. The purpose of this project is to make online shopping, especially grocery shopping easier for them instead of making separate payments from each shop. In this phase 1 project report, our group will provide details about the system that we want to build, which is the TS Mart System.

2.0 BACKGROUND STUDY

E-commerce is a platform of communication through the Internet that takes place between companies and their customers. E-commerce provides various services such as online shopping, online banking, and E-enterprise which are also emerging trends on their own. Online shopping is one biggest services of e-commerce which allows consumers to buy, order, and view goods and services online through their gadgets, anywhere they are. Based on the fact that the world is connected through the internet and the new generation prefers to utilize technology than do things in manual process.

In addition, as we already know this online purchase has grown very rapidly in every type of business. this also includes purchasing groceries online. typically, early adopters prefer to go out and buy physically in a store because they want to see and touch the product themselves before deciding to buy it. However, with the development of technology nowadays, users can see reviews from users who have bought the item. The review can also be written by each user in order to comment on the quality of the product. therefore, this online purchase has been generally trusted by consumers to buy and obtain such items. Not only that, the original purpose of the development of this online grocery purchase system is to make it easier for users to get the goods. There are many factors and problems faced by users that cause a system like the TS Mart System to be developed. In addition, our group has also discussed solutions to those problems through the facilities available in our system.

3.0 PROBLEM STATEMENT

Upon conducting consumer observations and surveys in Malaysia, the Thousand Sunny group discovered that consumers encounter several challenges when attempting to buy groceries in physical stores. The difficulties that have been identified are as follows;

1. Do not own a vehicle and depend on public transport.

Users who do not have their own vehicle will mostly rely entirely on public transport or walking to go to a destination. Therefore, they face difficulties in carrying the grocery items that have been bought when using public transport.

2. Have small children.

Consumers who are already married, such as housewives, are mostly at home with small children. Therefore, they face difficulties in taking or leaving their children at home for a while to do grocery shopping because of worry about their children.

3. No time to do grocery shopping.

Consumers who are too busy working also face difficulties in doing grocery shopping. This is because they do not have time to go out and buy groceries or personal needs.

4. Difficulty in making price comparisons for items to buy between other stores.

Consumers who practice this thrifty lifestyle also face difficulties in comparing the price of an item between different stores. This is because if consumers want to compare the prices, they have to spend a lot of time and energy to go to each store. Therefore, for these users who want to spend wisely, it is very difficult.

5. Payment methods are limited.

In this modern era, users have practiced the use of payment methods not only through cash, but also through payment by debit or credit card, e-Wallet, and online transfer. However, these payment methods are limited if consumers want to buy groceries physically in stores, especially in small grocery stores. Even if a store provides a choice of payment methods other than cash, there are often problems with the system where it is offline, causing the buyer to have to use cash. So, with the lack of a variety of payment methods provided by merchants, it will be difficult for users to make payments when they want to shop.

4.0 PROPOSED SOLUTIONS

At the very beginning of this project discussion, the Thousand Sunny group discovered that customers in Malaysia encounter several challenges while shopping for personal necessities or groceries. Therefore, our group wants to develop a system called TS Mart System to help users who want to do grocery shopping through online. The system that needs to be developed by our group belongs to the e-commerce system that provides services to users to help them buy groceries online. There are several features provided by TS Mart System to help solve problems faced by users. Proposed solutions provided by this system include providing a list of product and store information, providing shopping cart services, and various payment methods as well as allowing one-time payments to users.

Firstly, the TS Mart System provides a list of information related to products from various stores in the system. Here, users can see a list of stores and items that are in the system and they can browse and search for the items that they want to purchase. Each product that can be seen by the user will display product details such as the product name, price, category, and product images. Furthermore, users can compare the prices of each item from various stores more easily. This can convince and help the buyer to make a decision before proceeding to the next step which is payment. Not only that, every admin and seller who uses this system can add, edit, and delete each of the product listings. This will facilitate the sales process where the out-of-stock products can be removed from the customer's view and the new products can be displayed to the user.

Secondly, this system provides a service where users can place the items they want to buy in the shopping cart. This can make it easier for users to select, store, and manage items from any store before buying them. Just like when a user does grocery shopping in a physical store, the user can add and change the number of items they want to buy in the cart to get the total cost before finishing the transaction.

Next, various payment methods are also one of the proposed solutions provided by TS Mart System. Among the payment methods are through Debit or Credit card, Online Transfer, and Cash-On-Delivery (COD). Users can choose to use one of the payment methods provided according to their convenience. To complete the delivery process, customers need to fill in their personal information correctly so that the purchased goods can be received by the user successfully.

Lastly, TS Mart System provides an improvement from the existing system by allowing users to buy groceries from more than one store at the same time with just one payment. This is because the existing system only allows users to buy goods from one store only. Moreover, this online grocery system is not the first time it has been introduced to the users. For example, systems that have been developed are Lotus's Online Grocery, Mydin Online, Jaya Grocer, and many more. Systems like this do not allow users to make payments from other stores at once. If users want to buy goods from more than one store, they have to make multiple payments online. Hence, the improvement made to the TS Mart System can help users to make payments more easily.

5.0 OBJECTIVES

For this project proposal, the Thousand Sunny group was capable of analysing user concerns and suggesting solutions through the development of the TS Mart System to assist shoppers in purchasing groceries. Below are some important objectives for this system;

1. To make it easier for users to buy groceries or personal needs without leaving home or can do it wherever they are.
2. Allow users to choose stores and items they want to buy from various places.
3. To save the user's time and energy to do grocery shopping.
4. To make it easier for users to make a one-time payment with purchases from different stores.

6.0 SCOPE

TS Mart System provides various types of features that can be used by users to purchase their grocery items. The scope of this system includes;

1. Provide a list of stores where users can buy grocery items.
2. The selection of items that the user wants to buy can be put into their shopping cart.
3. Make online payments with assured security.
4. The delivery will be made by the rider using the information and address provided by the user.

7.0 PROJECT PLANNING

7.1 HUMAN RESOURCE

NAME	ROLE	RESPONSIBILITIES
Nur Irdina Syafiqah Binti Abu Bakar	Leader / Documentation	<ul style="list-style-type: none">• Manage and give tasks to each member according to their ability.• Remind the members about the due date for each task.• Propose solutions with the objectives and scope for the group project.• Do a documentation refinement.
Ahmad Afif Aisy bin Ahmad Rizal	Group member	<ul style="list-style-type: none">• Manage and give tasks to each member according to their ability.• Remind the members about the due date for each task.• Propose solutions with the objectives and scope for the group project.• Do a documentation refinement.
Mohamad Hairil bin Zainal	Group member	<ul style="list-style-type: none">• Create a project planning.• Create a conceptual design and diagram.• Make programming for SQL statement.
Muhammad Afiq Kasyfi bin Nor Azelan	Group member	<ul style="list-style-type: none">• Find a background study and problem statement for the group project.• Create a conceptual design and diagram.• Make programming for SQL statement.

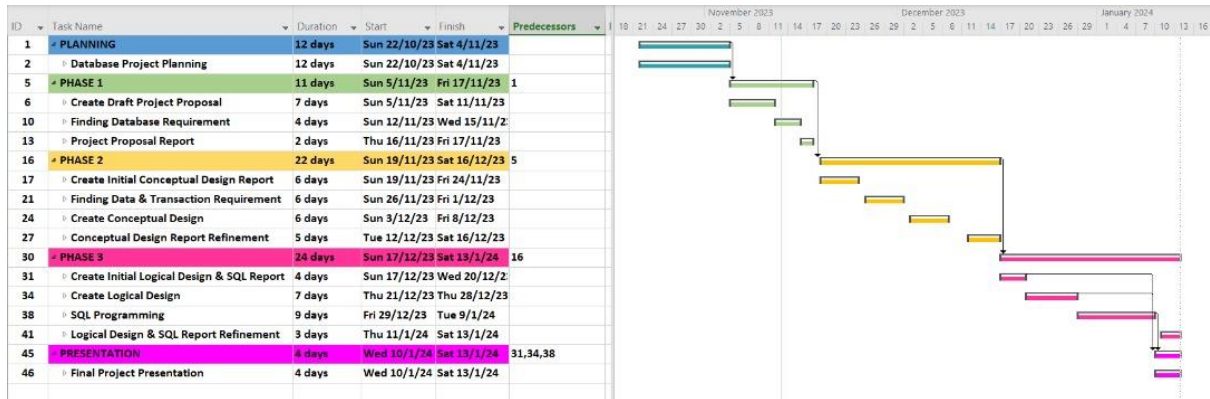
7.2 WORK BREAKDOWN STRUCTURE (WBS)

ID	Task Name	Duration	Start	Finish
1	PLANNING	12 days	Sun 22/10/23	Sat 4/11/23
2	Database Project Planning	12 days	Sun 22/10/23	Sat 4/11/23
3	Create Gantt Chart	7 days	Sun 22/10/23	Sat 28/10/23
4	Create Work Breakdown Structure (WBS)	7 days	Sun 29/10/23	Sat 4/11/23
5	PHASE 1	11 days	Sun 5/11/23	Fri 17/11/23
6	Create Draft Project Proposal	7 days	Sun 5/11/23	Sat 11/11/23
7	Introduction & Background Study	2 days	Sun 5/11/23	Mon 6/11/23
8	Problem Statement & Proposed Solutions	3 days	Tue 7/11/23	Thu 9/11/23
9	Objectives & Scope	2 days	Fri 10/11/23	Sat 11/11/23
10	Finding Database Requirement	4 days	Sun 12/11/23	Wed 15/11/23
11	Requirement Analysis	2 days	Sun 12/11/23	Mon 13/11/23
12	Transaction Requirement	2 days	Tue 14/11/23	Wed 15/11/23
13	Project Proposal Report	2 days	Thu 16/11/23	Fri 17/11/23
14	Benefit & Summary	1 day	Thu 16/11/23	Thu 16/11/23
15	Documentation Refinement	1 day	Fri 17/11/23	Fri 17/11/23

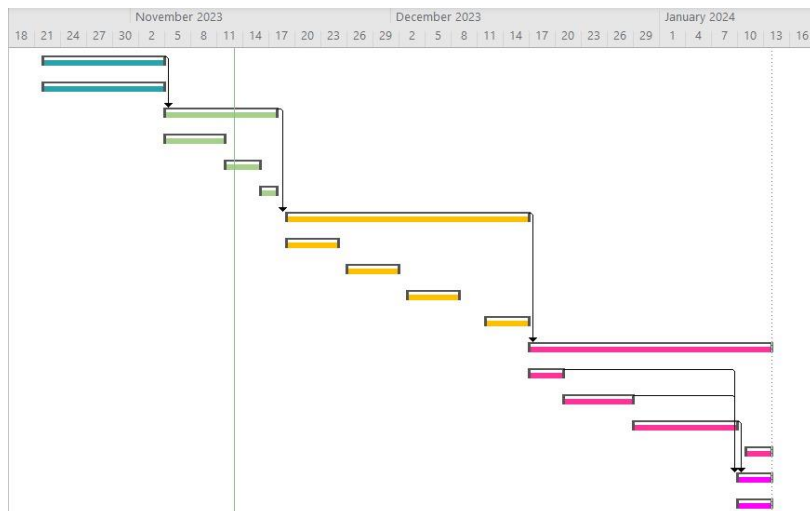
16	PHASE 2	22 days	Sun 19/11/23	Sat 16/12/23
17	Create Initial Conceptual Design Report	6 days	Sun 19/11/23	Fri 24/11/23
18	Introduction	2 days	Sun 19/11/23	Mon 20/11/23
19	DFD	2 days	Tue 21/11/23	Wed 22/11/23
20	Data Dictionary	2 days	Thu 23/11/23	Fri 24/11/23
21	Finding Data & Transaction Requirement	6 days	Sun 26/11/23	Fri 1/12/23
22	Proposed Business Rule	3 days	Sun 26/11/23	Tue 28/11/23
23	Proposed Data & Transactional	3 days	Wed 29/11/23	Fri 1/12/23
24	Create Conceptual Design	6 days	Sun 3/12/23	Fri 8/12/23
25	Conceptual ERD	6 days	Sun 3/12/23	Fri 8/12/23
26	Enhanced ERD (EERD)	1 day	Fri 8/12/23	Fri 8/12/23
27	Conceptual Design Report Refinement	5 days	Tue 12/12/23	Sat 16/12/23
28	Summary	2 days	Tue 12/12/23	Wed 13/12/23
29	Documentation Refinement	3 days	Thu 14/12/23	Sat 16/12/23

PHASE 3	24 days	Sun 17/12/23	Sat 13/1/24
Create Initial Logical Design & SQL Report	4 days	Sun 17/12/23	Wed 20/12/23
Introduction & Overview of Project	2 days	Sun 17/12/23	Mon 18/12/23
Database Conceptual Design	2 days	Tue 19/12/23	Wed 20/12/23
Create Logical Design	7 days	Thu 21/12/23	Thu 28/12/23
Logical ERD	3 days	Thu 21/12/23	Sun 24/12/23
Updated Data Dictionary	1 day	Tue 26/12/23	Tue 26/12/23
Normalization	3 days	Tue 26/12/23	Thu 28/12/23
SQL Programming	9 days	Fri 29/12/23	Tue 9/1/24
SQL Statements Part 1	7 days	Fri 29/12/23	Fri 5/1/24
SQL Statements Part 2	3 days	Sun 7/1/24	Tue 9/1/24
Logical Design & SQL Report Refinement	3 days	Thu 11/1/24	Sat 13/1/24
Relational DB Schemas	2 days	Thu 11/1/24	Fri 12/1/24
Summary	1 day	Fri 12/1/24	Fri 12/1/24
Documentation Refinement	2 days	Fri 12/1/24	Sat 13/1/24
PRESENTATION	4 days	Wed 10/1/24	Sat 13/1/24
Final Project Presentation	4 days	Wed 10/1/24	Sat 13/1/24
System Database Presentation	4 days	Wed 10/1/24	Sat 13/1/24

7.3 GANTT CHART



ID	Task Name	Duration	Start	Finish	Predecessors
1	PLANNING	12 days	Sun 22/10/23	Sat 4/11/23	
2	Database Project Planning	12 days	Sun 22/10/23	Sat 4/11/23	
5	PHASE 1	11 days	Sun 5/11/23	Fri 17/11/23	1
6	Create Draft Project Proposal	7 days	Sun 5/11/23	Sat 11/11/23	
10	Finding Database Requirement	4 days	Sun 12/11/23	Wed 15/11/23	
13	Project Proposal Report	2 days	Thu 16/11/23	Fri 17/11/23	
16	PHASE 2	22 days	Sun 19/11/23	Sat 16/12/23	5
17	Create Initial Conceptual Design Report	6 days	Sun 19/11/23	Fri 24/11/23	
21	Finding Data & Transaction Requirement	6 days	Sun 26/11/23	Fri 1/12/23	
24	Create Conceptual Design	6 days	Sun 3/12/23	Fri 8/12/23	
27	Conceptual Design Report Refinement	5 days	Tue 12/12/23	Sat 16/12/23	
30	PHASE 3	24 days	Sun 17/12/23	Sat 13/1/24	16
31	Create Initial Logical Design & SQL Report	4 days	Sun 17/12/23	Wed 20/12/23	
34	Create Logical Design	7 days	Thu 21/12/23	Thu 28/12/23	
38	SQL Programming	9 days	Fri 29/12/23	Tue 9/1/24	
41	Logical Design & SQL Report Refinement	3 days	Thu 11/1/24	Sat 13/1/24	
45	PRESENTATION	4 days	Wed 10/1/24	Sat 13/1/24	31,34,38
46	Final Project Presentation	4 days	Wed 10/1/24	Sat 13/1/24	



8.0 REQUIREMENT ANALYSIS

When trying to purchase food at physical supermarkets, customers encounter plenty of inconveniences. These difficulties consist of;

- Having trouble carrying groceries.
- Having trouble leaving or bringing little children home.
- Too busy to buy groceries.
- Comparing prices between stores is difficult.
- Limited payment options.

Existing Systems:

Some online grocery shopping platforms exist, such as Lotus's Online Grocery and Mydin Online. However, these platforms do not allow users to buy groceries from each of these apps at the same time with just one payment.

TS Mart System Requirements:

➤ Functional Requirements:

- The system should allow users to browse and search for products from various stores.
- The system should display product details, such as product name, price, category, and product images.
- The system should allow users to add, edit, and delete items from their shopping cart.
- The system should allow users to choose from a variety of payment methods, including debit or credit card, online transfer, and cash-on-delivery (COD).
- The system should allow sellers to add, edit, and delete product listings.
- The system should allow riders to view and manage delivery orders.

➤ Non-Functional Requirements:

- The system should be user-friendly and easy to navigate.
- The system should be secure and reliable.
- The system should be able to handle a high volume of traffic.

- The system should be scalable to accommodate future growth.

8.1 CURRENT BUSINESS PROCESS

1. Current Business Process

Scenario 1: User wants to purchase groceries

- User visits a physical store.
- User browses the store aisles and selects the items they want to purchase.
- User takes the items to the checkout counter and pays for them.
- User carries the groceries home.

Scenario 2: User wants to compare prices between stores

- Users visit multiple physical stores.
- User browses the aisles of each store and notes the prices of the items they want to purchase.
- User compares the prices and decides where to purchase the items.

2. Proposed Business Process

Scenario 1: User wants to purchase groceries

- User visits the TS Mart System website.
- User browses the list of stores and selects the items they want to purchase.
- User adds the items to their shopping cart and proceeds to checkout.
- User enters their payment information and makes a single payment for all items.
- Users receive their groceries at their doorstep.

Scenario 2: User wants to compare prices between stores

- Users visit the TS Mart System website.

- User enters the name of the product they want to compare prices for.
- The TS Mart System displays a list of stores that sell the product, along with their prices.
- User compares the prices and decides where to purchase the product.

9.0 TRANSACTION REQUIREMENT

Transaction Requirements for TS Mart System is through the processes of data entry, data update/delete, and data queries. These transaction requirements are an important element in maintaining an updated database of the system. The processes are as below:

Transaction Requirement	Type of Data	Explanation
Data Entry	Supermarket listing	Allow administrators to add new supermarkets into the system.
	Item information	Allow administrators to add information related to the specific items.
Data Update/Delete	Edit Supermarket details	Allow administrators to update supermarkets details about the supermarkets including address, and contact details
	Update Items details	Allow administrators to update item details such as its availability, category, and number of stocks.
	User Profile Update	Allow user to update their profile information.
Data Queries	Item search	Allow user to search for item based on criteria such as, category and number of stocks.
	Item availability	Assure users can check the availability of items in the supermarket.

	Purchase history	Allow users to view their purchase history.
	Review and rating	Allow users to write review and rate to display average rating of the supermarkets

These transaction requirements is to make sure that TS Mart System function efficiently and the information of the supermarkets and items are always updated.

10.0 BENEFIT AND SUMMARY OF PROPOSED SYSTEM

The TS Mart System acts as an intermediary between stores that sell groceries and buyers. Therefore, there are many benefits that users will get if they use the system. The benefits are included;

1. Enhanced Convenience for Customers:

Customers can finish their purchases in a few easy steps by using a simple and effective checkout procedure. This new procedure lets customers checkout from two different stores in one transaction thus will provide a seamless experience for customers.

2. Promotion of Online Purchases:

The suggested system makes it easier for Malaysians to spend money online by merging the purchasing procedures of two large retailers, Lotus and Aeon, into one transaction process. Customers are encouraged to browse and buy from both stores with ease thanks to this integration, which expands the client base for both businesses and offers a wide variety of products.

3. Enhanced Productivity:

The aim of the suggested approach is to boost productivity for the customers and the companies involved. The necessity for manual intervention such as comparing goods between stores and repeated transactions for different stores is decreased when different

operations, like order processing, payment processing, and inventory management, are automated. This efficiency makes for a faster and more dependable purchasing experience.

In conclusion, our suggested system is made to prioritize consumer convenience, encourage the adoption of online buying habits, and improve business productivity in order to elevate the online shopping experience for Malaysians. Through this accomplishment, the system hopes to build an effective e-commerce ecosystem by providing a smooth and positive experience for merchants and customers alike.

11.0 SUMMARY

To summarize this Thousand Sunny project proposal, by using a database management system for the TS Mart System for complex data that is recorded will make businesses such as the sale of grocery items run smoothly and easily to get access to contact data for each customer. If users want to get grocery items more easily and save time, of course this system can provide the service to users. Therefore, the construction of the TS Mart System can also give space to each member of the group to use the database knowledge that has been acquired during learning in the class and this can further improve the students' understanding of the Database subject.