UNIVERSITI TEKNOLOGI MALAYSIA

SCHOOL OF COMPUTING, UTMJB

SEMESTER 1, SESSION 2023/2024

PROJECT: PHASE 1

SECD2523: DATABASE

SECTION 10

LECTURER'S NAME:

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GROUP NAME:

DATADUDES

GROUP MEMBERS:

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1.0 Introduction

In the era of digitalization, the retail industry is undergoing a transformative shift towards seamless and efficient experiences for users. Recognizing the need for an advanced and user-friendly approach to online shopping, we propose the development of an enhanced shopping process, aiming to elevate user satisfaction and provide retailers with powerful tools for efficient management.

2.0 Background study

The retail landscape has evolved significantly over the years, with traditional brick-and-mortar stores facing challenges in meeting the dynamic needs of today's consumers. Conventional shopping systems often prove cumbersome, leading to inconvenience for users and operational challenges for retailers. The rise of online shopping platforms has mitigated some of these issues, but there is still ample room for improvement in terms of user experience, efficiency, and feature-rich functionality. Our background study reveals a growing demand for a comprehensive Online Shopping System that caters to the modern needs of both shoppers and retail operator.

3.0 Problem statement

I. Inconvenince for customer

- Customers experience delays due to system slowdowns, resulting in extended load times.

II. Cannot choose the courier

- Customer cannot selecting an appropriate courier service and get reasonable shipping prices.

III. Complicated Navigation

- Customer frequently experience difficulty browsing the website, such as in locating specific products and completing the checkout process.

4.0 Proposed solutions

For this project, we have decided to develop an online shopping system with the aim of transforming it into a more comprehensive and sophisticated platform. This decision reflects our dedication to going beyond the basics, striving to create an environment that offers advanced features, user-friendly interfaces.

4.1. Feasibility study

- **Technical feasibility**

  For this system, we have decided to use a web-based application because of its adaptability and wide accessibility. By opting a web-based appalication, we are strategically positioning our system to serve a wide range of users. With this option, users easily can access the online shopping experience seamlessly through standard web browsers, transcending device-specific limitations. Furthermore, we have chosen to store and retrieve data using a relational database management system (RDBMS). The relational model provides a robust framework for organizing product information, user data, and transaction records, facilitating efficient queries and data management.

- **Operational feasibilty**

  The system will always be thoroughly checked so that it can be effectively integrated. Compatibility with current technology infrastructure and systems is essential to ensure seamless integration without causing disruption to ongoing operations. Assessing the impact on day-to-day activities, such as order processing, inventory management, and customer service, is essential for minimizing potential disruptions and downtime during the implementation phase. Therefore, strategies for user training and change management should be implemented to ensure a smooth transition for both customers and internal stakeholders.

- **Economic feasibility**

  For developing a system necessitates a comprehensive assessment of the associated costs to ensure affordability. So that we decided to use the existing

frameworks to reduce software licensing expenses. Collaborating with cross-functional teams and fostering a culture of innovation can lead to creative solutions and efficient problem-solving, often minimizing the need for costly external consultants. Additionally, considering agile development methodologies facilitates incremental progress, allowing for ongoing adjustments based on feedback and evolving project needs, thus preventing costly rework.

5.0 Objectives

These are some of the objectives:

1. **Improve inventory management**
    - Keep track of product availability, number of stocks and manage inventory updates in real-time to prevent from stoukouts.

2. **Optimize database queries**
    - Enhance the database strategy to reduce response time and minimize the necessity of fetching data from slower data sources.

3. **Enhancing the optimization of product information**
    - Ensure that the product information stored in the database is well-organized, with detailed attributes, images, and specifications, to enhance the overall product browsing experience for users.

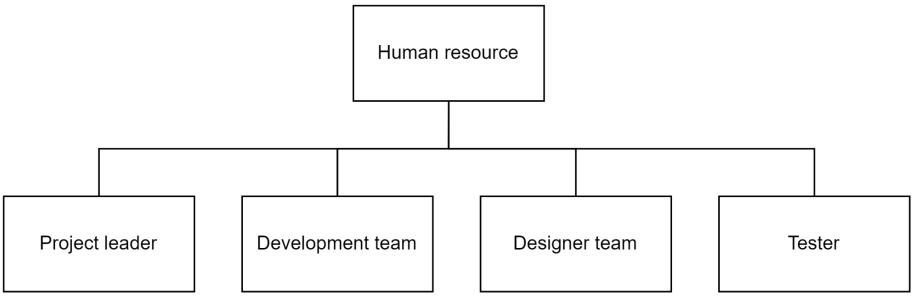
6.0 Scope

The purpose of this system is to provide a user-friendly and easy-to-use platform that allows users to easily browse, choose, and purchasing products or services from the comfort of their homes. By creating an intuitive interface and a straightforward design, it can enhance the overall user experience and provide customers with an enjoyable exploration of the platform. Futhermore, the provision of a well-optimized database management system and the use of optimized SQL queries contribute to a responsive online shopping system. This help reduce loading times and guarantee real-time availability updates, giving customers a more seamless and pleasurable shopping experience.

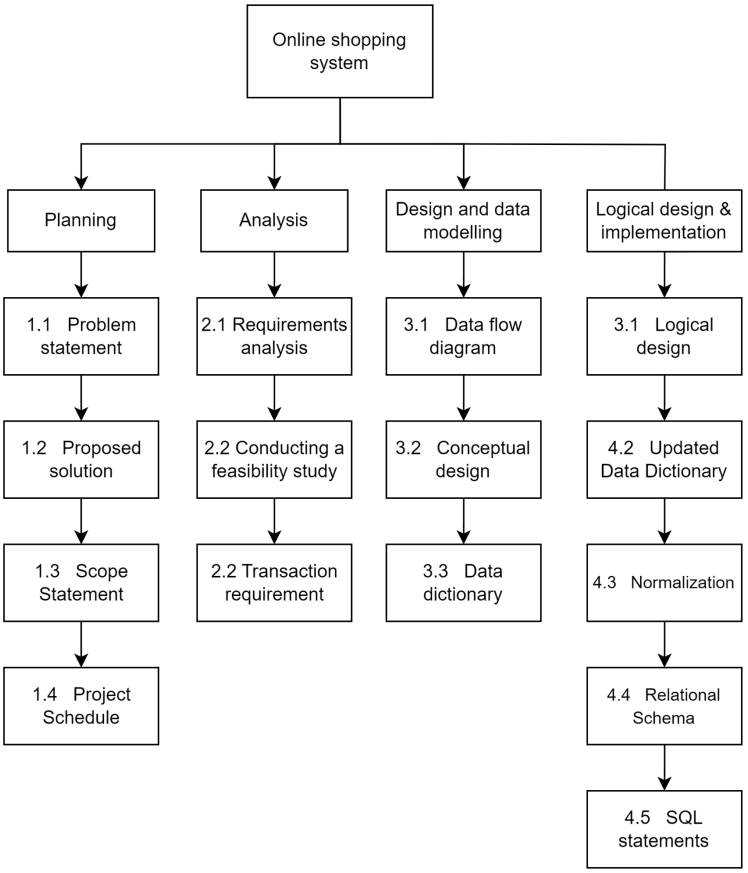
7.0 Project planning

7.1. Human resource

The successful development of system relies on effective communication and collaboration among the diverse human resources depicted in the figure below. These critical roles are integral to ensuring the project's success, emphasizing the importance of seamless coordination among team members.

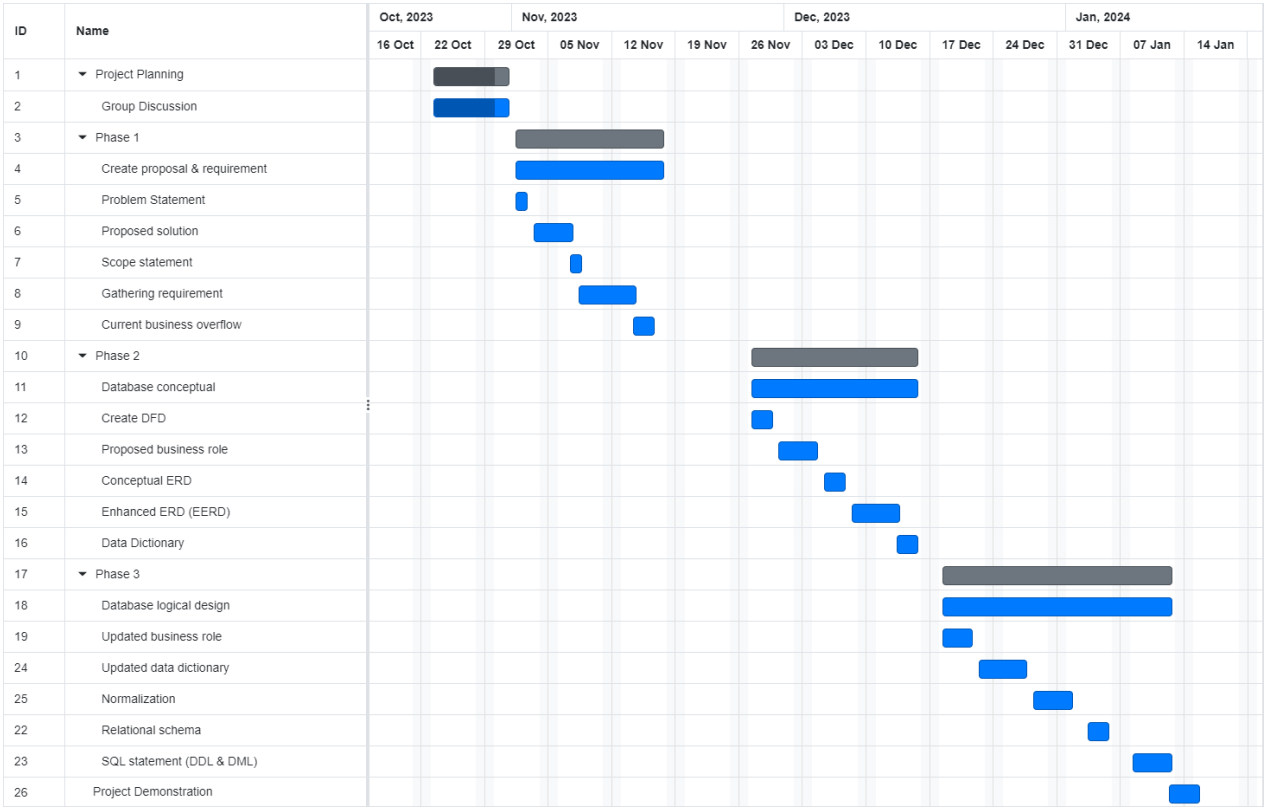


7.2. Work breakdown structure (WBS)



7.3. Gantt chart

ID	Name	Start Date	End Date	Duration
1	Project Planning	Oct 23, 2023	Oct 31, 2023	7 days
2	Group Discussion	Oct 23, 2023	Oct 31, 2023	7 days
3	Phase 1	Nov 01, 2023	Nov 17, 2023	13 days
4	Create proposal & requirement	Nov 01, 2023	Nov 17, 2023	13 days
5	Problem Statement	Nov 01, 2023	Nov 02, 2023	2 days
6	Proposed solution	Nov 03, 2023	Nov 07, 2023	3 days
7	Scope statement	Nov 07, 2023	Nov 08, 2023	2 days
8	Gathering requirement	Nov 08, 2023	Nov 14, 2023	5 days
9	Current business overflow	Nov 14, 2023	Nov 16, 2023	3 days
10	Phase 2	Nov 27, 2023	Dec 15, 2023	15 days
11	Database conceptual	Nov 27, 2023	Dec 15, 2023	15 days
12	Create DFD	Nov 27, 2023	Nov 29, 2023	3 days
13	Proposed business role	Nov 30, 2023	Dec 04, 2023	3 days
14	Conceptual ERD	Dec 05, 2023	Dec 07, 2023	3 days
15	Enhanced ERD (EERD)	Dec 08, 2023	Dec 13, 2023	4 days
16	Data Dictionary	Dec 13, 2023	Dec 15, 2023	3 days
17	Phase 3	Dec 18, 2023	Jan 12, 2024	20 days
18	Database logical design	Dec 18, 2023	Jan 12, 2024	20 days
19	Updated business role	Dec 18, 2023	Dec 21, 2023	4 days
24	Updated data dictionary	Dec 22, 2023	Dec 27, 2023	4 days
25	Normalization	Dec 28, 2023	Jan 01, 2024	3 days
22	Relational schema	Jan 03, 2024	Jan 05, 2024	3 days
23	SQL statement (DDL & DML)	Jan 08, 2024	Jan 12, 2024	5 days
26	Project Demonstration	Jan 12, 2024	Jan 15, 2024	2 days


ID
Name
Oct, 2023
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17 Dec
24 Dec
31 Dec
07 Jan
14 Jan
1 Project Planning
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8.0 Requirement analysis

There are a few functional and non-functional for the online shopping system. Based on the analysis, these are the few requirement that can be identified ;

Functional requirements

1. Guest - allow guest to browses the online shopping but if want to buy, guest must make the registration
2. User registration and login - user can create personal account to access all features on the system
3. Item details - user can browses all item using the section that has been prepared
4. User notification - user get the confirmation email once click place order button
5. Review and ratings - user can give a rating and place review against the purchased item in order to raise the rating of the item

Non-functional requirements

1. The interface should be responsive, easy to use and navigate
2. The system should be able to handle high traffic volumes if a large customer browses and buys an item at the same time
3. The system should ensure the security of financial transactions by sticking to industry standards

8.1 Current business process(scenario,workflow)

Scenario 1 ; user wants to visit online shopping

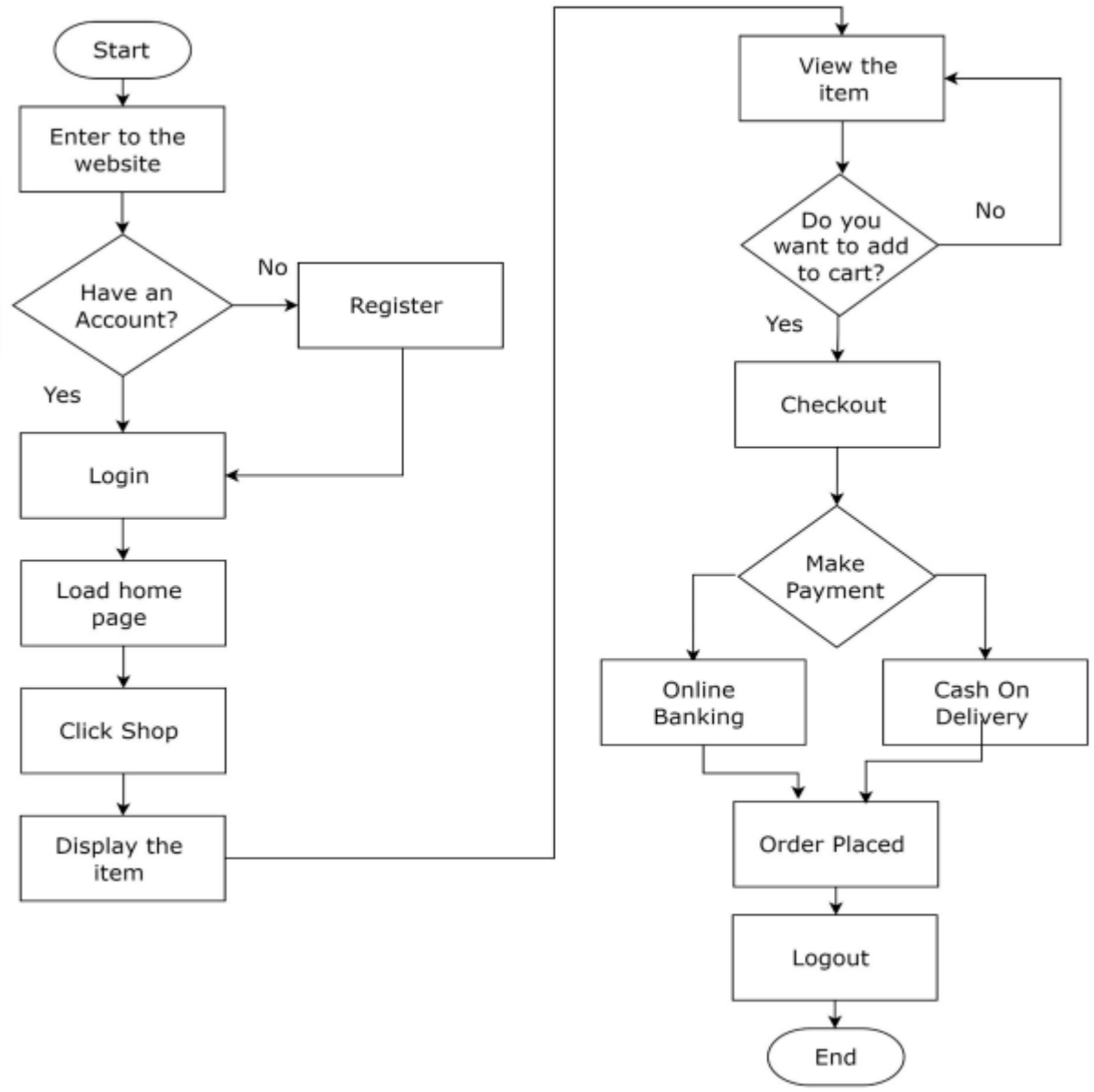
- User visit online shopping
- User create an account
- User can log in to the online shopping website
- User browses the online shopping website

Scenario 2 ; user wants to explore the online shopping

- After logging in, user direct to the home page
- The home page display the item information, trending searches and other information
- Users can search for items by using section such as top rated item, item types and new items on the market

Scenario 3 ; user want to buy item

- After explore the item, user choose the item and click add to cart button
- User click checkout button to make payment
- User must choose for online banking or cash on delivery(COD) to placed the order
- User can log out


Start
Enter to the website
Have an Account?
No
Register
Yes
Login
Load home page
Click Shop
Display the item
View the item
Do you want to add to cart?
No
Yes
Checkout
Make Payment
Online Banking
Cash On Delivery
Order Placed
Logout
End

9.0 Transaction requirement

Entity	Data	Data entry	Data update	Data deletion	Data queries
Admin	1. Admin Id 2. Name 3. Email 4. Password	Sign in by admin	Update and maintain information on the system	Allow admin to remove data if neccessary	Query on customer data
Customer	1. Cust ID 2. Name 3. Email 4. Password 5. Phone Number 6. Address	Sign up by customer	Allow customer to update info	Allow customer to delete account	Query on item/product detail
Seller	1. Seller ID 2. Name 3. Email 4. Password 5. Phone Number	Sign in by seller	Allow seller to update/add item	Allow seller to delete item	Query on product listing
Guest	1. Name 2. Email 3. Phone Number	Log in as a guest	Limited access	Limited access	Browse product without creating account

10.0 Benefits and summary of proposed system

The main of the proposed online shopping system is to create a strong database structure that will enable the online platform to operate without any problems. Tables for admin, customer, seller,guest and other relevant entities will be include in this project.

Benefit:

- Customer data is organized and managed efficiently and allowing for personalized experienced based on customer preferences
- Seller enabling to update product details, track stock levels and manage order efficiently
- The system support user friendly interface for all entities of the online shopping system
- The database support analytics tools for both seller and administrators, providing insights into sales trends and overall system performance.
- Linking with inventory management tools allow for synchronized updates on product availability, reducing the risk of overselling or stockouts.

The proposed online shopping system database project is a comprehensive solution that fullfills the unique requirements of the admin,customer,seller and guest. It created a safe, scalable and easy to use platform by utilizing analytics tools,role based access control and effective data management. The system facilities interaction from order placement to fulfillment, giving customer a satisfying shopping experience and offering administrators and sellers insightful data.

11.0 Summary

The online shopping system is a comprehensive solution designed to facilitate secure,efficent and user-friendly online commerce. With distinct entities for admin, customer, seller and guest. The project project employs a robust database structure and management principles to deliver a seamless experience for all stakeholders. The system ensures that each entity has appropriate access rights, maintaining data privacy and security. Admin oversee system functionalities, sellers manage product listings, and customers enjoy personalized experience. After that, customer data is organized to support personalized experience and targeted marketing. Seller from streamlined inventory management and fulfillment. In conclusion, the database project for online shopping system successfully combines role based access control, effective data management, external system integration and user friendly design to produce a strong platform. It addresses the specific needs of admin, customers, sellers and guest. It contributing to a positive and scalable online shopping experience.