UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGY

UCCD3243 SERVER-SIDE WEB APPLICATIONS DEVELOPMENT

Session 202401

January 2024 Trimester

Group Assignment
(100 marks)

Deadline: 31 March 2024 (Sunday) @ 5pm

Title: Online Order Management System - Fazada

Group: 26

Name	Student ID	Course	Practical Group
Kaw Wei Xin	20ACB05200	CS	P3
Lee Sheng Jiet	20ABC06126	CS	P3
Liong Jun Yong	20ACB04719	CS	P5
Martin Woon Zhen Xian	21ACB02665	CN	P1

Marking Scheme:

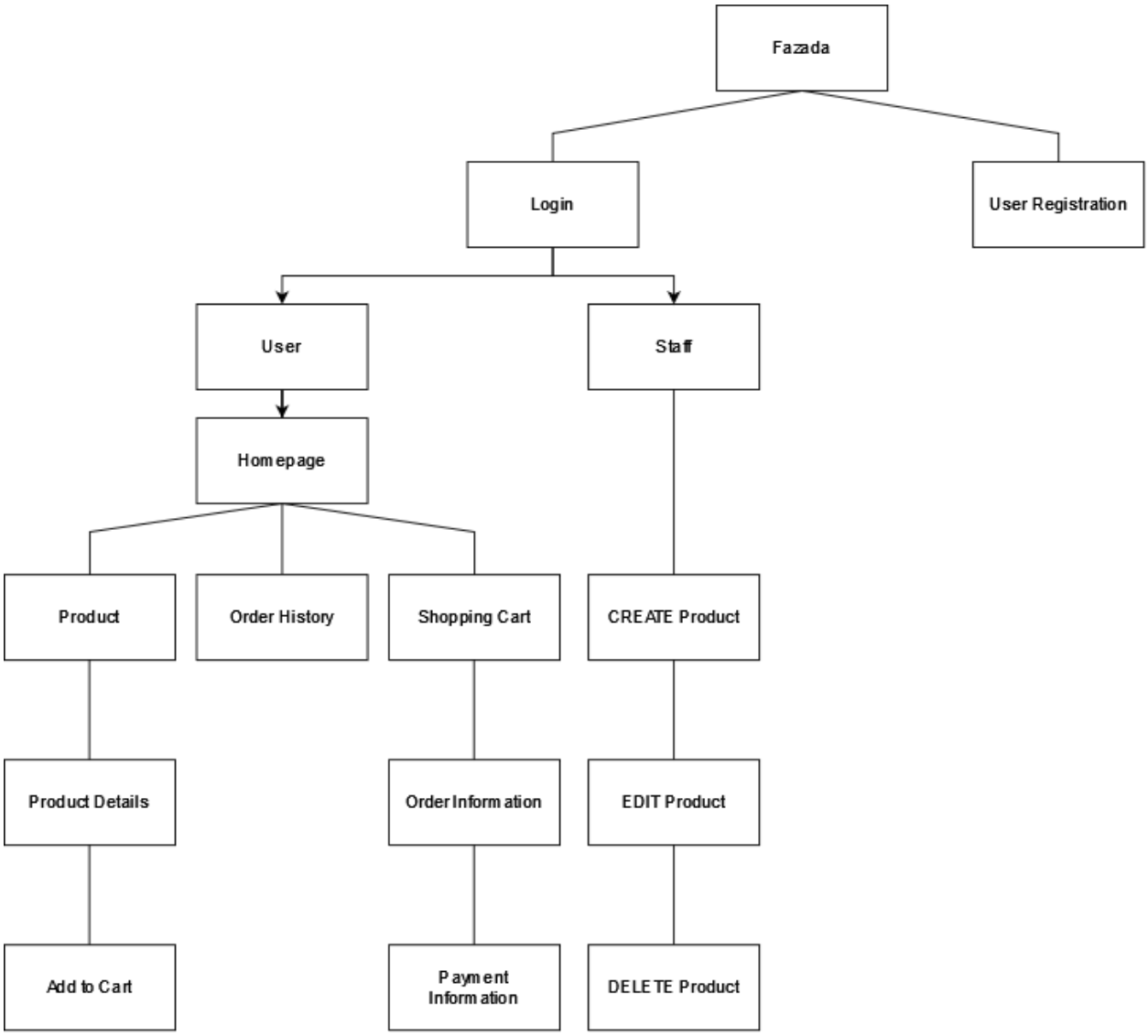
Table 1: Marks Allocation

Attribute	Actual Marks	Student 1	Student 2	Student 3	Student 4
Report Section (Group)	**20**				
Analysis - Site Hierarchy and Navigation	15				
Analysis – System Flowcharts					
Overview – Database Structure					
Design – Functional Requirements					
Strengths and Limitations	5				
Application Section (Individual)	**60**				
Application – Functional Requirements	20				
Application – Data and Process Flow	20				
Application – Method Used	20				
Application Section (Group)	**20**				
Professional Outlook (Front End and Back End)	5				
Application – Integration of Modules	15				
Total	**100**				

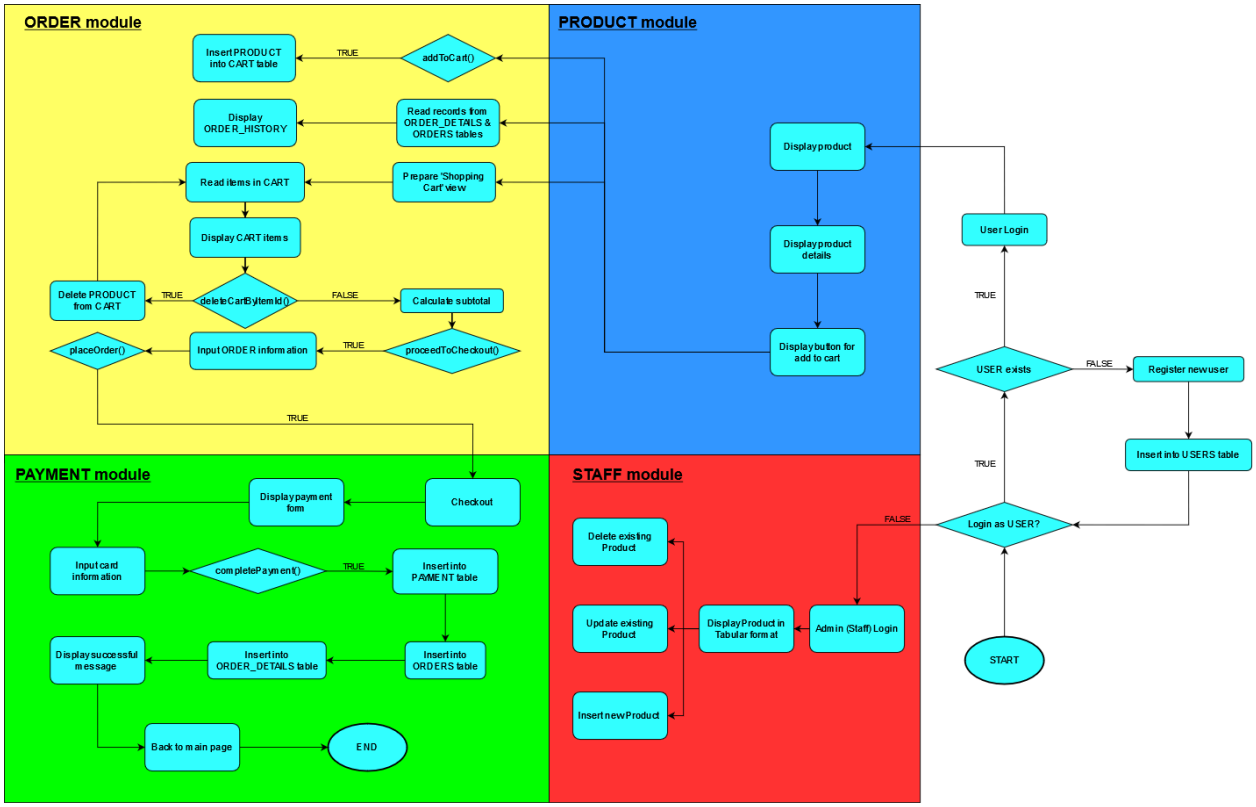
Task Allocation:

Name	Module
Kaw Wei Xin	Product
Lee Sheng Jiet	Payment
Liong Jun Yong	Order
Martin Woon Zhen Xian	Staff

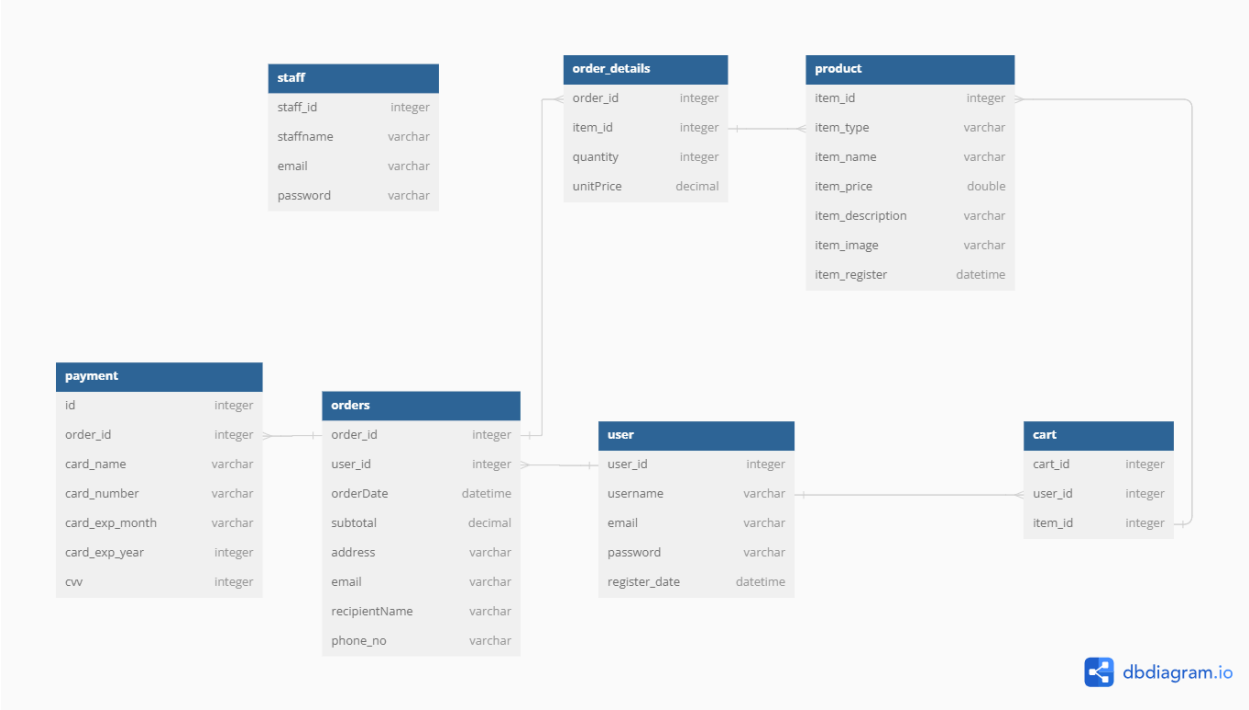
Site hierarchy and Navigation



System Flowcharts



Database Structure



Functional Requirements:

Product Module:

The product module is designed to offer users a seamless and intuitive experience when browsing and interacting with available products. One of its primary functions is to present a comprehensive list of products sourced from the database, ensuring that users can easily discover items of interest. Each product is showcased with detailed information including its name, image, price, and description, fostering informed decision-making among users. Upon selecting a specific product, users are directed to a dedicated details page where they can explore further information about the item before making a purchase decision.

Furthermore, the module enables users to add desired products to their shopping cart effortlessly. This process is facilitated through a user-friendly interface that provides clear instructions and intuitive controls. Upon successful addition to the cart, users receive immediate feedback confirming the action and updating the cart summary accordingly. Managing the contents of the shopping cart is made convenient, with options to modify quantities, remove items, or proceed to checkout seamlessly from the cart interface.

In addition to facilitating direct interactions with products, the module may incorporate features for recommending related or similar items based on user preferences or browsing history. These product recommendations serve to enhance the user experience by offering personalized suggestions that align with individual interests and preferences. Moreover, the inclusion of robust search and filtering functionalities empowers users to find specific products efficiently, with options to search by keywords, categories, price ranges, and other relevant criteria.

A key aspect of the product module is its commitment to responsive design, ensuring that the interface remains accessible and visually appealing across various devices and screen sizes. Whether accessed from a desktop computer, laptop, tablet, or smartphone, users can expect a consistent and optimized browsing experience. Additionally, the module prioritizes the security and privacy of user data throughout all interactions, implementing secure protocols and encryption methods to safeguard sensitive information and comply with relevant regulations such as GDPR.

Staff Module:

Product Management:

The staff module will provide a comprehensive interface for managing product records. Staff members can access a dedicated page to view all existing products in the database. Each product entry will display essential details like name, description, price, and availability, facilitating easy navigation and reference. Additionally, staff members will have the capability to add new products to the database directly through a user-friendly form. This form will prompt staff to input all necessary product details, ensuring accuracy and completeness of the product records.

Product Editing:

Staff members will also be able to edit existing product details as needed. Upon selecting a specific product from the list, staff can access a detailed editing interface where they can modify any aspect of the product record, including name, description, price, and availability. This editing functionality ensures that product information remains up-to-date and reflects any changes or updates accurately.

Product Deletion:

In cases where products become obsolete or are no longer offered, staff members will have the ability to delete them from the database. A straightforward deletion process will be implemented, allowing staff to select the product(s) they wish to remove and confirm the deletion action. This ensures that the database remains streamlined and clutter-free, improving overall system performance and maintenance.

Payment Module:

The functional requirements for the checkout and payment module of the online order management system revolve around four key aspects. Firstly, the system must facilitate the collection of payment information from users during the checkout process. This includes fields for the cardholder's name, credit card number, expiration date, and CVV code. The system should enforce validation checks to ensure the accuracy and integrity of the entered data, such as verifying the format of the credit card number and the length of the CVV code. This ensures that users provide valid payment details before proceeding further.

Secondly, upon submission of payment information, the system needs to interact with the database to securely store these details. The payment information, along with the associated order ID, should be inserted into the payment table. Robust error handling mechanisms must be in place to gracefully handle any database-related issues, providing informative error messages to users when necessary. This ensures the reliability and consistency of payment data storage within the system.

Thirdly, the system should manage the details of the user's order comprehensively. This involves retrieving the items present in the user's cart, fetching their corresponding prices from the database, and recording these details in the order details table. Each entry in the order details table should include information such as the item ID, quantity, unit price, and the user ID associated with the order. This meticulous management of order details enables accurate tracking and fulfillment of customer orders.

Lastly, after successfully processing the payment and recording the order details, the system needs to clear the user's cart to reflect the completion of the checkout process. This entails removing all cart items associated with the user ID from the database. However, it's crucial to execute this action only after ensuring the successful completion of the payment process. By clearing the cart post-payment, the system maintains data consistency and prevents duplicate orders or inadvertent data loss, thereby enhancing the overall reliability and integrity of the online order management system.

Order Module:

The Order Module within the web application plays a pivotal role in facilitating a smooth and seamless shopping experience for users. Comprising several key features and functions, this module is designed to demonstrate comprehensive order management capabilities.

One of the central functionalities of the Order Module is the Shopping Cart feature. Here, users are presented with a clear and intuitive display of all items they have added to their shopping cart. By retrieving information from the ‘cart’ table based on the user's user_id, the system ensures that users have a comprehensive view of their selected items before proceeding to checkout. Each item in the cart is accompanied by essential details such as the product's name, image, and price, enhancing the user's shopping experience by providing visual and informative

cues. Furthermore, the system calculates the subtotal of all products in the user's shopping cart, allowing users to review the total cost of their selected items before initiating the checkout process. Upon checkout, the system automatically clears the cart records associated with the user's user_id, ensuring efficient management of cart data and enhancing user satisfaction.

In addition to managing the shopping cart, the Order Module facilitates the collection of essential information required for order fulfillment. During the checkout process, users are prompted to provide details such as the receiver's name, contact number, email, and delivery address. This information is crucial for accurate and timely order processing. Upon submission of order information, the system records the date and time of the server as the order's date, ensuring accurate order tracking and management. The collected order information is securely updated into the system's database, specifically the ‘orders’ table and the ‘order_details’ table, ensuring data integrity and enabling seamless order processing.

Furthermore, the Order Module includes a dedicated Order History functionality, allowing users to access and review their order histories comprehensively. Users can view both active and past orders within the Order History page, offering complete visibility into their purchasing history and order status. Each order entry in the Order History page includes essential details such as the order's datetime, subtotal, delivery address, recipient name, and contact number, providing users with detailed insights into their past transactions. Moreover, within each order entry, the system presents a breakdown of the products bought in the respective order, enabling users to track individual items purchased and facilitate easy reference.

Strength and Limitations:

The product module demonstrates strengths in presenting products stylishly and in a user-friendly manner, facilitating an engaging browsing experience. Users can access detailed product information, including descriptions and prices, aiding informed decision-making. The inclusion of a top sales section that displays randomly selected products adds variety and promotes sales. However, a notable weakness arises from the occurrence of a bug where adding an item to the cart may result in duplicates if the page is refreshed. This issue highlights the need for robust data validation and state management to prevent inadvertent duplication and ensure data integrity. Regular testing and monitoring are essential to identify and address such bugs, enhancing the overall functionality and user experience of the product module.

The staff module demonstrates strengths in its user-friendly interface, streamlined workflows, error-occur handling and robust data handling capabilities. Staff members can manage product records efficiently, with intuitive interfaces and clear feedback mechanisms guiding them through each step of the process. However, a potential limitation lies in the lack of advanced features such as batch processing for product updates or automated notifications for low-stock items. Besides, to prevent the customer register with a new staff account,and do action to the database, the registration function is not provided, staff need to use the fixed account to login the module. Future enhancements could focus on incorporating these functionalities to further improve productivity and streamline product management tasks for staff members. Regular testing and feedback gathering will be essential to identify and address any usability issues or functional gaps, ensuring that the staff module continues to meet the evolving needs of the organization.

The payment module boasts several strengths that enhance its functionality and security. Firstly, it excels in securing payment information through robust encryption techniques and secure data storage methods, ensuring the protection of sensitive customer data throughout transactions. Additionally, its comprehensive error handling and validation mechanisms guarantee the integrity and accuracy of payment data, providing users with a seamless checkout experience. Moreover, the module demonstrates efficient database interaction, employing prepared statements and parameterized queries to mitigate security risks and enhance performance, even during high user traffic. Furthermore, its seamless integration with the order management system streamlines the order fulfillment process, enhancing operational efficiency. However, the module does have some weaknesses, including limited support for payment methods beyond credit cards and a lack of real-time payment confirmation for users, potentially causing uncertainty. Moreover, heavy reliance on session variables and the potential for data redundancy within the module pose scalability and consistency challenges, which could be addressed through optimization and data management strategies.

The Order Module plays an important part in facilitating a user-friendly and efficient shopping experience through its intuitive shopping cart interface that provides comprehensive item details and clear subtotal calculation, streamlined order information collection process, and comprehensive order history functionality. These strengths contribute to enhanced user satisfaction and efficient order management. However, the system also exhibits weaknesses such as limited flexibility in checkout customization and the inability for users to modify or cancel orders post-submission. For instance, the implementation assumes a standard checkout process and does not allow users to customize delivery options or add any special instructions. Similarly, once an order is submitted, users are unable to modify or cancel their orders, which may lead to frustration or inconvenience in case of errors or changes in preferences. The absence of real-time tracking of order deliveries also deprives the users of crucial visibility into the status and location of their orders. Without the ability to monitor their order's progress, increased user frustration and uncertainty will develop. There are also no status updates for orders in this current implementation, leaving users uninformed about the progress of their purchases, hindering their ability to plan and anticipate delivery times effectively. Addressing these weaknesses through iterative improvements and user-centric enhancements can further optimize the module's effectiveness and overall user trust and satisfaction.