CSF3023 SYSTEM THINKING AND LOGIC

COMPUTER SCIENCE (SOFTWARE ENGINEERING)

MEMBER'S NAMES	MATRIC NUMBERS
WAN NURUL EZZAH BINTI WAN MAT	S79607
ASNA SYAMIMI BINTI ZAINA	S79437
IZZHAM ZULQARNAIM BIN KAMARUZAMAN	S79478
MUHAMMAD AZEEM SYAHMI BIN MUHAMED FAIZA	S79606

TITLE: Online Food Ordering System

LECTURER: Professor Ts. Dato' Dr. Aziz Deraman

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Introduction

The Online Food Ordering System is a digital solution developed in response to the rapid shift toward e-commerce and the increasing demand for convenience in the modern culinary industry. Historically, food ordering relied heavily on physical presence or telephonic communication, methods that were often limited by geographic constraints, manual errors, and busy phone lines. The centralised system combines web and mobile technologies to provide a convenient link between the consumer and the food industry (Nelson, 2022). Customers are able to browse menus and place orders via a convenient system that is available from anywhere with this mobile application. Moreover, the system integrates real-time data processing and secure payment gateways to ensure a seamless transition from selection to delivery. The platform not only enhances the user experience but also allows restaurant operators to optimize their resources and scale their business in an increasingly competitive digital marketplace.

The overall idea of the system is to create an integrated ecosystem that harmonizes the needs of customers, restaurant management, and delivery logistics. The system facilitates users in comparing menu prices, and checking on the availability of a meal dish at the time of order in real time, and also tracking the order through its production, transportation and other stages. The restaurant's system serves as the nerve centre, ensuring that orders are more accurate and providing valuable customer insight (Rane et al., 2022). An online food ordering system digitises the food service process, beginning at the point of customer order and concluding with the delivery of the meal. This modern system not only saves the business time but also allows customers to get their food quickly (Rane et al., 2022). It also makes the system transparent to consumers.

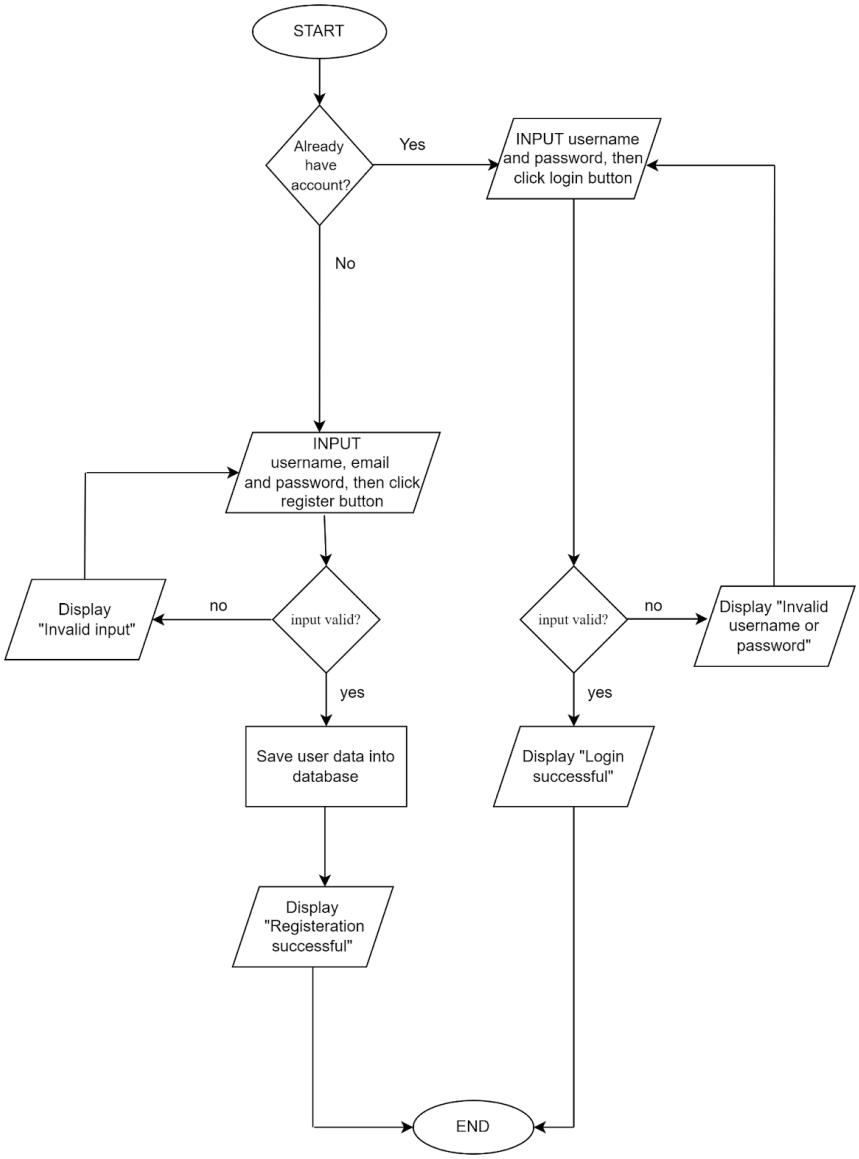
Functional Requirements

FR1: User Authentication

Description

User Authentication allows customers to register, and log in to the Online Food Ordering System securely. During registration, users must provide valid information such as username, email, and password. The system verifies the credentials during login to ensure only authorized users can access the system. This function helps protect user data, manage orders correctly, and provide personalized services such as order history and saved addresses.

Flowchart



Pseudocode

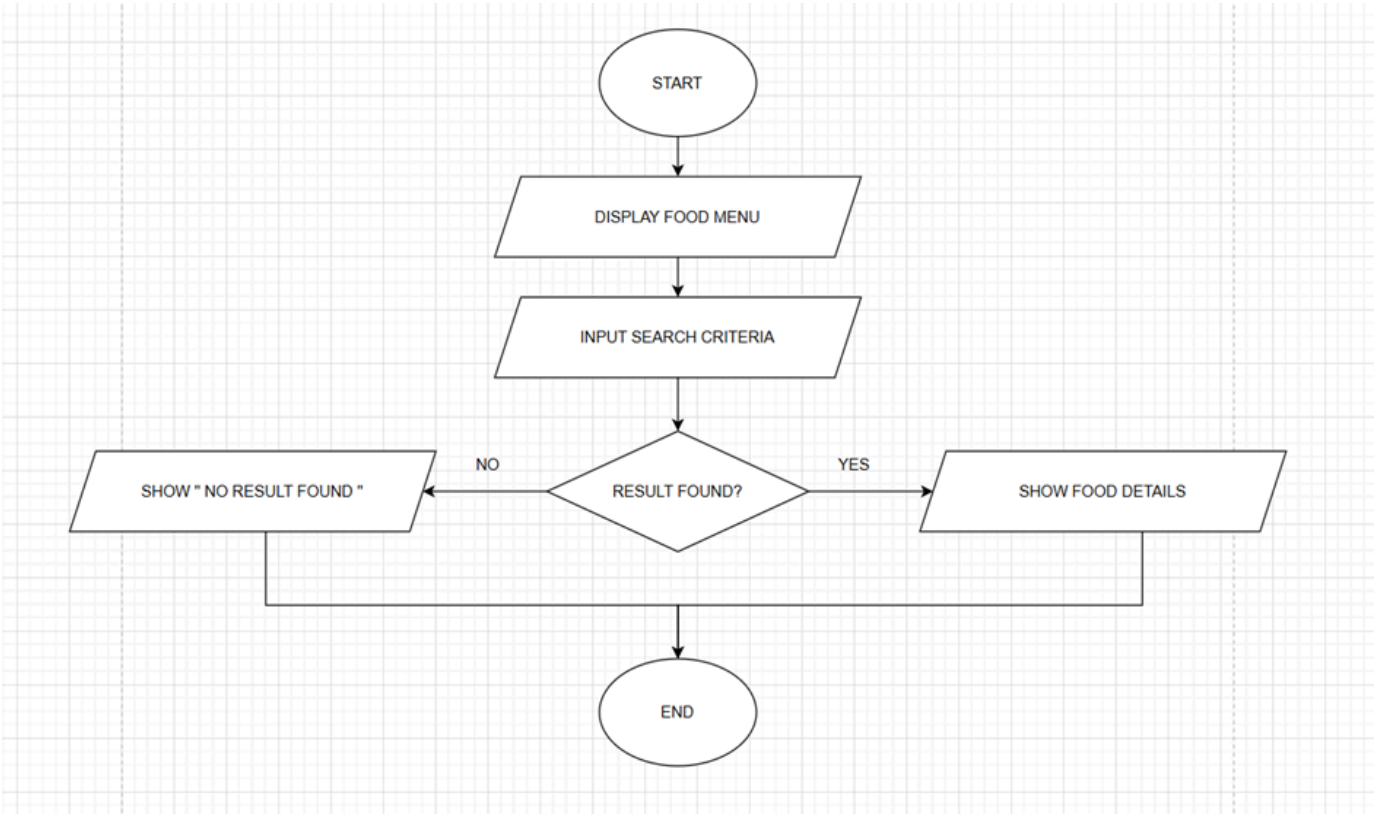
```
START
DISPLAY already “have account”
IF Yes THEN
   INPUT username and password
   WHILE input is not valid
      DISPLAY "Invalid username or password"
      INPUT username and password
   ENDWHILE
   DISPLAY "Login successful"
ELSE
   INPUT username, email and password
   WHILE input is not valid
      DISPLAY "Invalid input"
      INPUT username, email and password
   ENDWHILE
   SAVE user data into database
   DISPLAY "Registration successful"
ENDIF
END
```

FR2: Menu Browsing

Description

The system shall allow customers to browse the menu, search for food items, and filter them by category or price. This functionality enables users to efficiently navigate through a wide range of available food options according to their preferences, such as type of cuisine or budget. By providing detailed information for each food item, including name, description, and price, users can make informed decisions before adding items to the cart. Effective menu browsing, search, and filtering features enhance the overall user experience by reducing the time required to locate desired items and minimizing ordering errors. Studies on web-based food ordering systems highlight that interactive menu browsing and item detail display significantly improve convenience, decision-making, and satisfaction for online customers (Al Jufri, Paskalis & Rukhviyanti, 2025).

Flowchart



Pseudocode

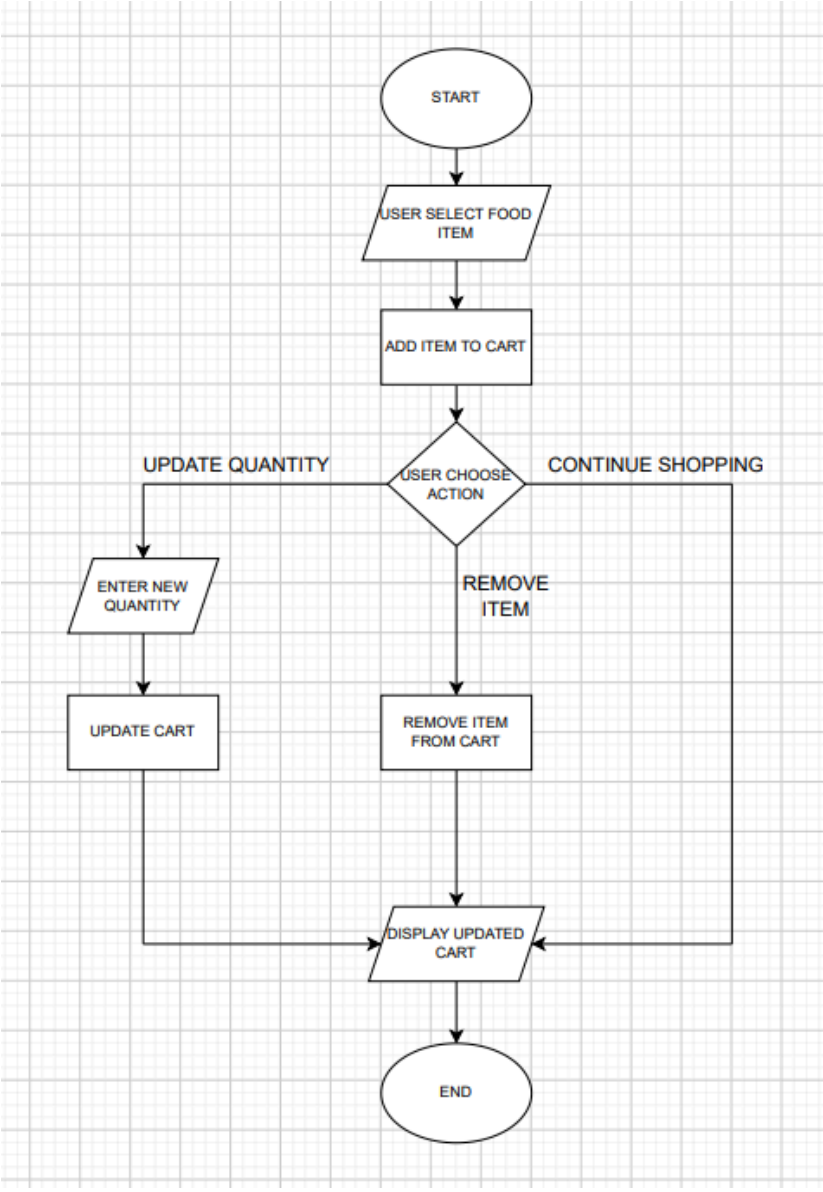
```
START
DISPLAY food menu
INPUT user to enter search keyword or select filter category or price
INPUT userInput
IF userInput is not empty THEN
   SEARCH food items based on userInput
   FILTER food items based on selected category or price
END IF
IF matching food items are found THEN
   DISPLAY food item details name, description or price
ELSE
   DISPLAY "No food items found"
END IF
END
```

FR3: Cart Management

Description

Cart management is a crucial functionality in online food ordering systems, which lets customers change and check their orders before the final payment (Sommerville, 2016). The system permits the users to place food items in the cart, do away with the ones they do not need, and change the number of the chosen items. This functionality guarantees that the customers have the chance to go through their orders and make changes in a simple manner before they move on to payment.

Flowchart



Pseudocode

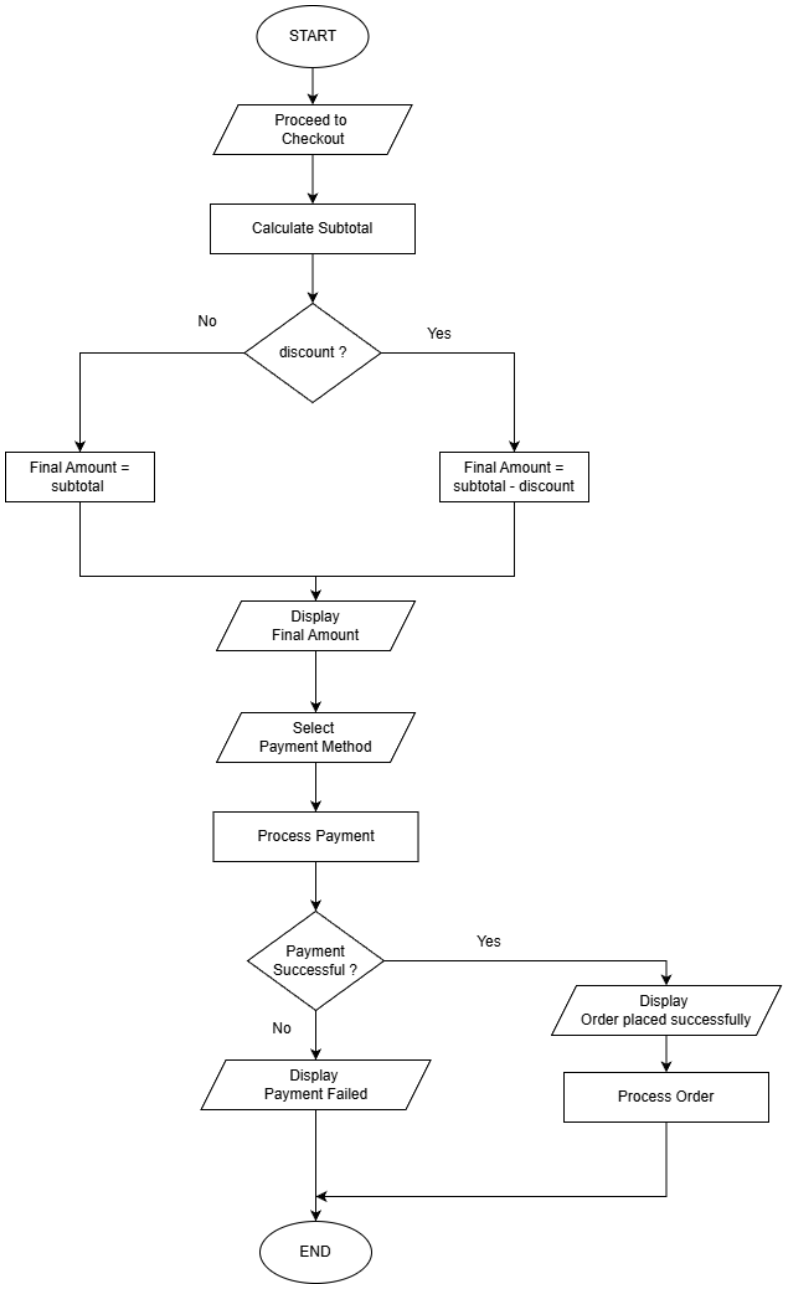
```
BEGIN
  DISPLAY food menu
  USER selects food item
  ADD selected item to cart
  WHILE user wants to manage cart
    DISPLAY cart options
    INPUT user choice
    IF choice = "Update Quantity" THEN
      INPUT new quantity
      UPDATE item quantity in cart
    ELSE IF choice = "Remove Item" THEN
      REMOVE selected item from cart
    ELSE
      EXIT cart management
    ENDIF
  ENDWHILE
  DISPLAY updated cart
END
```

FR4: Order Processing & Payment

Description

Order processing & payment is used for finalizing the customer's order.
The system will calculate the total price based on selected food items and quantities. Also, it will apply any available discounts and process the payment using the chosen payment method. Once payment is successful, the order is confirmed and saved in the system.

Flowchart



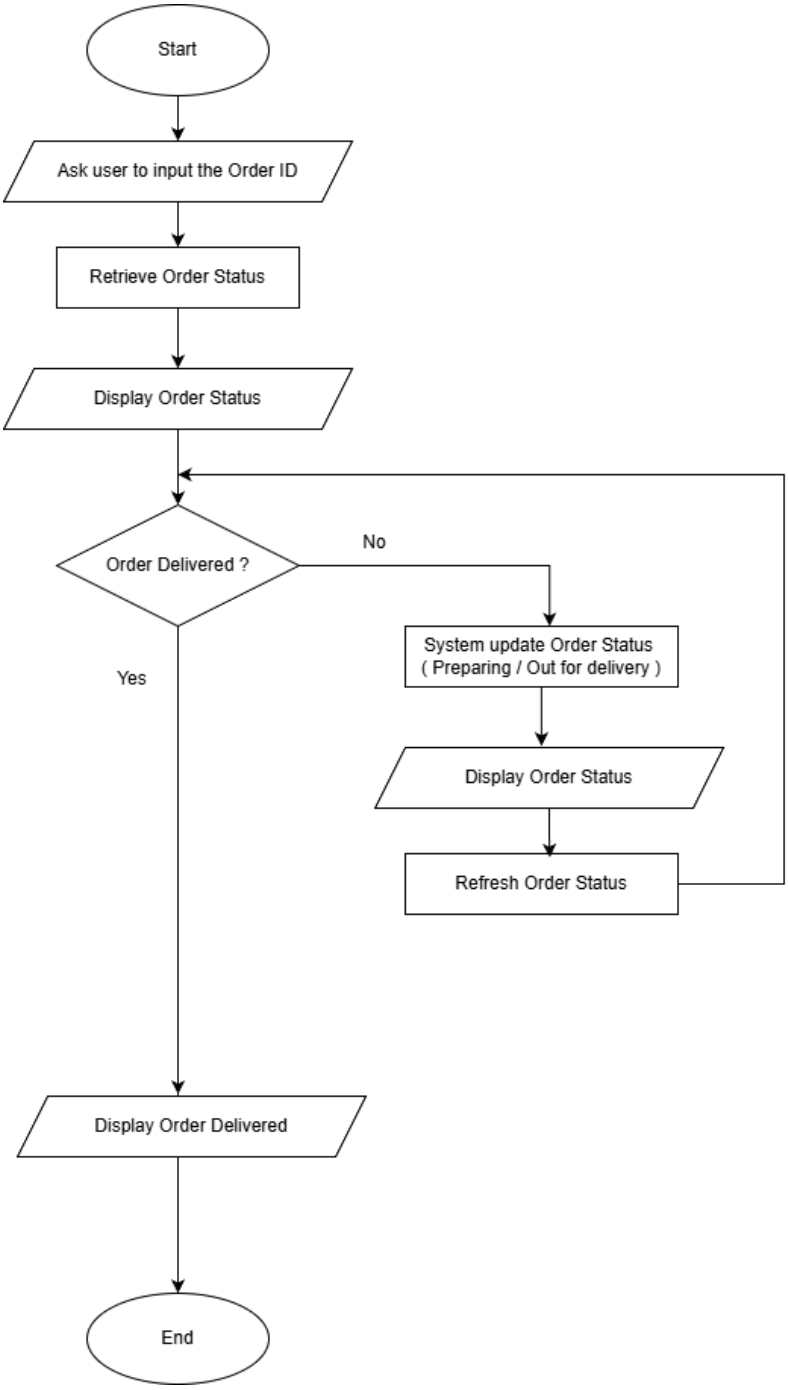
Pseudocode

```
START
ASK user Proceed To Checkout
CALCULATE subtotal
ASK if there any discount
        IF  discount = Yes  THEN
                Final Amount = subtotal - discount
        ELSE
                Final Amount = subtotal
        ENDIF
DISPLAY Final Amount
ASK user to select Payment Method
PROCESS Payment
IF Payment Successful THEN
        DISPLAY Order placed successfully
        PROCESS Order
ELSE
        DISPLAY Payment Failed
ENDIF
END
```

FR5: Order Tracking

Order tracking allows customers to view real-time updates of their order status after payment. The system will display the current status such as Preparing, Out for Delivery, or Delivered, and updates it automatically until the order is completed.

Flowchart



Pseudocode

START

INPUT Order ID

RETRIEVE Order Status

DISPLAY Order Status

WHILE (Order Status != “Delivered”)

    UPDATE Order Status (Preparing or Out for Delivery)

    DISPLAY Order Status

    REFRESH Order Status

END WHILE

DISPLAY Order Delivered

END

References

Al Jufri, A. F. K., Paskalis, S. A., & Rukhviyanti, N. (2025). *Design of a web-based regional food ordering information system at Seribu Rasa Restaurant*. *INOVTEK Polbeng – Seri Informatika, 10*(1), 401–410. https://doi.org/10.35314/mb5xe359

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