أونيۏرسيتي تيكنولوڬي مارا
UNIVERSITI TEKNOLOGI MARA

CSC186 : OBJECT ORIENTED PROGRAMMING

MINI PROJECT

"RESTAURANT MANAGEMENT"

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Table Of Content

1.0 ORGANIZATIONAL STRUCTURE

2.0 INTRODUCTION

3.0 OBJECTIVES

4.0 SCOPE

Class diagram

1. There are 7 classes which are
2.

Processes;

a. Administrator can
b.

6.0 INPUT FILE

7.0 CLASS DEFINITION

Account.java

```java
import java.io.*;
import java.util.Scanner;

public class Account extends FileHandling {
    String username;
    String password;
    String birthdate;
    boolean isMember;
    static FileHandling data = new FileHandling();

    // default constructor
    public Account() {
        super();
        this.username = "";
        this.password = "";
        this.birthdate = "";
        this.isMember = false;
    }

    // this is for registration
    public Account(String username, String password, String birthdate, boolean
isMember) throws IOException {
        super("data.txt");
        this.username = username;
        this.password = password;
        this.birthdate = birthdate;
        this.isMember = isMember;
    }

    // this is for login
    public Account(String username, String password) throws IOException {
        super("data.txt");
        this.username = username;
        this.password = password;
        this.birthdate = "";
        this.isMember = false;
    }

    // getter and setter
    public String getUsername() {
        return this.username;
    }

    public void setUsername(String username) {
        this.username = username;
    }

    public String getPassword() {
        return this.password;
    }

    public void setPassword(String password) {
        this.password = password;
    }

    public String getBirthdate() {
        return this.birthdate;
    }

    public void setBirthdate(String birthdate) {
        this.birthdate = birthdate;
    }

    public boolean isMember() {
        return this.isMember;
    }

    public void setMember(boolean isMember) {
        this.isMember = isMember;
    }

    public boolean verifying() throws IOException {
        return verify(this.username, this.password);
    }

    public boolean checkingStrength() {
        return checkStrength(this.password);
    }

    public String generatingUserID() {
        return generateUserID();
    }

    public String getUserID() throws IOException {
        FileHandling data = new FileHandling("data.txt");
        String[] lines = data.read().split("\n");
        for (String line : lines) {
            // split the line into an array
            String[] arr = line.split(",");
            String user = arr[1];
            if (user.equals(this.username)) {
                return arr[0];
            }
        }

        return "";
    }

    // method to register a new account
    public void registers(String accountType) throws IOException {

        Scanner strInput = new Scanner(System.in);
        Scanner intInput = new Scanner(System.in);

        System.out.print("Please enter your username: ");
        String username = strInput.nextLine();

        System.out.print("Please enter your password: ");
        String password = strInput.nextLine();

        System.out.print("Confirm your password: ");
        String confirmPassword = strInput.nextLine();

        // check if the password matches
        while (!password.equals(confirmPassword) || !checkStrength(password))
{

            if (!checkStrength(password)) {
                System.out.println("Your password is not strong enough. Please
try again.");
            } else {
                System.out.println("Your password does not match. Please try
again.");
            }

            System.out.print("Please enter your password: ");
            password = strInput.nextLine();

            System.out.print("Confirm your password: ");
            confirmPassword = strInput.nextLine();
        }

        System.out.print("Please enter your birthdate (dd/mm/yyyy): ");
        String birthdate = strInput.nextLine();

        System.out.print("Are you a member? (Y/N): ");
        char member = intInput.next().charAt(0);
        boolean isMember = false;
        member = Character.toUpperCase(member);
        if (member == 'Y') {
            isMember = true;
        }

        // check if the username already exists
        data = new FileHandling("data.txt");
        String[] lines = data.read().split("\n");

        // check if null
        if (lines[0].equals("")) {
            System.out.println("You have successfully registered.");
        }

        for (String line : lines) {
            // split the line into an array
            String[] arr = line.split(",");
            String user = arr[1];

            // check if the username already exists
            if (user.equals(username)) {
                // close the input stream
                data.close();
                System.out.println("The username already exists. Please try 
again.");
                return;
            }
        }

        String userID = generateUserID();

        // write to file
        if (accountType.equals("admin")) {
            data.write(userID + "," + username + "," + password + "," + 
birthdate + "," + isMember + ",staff");
        } else if (accountType.equals("user")) {
            data.write(userID + "," + username + "," + password + "," + 
birthdate + "," + isMember + ",user");
        }

        data.close();

        System.out.println("You have successfully registered.");

    }

    // method to verify the username and password exists
    public static boolean verify(String username, String password) throws 
IOException {
```

```java
        // read the file line by line
        data = new FileHandling("data.txt");
        String[] lines = data.read().split("\n");
        for (String line : lines) {
            // split the line into an array
            String[] arr = line.split(",");
            String user = arr[1];
            String pass = arr[2];

            // check if the username and password matches
            if (user.equals(username) && pass.equals(password)) {
                // close the input stream
                data.close();
                return true;
            }
        }

        return false;
    }

    // method to check strength of password
    public static boolean checkStrength(String password) {
        // check if the password is at least 8 characters long
        if (password.length() < 8) {
            return false;
        }

        // check if the password contains at least one uppercase letter
        boolean hasUppercase = !password.equals(password.toLowerCase());
        if (!hasUppercase) {
            return false;
        }

        // check if the password contains at least one lowercase letter
        boolean hasLowercase = !password.equals(password.toUpperCase());
        if (!hasLowercase) {
            return false;
        }

        // check if the password contains at least one number
        boolean hasNumber = password.matches(".*\\d.*");
        if (!hasNumber) {
            return false;
        }

        // check if the password contains at least one special character
        boolean hasSpecial = !password.matches("[A-Za-z0-9 ]*");
        if (!hasSpecial) {
            return false;
        }

        return true;
    }

    // generate random string for userID
    public static String generateUserID() {
        String chars = "ABCDEFGHIJKLMNOPQRSTUVWXYZ1234567890";
        StringBuilder sb = new StringBuilder();
        for (int i = 0; i < 6; i++) {
            int index = (int) (Math.random() * chars.length());
            sb.append(chars.charAt(index));
        }
        return sb.toString();
    }

    public void viewOrder(String userID, boolean finished) throws IOException
{
        FileHandling foodOrder = new FileHandling("foodOrder.txt");
        String[] linesFoodOrder = foodOrder.readLines();

        // use circular linked list
        Circular foodOrderLL = new Circular();

        for (String line : linesFoodOrder) {
            String[] arr = line.split(",");
            String userIDFoodOrder = arr[0];
            String foodName = arr[2];
            int quantity = Integer.parseInt(arr[3]);
            double price = Double.parseDouble(arr[4]);
            double netWeight = Double.parseDouble(arr[5]);
            boolean isFinished = Boolean.parseBoolean(arr[6]);

            if (userIDFoodOrder.equals(userID) && isFinished == finished) {
                Food food = new Food(foodName, price, netWeight);
                food.setQuantity(quantity);
                foodOrderLL.add(food);
            }
        }

        // check if the list is empty
        if (foodOrderLL.isEmpty() && finished) {
            System.out.println("There is no finished order.");
            return;
        } else if (foodOrderLL.isEmpty() && !finished) {
            System.out.println("There is no unfinished order.");
            return;
        }

        for (int i = 0; i < 106; i++) {
            System.out.print("-");
        }

        System.out.println();

        System.out.printf("|%-20s|%-20s|%-20s|%-20s|%-20s|\n", "Food Name",
"Quantity", "Price", "Net Weight",
                "Total Price");

        for (int i = 0; i < 106; i++) {
            System.out.print("-");
        }

        System.out.println();

        while (!foodOrderLL.isEmpty()) {
            Food food = (Food) foodOrderLL.removeFromFront();
            System.out.printf("|%-20s|%-20d|%-20.2f|%-20.2f|%-20.2f|\n",
food.getFoodName(), food.getQuantity(),
                    food.getPrice(), food.getNetWeight(), food.getPrice() *
food.getQuantity());
        }

        for (int i = 0; i < 106; i++) {
            System.out.print("-");
        }

        System.out.println("\n");

    }

    // calculate total price of finished order
    public double calculateTotalPrice(String userID) throws IOException {
        FileHandling foodOrder = new FileHandling("foodOrder.txt");
        String[] linesFoodOrder = foodOrder.readLines();

        double totalPrice = 0;

        for (String line : linesFoodOrder) {
            String[] arr = line.split(",");
            String userIDFoodOrder = arr[0];
            String foodName = arr[2];
            int quantity = Integer.parseInt(arr[3]);
            double price = Double.parseDouble(arr[4]);
            double netWeight = Double.parseDouble(arr[5]);
            boolean isFinished = Boolean.parseBoolean(arr[6]);

            if (userIDFoodOrder.equals(userID) && isFinished) {
                Food food = new Food(foodName, price, netWeight);
                food.setQuantity(quantity);
                totalPrice += food.getPrice() * food.getQuantity();
            }
        }

        return totalPrice;
    }

    // toString
    public String toString() {
        return "Username: " + username + "\nPassword: " + password +
"\nBirthdate: " + birthdate + "\nIs Member: "
                + isMember + "\n";
    }
}
```

Circular.java

```java
// circular linked list class

// the head and tail of the list are connected
// the tail points to the head

public class Circular {
    private Node head;
    private Node tail;
    private int size;

    public Circular() {
        head = null;
        tail = null;
        size = 0;
    }

    public void add(Object data) {
        Node newNode = new Node(data);
        if (head == null) {
            head = newNode;
            tail = newNode;
            tail.setNext(head);
        } else {
            tail.setNext(newNode);
            tail = newNode;
            tail.setNext(head);
        }
        size++;
    }

    public void add(Object data, int index) {
        if (index < 0 || index > size) {
            throw new IndexOutOfBoundsException();
        }
        Node newNode = new Node(data);
        // if the list is empty
        if (head == null) {
            head = newNode;
            tail = newNode;
            tail.setNext(head);
        } else if (index == 0) {
            newNode.setNext(head);
            head = newNode;
            tail.setNext(head);
        } else if (index == size) {
            tail.setNext(newNode);
            tail = newNode;
            tail.setNext(head);
        } else {
            Node current = head;
            for (int i = 0; i < index - 1; i++) {
                current = current.getNext();
            }
            newNode.setNext(current.getNext());
            current.setNext(newNode);
        }
        size++;
    }

    // insert a node at the end of the list
    public void insertAtBack(Object data) {
        add(data, size);
    }

    // insert a node at the front of the list
    public void insertAtFront(Object data) {
        add(data, 0);
    }

    // insert a node at middle of the list
    public void insertAtMiddle(Object data) {
        add(data, size / 2);
    }

    public Object remove(int index) {
        if (index < 0 || index >= size) {
            throw new IndexOutOfBoundsException();
        }
        Object removedData = null;
        if (index == 0) {
            removedData = head.getData();
            head = head.getNext();
            tail.setNext(head);
        } else {
            Node current = head;
            for (int i = 0; i < index - 1; i++) {
                current = current.getNext();
            }
            removedData = current.getNext().getData();
            current.setNext(current.getNext().getNext());
        }
        size--;
        return removedData;
    }
```

```java
// remove from front of the list
public Object removeFromFront() {
    return remove(0);
}

// remove from back of the list
public Object removeFromBack() {
    return remove(size - 1);
}

// remove from middle of the list
public Object removeFromMiddle() {
    return remove(size / 2);
}

// remove all nodes from the list
public void removeAll() {
    while (!isEmpty()) {
        removeFromFront();
    }
}

public Object get(int index) {
    if (index < 0 || index >= size) {
        throw new IndexOutOfBoundsException();
    }
    Node current = head;
    for (int i = 0; i < index; i++) {
        current = current.getNext();
    }
    return current.getData();
}

// get next node and start from start
public Object getNext() {
    Node current = head;
    head = head.getNext();
    return current.getData();
}

public int size() {
    return size;
}

// getSize() is the same as size()
public int getSize() {
    return size;
}
```

```
    // check if the list is empty
    public boolean isEmpty() {
        return size == 0;
    }

    // swap the data of two nodes
    public void swap(int index1, int index2) {
        if (index1 < 0 || index1 >= size || index2 < 0 || index2 >= size) {
            throw new IndexOutOfBoundsException();
        }
        Node current1 = head;
        for (int i = 0; i < index1; i++) {
            current1 = current1.getNext();
        }
        Node current2 = head;
        for (int i = 0; i < index2; i++) {
            current2 = current2.getNext();
        }
        Object temp = current1.getData();
        current1.setData(current2.getData());
        current2.setData(temp);
    }

    public String toString() {
        String output = "";
        Node current = head;
        for (int i = 0; i < size; i++) {
            output += "[" + current.getData() + "] -> ";
            current = current.getNext();
        }
        return output;

    }
}
```

FileHandling.java

```
import java.io.*;

public class FileHandling {
    private BufferedReader reader;
    private PrintWriter writer;

    public FileHandling() {
    }

    public FileHandling(String fileName) throws IOException {
        reader = new BufferedReader(new FileReader(fileName));
        writer = new PrintWriter(new FileWriter(fileName, true));
    }

    public void setFile(String fileName) throws IOException {
        reader = new BufferedReader(new FileReader(fileName));
        writer = new PrintWriter(new FileWriter(fileName, true));
    }

    public void write(String text) {
        writer.println(text);
    }

    public void close() throws IOException {
        reader.close();
        writer.close();
    }

    // read all lines
    public String read() throws IOException {
```

```java
        String text = "";
        String line = reader.readLine();
        while (line != null) {
            text += line + "\n";
            line = reader.readLine();
        }

        return text;
    }

    public String[] readLines() throws IOException {
        String[] lines = read().split("\n");
        return lines;
    }

    public void emptyFiles() throws IOException {
        String text = read();
        if (text.equals("")) {
            System.out.println("The file is empty.");
        }
    }

    // clear the content of the file
    public void clear(String fileName) throws IOException {
        writer = new PrintWriter(new FileWriter(fileName));
        writer.print("");
    }

}
```

Food.java

```
import java.util.*;
import java.io.*;

public class Food {
    private String foodName;
    private int quantity;
    private double price;
    private Date expiryDate;
    private double netWeight;
    private String orderID;
    private String userID;
    private boolean isFinished;

    public Food() {
        this.foodName = "";
        this.quantity = 0;
        this.price = 0.0;
        this.expiryDate = new Date();
        this.netWeight = 0.0;
        this.orderID = "";
        this.userID = "";
    }

    public Food(String foodName, int quantity, double price, Date expiryDate,
double netWeight) {
        this.foodName = foodName;
        this.quantity = quantity;
        this.price = price;
        this.expiryDate = expiryDate;
        this.netWeight = netWeight;
    }

    // for adding food to foodMenu.txt
    public Food(String foodName, double price, double netWeight) {
        this.foodName = foodName;
        this.price = price;
        this.netWeight = netWeight;
    }

    // for adding food to foodOrder.txt
    public Food(String userID, String orderID, String foodName, int quantity,
double price, double netWeight,
            boolean isFinished) {
        this.userID = userID;
        this.orderID = orderID;
        this.foodName = foodName;
        this.quantity = quantity;
        this.price = price;
        this.netWeight = netWeight;
        this.isFinished = isFinished;
    }

    // copy constructor
    public Food(Food food) {
        this.foodName = food.foodName;
        this.quantity = food.quantity;
        this.price = food.price;
        this.expiryDate = food.expiryDate;
        this.netWeight = food.netWeight;
        this.orderID = food.orderID;
        this.userID = food.userID;
        this.isFinished = food.isFinished;
    }

    // setter
    public void setFoodName(String foodName) {
        this.foodName = foodName;
    }

    public void setQuantity(int quantity) {
        this.quantity = quantity;
    }

    public void setPrice(double price) {
        this.price = price;
    }

    public void setExpiryDate(Date expiryDate) {
        this.expiryDate = expiryDate;
    }

    public void setNetWeight(double netWeight) {
        this.netWeight = netWeight;
    }

    public void setOrderID(String orderID) {
        this.orderID = orderID;
    }

    public void setUserID(String userID) {
        this.userID = userID;
    }

    public void setIsFinished(boolean isFinished) {
        this.isFinished = isFinished;
```

```java
}

// getter
public String getFoodName() {
    return foodName;
}

public int getQuantity() {
    return quantity;
}

public double getPrice() {
    return price;
}

public Date getExpiryDate() {
    return expiryDate;
}

public double getNetWeight() {
    return netWeight;
}

public String getOrderID() {
    return orderID;
}

public String getUserID() {
    return userID;
}

public boolean getIsFinished() {
    return isFinished;
}

// calculate the total weight
public double calculateTotalWeight() {
    return netWeight * quantity;
}

// calculate price after SST
public double afterSST() {
    return price * 1.06;
}

// calculate the total price
public double calculateTotalPrice() {
    return afterSST() * quantity;
    }

    // member or non-member
    public boolean isMember() throws IOException {
        // read from file

        FileHandling data = new FileHandling("data.txt");
        String linesData = data.read();
        String[] dataPerLine = linesData.split("\n");

        if (dataPerLine.length == 0) {
            System.out.println("There is no data.");
            return false;
        }

        for (int i = 0; i < dataPerLine.length; i++) {
            String[] dataDetails = dataPerLine[i].split(",");
            boolean isMember = Boolean.parseBoolean(dataDetails[2]);

            if (isMember) {
                return true;
            }
        }

        return false;
    }

    // check if today is their birthday
    public boolean isBirthday() throws IOException {

        FileHandling data = new FileHandling("data.txt");
        String linesData = data.read();
        String[] dataPerLine = linesData.split("\n");

        if (dataPerLine.length == 0) {
            System.out.println("There is no data.");
            return false;
        }

        for (int i = 0; i < dataPerLine.length; i++) {
            String[] dataDetails = dataPerLine[i].split(",");
            String birthday = dataDetails[3];

            // get current date
            Date currentDate = new Date();

            if (birthday.equals(String.format("%td/%tm", currentDate,
currentDate))) {
```

```
                return true;
            }
        }

        return false;
    }

    // calculate the total price after discount
    // if member and birthday then the discount will be stacked
    public double discountedPrice() throws IOException {
        if (isMember()) {
            return calculateTotalPrice() * 0.9;
        }

        if (isBirthday()) {
            return calculateTotalPrice() * 0.8;
        }

        return calculateTotalPrice();
    }

    // generate random foodID with a length of 6 combination string and letter
    public String generateFoodID() {
        String foodID = "";
        String characters = "ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789";
        int length = 6;

        for (int i = 0; i < length; i++) {
            foodID += characters.charAt((int) (Math.random() *
characters.length()));
        }

        return foodID;
    }

    // determine the food
    public void determineFood(int foodChoice, int quantity) throws IOException
{

        // read the price and net weight from the text file
        FileHandling foodMenu = new FileHandling("foodMenu.txt");
        String linesFoodMenu = foodMenu.read();
        String[] foodMenuPerLine = linesFoodMenu.split("\n");
        String[] foodDetails = foodMenuPerLine[foodChoice - 1].split(",");
        double price = Double.parseDouble(foodDetails[1]);
        double netWeight = Double.parseDouble(foodDetails[2]);

        // set the quantity
        setQuantity(quantity);

        // set the food name
        setFoodName(foodDetails[0]);

        // set the price and net weight
        setPrice(price);
        setNetWeight(netWeight);

        setOrderID(generateFoodID());

        // return the food name
    }

    // display food menu from foodMenu.txt
    public int displayFoodMenu() throws IOException {
        FileHandling foodMenu = new FileHandling("foodMenu.txt");
        String linesFoodMenu = foodMenu.read();

        if (linesFoodMenu.equals("")) {
            System.out.println("There is no food in the menu.");
            return 0;
        }

        String[] foodMenuPerLine = linesFoodMenu.split("\n");

        int i = 0;
        // format into table
        for (int j = 0; j < 70; j++) {
            System.out.print("-");
        }
        System.out.println();

        System.out.printf("|%-5s|%-20s|%-20s|%-20s|\n", "No.", "Food Name",
"Price (RM)", "Net Weight (gram)");

        for (int j = 0; j < 70; j++) {
            System.out.print("-");
        }

        System.out.println();

        for (i = 0; i < foodMenuPerLine.length; i++) {
            String[] foodDetails = foodMenuPerLine[i].split(",");
            String foodName = foodDetails[0];
            double price = Double.parseDouble(foodDetails[1]);
            double netWeight = Double.parseDouble(foodDetails[2]);
            System.out.printf("|%-5d|%-20s|%-20s|%-20s|\n", (i + 1), foodName,
String.format("%,.2f", price),
                    String.format("%,.2f", netWeight));
        }

        for (int j = 0; j < 70; j++) {
            System.out.print("-"); // print 80 dashes
        }

        System.out.println();

        return i;
    }

    // method to count the number of menu in the food menu
    public int countMenu() throws IOException {
        FileHandling foodMenu = new FileHandling("foodMenu.txt");
        String linesFoodMenu = foodMenu.read();

        if (linesFoodMenu.equals("")) {
            return 0;
        }

        String[] foodMenuPerLine = linesFoodMenu.split("\n");

        return foodMenuPerLine.length;
    }

    // printer
    public String toString() {
        // format the date to dd/mm/yyyy
        return "Food Name: " + foodName + "\nQuantity: "
                + quantity + "\nPrice: RM " + String.format("%,.2f", price)
                + "\nNet Weight: " + String.format("%,.2f", netWeight) + "
gram\n";
    }

}
```

Node.java

```
public class Node {

private Object data;

    private Node next;


    // default constructor

    public Node() {

        data = null;

        next = null;

    }


    // normal constructor

    public Node(Object data) {

        this.data = data;

        next = null;

    }


    // getter

    public Object getData() {

        return data;

    }


    public Node getNext() {

        return next;

    }


    // setter

    public void setData(Object data) {

        this.data = data;

    }
    public void setNext(Node next) {
        this.next = next;
    }

    public String toString() {
        return data + "";
    }
}
```

QueueCustom.java

```
public class QueueCustom extends Circular {

    public QueueCustom() {

        super();

    }


    // i. Add data at the start of the list (enqueue).

    public void enqueue(Object data) {

        insertAtFront(data);

    }


    // ii. Removes data at the end of a list (dequeue) and return the removed
data.

    public Object dequeue() {

        return removeFromBack();

    }


    // iii. Determine whether the list is empty.

    public boolean isEmpty() {

        return super.isEmpty();

    }


    // iv. Determine the size of the list.

    public int getSize() {

        return super.size();

    }

}
```

Staff.java

```java
import java.io.*;
import java.util.Scanner;

public class Staff extends FileHandling {

    private String username;
    private String password;

    // default constructor
    public Staff() {
        this.username = "";
        this.password = "";
    }

    // normal constructor
    public Staff(String username, String password) {
        this.username = username;
        this.password = password;
    }

    // getter
    public String getUsername() {
        return this.username;
    }

    public String getPassword() {
        return this.password;
    }

    // setter
    public void setUsername(String username) {
        this.username = username;
    }

    public void setPassword(String password) {
        this.password = password;
    }

    // set food price
    public void setFoodPrice(Food food, double price) {
        food.setPrice(price);
    }
    // set food quantity
    public void setFoodQuantity(Food food, int quantity) {
        food.setQuantity(quantity);
    }

    // put food into linked list custom
    // change the last food to be finished
    // write back to foodOrder.txt
    public void updateFood() throws IOException {
        FileHandling foodOrder = new FileHandling("foodOrder.txt");
        String linesFoodOrder = foodOrder.read();

        if (linesFoodOrder.equals("")) {
            System.out.println("There is no food order.");
            return;
        }

        String[] foodOrderPerLine = linesFoodOrder.split("\n");

        Circular foodOrderLL = new Circular();

        // check if all food is finished
        boolean isAllFinished = true;

        for (int i = 0; i < foodOrderPerLine.length; i++) {
            String[] foodOrderDetails = foodOrderPerLine[i].split(",");
            String userID = foodOrderDetails[0];
            String orderID = foodOrderDetails[1];
            String foodName = foodOrderDetails[2];
            int quantity = Integer.parseInt(foodOrderDetails[3]);
            double price = Double.parseDouble(foodOrderDetails[4]);
            double netWeight = Double.parseDouble(foodOrderDetails[5]);
            boolean isFinished = Boolean.parseBoolean(foodOrderDetails[6]);

            if (!isFinished) {
                isAllFinished = false;
            }

            Food food = new Food(userID, orderID, foodName, quantity, price,
netWeight, isFinished);

            foodOrderLL.insertAtBack(food);
        }

        if (isAllFinished) {
            System.out.println("All food is finished.");
            return;
        }

        // change the last food to be finished that is not finished
        // traverse from the back
        for (int i = foodOrderLL.getSize() - 1; i >= 0; i--) {
            Food food = (Food) foodOrderLL.get(i);

            if (!food.getIsFinished()) {
                food.setIsFinished(true);
                break;
            }
        }

        // write back to foodOrder.txt
        foodOrder.setFile("foodOrder.txt");

        // clear the file
        foodOrder.clear("foodOrder.txt");

        // sort the food by finished and unfinished
        // the order of the unfinished must stay the same
        // push down the finished food to the bottom
        for (int i = 0; i < foodOrderLL.getSize(); i++) {
            for (int j = i + 1; j < foodOrderLL.getSize(); j++) {
                Food food1 = (Food) foodOrderLL.get(i);
                Food food2 = (Food) foodOrderLL.get(j);

                if (food1.getIsFinished() && !food2.getIsFinished()) {
                    foodOrderLL.swap(i, j);
                }
            }
        }

        while (!foodOrderLL.isEmpty()) {
            Food food2 = (Food) foodOrderLL.removeFromFront();
            foodOrder.write(food2.getUserID() + "," + food2.getOrderID() + ","
+ food2.getFoodName() + "," +
                    food2.getQuantity() + "," + String.format("%,.2f",
food2.getPrice()) + "," +
                    food2.getNetWeight() + "," + food2.getIsFinished());
        }

        foodOrder.close();

    }

    // view finished order in finishedOrder.txt
    public void viewFinishedOrder() throws Exception {
        FileHandling finishedOrder = new FileHandling("foodOrder.txt");
        String linesFinishedOrder = finishedOrder.read();

        // use circular linked list to store finished order
        Circular finishedOrderCLL = new Circular();

        String[] finishedOrderPerLine = linesFinishedOrder.split("\n");

        for (int i = 0; i < finishedOrderPerLine.length; i++) {
            String[] finishedOrderDetails =
finishedOrderPerLine[i].split(",");
            String userID = finishedOrderDetails[0];
            String orderID = finishedOrderDetails[1];
            String foodName = finishedOrderDetails[2];
            int quantity = Integer.parseInt(finishedOrderDetails[3]);
            double price = Double.parseDouble(finishedOrderDetails[4]);
            double netWeight = Double.parseDouble(finishedOrderDetails[5]);
            boolean isFinished =
Boolean.parseBoolean(finishedOrderDetails[6]);

            if (isFinished) {
                Food food = new Food(userID, orderID, foodName, quantity,
price, netWeight, isFinished);
                finishedOrderCLL.insertAtBack(food);
            }
        }

        // if empty
        if (finishedOrderCLL.isEmpty()) {
            System.out.println("There is no finished order.");
            return;
        }

        // print out the finished order
        while (!finishedOrderCLL.isEmpty()) {
            Food food = (Food) finishedOrderCLL.removeFromFront();
            System.out.println(food);
        }
    }

    // add new food
    public void addFood(Food food) throws Exception {
        FileHandling foodMenu = new FileHandling("foodMenu.txt");
        // String linesFoodMenu = foodMenu.read();
        String foodName = food.getFoodName();
        double price = food.getPrice();
        double netWeight = food.getNetWeight();
        foodMenu.write(foodName + "," + String.format("%,.2f", price) + "," +
netWeight);
        foodMenu.close();
    }

    // remove food
    // 1 - remove food from front
    // 2 - remove food at the end
    // 3 - remove food from middle
    // 4 - remove all food
    public void removeFood(int choice) throws Exception {

        FileHandling foodMenu = new FileHandling("foodMenu.txt");
        String linesFoodMenu = foodMenu.read();

        Circular foodMenuLL = new Circular();

        if (linesFoodMenu.equals("")) {
            System.out.println("There is no food in the menu.");
            return;
        }

        String[] foodMenuPerLine = linesFoodMenu.split("\n");

        for (int i = 0; i < foodMenuPerLine.length; i++) {
            String[] foodDetails = foodMenuPerLine[i].split(",");
            String foodName = foodDetails[0];
            double price = Double.parseDouble(foodDetails[1]);
            double netWeight = Double.parseDouble(foodDetails[2]);

            Food food = new Food(foodName, price, netWeight);

            foodMenuLL.insertAtBack(food);
        }

        Scanner intInput = new Scanner(System.in);

        // System.out.println("Removed food:\n");

        Food removedObject = null;

        switch (choice) {
            case 1:
                removedObject = (Food) foodMenuLL.removeFromFront();
                break;
            case 2:
                removedObject = (Food) foodMenuLL.removeFromBack();
                break;
            case 3:
                int sizeBeforeRemove = foodMenuLL.getSize();
                removedObject = (Food) foodMenuLL.removeFromMiddle();
                System.out.println("Removed food at index " +
(foodMenuLL.getSize() / 2) + " out of " +
                        sizeBeforeRemove + " food.\n");
                break;
            case 4:
                foodMenuLL.removeAll();
                System.out.println("All food is removed.");
                break;
            case 5:
                System.out.print("Enter the index (1 - " +
foodMenuLL.getSize() + "): ");
                choice = intInput.nextInt();
                foodMenuLL.remove(choice - 1);
                break;
            default:
                System.out.println("Invalid choice.");
                break;
        }

        if (removedObject != null) {
            System.out.println(removedObject);

            // tell how many food left
            System.out.println("There are " + foodMenuLL.getSize() + " food
left.\n");
        }

        // write back to foodMenu.txt
        foodMenu.setFile("foodMenu.txt");

        // clear the file
        foodMenu.clear("foodMenu.txt");

        while (!foodMenuLL.isEmpty()) {
            Food food = (Food) foodMenuLL.removeFromFront();
            foodMenu.write(
                    food.getFoodName() + "," + String.format("%,.2f",
food.getPrice()) + "," +
                            food.getNetWeight());
        }

        foodMenu.close();
    }

    // sort food by price
    public void sortFoodByPrice() throws Exception {
        FileHandling foodMenu = new FileHandling("foodMenu.txt");
        String linesFoodMenu = foodMenu.read();

        Circular foodMenuLL = new Circular();

        if (linesFoodMenu.equals("")) {
            System.out.println("There is no food in the menu.");
            return;
        }

        String[] foodMenuPerLine = linesFoodMenu.split("\n");

        for (int i = 0; i < foodMenuPerLine.length; i++) {
            String[] foodDetails = foodMenuPerLine[i].split(",");
            String foodName = foodDetails[0];
            double price = Double.parseDouble(foodDetails[1]);
            double netWeight = Double.parseDouble(foodDetails[2]);

            Food food = new Food(foodName, price, netWeight);

            foodMenuLL.insertAtBack(food);
        }

        // sort by price using bubble sort from LinkedListCustom and sort
lowest to
        // highest
        for (int i = 0; i < foodMenuLL.getSize(); i++) {
            for (int j = i + 1; j < foodMenuLL.getSize(); j++) {
                Food food1 = (Food) foodMenuLL.get(i);
                Food food2 = (Food) foodMenuLL.get(j);

                if (food1.getPrice() > food2.getPrice()) {
                    foodMenuLL.swap(i, j);
                }
            }
        }

        // write back to foodMenu.txt
        foodMenu.setFile("foodMenu.txt");

        // clear the file
        foodMenu.clear("foodMenu.txt");

        while (!foodMenuLL.isEmpty()) {
            Food food = (Food) foodMenuLL.removeFromFront();
            foodMenu.write(
                    food.getFoodName() + "," + String.format("%,.2f",
food.getPrice()) + "," +
                            food.getNetWeight());
        }

        foodMenu.close();
    }

    // view unfinished order in foodOrder.txt by one by one by using circular
linked
    // get next
    public void viewOrder() throws Exception {
        Scanner input = new Scanner(System.in);

        // use circular linked list to store unfinished order and then get
next
        Circular orderCLL = new Circular();

        FileHandling foodOrder = new FileHandling("foodOrder.txt");
        String linesFoodOrder = foodOrder.read();

        if (linesFoodOrder.equals("")) {
            System.out.println("There is no order.");
            return;
        }

        String[] foodOrderPerLine = linesFoodOrder.split("\n");

        for (int j = 0; j < foodOrderPerLine.length; j++) {
            String[] foodOrderDetails = foodOrderPerLine[j].split(",");
            String userID = foodOrderDetails[0];
            String orderID = foodOrderDetails[1];
            String foodName = foodOrderDetails[2];
            int quantity = Integer.parseInt(foodOrderDetails[3]);
            double price = Double.parseDouble(foodOrderDetails[4]);
            double netWeight = Double.parseDouble(foodOrderDetails[5]);
            boolean isFinished = Boolean.parseBoolean(foodOrderDetails[6]);

            Food food = new Food(userID, orderID, foodName, quantity, price,
netWeight, isFinished);
            orderCLL.insertAtBack(food);
        }

        System.out.println("Press enter to view next order. Press 0 to
exit.\n");

        while (true) {
            Food food = (Food) orderCLL.getNext();
```

```java
            System.out.println(food);
            String choice = input.nextLine();

            if (choice.equals("0")) {
                break;
            }
        }

        foodOrder.close();
    }

    // toString
    public String toString() {
        return "Username: " + username + "\nPassword: " + password;
    }
}
```

8.0 CLASS APPLICATION

```
import java.util.*;
import java.io.*;
import java.text.SimpleDateFormat;

// linkedlist must have removal, searching, updating and traversal
// optional: sorting, insertion, merging, reversing

public class Main {

    public static final int ms = 1;
    public static final int sec = ms * 1000;
    public static final int min = sec * 60;
    public static final int hour = min * 60;

    public static void main(String[] args) throws Exception {
        // 2 Scanners for String and Integer
        Scanner strInput = new Scanner(System.in);
        Scanner intInput = new Scanner(System.in);

        // LinkedList to store Food objects
        LinkedList<Food> foodList = new LinkedList<Food>();
        // LinkedListCustom foodListCustom = new LinkedListCustom();
        QueueCustom foodQueueCustom = new QueueCustom();
        Food food = new Food();

        // welcome message
        System.out.println("Welcome to the Food Inventory System");
        System.out.println("====================================");

        int choice = 0;

        // login or register
        System.out.print("1. Login\n2. Register\n3. Exit\n\nEnter your choice: 
");
        choice = intInput.nextInt();

        System.out.println();

        // login
        if (choice == 1) {
            System.out.print("Enter your username: ");
            String username = strInput.nextLine();

            System.out.print("Enter your password: ");
            String password = strInput.nextLine();

            Account login = new Account(username, password);
            // validate the username and password from the text file
            if (!login.verifying()) {
                System.out.println("\nLogin failed.");
                return;
            }

            System.out.println("\nLogin successful.\n");

            // check if the user is admin or not
            // get the user type from the text file
            String userType = "";
            String name = "";
            FileHandling data = new FileHandling("data.txt");
            String lines = data.read();
            String[] dataPerLine = lines.split("\n");
            for (int i = 0; i < dataPerLine.length; i++) {
                String[] dataPerComma = dataPerLine[i].split(",");
                name = dataPerComma[1];
                String passwordData = dataPerComma[2];
                userType = dataPerComma[5];

                if (username.equals(name) && password.equals(passwordData)) {
                    break;
                }
            }

            System.out.println("Welcome, " + name + ".\n");

            while (true) {
                if (userType.equalsIgnoreCase("admin")) {
                    Staff staff = new Staff();


System.out.print("================================================\n");
                    System.out.printf("|%-5s|%-40s|\n", "No.", "Menu");

System.out.print("================================================\n");
                    System.out.printf("|%-5s|%-40s|\n", "1.", "Update Food
Order List");
                    System.out.printf("|%-5s|%-40s|\n", "2.", "View Finished
Food Order List");
                    System.out.printf("|%-5s|%-40s|\n", "3.", "View All Order
One By One");
                    System.out.printf("|%-5s|%-40s|\n", "4.", "Add Food");
                    System.out.printf("|%-5s|%-40s|\n", "5.", "View Food
Menu");
```

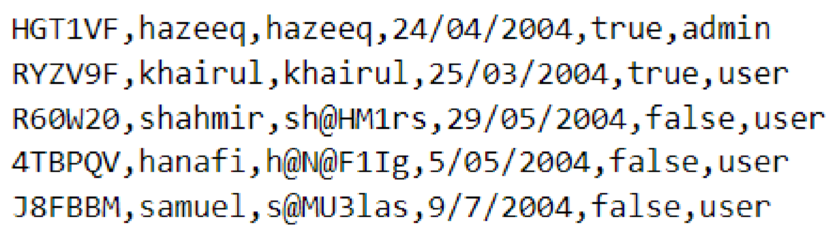
```
                        System.out.printf("|%-5s|%-40s|\n", "6.", "Delete Food
Menu");
                        System.out.printf("|%-5s|%-40s|\n", "7.", "Sort Food Menu
By Price");
                        System.out.printf("|%-5s|%-40s|\n", "8.", "Register New
Admin");
                        System.out.printf("|%-5s|%-40s|\n", "9.", "Exit");

System.out.print("================================================\n");
                        System.out.print("\nEnter your choice: ");
                        int adminChoice = intInput.nextInt();

                        System.out.println();

                        // update food order list
                        if (adminChoice == 1) {
                            staff.updateFood();
                        }

                        else if (adminChoice == 2){
                            staff.viewFinishedOrder();
                        }

                        else if (adminChoice == 3) {
                            staff.viewOrder();
                        }

                        else if (adminChoice == 4) {
                            System.out.print("Enter the food name: ");
                            String foodName = strInput.nextLine();

                            System.out.print("Enter the price (RM): ");
                            double price = intInput.nextDouble();

                            System.out.print("Enter the net weight (gram): ");
                            double netWeight = intInput.nextDouble();

                            food = new Food(foodName, price, netWeight);

                            staff.addFood(food);

                            System.out.println("Food added successfully.\n");

                        }

                        else if (adminChoice == 5) {
                            food.displayFoodMenu();
                        }
```

```
                    else if (adminChoice == 6) {
                        System.out.print(
                                "1. Delete from front\n2. Delete from back\n3.
Delete from middle\n4. Delete all\n5. Delete by index\n\nEnter your choice:
");
                        int deleteChoice = intInput.nextInt();

                        System.out.println();

                        if (deleteChoice >= 1 && deleteChoice <= 5)
                            staff.removeFood(deleteChoice);
                    }

                    else if (adminChoice == 7) {
                        staff.sortFoodByPrice();
                        System.out.println("Food menu sorted
successfully.\n");
                    }

                    else if (adminChoice == 8) {
                        Account register = new Account();
                        register.registers("admin");
                    }

                    else if (adminChoice == 9) {
                        break;
                    } else {
                        System.out.println("Invalid input. Please try
again.");
                    }

                } else {


System.out.print("================================================\n");
                    System.out.printf("|%-5s|%-40s|\n", "No.", "Menu");

System.out.print("================================================\n");
                    System.out.printf("|%-5s|%-40s|\n", "1.", "Order Food");
                    System.out.printf("|%-5s|%-40s|\n", "2.", "View Finished
Order");
                    System.out.printf("|%-5s|%-40s|\n", "3.", "View Unfinished
Order");
                    System.out.printf("|%-5s|%-40s|\n", "4.", "View Total
Price");
                    System.out.printf("|%-5s|%-40s|\n", "5.", "Exit");
System.out.print("================================================\n");
                    System.out.print("\nEnter your choice: ");
                    int userChoice= intInput.nextInt();

                    System.out.println();

                    Account account = new Account();

                    if (userChoice == 1) {
                        while (true) {
                            int length = food.countMenu();

                            food.displayFoodMenu();

                            System.out.print("\n\nEnter the food you want to
order (1 - " + length + "): ");
                            int foodChoice = intInput.nextInt();

                            if (foodChoice < 1 || foodChoice > length) {
                                System.out.println("\nThere is no food with
that number. Please try again.\n");
                                continue;
                            }

                            System.out.print("Enter the quantity: ");
                            int quantity = intInput.nextInt();

                            Food orderedFood = new Food();
                            orderedFood.determineFood(foodChoice, quantity);

                            // store the food object into the queue
                            foodQueueCustom.enqueue(orderedFood);

                            System.out.print("\n1. Order more food\n2. Proceed
to checkout\n\nEnter your choice: ");
                            int orderChoice = intInput.nextInt();

                            if (orderChoice == 1) {
                                continue;
                            } else if (orderChoice == 2) {
                                break;
                            } else {
                                System.out.println("Invalid input. Please try
again.");
                            }
                        }
                        // take from food queue and store into foodOrder.txt
                        FileHandling foodOrder = new
FileHandling("foodOrder.txt");
                        String linesFoodOrder = foodOrder.read();

                        foodOrder.clear("foodOrder.txt");

                        String newOrder = "";

                        // use custom queue
                        while (!foodQueueCustom.isEmpty()) {
                            food = (Food) foodQueueCustom.dequeue();
                            String foodName = food.getFoodName();
                            int quantity = food.getQuantity();
                            double price = food.getPrice();
                            double netWeight = food.getNetWeight();

                            // generate a string of random numbers and letters
for the order ID
                            String orderID = food.generateFoodID();
                            String userID = login.getUserID();

                            newOrder += userID + "," + orderID + "," +
foodName + "," + quantity + ","
                                    + String.format("%,.2f", price) + "," +
netWeight + "," + false + "\n";
                        }

                        newOrder += linesFoodOrder;

                        // trim the last \n to prevent new spaces being
created every time new order is
                        // added
                        newOrder = newOrder.substring(0, newOrder.length() -
1);

                        foodOrder.write(newOrder);

                        // close the file
                        foodOrder.close();
                    } else if (userChoice == 2) {
                        account.viewOrder(login.getUserID(), true);

                    } else if (userChoice == 3) {
                        account.viewOrder(login.getUserID(), false);

                    } else if (userChoice == 4) {
                        double totalPrice =
account.calculateTotalPrice(login.getUserID());
                        System.out.printf("Total price of finished order: RM
%,.2f\n\n", totalPrice);
                    } else if (userChoice == 5) {
                        break;
                    } else {
                        System.out.println("Invalid input. Please try
again.");
                    }
                }

                System.out.println("Press enter to continue...");
                strInput.nextLine();
            } // end of while loop

            System.out.println("Thank you for using the Food Inventory
System.");
        }

        // register a new account
        else if (choice == 2) {
            Account register = new Account();
            register.registers("user");
        } else if (choice == 3) {
            System.out.println("Thank you for using the Food Inventory
System.");
        } else {
            System.out.println("Invalid input. Please try again.");
        }

        // close the scanner
        strInput.close();
        intInput.close();

    }
}
```

9.0 OUTPUT FILE OR/AND SAMPLE INTERFACES

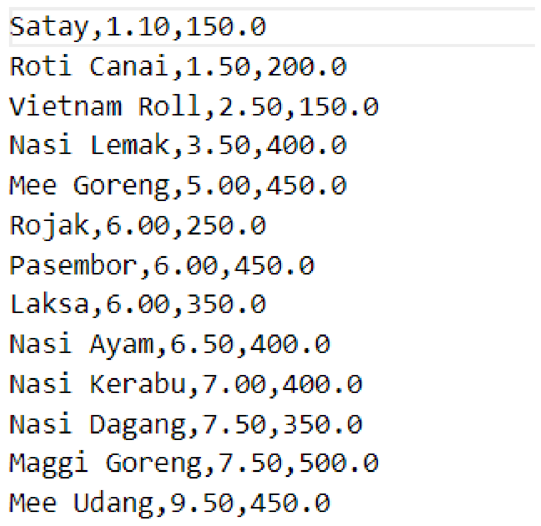
Output File

data.txt



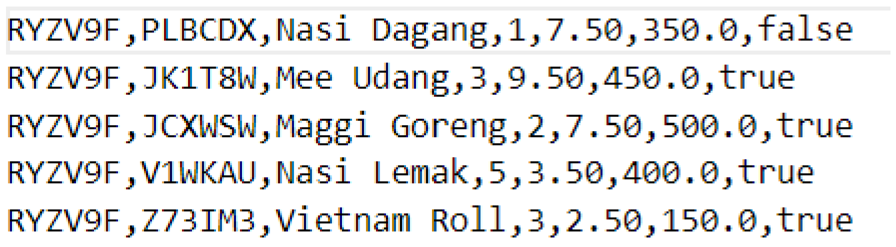
```
HGT1VF,hazeeq,hazeeq,24/04/2004,true,admin
RYZV9F,khairul,khairul,25/03/2004,true,user
R60W20,shahmir,sh@HM1rs,29/05/2004,false,user
4TBPQV,hanafi,h@N@F1Ig,5/05/2004,false,user
J8FBBM,samuel,s@MU3las,9/7/2004,false,user
```

foodMenu.txt



```
Satay,1.10,150.0
Roti Canai,1.50,200.0
Vietnam Roll,2.50,150.0
Nasi Lemak,3.50,400.0
Mee Goreng,5.00,450.0
Rojak,6.00,250.0
Pasembor,6.00,450.0
Laksa,6.00,350.0
Nasi Ayam,6.50,400.0
Nasi Kerabu,7.00,400.0
Nasi Dagang,7.50,350.0
Maggi Goreng,7.50,500.0
Mee Udang,9.50,450.0
```

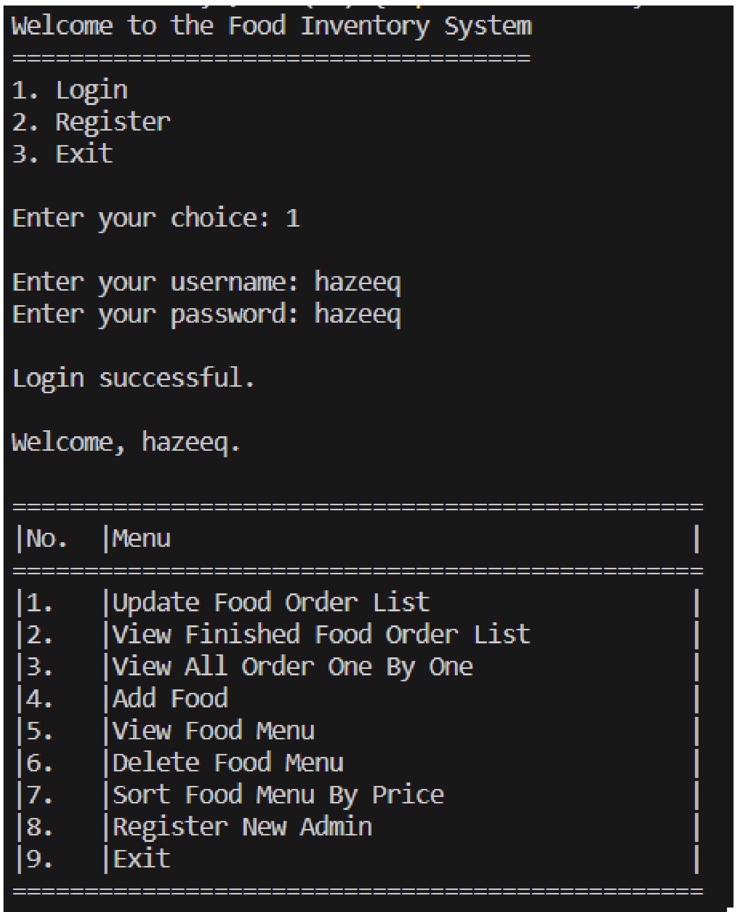
foodOrder.txt



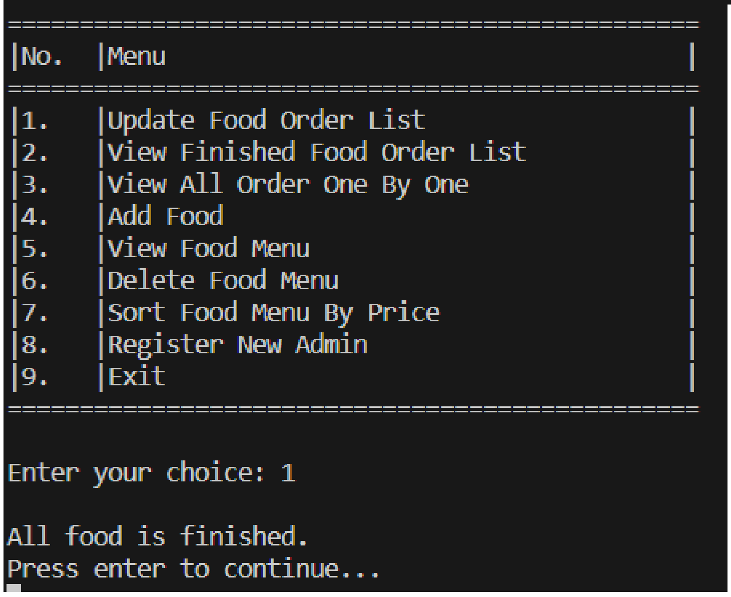
```
RYZV9F,PLBCDX,Nasi Dagang,1,7.50,350.0,false
RYZV9F,JK1T8W,Mee Udang,3,9.50,450.0,true
RYZV9F,JCXWSW,Maggi Goreng,2,7.50,500.0,true
RYZV9F,V1WKAU,Nasi Lemak,5,3.50,400.0,true
RYZV9F,Z73IM3,Vietnam Roll,3,2.50,150.0,true
```

Sample Input/Output

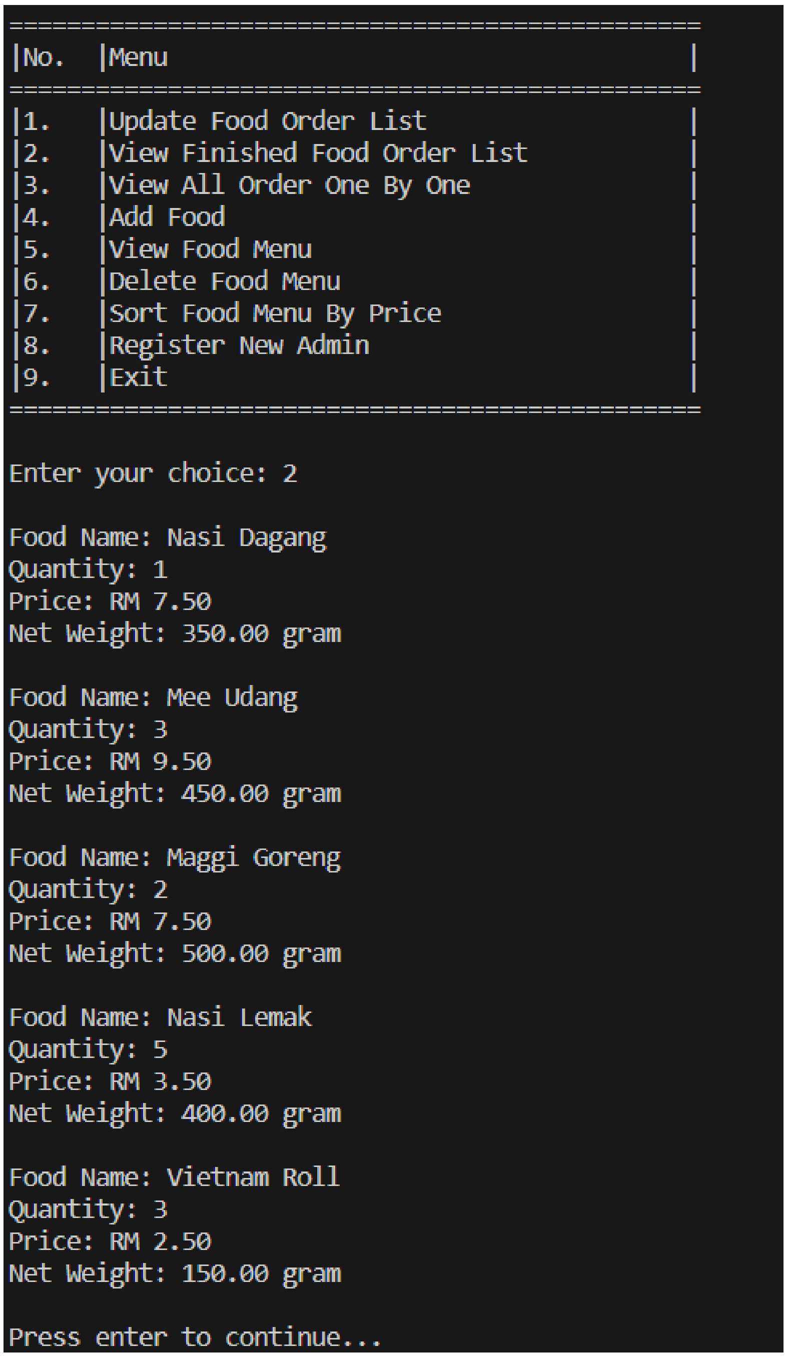
ADMIN INTERFACE

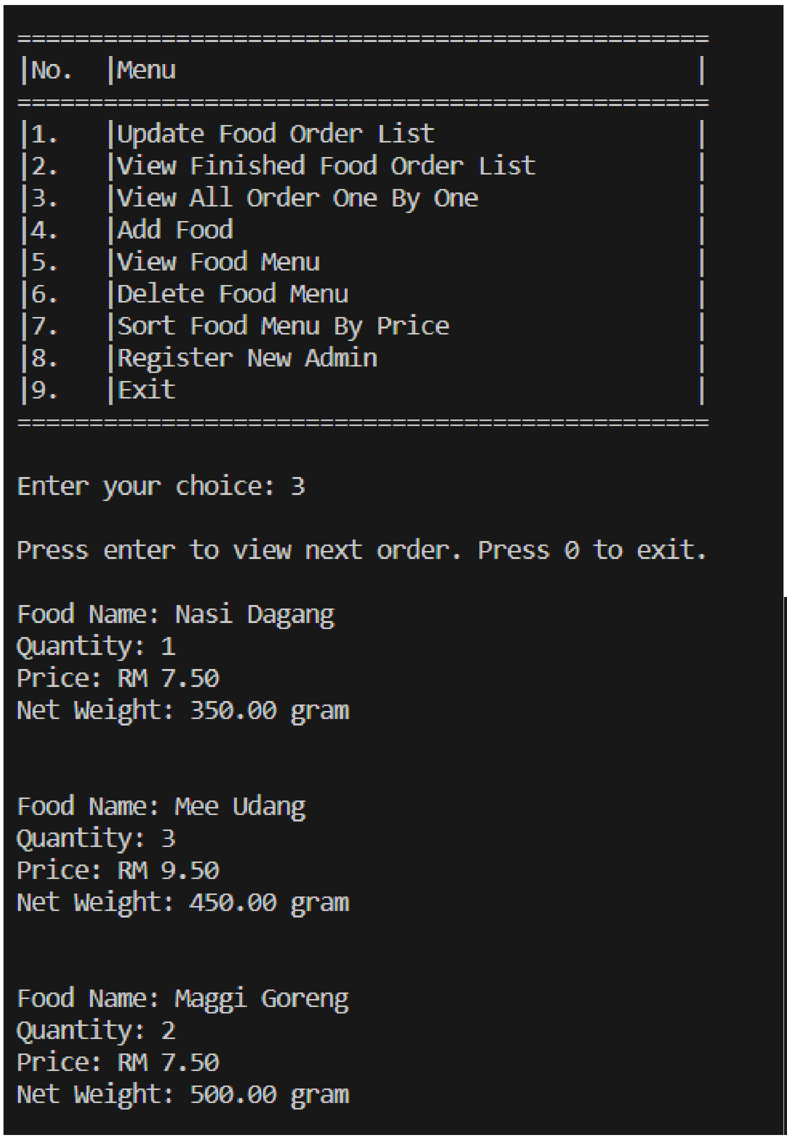


```
Welcome to the Food Inventory System
====================================
1. Login
2. Register
3. Exit

Enter your choice: 1

Enter your username: hazeeq
Enter your password: hazeeq

Login successful.

Welcome, hazeeq.

================================================
|No.   |Menu                                    |
================================================
|1.    |Update Food Order List                  |
|2.    |View Finished Food Order List           |
|3.    |View All Order One By One               |
|4.    |Add Food                                |
|5.    |View Food Menu                          |
|6.    |Delete Food Menu                        |
|7.    |Sort Food Menu By Price                 |
|8.    |Register New Admin                      |
|9.    |Exit                                    |
================================================
```

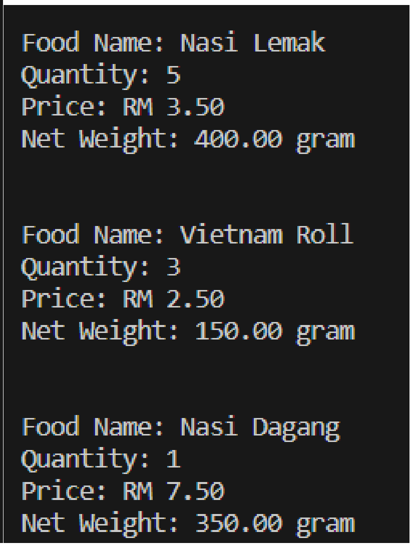


```
================================================
|No.   |Menu                                    |
================================================
|1.    |Update Food Order List                  |
|2.    |View Finished Food Order List           |
|3.    |View All Order One By One               |
|4.    |Add Food                                |
|5.    |View Food Menu                          |
|6.    |Delete Food Menu                        |
|7.    |Sort Food Menu By Price                 |
|8.    |Register New Admin                      |
|9.    |Exit                                    |
================================================

Enter your choice: 1

All food is finished.
Press enter to continue...
```

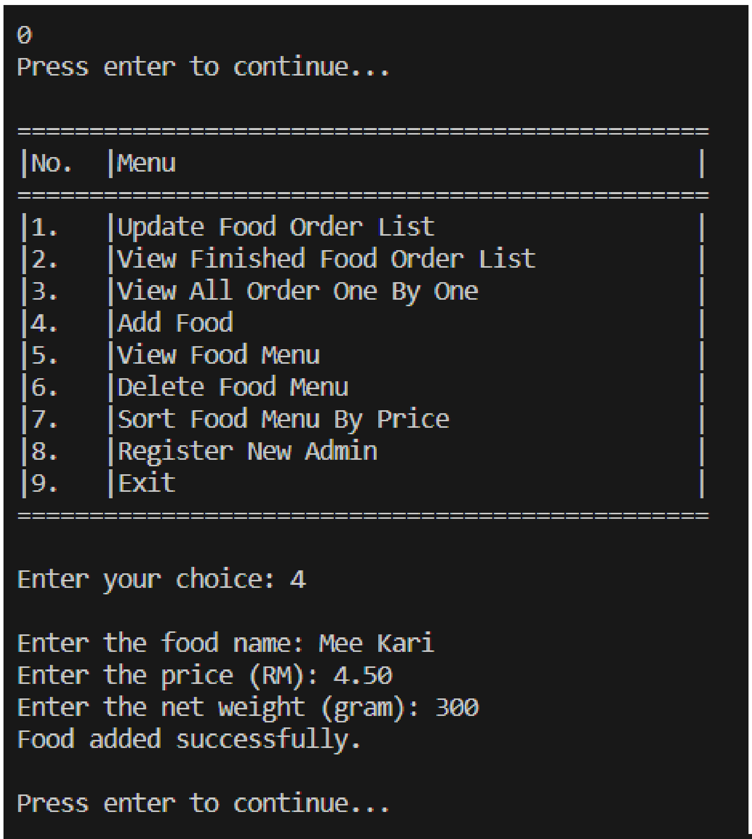

```
================================================
|No.  |Menu                                     |
================================================
|1.   |Update Food Order List                   |
|2.   |View Finished Food Order List            |
|3.   |View All Order One By One                |
|4.   |Add Food                                 |
|5.   |View Food Menu                           |
|6.   |Delete Food Menu                         |
|7.   |Sort Food Menu By Price                  |
|8.   |Register New Admin                       |
|9.   |Exit                                     |
================================================

Enter your choice: 2

Food Name: Nasi Dagang
Quantity: 1
Price: RM 7.50
Net Weight: 350.00 gram

Food Name: Mee Udang
Quantity: 3
Price: RM 9.50
Net Weight: 450.00 gram

Food Name: Maggi Goreng
Quantity: 2
Price: RM 7.50
Net Weight: 500.00 gram

Food Name: Nasi Lemak
Quantity: 5
Price: RM 3.50
Net Weight: 400.00 gram

Food Name: Vietnam Roll
Quantity: 3
Price: RM 2.50
Net Weight: 150.00 gram

Press enter to continue...
```



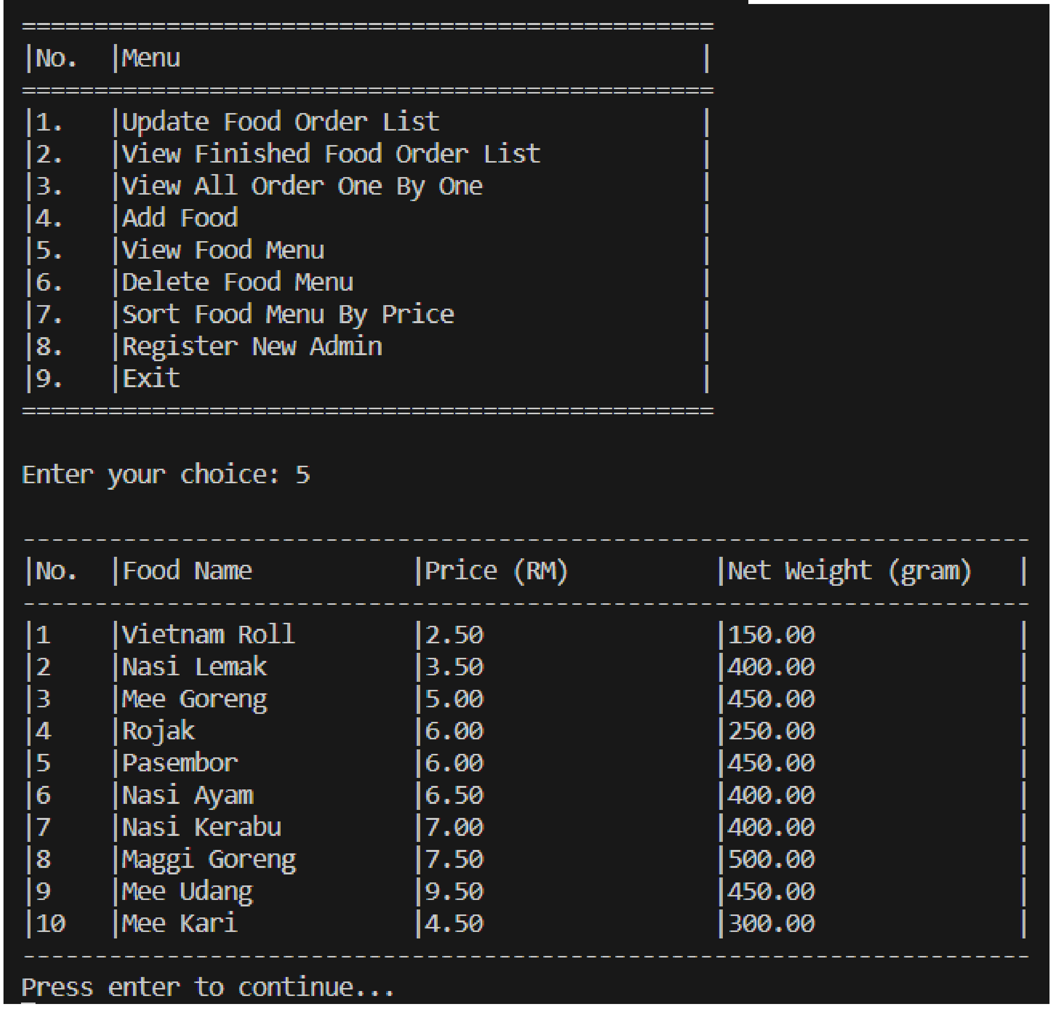
```
================================================
|No.   |Menu                                     |
================================================
|1.    |Update Food Order List                   |
|2.    |View Finished Food Order List            |
|3.    |View All Order One By One                |
|4.    |Add Food                                 |
|5.    |View Food Menu                           |
|6.    |Delete Food Menu                         |
|7.    |Sort Food Menu By Price                  |
|8.    |Register New Admin                       |
|9.    |Exit                                     |
================================================

Enter your choice: 3

Press enter to view next order. Press 0 to exit.

Food Name: Nasi Dagang
Quantity: 1
Price: RM 7.50
Net Weight: 350.00 gram


Food Name: Mee Udang
Quantity: 3
Price: RM 9.50
Net Weight: 450.00 gram


Food Name: Maggi Goreng
Quantity: 2
Price: RM 7.50
Net Weight: 500.00 gram
```



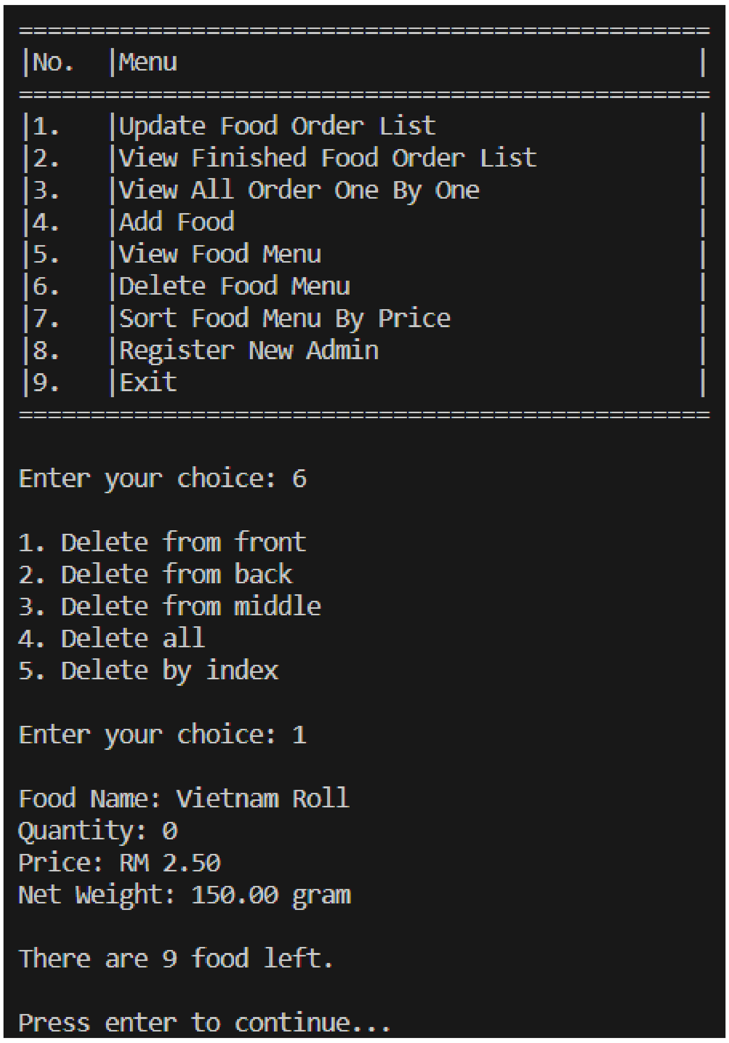
```
Food Name: Nasi Lemak
Quantity: 5
Price: RM 3.50
Net Weight: 400.00 gram


Food Name: Vietnam Roll
Quantity: 3
Price: RM 2.50
Net Weight: 150.00 gram


Food Name: Nasi Dagang
Quantity: 1
Price: RM 7.50
Net Weight: 350.00 gram
```



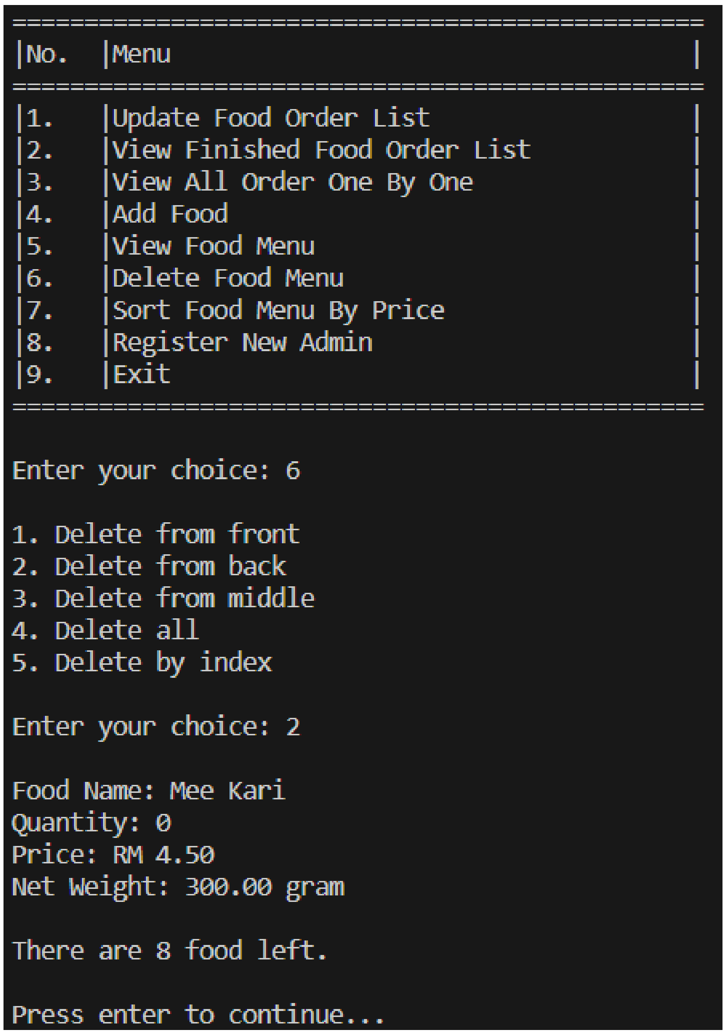
```
0
Press enter to continue...

================================================
|No.   |Menu                                    |
================================================
|1.    |Update Food Order List                  |
|2.    |View Finished Food Order List           |
|3.    |View All Order One By One               |
|4.    |Add Food                                |
|5.    |View Food Menu                          |
|6.    |Delete Food Menu                        |
|7.    |Sort Food Menu By Price                 |
|8.    |Register New Admin                      |
|9.    |Exit                                    |
================================================

Enter your choice: 4

Enter the food name: Mee Kari
Enter the price (RM): 4.50
Enter the net weight (gram): 300
Food added successfully.

Press enter to continue...
```

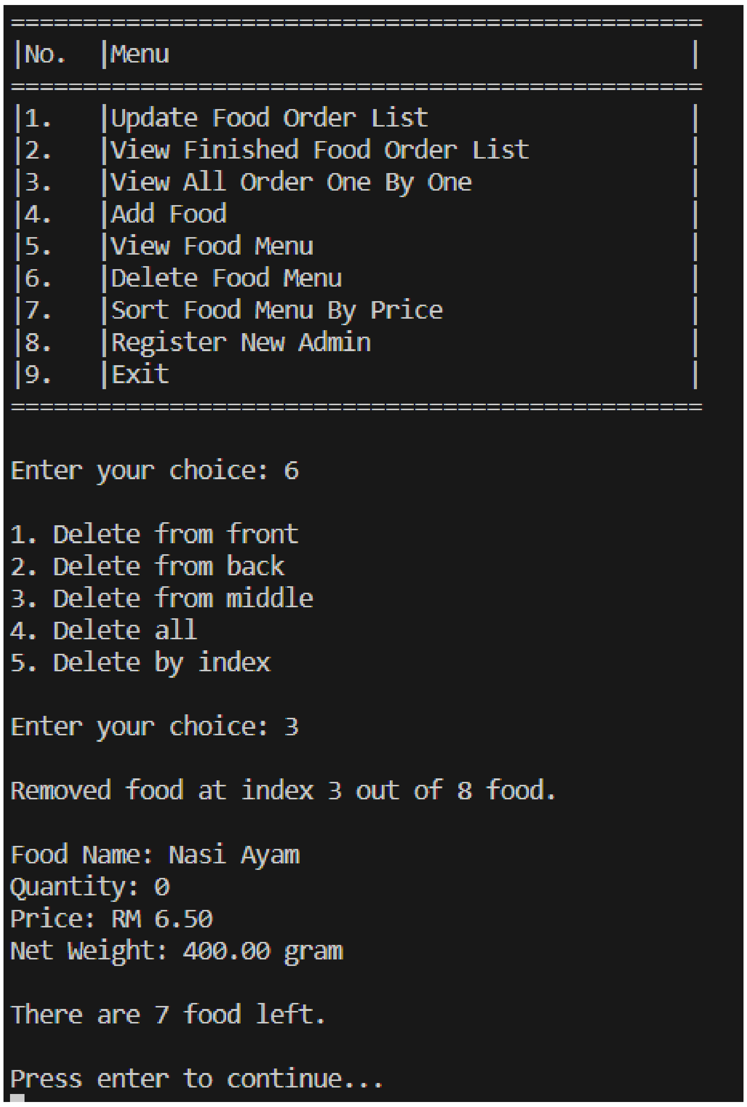


```
================================================
|No.   |Menu                                    |
================================================
|1.    |Update Food Order List                  |
|2.    |View Finished Food Order List           |
|3.    |View All Order One By One               |
|4.    |Add Food                                |
|5.    |View Food Menu                          |
|6.    |Delete Food Menu                        |
|7.    |Sort Food Menu By Price                 |
|8.    |Register New Admin                      |
|9.    |Exit                                    |
================================================

Enter your choice: 5

----------------------------------------------------------------------
|No.   |Food Name            |Price (RM)           |Net Weight (gram)   |
----------------------------------------------------------------------
|1     |Vietnam Roll         |2.50                 |150.00              |
|2     |Nasi Lemak           |3.50                 |400.00              |
|3     |Mee Goreng           |5.00                 |450.00              |
|4     |Rojak                |6.00                 |250.00              |
|5     |Pasembor             |6.00                 |450.00              |
|6     |Nasi Ayam            |6.50                 |400.00              |
|7     |Nasi Kerabu          |7.00                 |400.00              |
|8     |Maggi Goreng         |7.50                 |500.00              |
|9     |Mee Udang            |9.50                 |450.00              |
|10    |Mee Kari             |4.50                 |300.00              |
----------------------------------------------------------------------
Press enter to continue...
```

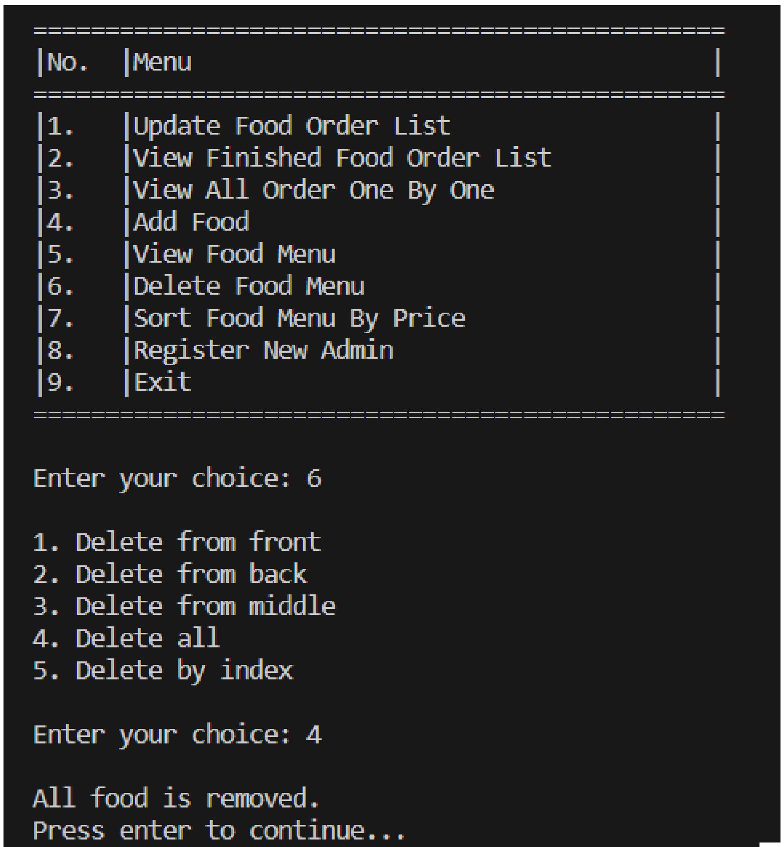


```
================================================
|No.   |Menu                                    |
================================================
|1.    |Update Food Order List                  |
|2.    |View Finished Food Order List           |
|3.    |View All Order One By One               |
|4.    |Add Food                                |
|5.    |View Food Menu                          |
|6.    |Delete Food Menu                        |
|7.    |Sort Food Menu By Price                 |
|8.    |Register New Admin                      |
|9.    |Exit                                    |
================================================

Enter your choice: 6

1. Delete from front
2. Delete from back
3. Delete from middle
4. Delete all
5. Delete by index

Enter your choice: 1

Food Name: Vietnam Roll
Quantity: 0
Price: RM 2.50
Net Weight: 150.00 gram

There are 9 food left.

Press enter to continue...
```

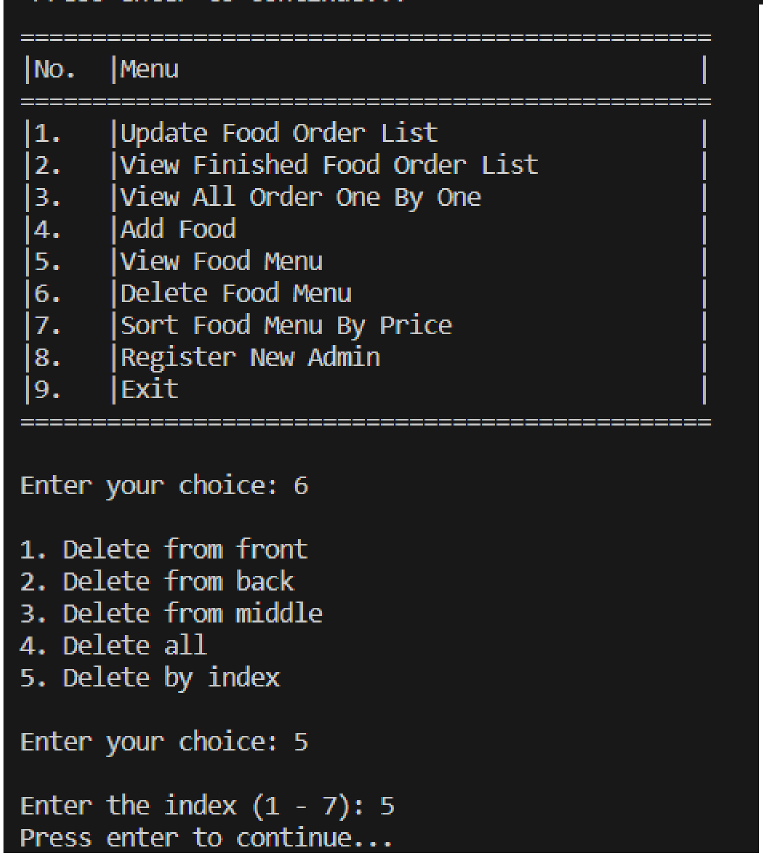

```
================================================
|No.  |Menu                                     |
================================================
|1.   |Update Food Order List                   |
|2.   |View Finished Food Order List            |
|3.   |View All Order One By One                |
|4.   |Add Food                                 |
|5.   |View Food Menu                           |
|6.   |Delete Food Menu                         |
|7.   |Sort Food Menu By Price                  |
|8.   |Register New Admin                       |
|9.   |Exit                                     |
================================================

Enter your choice: 6

1. Delete from front
2. Delete from back
3. Delete from middle
4. Delete all
5. Delete by index

Enter your choice: 2

Food Name: Mee Kari
Quantity: 0
Price: RM 4.50
Net Weight: 300.00 gram

There are 8 food left.

Press enter to continue...
```



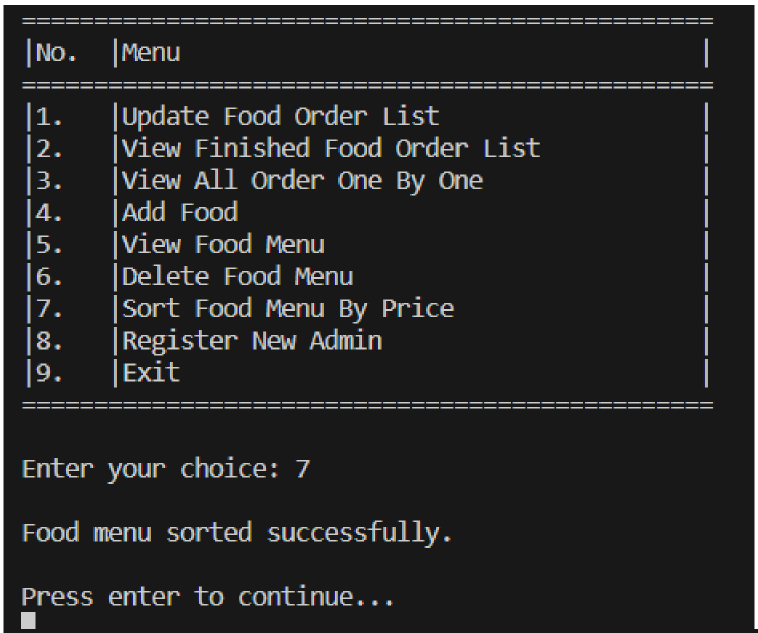
```
================================================
|No.  |Menu                                       |
================================================
|1.   |Update Food Order List                     |
|2.   |View Finished Food Order List              |
|3.   |View All Order One By One                  |
|4.   |Add Food                                   |
|5.   |View Food Menu                             |
|6.   |Delete Food Menu                           |
|7.   |Sort Food Menu By Price                    |
|8.   |Register New Admin                         |
|9.   |Exit                                       |
================================================

Enter your choice: 6

1. Delete from front
2. Delete from back
3. Delete from middle
4. Delete all
5. Delete by index

Enter your choice: 3

Removed food at index 3 out of 8 food.

Food Name: Nasi Ayam
Quantity: 0
Price: RM 6.50
Net Weight: 400.00 gram

There are 7 food left.

Press enter to continue...
```



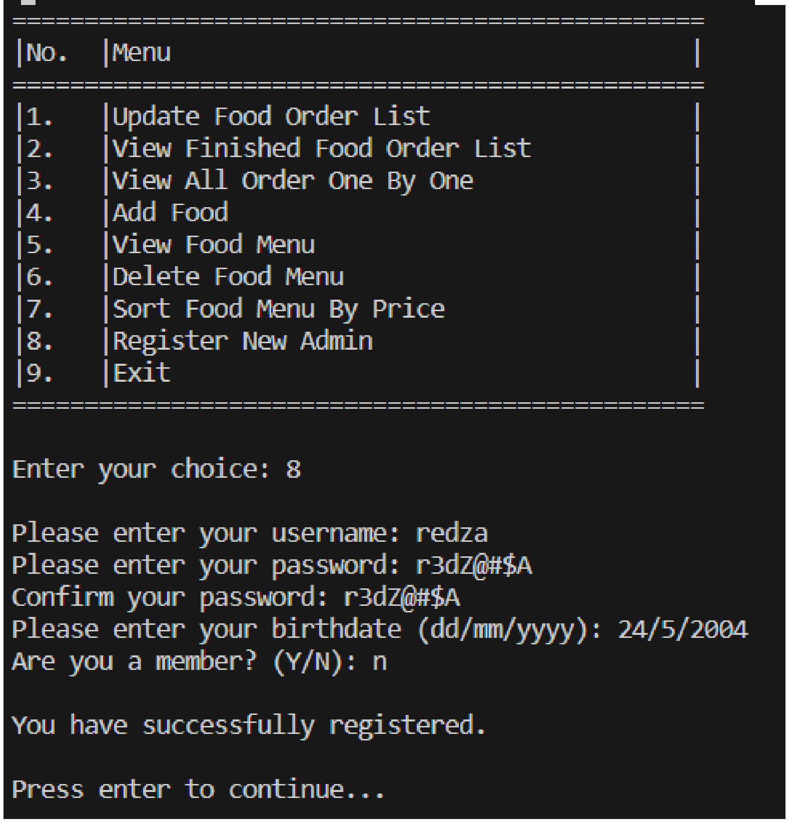
```
================================================
|No.  |Menu                                    |
================================================
|1.   |Update Food Order List                  |
|2.   |View Finished Food Order List           |
|3.   |View All Order One By One               |
|4.   |Add Food                                |
|5.   |View Food Menu                          |
|6.   |Delete Food Menu                        |
|7.   |Sort Food Menu By Price                 |
|8.   |Register New Admin                      |
|9.   |Exit                                    |
================================================

Enter your choice: 6

1. Delete from front
2. Delete from back
3. Delete from middle
4. Delete all
5. Delete by index

Enter your choice: 4

All food is removed.
Press enter to continue...
```



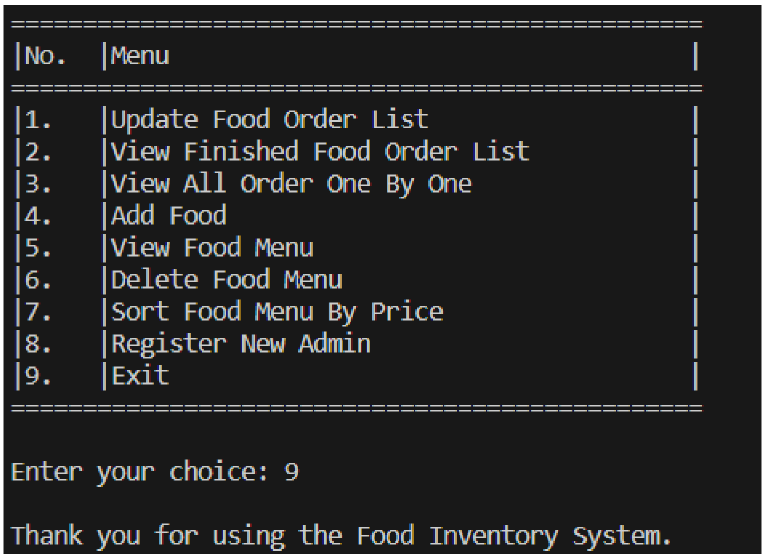
```
================================================
|No.  |Menu                                    |
================================================
|1.   |Update Food Order List                  |
|2.   |View Finished Food Order List           |
|3.   |View All Order One By One               |
|4.   |Add Food                                |
|5.   |View Food Menu                          |
|6.   |Delete Food Menu                        |
|7.   |Sort Food Menu By Price                 |
|8.   |Register New Admin                      |
|9.   |Exit                                    |
================================================

Enter your choice: 6

1. Delete from front
2. Delete from back
3. Delete from middle
4. Delete all
5. Delete by index

Enter your choice: 5

Enter the index (1 - 7): 5
Press enter to continue...
```



```
================================================
|No.   |Menu                                   |
================================================
|1.    |Update Food Order List                 |
|2.    |View Finished Food Order List          |
|3.    |View All Order One By One              |
|4.    |Add Food                               |
|5.    |View Food Menu                         |
|6.    |Delete Food Menu                       |
|7.    |Sort Food Menu By Price                |
|8.    |Register New Admin                     |
|9.    |Exit                                   |
================================================

Enter your choice: 7

Food menu sorted successfully.

Press enter to continue...
```

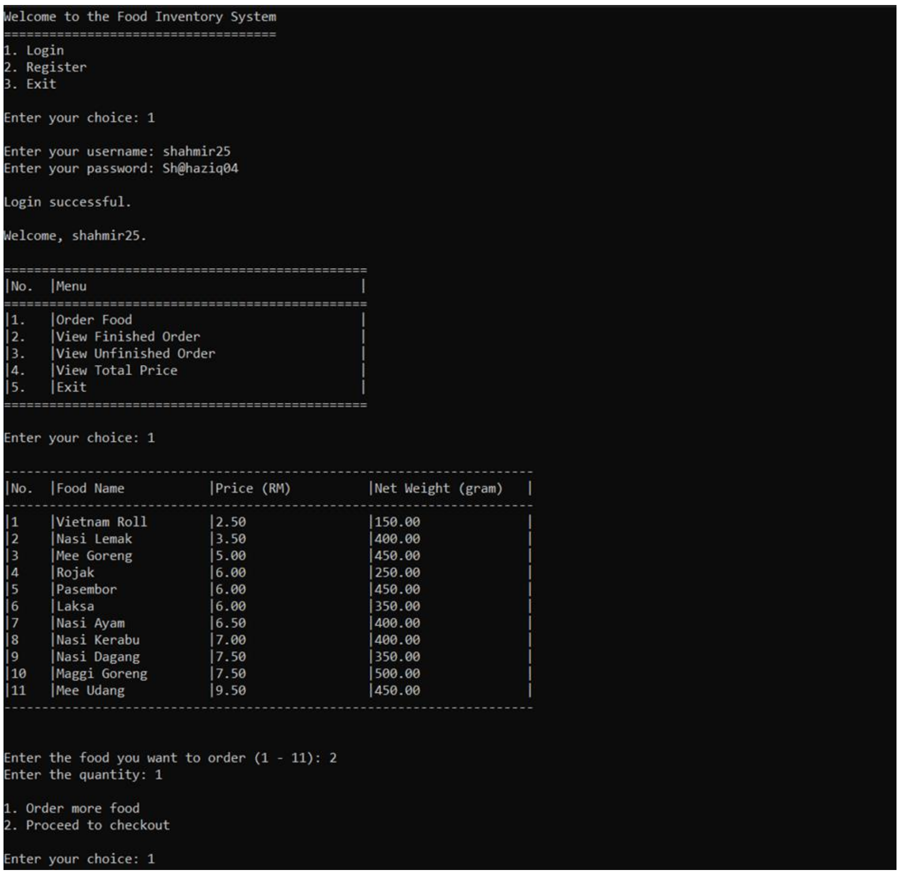


```
================================================
|No.   |Menu                                   |
================================================
|1.    |Update Food Order List                 |
|2.    |View Finished Food Order List          |
|3.    |View All Order One By One              |
|4.    |Add Food                               |
|5.    |View Food Menu                         |
|6.    |Delete Food Menu                       |
|7.    |Sort Food Menu By Price                |
|8.    |Register New Admin                     |
|9.    |Exit                                   |
================================================

Enter your choice: 8

Please enter your username: redza
Please enter your password: r3dZ@#$A
Confirm your password: r3dZ@#$A
Please enter your birthdate (dd/mm/yyyy): 24/5/2004
Are you a member? (Y/N): n

You have successfully registered.

Press enter to continue...
```

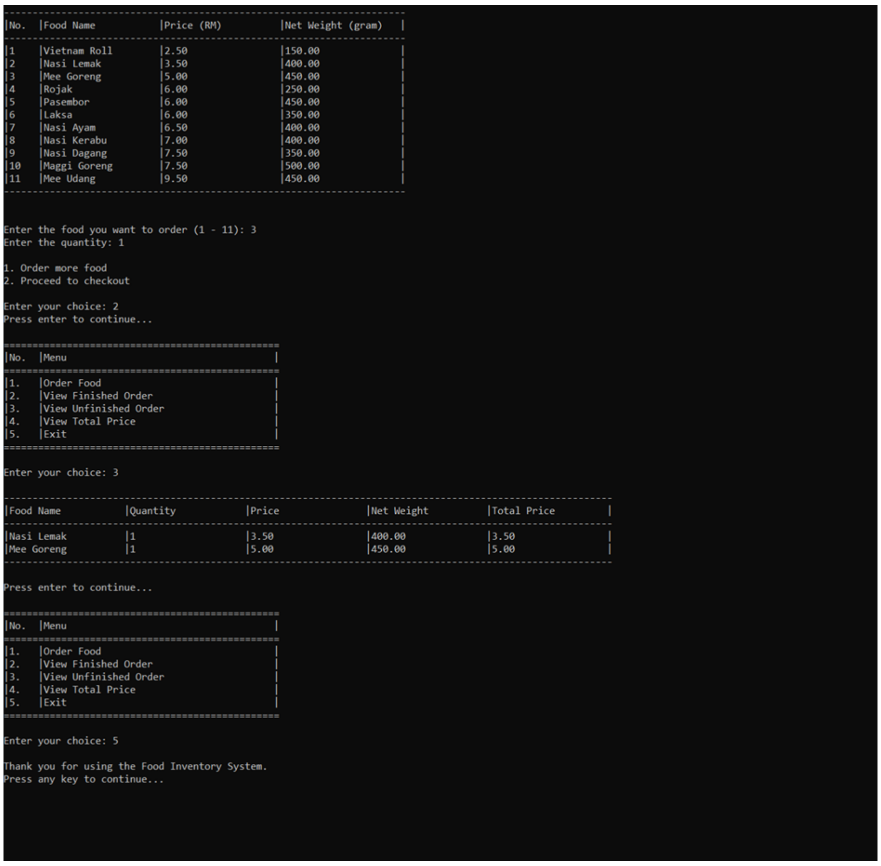


```
================================================
|No.  |Menu                                    |
================================================
|1.   |Update Food Order List                  |
|2.   |View Finished Food Order List           |
|3.   |View All Order One By One               |
|4.   |Add Food                                |
|5.   |View Food Menu                          |
|6.   |Delete Food Menu                        |
|7.   |Sort Food Menu By Price                 |
|8.   |Register New Admin                      |
|9.   |Exit                                    |
================================================

Enter your choice: 9

Thank you for using the Food Inventory System.
```

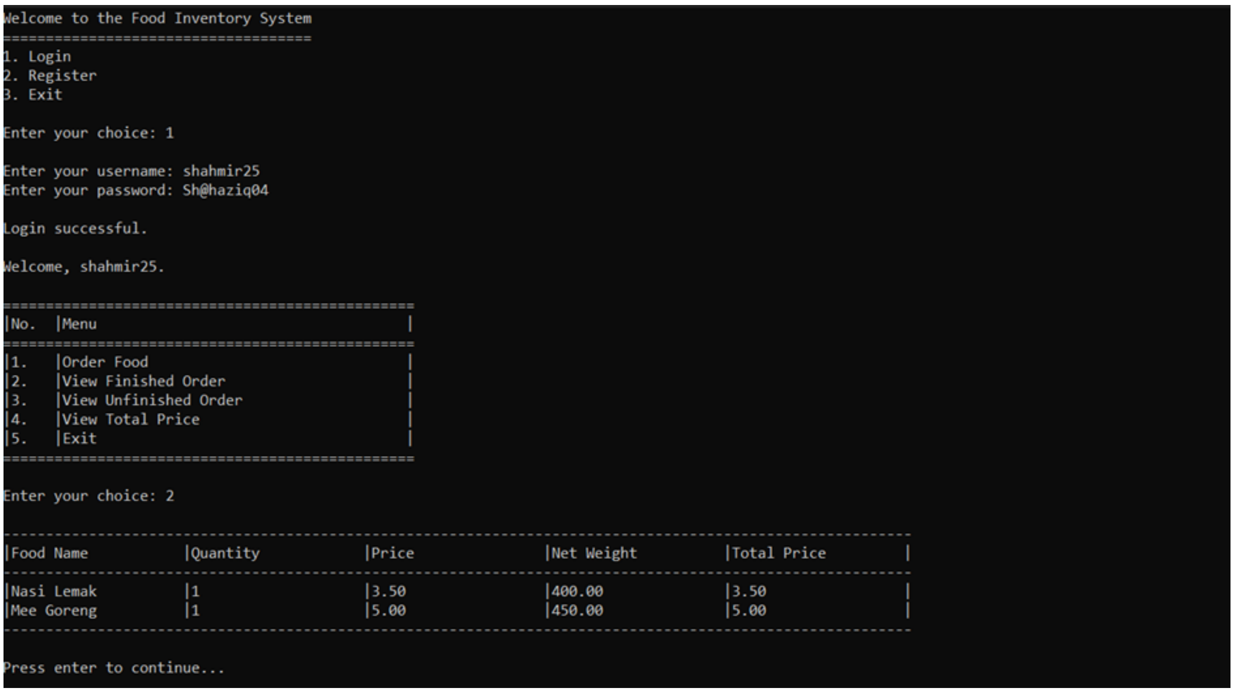
USER INTERFACE



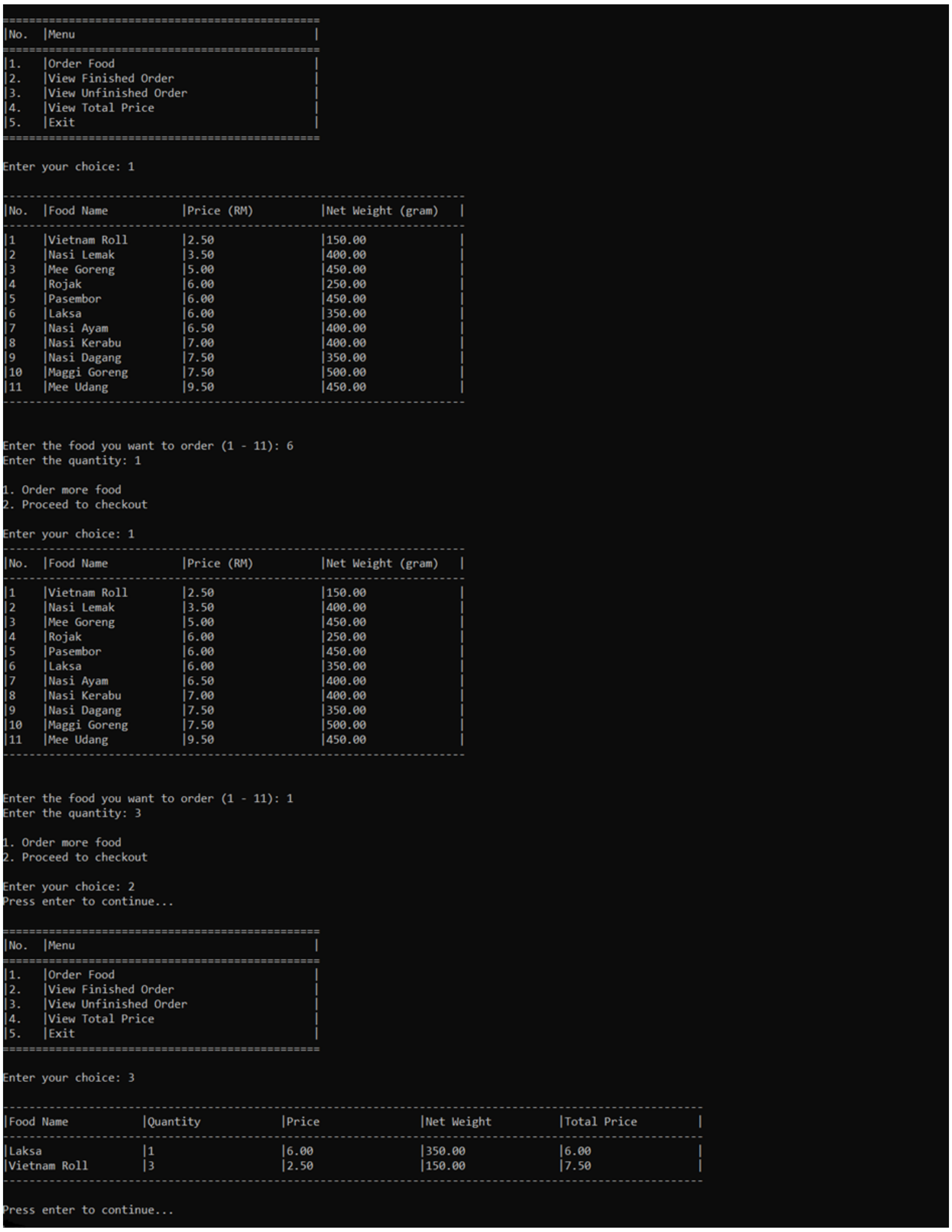
```
Welcome to the Food Inventory System
====================================
1. Login
2. Register
3. Exit

Enter your choice: 1

Enter your username: shahmir25
Enter your password: Sh@haziq04

Login successful.

Welcome, shahmir25.

================================================
|No.  |Menu                                     |
================================================
|1.   |Order Food                               |
|2.   |View Finished Order                      |
|3.   |View Unfinished Order                    |
|4.   |View Total Price                         |
|5.   |Exit                                     |
================================================

Enter your choice: 1

----------------------------------------------------------------------
|No.  |Food Name          |Price (RM)          |Net Weight (gram)   |
----------------------------------------------------------------------
|1    |Vietnam Roll       |2.50                |150.00              |
|2    |Nasi Lemak         |3.50                |400.00              |
|3    |Mee Goreng         |5.00                |450.00              |
|4    |Rojak              |6.00                |250.00              |
|5    |Pasembor           |6.00                |450.00              |
|6    |Laksa              |6.00                |350.00              |
|7    |Nasi Ayam          |6.50                |400.00              |
|8    |Nasi Kerabu        |7.00                |400.00              |
|9    |Nasi Dagang        |7.50                |350.00              |
|10   |Maggi Goreng       |7.50                |500.00              |
|11   |Mee Udang          |9.50                |450.00              |
----------------------------------------------------------------------


Enter the food you want to order (1 - 11): 2
Enter the quantity: 1

1. Order more food
2. Proceed to checkout

Enter your choice: 1
```



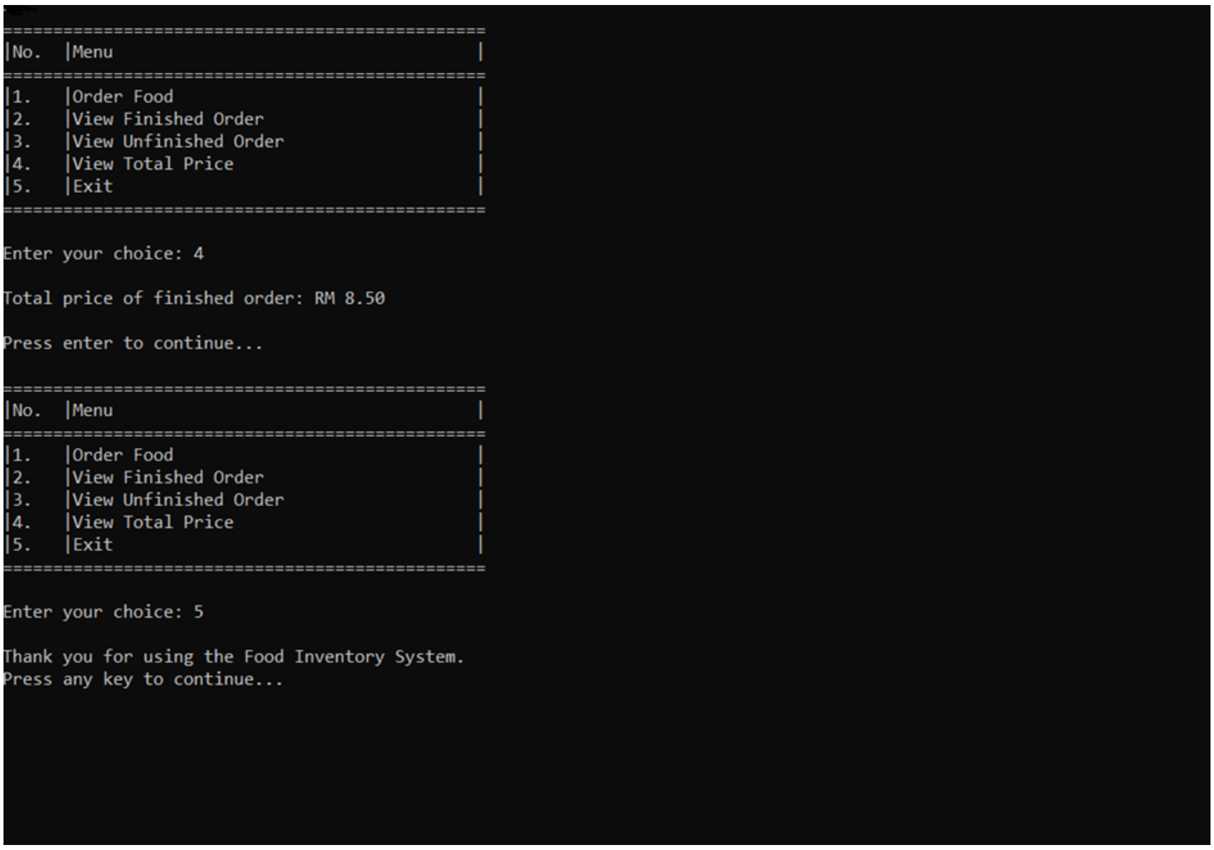
```
----------------------------------------------------------------------
|No.  |Food Name          |Price (RM)          |Net Weight (gram)   |
----------------------------------------------------------------------
|1    |Vietnam Roll       |2.50                |150.00              |
|2    |Nasi Lemak         |3.50                |400.00              |
|3    |Mee Goreng         |5.00                |450.00              |
|4    |Rojak              |6.00                |250.00              |
|5    |Pasembor           |6.00                |450.00              |
|6    |Laksa              |6.00                |350.00              |
|7    |Nasi Ayam          |6.50                |400.00              |
|8    |Nasi Kerabu        |7.00                |400.00              |
|9    |Nasi Dagang        |7.50                |350.00              |
|10   |Maggi Goreng       |7.50                |500.00              |
|11   |Mee Udang          |9.50                |450.00              |
----------------------------------------------------------------------


Enter the food you want to order (1 - 11): 3
Enter the quantity: 1

1. Order more food
2. Proceed to checkout

Enter your choice: 2
Press enter to continue...

================================================
|No.  |Menu                                     |
================================================
|1.   |Order Food                               |
|2.   |View Finished Order                      |
|3.   |View Unfinished Order                    |
|4.   |View Total Price                         |
|5.   |Exit                                     |
================================================

Enter your choice: 3

------------------------------------------------------------------------------------------------------
|Food Name          |Quantity           |Price              |Net Weight         |Total Price        |
------------------------------------------------------------------------------------------------------
|Nasi Lemak         |1                  |3.50               |400.00             |3.50               |
|Mee Goreng         |1                  |5.00               |450.00             |5.00               |
------------------------------------------------------------------------------------------------------

Press enter to continue...

================================================
|No.  |Menu                                     |
================================================
|1.   |Order Food                               |
|2.   |View Finished Order                      |
|3.   |View Unfinished Order                    |
|4.   |View Total Price                         |
|5.   |Exit                                     |
================================================

Enter your choice: 5

Thank you for using the Food Inventory System.
Press any key to continue...
```



```
Welcome to the Food Inventory System
====================================
1. Login
2. Register
3. Exit

Enter your choice: 1

Enter your username: shahmir25
Enter your password: Sh@haziq04

Login successful.

Welcome, shahmir25.

================================================
|No.  |Menu                                    |
================================================
|1.   |Order Food                              |
|2.   |View Finished Order                     |
|3.   |View Unfinished Order                   |
|4.   |View Total Price                        |
|5.   |Exit                                    |
================================================

Enter your choice: 2

----------------------------------------------------------------------------------------------------------
|Food Name          |Quantity           |Price              |Net Weight         |Total Price         |
----------------------------------------------------------------------------------------------------------
|Nasi Lemak         |1                  |3.50               |400.00             |3.50                |
|Mee Goreng         |1                  |5.00               |450.00             |5.00                |
----------------------------------------------------------------------------------------------------------

Press enter to continue...
```



```
================================================
|No.  |Menu                                    |
================================================
|1.   |Order Food                              |
|2.   |View Finished Order                     |
|3.   |View Unfinished Order                   |
|4.   |View Total Price                        |
|5.   |Exit                                    |
================================================

Enter your choice: 1

----------------------------------------------------------------------
|No.  |Food Name           |Price (RM)          |Net Weight (gram)   |
----------------------------------------------------------------------
|1    |Vietnam Roll        |2.50                |150.00              |
|2    |Nasi Lemak          |3.50                |400.00              |
|3    |Mee Goreng          |5.00                |450.00              |
|4    |Rojak               |6.00                |250.00              |
|5    |Pasembor            |6.00                |450.00              |
|6    |Laksa               |6.00                |350.00              |
|7    |Nasi Ayam           |6.50                |400.00              |
|8    |Nasi Kerabu         |7.00                |400.00              |
|9    |Nasi Dagang         |7.50                |350.00              |
|10   |Maggi Goreng        |7.50                |500.00              |
|11   |Mee Udang           |9.50                |450.00              |
----------------------------------------------------------------------


Enter the food you want to order (1 - 11): 6
Enter the quantity: 1

1. Order more food
2. Proceed to checkout

Enter your choice: 1
----------------------------------------------------------------------
|No.  |Food Name           |Price (RM)          |Net Weight (gram)   |
----------------------------------------------------------------------
|1    |Vietnam Roll        |2.50                |150.00              |
|2    |Nasi Lemak          |3.50                |400.00              |
|3    |Mee Goreng          |5.00                |450.00              |
|4    |Rojak               |6.00                |250.00              |
|5    |Pasembor            |6.00                |450.00              |
|6    |Laksa               |6.00                |350.00              |
|7    |Nasi Ayam           |6.50                |400.00              |
|8    |Nasi Kerabu         |7.00                |400.00              |
|9    |Nasi Dagang         |7.50                |350.00              |
|10   |Maggi Goreng        |7.50                |500.00              |
|11   |Mee Udang           |9.50                |450.00              |
----------------------------------------------------------------------


Enter the food you want to order (1 - 11): 1
Enter the quantity: 3

1. Order more food
2. Proceed to checkout

Enter your choice: 2
Press enter to continue...

================================================
|No.  |Menu                                    |
================================================
|1.   |Order Food                              |
|2.   |View Finished Order                     |
|3.   |View Unfinished Order                   |
|4.   |View Total Price                        |
|5.   |Exit                                    |
================================================

Enter your choice: 3

--------------------------------------------------------------------------------------------------------
|Food Name           |Quantity            |Price               |Net Weight          |Total Price         |
--------------------------------------------------------------------------------------------------------
|Laksa               |1                   |6.00                |350.00              |6.00                |
|Vietnam Roll        |3                   |2.50                |150.00              |7.50                |
--------------------------------------------------------------------------------------------------------

Press enter to continue...
```



```
================================================
|No.  |Menu                                     |
================================================
|1.   |Order Food                               |
|2.   |View Finished Order                      |
|3.   |View Unfinished Order                    |
|4.   |View Total Price                         |
|5.   |Exit                                     |
================================================

Enter your choice: 4

Total price of finished order: RM 8.50

Press enter to continue...

================================================
|No.  |Menu                                     |
================================================
|1.   |Order Food                               |
|2.   |View Finished Order                      |
|3.   |View Unfinished Order                    |
|4.   |View Total Price                         |
|5.   |Exit                                     |
================================================

Enter your choice: 5

Thank you for using the Food Inventory System.
Press any key to continue...
```

10.0 REFERENCES

Stack Overflow, (4 December 2013), Casting Objects in Java. Accessed on 17 July 2023, obtained from https://stackoverflow.com/questions/5306835/casting-objects-in-java

Stack Overflow, (6 December 2015), “What is the use of System.in.read()?”. Accessed on 17 July 2023, obtained from https://stackoverflow.com/questions/15446689/what-is-the-use-of-system-in-read

Stack Overflow, (23 August 2011), “When/Why to call System.out.flush() in java?”. Accessed on 17 July 2023, obtained from https://stackoverflow.com/questions/7166328/when-why-to-call-system-out-flush-in-java

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Stack Overflow, (14 June 2009), Java 256-bit AES Password-based Encryption. Accessed on 17 July 2023, obtained from https://stackoverflow.com/questions/992019/java-256-bit-aes-password-based-encryption