SKOMS: Self-Service Kiosk and Order Management System

Presented to the
School of Electrical, Electronics, and Computer Engineering
of Mapúa University
Muralla Street, Intramuros, Manila 1002 Philippines

In Partial Fulfillment
of the Requirements for the Course
CPE104L Data Structures and Algorithms

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EVALUATION SHEET

	Presentation Quality (20%)	Data Structures (30%)	Documentation (20%)	Teamwork (30%)	Total
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Project Overview

1. General Overview

The implementation of self-ordering kiosks is an effective means of simplifying the ordering process while reducing instances of communication errors and wait times for customers. The use of this technology renders physical queues unnecessary as customers can comfortably await their turn, leading to an overall enhanced experience.

In addition, introducing a listed queueing management system streamlines the process and improves communication between customers and employees. The ultimate aim of this project is to optimize employee efficiency, reduce waiting times, and enhance the overall customer experience. The Belgian Waffle, located within the university, can serve as a suitable sample scope for effective implementation.

2. Technical Overview

The Technical Overview of the Project highlights that the system will employ CLR .NET Framework GUI in Visual Studio. The project's primary objective is to simulate the roles of a customer and cashier, which will be presented in the Flowchart. The system will execute the self-ordering process for customers, and the queuing system for cashiers.

To enhance convenience, the group resolved to change the program's approach. Instead of utilizing the queuing system based on the order number provided by the kiosk, the group followed Sir Cruz's recommendation to prioritize orders that are easier to fulfill compared to other orders.

3. Project Objectives

The objective of the project is required to be met which must lead to program’s functionality and serve the users with effectivity and efficiency. The objectives of the project are the following:

- **Enhance Overall Customer Experience** – Provides customers a user-friendly interface to easily place orders, reducing wait time and improves overall satisfaction.
- **Improve Manpower and Employee Productivity** – Employees can work seamlessly and efficiently, while reducing labor costs and physical strain of entertaining customers.

- **Establish Clear and Orderly Communication** – Allows customers to directly input their preferences, resulting in precise orders and effective communication between the cashier and customer.

Flowchart

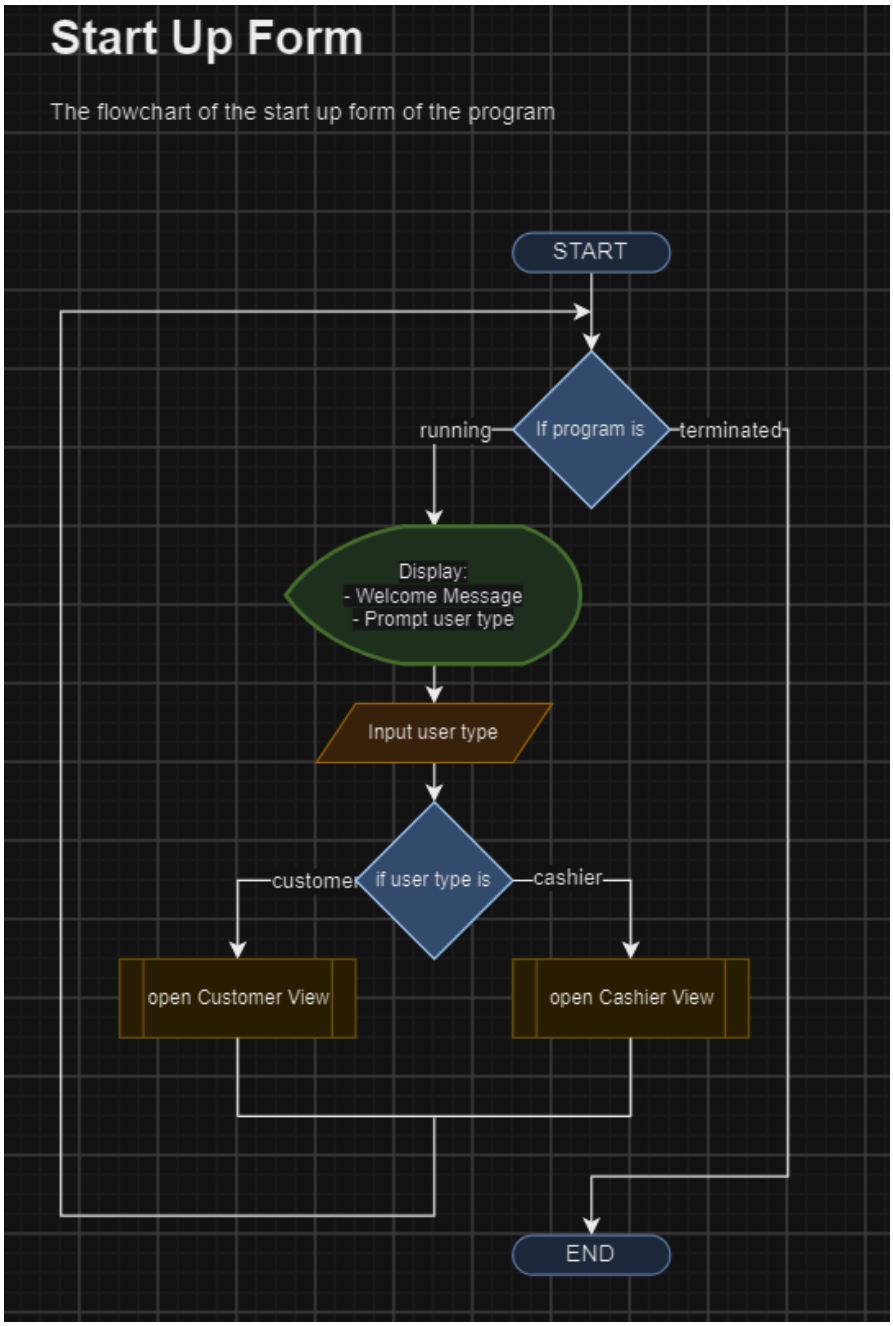

Figure 1. Flowchart of the main program

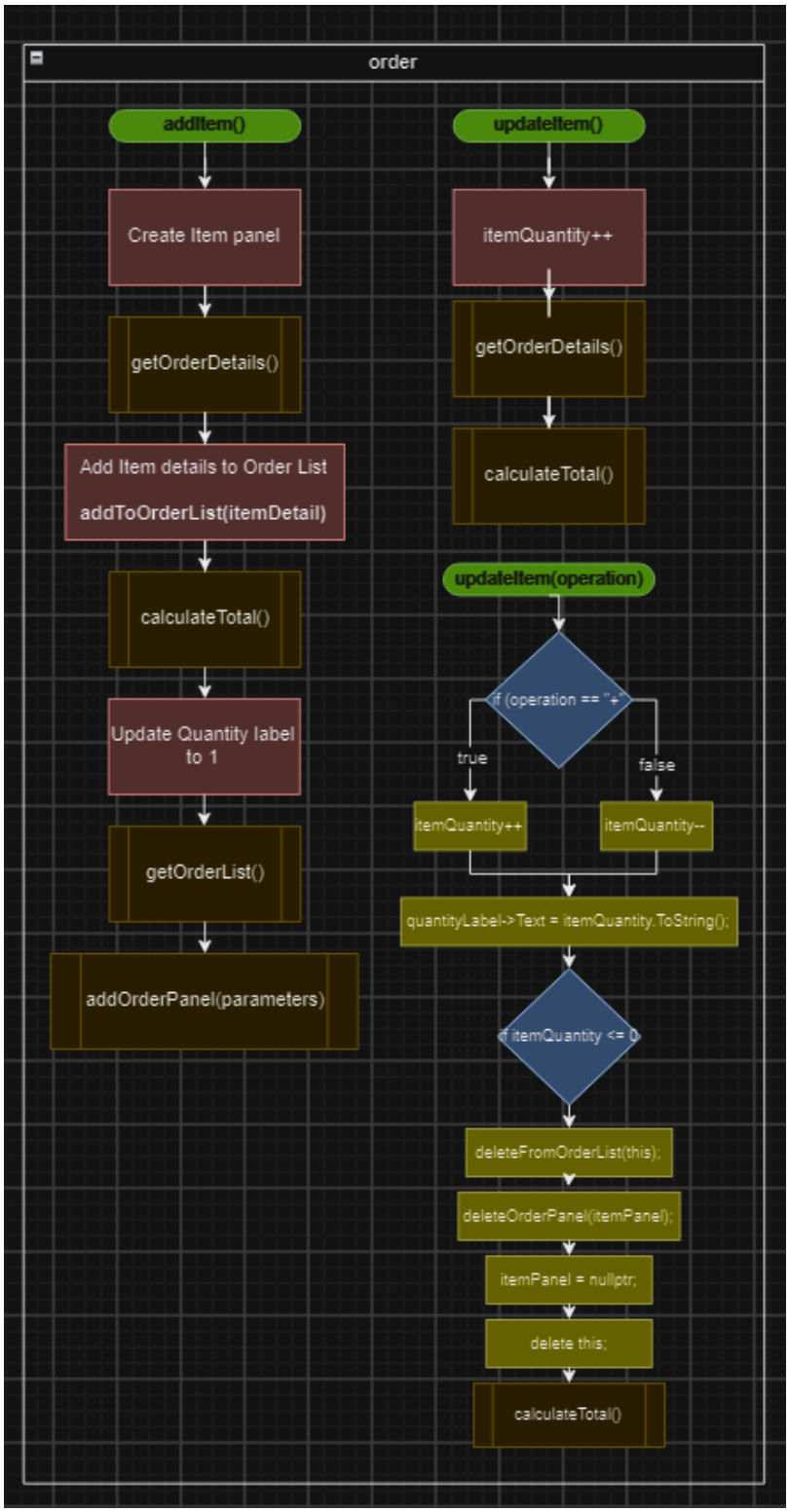

Figure 2. Flowchart of the functions under Order

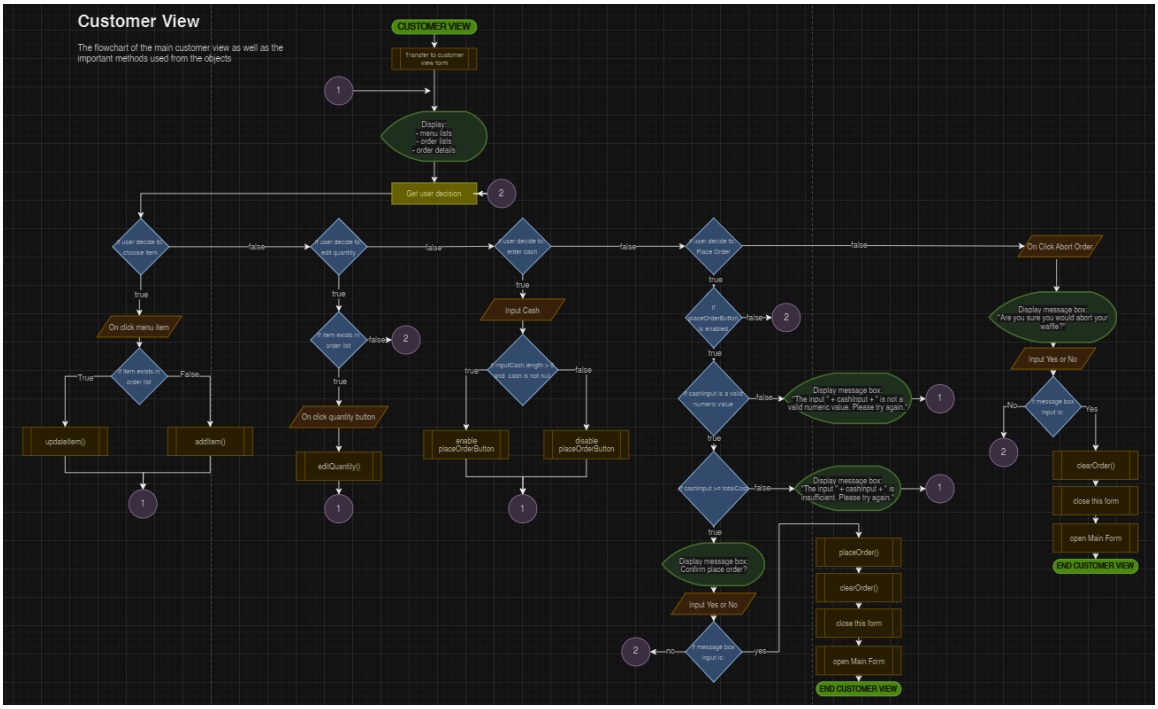

Figure 3. Flowchart of the Customer's View

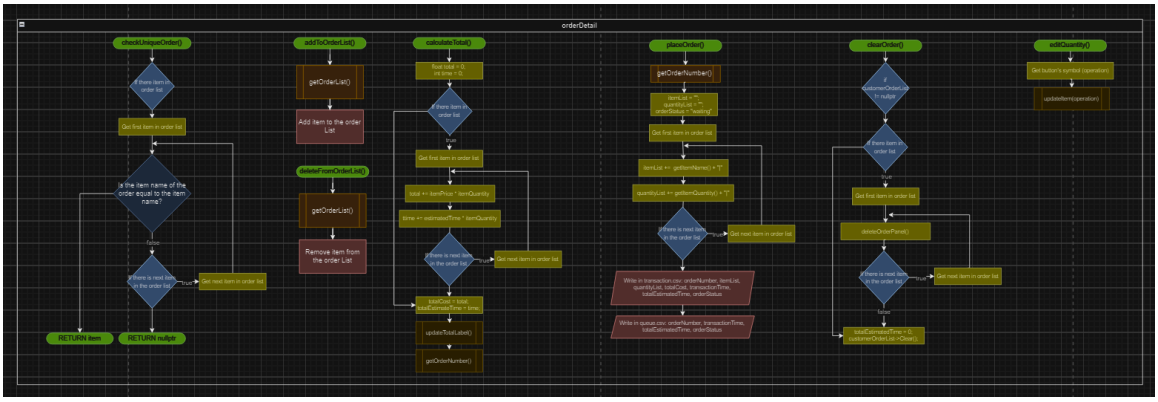

Figure 4. Flowchart of functions under OrderDetails

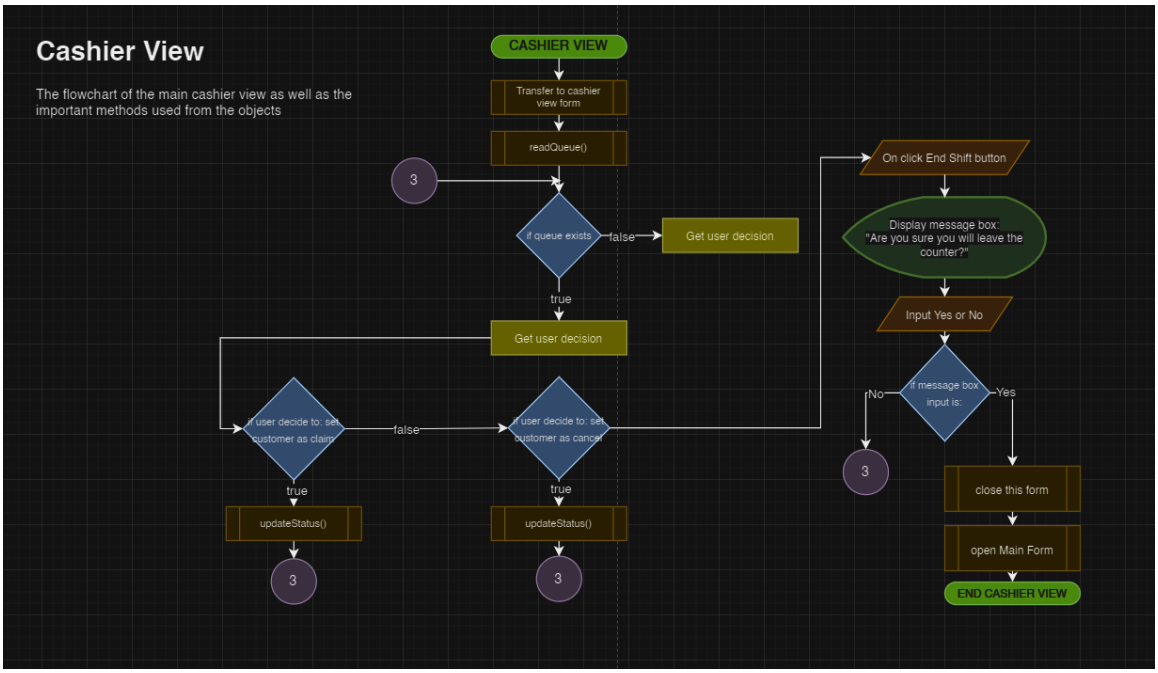

Figure 5. Flowchart of the Cashier's View

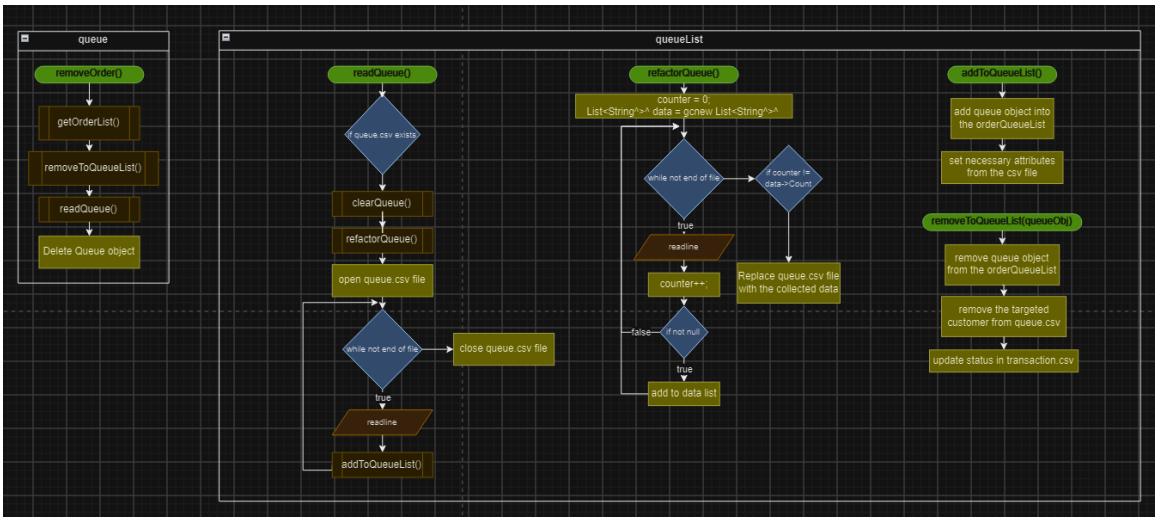

Figure 6. Flowchart of functions under Queue and QueueList

FINAL PROJECT FEATURES

The project must be able to exhibit the following features:

1. Intuitive UI The program features an easy-to-navigate UI that can seamlessly guide its users through its various functionalities.
2. Order Number Generation This automatically assigns a unique number to a customer upon order finalization.
3. CRUD Implementation Utilizes operations such as Create, Read, Update, and Delete which are essential when it comes to managing customer orders.
4. Cashier/Customer View The program simulates two different important roles that aids the self-ordering kiosk and queue management system to be functional.
5. Order History Logging Records and stores customer transactions providing a comprehensive overview of customer order history.

CRUD Implementation

Create

- Upon accessing the program, meticulous records are kept of each customer interaction and transaction. This ensures that all information is accurately and comprehensively documented for future reference.
- Customers will be prompted to input essential details of their order and transaction, such as the items to be ordered. Once finished the program will then print the total cost, the order number, and the timestamp of the transaction.

Read

- After a transaction has been recorded, the system will promptly collect all relevant details and append the order number to the queue. Furthermore, the system will generate two files: one with a record of all transaction logs and the other exhibiting the queue transactions that will feature the order number for an organized display of the items in the queue.

Update

- After the customer finishes their transaction, the cashier will provide them with an order number that corresponds to their place in the queue. This helps the customer to easily recognize their order and receive updates when it is ready.
- After the order is fulfilled and available for pick up, the cashier updates the customer's order status. Subsequently, a receipt is generated, displaying all transaction details provided at the beginning of the program when prompted.

Delete

- Once an order has been picked up or canceled, the system then efficiently removes all associated order numbers and details. This is done to prevent any unnecessary information from cluttering our system and causing potential data overload.

The undersigned hereby attests that all these features will be showcased during the final submission of the project. Failure to do so will merit the project to not be accepted.

Azrael C. Anonas **Godwyn Summer J. Mercado**

John Mark S. Lopez

Date Signed: 09/27/23 Noted by Professor