Food Ordering System Report

I. Introduction

The Food Ordering System is a practical application that makes it easy to order food, manage orders, and handle administrative tasks in a food service setting. This system provides a user-friendly way for customers to pick their favorite food items, place orders, and track their order's progress. Administrators can use the system to control food items, process orders, and manage user accounts effectively.

The main purpose of this application is to make food ordering quicker and more convenient for customers and administrators. It uses modern technology and smart organization to create a smooth and user-focused experience.

In this report, we'll explore the Food Ordering System in detail, talking about its features, how it's set up, the tools it uses to manage data, and how users interact with it. We'll also give you step-by-step directions on how to use the application and show you pictures to help you understand how it works.
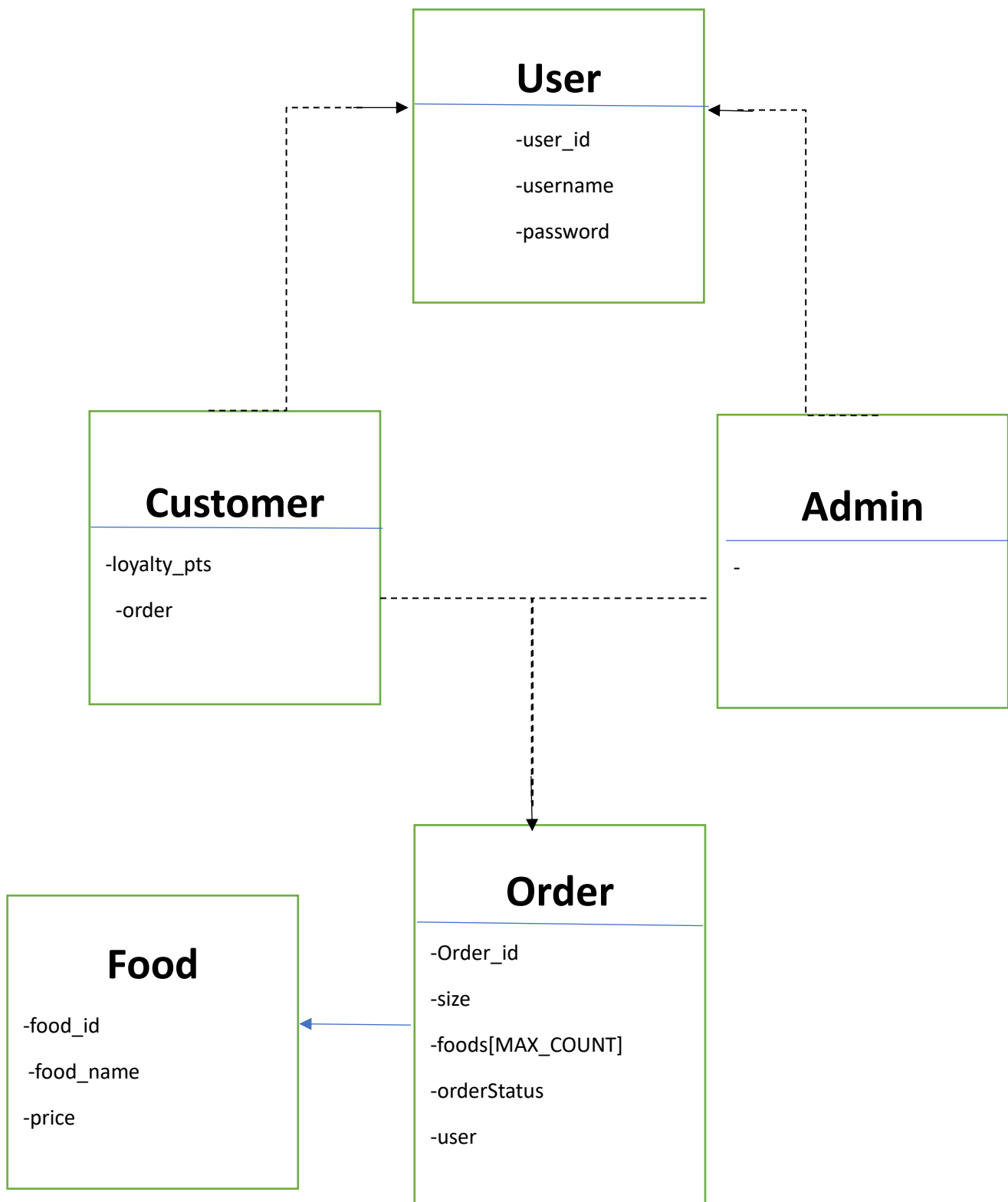
By the end of this report, you'll have a good understanding of the Food Ordering System and how it simplifies the process of ordering food while being easy for customers and helpful for administrators.

II. Running the Application

To use the Food Ordering System, follow these simple steps:

1. **Starting the Application**: When you run the application, you'll see a menu with options for users and administrators. Choose the appropriate option by entering the corresponding number.

2. **User Login or Registration**: If you're a user, you'll either log in with your existing username and password or register if you're new to the system. Follow the on-screen prompts to complete this step.

3. **User Interaction**: Once logged in, users can explore the food list, create orders, check order status, and even cancel an order if needed. The system will guide you through these options.

4. **Admin Interaction**: If you're an administrator, you'll have access to different tasks like viewing the food list, managing orders, updating order statuses, managing users, adding food items, and awarding loyalty points. Select the desired task from the admin menu.

5. **Logging Out**: Users and administrators can log out whenever they're done using the system.

III. Class Diagram

User

- -user_id
- -username
- -password

Customer

- -loyalty_pts
- -order

Admin

- -

Food

- -food_id
- -food_name
- -price

Order

- -Order_id
- -size
- -foods[MAX_COUNT]
- -orderStatus
- -user

IV. Selection of Data Structures and Algorithms

The Food Ordering System employs carefully chosen data structures and algorithms to ensure efficient and organized operations. Here are the key selections:

Data Structures:

1. **Binary Search Tree (BST):**

   - Used to store and manage food items in the menu.

   - Provides efficient search and insertion operations for food items.

   - Supports alphabetical ordering of food items.

2. **Queue:**

   - Utilized for managing orders in different states.

   - Helps maintain order processing order, e.g., pending orders, orders in the kitchen.

   - Facilitates first-in-first-out (FIFO) behavior, suitable for order processing.

Algorithms:

1. **Binary Search:**

   - Employed to search for specific food items efficiently within the BST.

   - Reduces search time logarithmically as the menu size increases.

2. **Dynamic Casting:**

   - Utilized for handling different user types (Customer and Admin).

   - Enables runtime type identification and appropriate type-specific operations.

3. **Object-Oriented Programming (OOP) Principles:**

   - Applied to ensure modularity, encapsulation, and inheritance.

   - Enhances code organization, readability, and maintainability.

4. **State Change Logic:**

   - Used to manage order status changes.

   - Allows smooth progression of orders through various states (e.g., pending to preparing).

The chosen data structures and algorithms ensure efficient data management, quick searches, and proper order handling in the Food Ordering System.

V. User Guides

The following user guides provide step-by-step instructions for users interacting with the Food Ordering System:

Customer User Guide:

1. **Login/Register:**

   - Learn how to log in or register as a customer.

2. **Browse Food List:**

   - Understand how to view the available food items in the menu.

3. **Create an Order:**

   - Follow the process of creating a new order, selecting food items, and confirming the order.

4. **Check Order Status:**

   - Find out how to check the status of your current order.

5. **Cancel Order:**

   - Learn how to cancel a pending order if needed.

6. **Logout:**

   - Discover how to log out of the system securely.

Admin User Guide:

1. **Login:**

   - Learn how to log in as an admin.

2. **Browse Food List:**

   - Understand how to view the available food items in the menu.

3. **Add Orders to Kitchen:**

   - Follow the process of moving pending orders to the kitchen for preparation.

4. **Update Order Status:**

   - Learn how to update the status of orders (preparing, ready, etc.).

5. **See Registered Users:**

   - Find out how to view a list of registered users.

6. **Add Food Item to List:**

- Discover how to add new food items to the menu.

7. **Give Loyalty Points:**

   - Understand how to reward users with loyalty points.

8. **Logout:**

   - Learn how to log out of the system securely.

Each user guide provides clear and concise instructions for specific tasks within the Food Ordering System, ensuring smooth navigation and usage for both customers and administrators.