**International Islamic University, Islamabad**

**Faculty of Engineering and Technology**

**Department of Electrical and Computer Engineering**



**Data Structure and Algorithm**

**Project Report: FOODPANDA 2.0**

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1. **Introduction**

FOODPANDA 2.0 aims to develop a prototype online food delivery platform that competes with FOODPANDA by offering lower prices and CLI a user-friendly ordering experience. The project focuses on showcasing a simplified model with one restaurant, emphasizing affordability and efficient service to attract customers seeking economical food delivery options.

Objective: The project focuses on creating a simplified version of a food delivery platform that allows users to view menus, place orders, and display total bills.

**2. System Overview**

**Features:**

* Display Menu: Users can view available food items with their prices.
* Place Order: Users can select items from the menu and place orders.
* Display Order and Total Bill: Users can see their current order and the total bill before checkout.
* Exit: Option to exit the program.

**Components:**

* Menu Management: Stores and displays available food items and their prices.
* Order Management: Tracks user orders, calculates the total bill, and displays the current order status.
* User Interface: Simple command-line interface (CLI) for user interaction.

**3. Implementation Details**

**Data Structures Used:**

* Linked List: Implemented for both menu items and orders to efficiently manage and store data.
* Structures: MenuItem and Order structures to represent menu items and user orders, respectively.

**Functionality:**

* Add Menu Items: Allows adding new menu items with prices dynamically.
* Place Order: Users can select items from the menu to add to their order.
* Display Order: Shows the current order and calculates the total bill.

**Memory Management:**

* Dynamically Allocated Memory: Used for menu items and orders, with proper deletion in the destructor to prevent memory leaks.

**4. Challenges Faced**

* Input Handling: Ensuring robust input handling to prevent invalid inputs from crashing the program.
* Order Management: Managing the complexity of adding, displaying, and deleting orders while ensuring data integrity.

**5. Future Enhancements**

* User Accounts: Implement user accounts to store order history and preferences.
* Enhanced Menu Features: Allow filtering, sorting, and searching within the menu.
* Integration with Payment Gateways: Enable secure online payment options for orders.

**6. Conclusion**

* The FOODPANDA clone project provides a foundational model for a food delivery system that competes with existing platforms by offering a simplified yet functional service at lower costs.
* The project demonstrates Core functionalities of menu management, order placement, and bill calculation, paving the way for future expansions and enhancements.

**7. Acknowledgments**

* The project was completed with the support of learning resources on data structures, C++ programming, and software design principles.

**8. References**

* Course materials on data structures and algorithms.
* Online documentation and forums for C++ programming.