Project Design Description, Implementation, and Functionality

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Ashesi University

CS213_B Object Oriented Programming

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April 3, 2024.

Title: ASHESI MEALS HUB

Introduction: At Ashesi University, we observed that students face challenges in ordering food as a result of long queues and time constraints. Students sometimes develop ulcers, malaria, and certain sicknesses because they have little time to spare and are anxious to work on beating deadlines. Hence, they skip meals. In some cases, they could be very hungry but could not afford to journey through the long queue to purchase food at the expense of their deadlines.

Description: Analyzing this problem, we devised the idea of developing a program to streamline this process for students and faculty. In this project, we focus on streamlining the food ordering process for students, faculty, and the Ashesi community. This program aims to allow every member of Ashesi to purchase their favorite meal with just a click. When a user logs on to the platform, they can select the cafeteria from which they wish to purchase. From there, they will be able to view the menu of this cafeteria and place their order in the comfort of their rooms or locations. If they wish the food to be delivered to them or to pick it up when it is ready, they could indicate it.

The program currently comprises five classes: Customer class, Order class, Cafeteria class, OnCampusCafeteria, and OffCampusCafeteria classes.

Customer class: This class represents the application's student/faculty user. It has attributes like customerName and customerID. This class allows the customers to interact with the Order class to place their various orders. The customer class uses the order class, thereby establishing an Association relationship between them.

Order class: This class represents an order placed by a customer. It has attributes such as customerName, customerContact (the customer's phone number), studentID, mealIndex, and drinkIndex. The mealIndex and drinkIndex are pointers to the corresponding items within the menus offered by the cafeterias. The class also has methods like Order (name: String, mealindex: int, drinkindex: int), a constructor that creates an order object with a customer name, meal index, and drink index. Other overloaded constructors include Order(name: String, mealindex: int) and Order(name: String, drinkindex: int), allowing the creation of orders with just a meal or drink selection.

Cafeteria class: This class represents a cafeteria on campus. It has attributes such as cafeteriaName, managerName, managerContact, and arrays for orders, drinksMenu, and mealsMenu. The class also has methods to add and remove drinks from the menu and display the drinks and meals menu, likely allowing admins to update the menus. The Cafeteria class and the Order class, has an Aggregation relationship.

OnCampusCafeteria and **OffCampusCafeteria class:** These classes are subclasses of the cafeteria class. They represent cafeterias located on campus or off campus. However, no inheritance hierarchy is specified between these subclasses and the base cafeteria class.

Finally, the program incorporates **File I/O** and **Java Graphic user interface (GUI).** The File I/O would serve as a database for keeping track of orders. The Java GUI would create an interactive interface for the user to place their orders.

All your favorite cafeterias in one click.

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The link to the LucidChart web page for our UML diagram sketch for the program.

https://lucid.app/lucidchart/e2164786-1b63-454e-a2b7-66867c8ce870/edit?viewport_loc=796%2C932%2C5808%2C3220%2C0_0&invitationId=inv_e0f2801c-a61e-4e9d-953b-28ebce56646a

A snapshot of the UML sketch of the project.