Department of Computing and Information System
Course Title: Structured Programming with Lab
Course Code: CIS 122 & 122L
Assignment: Fall 2024

Assignment Title: Delicious Eats Food Delivery Management System

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Scenario

Amina and **Samir** were the best of friends. Amina had just completed a course in structured programming from Daffodil International University and was now an expert in C programming. One day, Samir told her about his father's restaurant, "**Delicious Eats**," which still maintained a **manual process** to track orders and deliveries. They wanted to automate the system, and Samir recommended Amina's name to his father.

Amina interviewed for the job and was hired by "Delicious Eats" to develop a food delivery management system. The restaurant had a variety of dishes, and customers could place orders for delivery. Amina's task was to develop a system that allowed customers to order food and also allowed the restaurant staff to manage orders and deliveries.

The system should have the following functionalities:

- **Add new dishes:** The system should allow staff to add new dishes to the menu along with their name, description, price, and preparation time.
- **Modify existing dishes:** The system should allow staff to modify the details of existing dishes in the menu.
- **Delete dishes:** The system should allow staff to delete dishes from the menu.
- **Place orders:** The system should allow customers to place orders for specific dishes. Each order should have a unique identifier (e.g., O101, O102, O103), and customers should be able to select the dishes they want to order.
- **Cancel orders:** The system should allow customers to cancel their orders.
- **Display all dishes:** The system should display a list of all the dishes in the menu along with their details.
- **Display all orders:** The system should display a list of all the orders for a specific dish.
- **Sales report.**

To implement this system, you need to use structures to represent the dishes and orders. Each dish should have a name, description, price, preparation time, and a list of order statuses. Each order should have the customer's name, address, contact number, and the dish they have ordered. You should also use file handling to store the dish and order data in separate files. The system should read the data from the files when it starts up and write the data back to the files when the staff adds, modifies, or deletes dishes and when customers place or cancel

orders. You should also use functions to implement the different functionalities of the system. For example, you can create a function to add a new dish to the menu, a function to modify an existing dish, a function to delete a dish, a function to place an order, and so on.

Finally, you should create a user interface to make the system easy to use. You can use the command-line interface to get user input and display the results.

There will be two types of users: admin and customers.

Admin Panel:

- Add dish information
- Update dish information
- Delete dish information
- View all dishes
- Search for dishes
- View sales report

User Panel:

- View dish information
- Place an order
- Cancel an order
- View all orders
- Search for dishes

Amina was excited about this project, and she got to work right away. She spent hours analyzing the requirements of the restaurant and the customers, and after careful consideration, she designed an efficient system that would make the ordering process much simpler.

With Amina's system, customers could easily select the dishes they wanted and place their orders from the comfort of their homes. They could also view the available dishes and choose their preferred items. The restaurant staff could easily manage the orders, and they could even view the details of all the orders made so far.

Amina's system was a huge success, and "Delicious Eats" saw an increase in their sales. The customers were happy as they could now easily order their favorite dishes, and the restaurant staff was pleased as they could efficiently manage the orders without any hassle. Samir was also proud of his friend, and he knew that she had done an excellent job in developing the food delivery management system for his father's restaurant. The friendship still remains the same as before. **Friendship is a precious thing**.

Theory Part Marks: 32

Task – 1

1. Draw a flowchart diagram and pseudocode for the admin panel. [7]

2. Draw a flowchart diagram and pseudocode for the customer panel. [5]

Task – 2

1. What data structure will you use in the program to handle dishes and orders? Explain why you chose that data structure. [4]

2. Prepare a project plan that contains the requirements list for this project and your plan on how you will satisfy the requirements. [4]

3. Write pseudocode that will be used to calculate the total revenue generated from orders. [4]

4. How does memory management play a role in the structured programming design of the food delivery system? Would dynamic memory allocation be necessary for handling orders, and how would you avoid memory leaks in such a system? [5]

Task – 3

1. Explain what you have learned. How could your system be improved or further developed? [3]

Lab Part Marks: 23

You are expected to use a combination C programming language to create this application.

Task – 1

Develop the administration system which requires:

1. Password to access. [2]
2. Create dish information. [2]
3. Store the information into a file. [3]
4. Display dish information. [2]
5. Delete a dish. [2]
6. Sales report. [3]

Task – 2

Develop the customer panel containing the following:

1. Search for a dish. [2]
2. Place an order. [3]
3. Cancel an order. [2]
4. Display all orders. [2]

Analytical Part Marks: 5

1. Please prepare a short video regarding this semester's project theory and lab part explaining what you have done. [3]

2. VIBA [2]

Submission Requirements

1. **Deadline: 27th November 2024**

2. You have to submit a Word document for the theory part. And your document structure should be like:

    a. Introduction
    b. Your tasks
    c. Conclusion
    d. Please remember to cite if you collect information from any sources & include a reference.

3. You need to submit the c program file, object file and the executable file for the lab part.

4. Make a zip file including your theory part and lab part and upload it.

5. Your file must be named like this -> **ID_Name_SP_Spring_2023. For example, xxxxxxx_Amina_SP_Summer_2021**

6. **Deadline is fixed; no excuses will be considered if you miss the deadline.**

7. **Any kind of plagiarism will be severely penalized.**