IS370: Data Transmission and Computer Networks
King Saud University
Spring 2024 (Deadline: 11:59pm on May 1st, 2024)
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Food Delivery Network Application (Project Assignment)

Objective

The objective of this project is to develop a client-server food delivery network application using Python socket programming. The application will allow clients to act as either owners or customers, with the server functioning as a restaurant. The project will consist of two stages:

- **Owner Stage:** Owners will be able to add or modify menu items, with each menu item consisting of a food item and its corresponding price. The menu data will be saved in a file in non-volatile memory. Owners will only be granted the privilege of adding/changing menu items after successfully exchanging their username and password with the server.
- **Customer Stage:** When a customer connects to the server, the restaurant will provide a menu of food items retrieved from the file. The customer will select desired food items along with their respective quantities and send this order back to the server. The server will calculate the total price based on the customer's order. The customer will then confirm their intention by providing a delivery address to the restaurant. Finally, the restaurant will send a confirmation message acknowledging receipt of the order.

Project Components

- **Server (`server.py`):**
  - Handles client connections and communication.
  - Manages menu data, including loading from and saving to a file.
  - Authenticates owners and grants privileges accordingly.
  - Calculates total order prices and manages order confirmation.
- **Client (`client.py`):**
  - Allows clients to act as owners or customers.
  - Facilitates owner authentication and menu item management.
  - Provides customers with the menu, handles ordering, and confirms orders.

Deliverables

- Two source codes (well-annotated) - `server.py` and `client.py`.
- Final report, including:
  - Explanation of the code structure and functionality (especially lines of code related to sockets).
  - Description of the data structures used.
  - Explanation of where data is stored, emphasizing the utilization of a file in non-volatile memory for menu storage.
  - Instructions on how to use your code to run a complete use case.
  - Results of running a complete use case, including adding a menu by the owner and ordering food by a customer.
  - Consideration of error cases and how they are handled, with screenshots included where possible for clarity.

The project assignment can be done by groups of 3 students.