Documentation of C Program: Restaurant System

1. Struct Definitions

FoodData

Represents a food item in the menu.

- **Fields:**
  - foodName: Name of the food item.
  - foodCategory: Category of the food (e.g., dessert, main course).
  - foodPrice: Price of the food item.
  - foodStock: Quantity of the food item in stock.
  - prev and next: Pointers for a doubly linked list.

BasketItem

Represents an item in the user's basket.

- **Fields:**
  - foodName: Name of the food item.
  - quantity: Quantity of the food item.
  - price: Price per unit.
  - next: Pointer for a singly linked list.

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2. Helper Functions

LargeTitleRestaurant()

- Displays a large ASCII art title for the restaurant.

LargeTitleMenu()

- Displays a decorative menu title using ASCII art.

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3. Menu and Food Item Management Functions

createNode()

- Creates a new node for FoodData.
- **Parameters:**

    - name: Name of the food item.
    - category: Category of the food.
    - price: Price of the food item.
    - stock: Stock of the food item.
- **Returns:** A pointer to the newly created node.

insertAtEnd()

- Adds a new FoodData node to the end of the linked list.
- **Parameters:**
    - head: Pointer to the head of the linked list.
    - Other parameters: Details of the new food item.

deleteNode()

- Removes a node from the linked list based on the food name.
- **Parameters:**
    - head: Pointer to the head of the linked list.
    - name: Name of the food item to be deleted.

editNode()

- Edits the details of a food item by its name.
- **Parameters:**
    - head: Pointer to the head of the linked list.
    - name: Name of the food item to be edited.
    - newCategory, newPrice, newStock: Updated details.

displayForward()

- Displays all items in the menu in a forward sequence.

getMenuSize()

- Counts the total number of items in the menu.

convertMenuToArray()

- Converts the menu linked list into an array for easier sorting.

sortMenu()

- Sorts the menu array based on the user's choice (name, price, or stock).

displayMenuBySorting()

- Displays the menu grouped by categories and sorted by user preference.

displayMenuByCategory()

- Displays menu items grouped by their categories.

freeList()

- Frees all nodes in the FoodData linked list.

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4. File Operations

loadFromFile()

- Loads menu data from a file into the doubly linked list.
- **Parameters:**
    - filename: Name of the file.

saveToFile()

- Saves the linked list back into a file.

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5. Basket Management

displayBasket()

- Displays all items in the user's basket, including quantities and total cost.

displayBasketByFoodName()

- Groups basket items by food name and displays them.

addToBasket()

- Adds an item to the basket.
- **Parameters:**
    - basket: Pointer to the basket linked list.
    - Other parameters: Food name, quantity, and price.

handleAddToBasket()

- Adds an item to the basket and updates the food stock.

- **Parameters:**
    - head: Pointer to the menu linked list.
    - basket: Pointer to the basket linked list.

removeFromBasket()

- Removes an item from the basket by its name.

freeBasket()

- Frees all nodes in the basket linked list.

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6. Menu Interfaces

adminMenu()

- Provides a menu for administrators to:
    - View the menu.
    - Add, edit, or delete food items.
    - Exit to the main menu.

userMenu()

- Provides a menu for users to:
    - View the menu.
    - Add or remove items to/from the basket.
    - View the basket.
    - Checkout and pay.
    - Exit.

LandingMenu()

- Displays the main menu, allowing users to:
    - Enter the user menu.
    - Access the admin menu using a secret key.
    - Exit the program.

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7. Main Function (main)

- Loads menu data from a file.
- Runs the main menu (landing menu).
- Frees memory before exiting.