Computer & Assembly Language

Final Semester Project

Department of Computer Sciences

Desi Restaurant Management System in Assembly Language – Documentation

Submitted By

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Overview

This project is a **desi restaurant management system** developed in Assembly language using MASM (Microsoft Macro Assembler). It simulates a text-based interface where users can browse food and drink menus, place orders, and calculate total costs based on the quantity of selected items. The project demonstrates core Assembly language concepts such as user input handling, data processing, and modular code design.

Functional Breakdown

1. Main Menu Display

The program begins by displaying a welcome message and a menu with four categories:

- **Breakfast Menu**
- **Lunch Menu**
- **Dinner Menu**
- **Drinks Menu**

Users are prompted to select a category to view detailed items and their prices. An option to return to the main menu is available after each operation.

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2. User Input and Validation

- **Input Handling:** User inputs are captured using INT 21H with AH=1.
- **Validation:** Inputs are compared with predefined valid options. If invalid, an error message is displayed, and the program returns to the main menu.

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3. Menu Details and Order Placement

Each menu category displays the available items with prices. Users can:

- Select items by their numeric identifiers.
- Specify the quantity.
- Calculate and display the total price based on the selected item and quantity.

Example Menus:

- **Breakfast Menu:**
  - Paratha: 10/-
  - Payee: 60/-
- **Lunch/Dinner Menu:**
  - Chicken Biryani: 50/- (Single)
- **Drinks Menu:**
  - Coffee: 5/-

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4. Price Calculation

Price calculation involves:

- Multiplying the item price by the selected quantity.
- Converting the result into ASCII format for display.
- Displaying the calculated total alongside the order summary.

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5. Navigation and Error Handling

After order placement:

- The user is prompted to either return to the main menu or exit the program.
- Invalid options trigger a retry mechanism with appropriate error messages.

Code Flow and Execution

Initialization

- **Data Segment:** The program initializes data using MOV AX, @DATA and MOV DS, AX.

Menu Navigation

- The main menu serves as a hub, directing the user to subroutines for each category. Modular design ensures maintainability.

Input Validation

- Menu inputs are validated using CMP instructions to ensure only valid selections are processed.

Total Calculation and Display

- ASCII conversion of totals is achieved using the AAM instruction for dividing binary results into ASCII values.

Limitations

1. **Static Content:** Menu options and prices are hardcoded.
2. **Input Flexibility:** The system only accepts single-character numeric inputs.
3. **Error Handling:** Limited to predefined scenarios, with no robust validation for invalid data formats.

Conclusion

This Assembly language project showcases the implementation of a **basic desi restaurant management system** with interactive features and dynamic price calculations. Despite its simplicity, the project effectively applies core Assembly programming principles, providing a solid foundation for understanding low-level programming.
