**User Manual for Mess Management System**

**Introduction**

The Mess Management System is a console-based application designed to efficiently manage the operations of a mess, including member management, expense tracking, and meal accounting. This manual provides step-by-step instructions for using the system. The Mess Management System is a comprehensive software tool for managing mess operations, including member details, expenses, investments, and meal tracking. This system is user-friendly and streamlines the calculation of bills and expense tracking.

**Getting Started**

**System Requirements**

* Operating System: Windows
* Compiler: GCC or any C++ compiler
* Terminal or Command Prompt

**Running the System**

1. Run the .exe file.(Mess\_Management.exe)
2. Use the menu to navigate through the system.
3. Ensure the users.txt file exists. If not, it will be created automatically upon registering the first user.

**Features Overview**

* **User Authentication: Secure login and registration system.**
* **Member Management: Add, view, remove members, and update investments.**
* **Expense Management: Record and view expenses.**
* **Meal Management: Add and view meal details.**
* **Bill Calculation: Automatically calculate meal rates and individual member bills.**
* **File-Based Storage: Persist data across sessions using external files.**

**Main Menu Options**

**1. Login**

* **Purpose**: Authenticate existing users.
* **Steps**:
  1. Select the Login option.
  2. Enter your username and password.
  3. Upon successful login, you can access other features.
  4. Wait 3 second after successful login.

**2. Register**

* **Purpose**: Register a new user.
* **Steps**:
  1. Select the Register option.
  2. Provide a unique username and password.
  3. The system will save your credentials for future login.
  4. Wait 3 second after successful register.
* Note: You must log in to access features beyond registration.

**3. Add Member**

* **Purpose**: Add a new member to the mess.
* **Steps**:
  1. Select the Add Member option.
  2. Enter the member’s ID, name, and contact information.
  3. The system initializes the member’s meal count and investment as zero.
  4. Wait 3 second after successfully adding member.

**4. View Members**

* **Purpose**: Display a list of all mess members.
* **Steps**:
  1. Select the View Members option.
  2. The system will show details such as ID, name, contact, meal count, and investment.
  3. Press ‘q’ to reset screen after viewing.

**5. Remove Member**

* **Purpose**: Delete a member from the system.
* **Steps**:
  1. Select the Remove Member option.
  2. Enter the ID of the member to be removed.
  3. Wait 3 second after successfully removing member.

**6. Add Investment**

* **Purpose**: Update a member’s investment.
* **Steps**:
  1. Select the Add Investment option.
  2. Enter the member ID and the investment amount.
  3. The system updates the member’s investment record.
  4. Wait 3 second after successfully adding investment.

**7. Add Expense**

* **Purpose**: Record a new expense for the mess.
* **Steps**:
  1. Select the Add Expense option.
  2. Enter the date, description, and amount.
  3. The system saves the expense.
  4. Wait 3 second after successfully adding expense.

**8. View Expenses**

* **Purpose**: Display all recorded expenses.
* **Steps**:
  1. Select the View Expenses option.
  2. The system shows details such as date, description, and amount.
  3. Press ‘q’ to reset screen after viewing.

**9. Add Meal**

* **Purpose**: Record meals consumed by a member.
* **Steps**:
  1. Select the Add Meal option.
  2. Enter the member ID, date, and number of meals.
  3. The system updates the member’s meal count.
  4. Wait 3 second after successfully adding meal.

**10. View Meals**

* **Purpose**: Display the meal records.
* **Steps**:
  1. Select the View Meals option.
  2. The system shows details such as member ID, date, and number of meals.
  3. Press ‘q’ to reset screen after viewing.

**11. Calculate Bill**

* **Purpose**: Calculate and display bills for all members.
* **Steps**:
  1. Select the Calculate Bill option.
  2. The system calculates the meal rate (total expenses/total meals).
  3. Displays each member’s bill based on their meal count.
  4. Press ‘q’ to reset screen after viewing.

**12. Manage Member Expense**

* **Purpose**: Calculate net expenses for each member.
* **Steps**:
  1. Select the Manage Member Expense option.
  2. The system calculates the total bill, deducts the investment, and displays the net expense.
  3. Press ‘q’ to reset screen after viewing.

**13. Exit**

* **Purpose**: Exit the application.
* **Steps**:
  1. Select the Exit option.
  2. The system will terminate.
  3. Will clear the screen after 3 seconds.
  4. Until you press any key it will not terminate completely.

**Error Handling**

* **Invalid Input**: The system displays a message and prompts the user to re-enter a valid choice.
* **File Not Found**: Ensure the required data files (members.txt, expenses.txt, meals.txt, users.txt) exist in the same directory as the executable.

**Data Files**

1. **users.txt**: Stores user credentials.
2. **members.txt**: Stores member details.
3. **expenses.txt**: Stores expense records.
4. **meals.txt**: Stores meal records.

**Troubleshooting**

* **Unable to Log In: Check if your username and password are correct. Ensure the users.txt file exists and contains your credentials.**
* **File Errors: Ensure all required files are in the same directory as the executable.**
* **Incorrect Data: Verify data entries before saving.**

**FAQs**

1. **Can I recover a deleted member?** No, once a member is removed, the data is permanently deleted.
2. **How are meal rates calculated?** Meal rates are calculated as Total Expenses / Total Meals.
3. **Can multiple users use the system?** Yes, but each user must log in with their credentials.

**Contact Support**

**For further assistance, contact the developer:**

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**Thank you for using the Mess Management System! We hope it simplifies your mess operations.**