Exchange Store Application

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Purpose

- Simulates daily operations of a currency exchange office
- Helps cashiers and managers:
- - Perform transactions
- - Check/update exchange rates
- - Issue receipts & daily reports
- No internet dependency → works offline

Scope & Features

- Currency exchange (full & partial)
- Update exchange rates dynamically
- Manage reserves (deposit/withdraw funds)
- Set minimum reserve levels
- Generate receipts for each transaction
- End-of-day profit & balance reports

System Structure

- main.cpp → Entry point, controls program flow
- currency_manager.cpp/hpp → Core logic for managing currencies, rates, and reserves
- utils.cpp/hpp → Input validation, formatting, and helper functions
- Heap objects used for secure memory management

Execution Flow

- Program starts → Main menu
- User selects an action (exchange, show rates, manage reserves)
- System validates input (via utils)
- CurrencyManager updates data structures
- Receipt generated → transaction recorded
- At exit → end-of-day report printed

User Stories

- As a user, I want to convert one currency into another so that I can understand exchange values.
- As a user, I want to view the current exchange rates so that I can make informed financial decisions.
- As a manager, I want to update exchange rates manually so that I can work with the latest data.
- As a user, I want to input an amount of money and see the converted value so that I can plan my expenses.
- As a mana, I want to see historical exchange rates so that I can analyze trends over time.
- As a user, I want to handle invalid inputs gracefully so that I don’t experience application crashes.
- As a user, I want the program to support multiple currencies so that I can use it globally.

Conclusion

- A complete simulation of an exchange office
- Modular design: easy to extend with new currencies or features
- Clear educational value:
- - Combines business logic + programming practices
- - Demonstrates input validation, memory safety, and reporting