Group Project Report

Central University of Ecuador
Faculty of Engineering and Applied Sciences

Group Project Report

Members:
Jaren Tuarez - Edison Auquilla

Date:
June 24, 2024

Teacher:
Ing. Juan Pablo Guevara

Title of the Project:
Digital Wallet

Objective:
To develop, using scientific and empirical knowledge acquired in class, and technological tools such as Netbeans Apache, launh4j and GitHub, a system that simulates a digital wallet allowing the user to record their daily transactions, which can be purchases or sales.

Main Components:
Our program will have the following components:

- A field to enter the amount to be managed.
- Buttons to choose the type of transaction to be carried out.
- Automatic auto-save in a table where each of the transactions with unique characteristics will be recorded.
- Display of the total value of the wallet by adding the income and subtracting the total expenses.

Each transaction will have:

- A unique transaction ID that cannot be repeated.
- Specification of the type of transaction carried out.
- Recording date of the transaction in the format YYYY-MM-DD HH.
- Specification of the value of the transaction carried out.

Functional Requirements:

1. Wallet initialization: The digital wallet must start with a balance of 100 dollars.
2. Transaction registration: The program must allow the user to enter the amount of a transaction and select whether it is a purchase or a sale.

3. Automatic Generation of unique data: The program must record each transaction in a table containing the following columns:
   o Unique ID of the transaction.
   o Type of transaction (purchase or sale).
   o Date of the transaction.
   o Transaction amount.
4. Balance update: For each purchase transaction, the amount must be deducted from the wallet balance. For each sale transaction, the amount must be added to the wallet balance.
5. Balance display: The program should display the total wallet balance after each transaction.

Non-Functional Requirements:

1. Usability: The program interface should be intuitive and easy to use, with clear instructions for the user on how to make transactions.
2. Performance: The program must be able to process and record transactions quickly, without noticeable delays.
3. Security: The program must ensure that transactions are recorded correctly and the wallet balance is updated accurately. Measures should be implemented to prevent incorrect entries, such as negative amounts or non-numeric characters in the transaction amount.
4. Scalability: The program must be able to handle a large number of transactions without loss of performance and information.
5. Compatibility: The program must be compatible with multiple operating systems, including Windows, macOS, and Linux.

Conclusions and Benefits of the Digital Wallet Program:

1. Ease of Financial Management:
   o Transaction Tracking: Allows users to keep a detailed record of all their purchase and sale transactions, making it easy to track and manage their finances.
   o Automatic Recording: The automation of transaction recording eliminates the need for manual records, reducing the possibility of human error.
2. Transparency and Control:
   o Updated Balance: Provides a clear and up-to-date view of the wallet balance at all times, helping users make informed decisions about their spending and savings.
   o Transaction History: Maintains a detailed and organized history of all transactions, useful for personal review and audit.
3. Convenience and Time Savings:
   o Simplified Process: Simplifies the process of recording purchases and sales, making it fast and efficient.
   o Easy Access: Allows access to financial information and carry out transactions from a single platform, saving time and effort.
4. Security:
   o Error Prevention: Implements validation measures to ensure that transactions are recorded correctly, preventing errors such as the entry of negative amounts.

- o Access Control: May include security features to protect the user's financial information, such as passwords or two-factor authentication.
5. Flexibility:
    - o Scalability: The ability to handle a large number of transactions allows the digital wallet to grow with the user's needs.
    - o Multiplatform Compatibility: Can be used on different operating systems, providing flexibility and accessibility from various devices.
6. Analysis and Reports:
    - o Report Generation: The ability to generate financial reports based on transaction history can help users analyze their spending habits and better plan their finances.
7. Improved Financial Planning:
    - o Budgeting: Helps users create and follow personal budgets, improving their ability to manage their personal finances effectively.
    - o Financial Goals: Makes it easy to track progress toward specific financial goals, such as saving for a major purchase or reducing debt.

Implementing this program not only improves the user's financial management but also provides a powerful tool to maintain control of their finances safely and efficiently.

References Used:

W3Schools. JavaScript tutorial. https://www.w3schools.com/js/default.asp

D-Coding Games. Basic guide to using NetBeans. https://dcodingames.com/guia-basica-para-usar-netbeans/

Youtube. Complete NetBeans course. https://www.youtube.com/watch?v=W-j26e71t-o