Expense Tracker With Monthly Analytics

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Abstract

The Expense Tracker application is a Java-based project developed during an internship at Elevate Labs. It is designed to help users manage personal finances effectively by providing functionalities such as adding, updating, and deleting expenses. The application features both a Command-Line Interface (CLI) and a JavaFX-based Graphical User Interface (GUI). Data persistence is ensured through MySQL integration, while CSV-based analytics and pie chart visualization offer clear insights into spending patterns.

Introduction

Managing personal expenses manually can be tedious and error-prone, often leading to poor financial planning. To address this, the Expense Tracker project provides an automated and user-friendly solution for tracking daily expenses. Developed during an internship at Elevate Labs, this application combines the flexibility of a Command-Line Interface (CLI) with the intuitiveness of a JavaFX-based Graphical User Interface (GUI). It supports essential operations like adding, updating, and deleting expense records while ensuring persistent storage through a MySQL database. Additionally, the system generates analytical insights by exporting data to CSV and visualizing spending patterns using pie charts, making financial management simpler and more effective.

Tools Used

- **Programming Language:** Java
- **Framework:** JavaFX (for GUI development)
- **Database:** MySQL (with JDBC for connectivity)
- **Data Handling:** ArrayList for in-memory operations
- **Analytics:** CSV export and Pie Chart visualization
- **IDE:** IntelliJ IDEA / Eclipse
- **Version Control:** Git & GitHub
- **Build Tool:** Maven

Steps Involved in Building the Project

1. **Requirement Analysis:** Identified features like add, update, delete, and view expenses.
2. **CLI Development:** Implemented basic CRUD operations using **ArrayList** for runtime data handling.
3. **Database Integration:** Connected the application to **MySQL** via **JDBC** for persistent storage.
4. **GUI Design:** Developed an intuitive **JavaFX interface** for user interaction.

5. **Analytics Module:** Exported expense data to **CSV** and implemented **Pie Chart visualization**.
6. **Testing:** Verified CRUD operations, database synchronization, and GUI responsiveness.
7. **Deployment:** Packaged the application and maintained source code using **GitHub**.

Conclusion

The Expense Tracker application successfully demonstrates an efficient approach to managing personal expenses by integrating CLI and GUI functionalities with persistent data storage. The addition of CSV-based analytics and pie chart visualization enhances financial insights. Future improvements could include user authentication and category-based reports for better usability.