

■ Project Report: Expense Tracker

1. Introduction

The Expense Tracker is a desktop-based Java application designed to help users efficiently manage and analyze their daily expenses. It provides features to add, update, delete, and view expenses in a tabular form, along with powerful search, filtering, and visualization tools. The application uses Java Swing for the graphical interface, MySQL for data storage, MySQL Connector/J for database connectivity, and JFreeChart for visualization.

2. Objectives

- Provide a user-friendly tool for tracking personal or business expenses.
- Implement CRUD operations (Create, Read, Update, Delete).
- Allow searching and filtering of expenses by keyword.
- Provide data visualization using charts.
- Enhance user experience with themes and a welcome screen.

3. Technologies & Tools Used

- Programming Language: Java (JDK 8+)
- GUI Library: Swing
- Database: MySQL
- Connector: MySQL Connector/J
- Charting Library: JFreeChart
- IDE: Eclipse / IntelliJ / NetBeans
- OS Compatibility: Windows, Linux, macOS

4. System Design

The project follows a three-layer architecture:

1. Presentation Layer: WelcomeFrame (splash screen), MainFrame (main UI), ChartFrame (charts).
2. Business Logic Layer: Expense (model), ExpenseDAO (data access).
3. Data Layer: Database connection via MySQL Connector/J.

5. Database Schema

Table: expenses

- id (INT, PK, AUTO_INCREMENT)
- date (DATE)
- amount (DECIMAL(10,2))
- category (VARCHAR(50))
- note (VARCHAR(255))

6. Features

Core Features:

- Add, update, delete, and view expenses.
- Search & filter using keywords.

Additional Features:

- Theme switching (Dark/Night).
- Welcome screen with gradient background.
- Charts using JFreeChart.

7. Libraries Used

- MySQL Connector/J → Database connectivity.
- JFreeChart → Charting and visualization.

8. Advantages

- Simple and interactive user interface.
- Persistent storage with MySQL.
- Real-time search and filtering.
- Visual insights for financial planning.
- Cross-platform support.

9. Limitations

- Single-user only (no authentication).
- Manual date entry instead of a date picker.
- Limited chart customization.

10. Future Enhancements

- Add user authentication & profiles.
- Implement export/import (Excel/PDF).
- Add recurring expenses.
- Improve date input with a date picker.
- Deploy as a web or mobile app.

11. Conclusion

The Expense Tracker application successfully integrates Java Swing, MySQL, MySQL Connector/J, and JFreeChart to provide an efficient expense management system. It helps users monitor and analyze their expenses effectively with features like CRUD operations, search, themes, and visual reports.