

INTERNSHIP PROJECT-1 DOCUMENT

ON “EXPENSE TRACKER APPLICATION (JAVA)”

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INTRODUCTION:-

The Expense Tracker Application is a simple console-based Java program designed to help users record and summarize their income and expenses. By leveraging file handling and Java object serialization, the application ensures user data is persistently stored and available for future sessions. The solution is intended for those who want a basic tool to track their finances without relying on complex or external databases.

SOFTWARE REQUIREMENTS:-

Programming Language: Java (JDK 8 or higher)

IDE: VS Code, IntelliJ IDEA, or any Java-compatible editor

Libraries: Uses only Java Standard Library APIs (I/O, Serialization)

Operating System: Platform-independent (Windows, Linux, Mac)

Other Requirements: No external dependencies; runs from the command line

DESIGN:-

The application is structured around the following components:

Transaction Model: Represents a single financial action (income or expense) with amount, description, and type.

ExpenseTracker Main Class: Handles user input, program logic, and data persistence.

Persistence: All transactions are saved and loaded using Java's object serialization to a binary .ser file.

User Interaction: Console-based menu system for adding transactions and displaying summaries.

INPUT:-

```
+-----+
| ExpenseTracker |
+-----+
| 1. Add Income   |
| 2. Add Expense  |
```

| 3. Show Summary |

| 4. Exit |

+-----+

All user actions are accessible via simple numerical commands from the terminal.

IMPLEMENTATION:-

The application contains a Transaction class for storing entry details (amount, description, and isExpense flag).

On startup, it loads transaction data from a .ser file (if present).

Users can add income or expense transactions, which are immediately kept in memory.

On exit, all transactions are serialized and saved, ensuring persistence.

The summary function calculates and displays total income, total expenses, and net balance.

The application runs in a continuous loop until the user chooses to exit.

TESTING:-

The application was tested as follows:

Manual Input Testing: Entered multiple incomes and expenses to check correct storage and calculations.

Persistence Validation: Restarted the program to verify data loading from the .ser file.

Edge Cases: Tested with zero and negative amounts (input validation recommended).

Menu Flow: Ensured all options work as intended and incorrect inputs are handled gracefully.

File Corruption: Checked robust error handling by deleting or corrupting the .ser file.

ADVANTAGES:-

Simplicity: Easy to use and understand, suitable for beginners.

Portability: Works on any system with a Java runtime.

Data Persistence: Uses serialization to keep data between sessions.

No External Dependencies: Runs without external libraries or database setup.

Expandable: Logic can be easily adapted for more features (categories, export, etc.).

CONCLUSION:-

This Expense Tracker demonstrates essential programming concepts such as file handling, object serialization, and command-line interaction. The project helped reinforce knowledge of Java basics, error handling, and software modularity. It provides a foundational tool for personal finance tracking and can serve as a template for more advanced systems.

REFERENCES:-

GeeksForGeeks: Java Tutorials

JavaTPoint: Java Serialization and File Handling

Oracle Documentation: Official Java Documentation