Expense Tracker Algorithm

1. Define Classes and Their Relationships:

✓ Expense Class:

Attributes: date, amount, category, description.

Methods: Constructor, getters, and setters.

✓ Category Class:

Attributes: name, description.

Methods: Constructor, getters, and setters.

✓ ExpenseTracker Class:

Attributes: List of expenses, List of categories.

Methods: addExpense(), addCategory(), getMonthlyReport(), loadExpensesFromFile(), saveExpensesToFile().

2. Design GUI Using Swing:

✓ Create main window with tabs or panels for:

Adding Expenses.

Categorizing Expenses.

Viewing Monthly Reports.

✓ Add forms and input fields for expense details.

✓ Add buttons for actions like "Add Expense", "Add Category", "Generate Report".

3. Implement Adding and Categorizing Expenses:

Create methods in ExpenseTracker class to add expenses and categories.

Update GUI to call these methods and display confirmation messages or error messages.

4. Implement Exception Handling:

Validate user inputs (e.g., ensure amount is a number, date is in correct format).

Handle exceptions gracefully and show error dialogs to users.

5. Generate Monthly Reports:

Implement logic to filter expenses by month and category.

Display report in the GUI with total expenses per category and overall.

6. File Operations:

Implement saveExpensesToFile() to write expenses data to a file.

Implement loadExpensesFromFile() to read expenses data from a file and populate the expenses list.

7. Testing and Debugging:

Test each functionality (adding expenses, categorizing, generating reports).

Handle edge cases and unexpected inputs.

Ensure data is correctly saved and loaded from files.