Project Report: Monthly Expense Tracker

1. Introduction

The **Monthly Expense Tracker** is a premium mobile and desktop application developed using the Flutter framework. It is designed to provide users with a seamless and visually appealing way to manage their personal finances, including income and expenses. The app focuses on simplicity, performance, and a modern aesthetic.

2. Key Features

- **Transaction Management**: Effortlessly log income and expenses with titles, amounts, and dates.

- **Categorization**: Transactions are organized into intuitive categories (e.g., Food, Transport, Bills, Health, Education) for better financial clarity.

- **Real-time Summaries**: Live calculations of Total Income, Total Expenses, and Net Balance.

- **Premium UI (Glassmorphism)**: A state-of-the-art design featuring dark mode, glass effects, and smooth animations.

- **Offline Reliability**: Powered by a robust SQLite database for local storage, ensuring data is always accessible without an internet connection.

- **Cross-Platform Support**: Optimized for both Android and Windows desktop environments.

3. Technical Stack

- **Framework**: [Flutter](#) (Material 3)

- **Programming Language**: Dart

- **Database**: [SQLite](#) (via `sqflite` and `sqflite_common_ffi`)

- **Key Packages**:
    - `path` : For file system path manipulation.

    - `intl` : For date and number formatting.

    - `google_fonts` : For modern typography.

4. Architecture & Structure

The project follows a modular architecture for scalability and maintainability:

- `lib/models/` : Defines the data structures for `Expense` and `Category` .

- `lib/database/` : Contains the `DatabaseHelper` class, managing all SQL operations (CRUD).

- `lib/screens/` : UI layers for the Dashboard (`HomeScreen`) and Entry Form (`AddExpenseScreen`).

- `lib/widgets/` : Reusable UI components like `ExpenseCard` and `SummaryCard` .

- `lib/theme/` : Centralized styling, including the dark theme and glassmorphism definitions.

5. Database Schema

The SQLite database (`expense_tracker.db`) consists of two primary tables:

`categories`

- `id` : Primary Key (Integer)

- `name` : Category name (Text)

- `icon_code` : Material icon identifier (Integer)

- `color_value` : Hex color code (Integer)

`expenses`

- `id` : Primary Key (Integer)

- `title` : Transaction title (Text)

- `amount` : Financial value (Real)

- `category_id` : Foreign Key referencing `categories` (Integer)

- `date` : Transaction date (ISO String)

- `type` : 'income' or 'expense' (Text)

- `description` : Optional notes (Text)

6. UI/UX Design

The application leverages **Material 3** and custom **Glassmorphism** styling. The "Glass Card" effect is achieved using `BackdropFilter` with blur and subtle gradients, creating a premium, modern feel that stands out from standard utility apps.

7. Future Roadmap

- **Data Visualization**: Interactive pie charts and bar graphs for spending trends.

- **Budgeting**: Setting monthly limits for specific categories.

- **Exporting**: Ability to export data to CSV or PDF for financial reviews.

- **Cloud Sync**: Optional synchronization across devices.

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