

KHAN INSTITUTE OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

EXPENSE TRACKER MOBILE APPLICATION

Android App Development

Project Proposal

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0.1 Project Overview:

The Expense Tracker is a cross-platform mobile application developed using React Native and Expo. The project aims to provide users with a digital solution to monitor their daily financial health by recording income and expenditures in real-time. The app ensures data persistence and security by utilizing a Node.js backend connected to a PostgreSQL database.

0.2 Problem Statement:

Many individuals find it difficult to maintain financial discipline because they lack a systematic way to track small, frequent expenses. Manual bookkeeping is often ignored or forgotten, leading to an unclear understanding of monthly savings and cash flow. There is a significant need for an intuitive mobile application that automates financial summaries and helps users stay within their budgets.

0.3 Objectives:

0.3.1 User Authentication:

To implement a secure login and registration system to protect private financial data.

0.3.2 Transaction Management:

To enable users to create, view, and delete financial records with ease.

0.3.3 Automated Summaries:

To provide real-time calculations of Total Balance, Total Income, and Total Expenses.

0.3.4 Cross-Platform Accessibility:

To ensure the application runs smoothly on both Android and iOS devices using the Expo framework.

0.4 Technical Stack:

0.4.1 Frontend:

React Native (Expo) for building the native mobile interface.

0.4.2 Backend:

Node.js and Express.js for managing RESTful API endpoints.

0.4.3 Database:

PostgreSQL for reliable and structured relational data storage.

0.4.4 Styling:

NativeWind (Tailwind CSS) for creating a modern and responsive user interface.

0.5 System Functionality (Logic):

The core logic of the application revolves around efficient data processing on the server side:

0.5.1 Aggregation Logic:

The backend uses SQL SUM and COALESCE functions to calculate financial totals accurately, ensuring the user always sees an up-to-date balance

0.5.2 Secure Routing:

User-specific data is protected, ensuring that users can only access and manage their own financial records.

0.5.3 Data Validation:

All transaction inputs (title, amount, category) are validated before being saved to the database to ensure data integrity.

0.6 Expected Outcomes:

Upon completion, the Expense Tracker will offer a robust platform for personal finance management. Users will benefit from a clear, visual representation of their spending habits, helping them reduce unnecessary costs. The project serves as a practical demonstration of full-stack mobile development, integrating a high-performance SQL database with a modern React Native frontend.