Financial Tracker Project

The Financial Tracker Project aims to provide users with an intuitive and efficient way to manage and track their personal finances. This abstract summarizes the project's technical approach, implementation details, and lessons learned throughout the development process.

The Financial Tracker is a web-based application that allows users to add, view, and manage transactions (income and expenses), have an overview of their financial status, including total income, total expenses, and net total, and visualize expenses by category through dynamic charts. The key features of the application include secure user registration and login functionality with hashed passwords, transaction management where users can add details such as type, amount, category, note, and date, financial overview with calculated summaries, and expense visualization with dynamic charts using Chart.js.

The backend development utilized Node.js, Express for the server, and MongoDB to store user data and transactions, and express-session for secure session management. The frontend development used HTML, CSS, and Bootstrap for responsive design, JavaScript for dynamic content loading, and Chart.js for visualizing expenses by category.

Implementation details include handling user authentication with bcrypt hashed passwords, managing transactions through forms and saving them in the database, fetching transactions for the current month and calculating financial summaries, and fetching expenses by category using MongoDB aggregation and rendering charts with Chart.js.

Technical challenges faced during the project included data aggregation, session management, and dynamic data visualization. Solutions involved efficiently using MongoDB's aggregation framework, implementing proper session handling and user authentication checks, and utilizing Chart.js and jQuery for dynamic data fetching and chart rendering.

During this project, the primary challenge stemmed from my limited experience in web application development. This lack of experience made the entire process more challenging, particularly in managing and calculating data. The calculations involved, especially those related to data aggregation and visualization, proved to be the most complex aspect of the project. Navigating the intricacies of MongoDB's aggregation framework and ensuring accurate and efficient data handling were significant hurdles. Despite these challenges, the project provided valuable learning opportunities and insights into the technical aspects of web development.

The Financial Tracker Project successfully provides a robust and user-friendly platform for managing personal finances. By adhering to the initial conception phase proposal and overcoming technical challenges, a comprehensive solution that meets user needs was developed.