

EXPENSE TRACKER

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Abstract

The Expense Tracker is a web-based application designed to help users efficiently manage and monitor their personal financial activities. Traditional methods of recording expenses using notebooks, spreadsheets, or manual calculations can be time-consuming and may lead to inaccurate records. The proposed system provides a centralized platform where users can record, categorize, and analyze their daily income and expenses.

Users can create accounts and securely manage their financial records by adding income, expenses, transaction dates, categories, amounts, and descriptions. Expenses can be categorized into areas such as food, transportation, education, shopping, bills, entertainment, and other personal needs. The system provides a dashboard where users can view their total income, total expenses, available balance, and recent transactions.

The application also generates daily, weekly, and monthly expense summaries and reports. Charts and graphical representations can help users understand their spending patterns and identify categories where they spend the most money. Users can set budgets for different categories and monitor their spending against those limits.

An administrator module can be included to manage users, categories, system settings, and other application activities. The system stores transaction information in a centralized database, making it easier to retrieve, update, and analyze financial records.

I. Introduction

The Expense Tracker is a web-based application developed to help users manage and monitor their personal financial activities in an organized manner. Managing daily expenses manually using notebooks, spreadsheets, or simple notes can be difficult and may result in missing or inaccurate records. The proposed system provides a centralized platform where users can record their income and expenses and monitor their financial activities easily.

The system allows users to create accounts and maintain their financial profiles securely. Users can add transactions by entering details such as amount, date, transaction type, category, and description. Expenses can be classified into different categories such as food, transportation, education, shopping, bills, entertainment, healthcare, and other personal expenses.

The application provides a dashboard that displays important financial information such as total income, total expenses, available balance, recent transactions, and category-wise spending. This helps users quickly understand their current financial situation without performing manual calculations.

The system also provides searching, filtering, and transaction management facilities. Users can edit or delete incorrect transactions and view their previous financial records whenever required. Monthly and yearly summaries can be generated to help users analyze their spending behavior over time.

II. Literature Survey

The Expense Tracker project is based on research and developments in personal finance management, expense recording, budgeting systems, financial analytics, and intelligent recommendation technologies. Traditional expense management methods generally rely on notebooks, spreadsheets, calculators, and manually maintained records. These approaches can make it difficult to maintain accurate transaction histories and understand long-term spending patterns.

Early personal finance management systems focused on digitizing income and expense records. These systems allowed users to enter transactions manually, assign categories, and calculate balances automatically. Digital record keeping reduced the effort involved in maintaining paper-based financial records and made historical transactions easier to access.

Research on expense categorization systems introduced methods for organizing transactions into predefined categories such as food, transportation, shopping, education, bills, and entertainment. Categorization helps users understand where their money is being spent. However, systems that depend entirely on manual category selection may require additional effort from users and can result in inconsistent categorization.

Another important research area is budget management. Budgeting systems allow users to define spending limits for specific categories or time periods and compare actual expenses against those limits. Such systems can provide alerts when users approach or exceed their budgets, helping them control unnecessary spending and improve financial planning.

Financial visualization and analytics have also become important features in modern expense management applications. Charts, graphs, dashboards, and monthly summaries can represent spending patterns in an easily understandable format. These visualizations help users identify high-expense categories, compare spending between different periods, and understand changes in their financial behavior.

Research has also explored mobile and cloud-based expense tracking systems, allowing users to record and access financial transactions from different devices. Cloud-based storage provides centralized access and can simplify synchronization and

backup. However, financial applications must implement appropriate security mechanisms because they handle sensitive personal and financial information.

The development of automatic expense tracking has introduced technologies such as receipt scanning, optical character recognition, bank transaction integration, and notification-based transaction detection. These technologies can reduce manual data entry by extracting transaction information automatically. However, automated extraction may require validation because receipts and financial notifications can contain inconsistent or incomplete information.

Machine Learning and Artificial Intelligence have increasingly been applied to personal finance applications. AI models can analyze historical transactions to identify spending patterns, classify expenses, detect unusual transactions, and provide personalized financial insights. Such systems can help users understand their financial behavior beyond simple transaction recording.

Another research area is personalized financial recommendations. Recommendation systems can analyze income, expenses, budgets, and spending behavior to suggest suitable spending limits, savings targets, or areas where expenses could be reduced. Personalized recommendations can make expense tracking more useful by transforming financial records into actionable information.

Despite these developments, many basic expense tracking systems still have limitations such as manual transaction entry, limited financial analysis, fixed expense categories, insufficient budget alerts, lack of personalized recommendations, and limited prediction capabilities. Security and privacy are also important concerns because unauthorized access to financial records can expose sensitive information.

Based on these research areas, the proposed Expense Tracker combines user authentication, income and expense recording, expense categorization, transaction management, budget management, dashboards, graphical reports, notifications, and centralized database management in a single platform. The system aims to provide users with a simple and organized method for monitoring their personal finances.

Future enhancements can include AI-based automatic expense categorization, receipt scanning, spending prediction, personalized budget recommendations, savings-goal management, bill reminders, unusual-spending detection, financial forecasting, and intelligent financial insights. These features can make the Expense Tracker more automated, personalized, and useful for long-term financial management.

III. System Analysis

System analysis is an important stage in developing the Expense Tracker application. The system is designed to help users manage their income and expenses through a centralized digital platform. Users can register and securely log in to their accounts to maintain personal financial records. They can add transactions by entering the amount, date, category, transaction type, and description. Expenses can be categorized into food, transportation, shopping, education, bills, entertainment, and other categories.

The system automatically calculates total income, total expenses, and available balance. Users can view recent transactions and search or filter records according to their requirements. The system provides dashboards containing charts and summaries to visualize spending patterns. Users can create budgets for different expense categories and monitor their spending limits. Notifications can alert users when their expenses approach or exceed the defined budget. All transaction and user information is stored in a centralized database. Overall, system analysis identifies the requirements needed to develop a simple, secure, and efficient personal expense management system.

Existing System

In the existing system, people commonly maintain their financial records using notebooks, spreadsheets, calculators, or simple mobile notes. Manually recording every income and expense can be time-consuming and may result in missing or incorrect transactions. Users need to perform calculations manually to determine their total spending and remaining balance. Traditional methods generally provide limited categorization of expenses and do not automatically organize financial information. It can also be difficult to identify spending patterns when a large number of transactions are recorded. Users may not receive alerts when their spending exceeds a planned budget. Comparing expenses across different months often requires additional manual calculations. Paper-based records can also be lost or damaged, while spreadsheet-based records may not be easily accessible from different devices. Existing basic systems may provide limited visualization and financial reporting features. They may also lack personalized recommendations for improving spending habits. Automatic expense categorization and intelligent financial analysis are generally limited. Therefore, a centralized and automated Expense Tracker is required to improve personal financial management.

Disadvantages of Existing System

- Manual recording of transactions.
- Time-consuming expense management.
- Higher possibility of calculation errors.
- Difficult to maintain large transaction histories.
- Limited expense categorization.
- No automatic budget monitoring.
- Limited spending analysis.
- Difficult to identify spending patterns.
- Limited graphical reports.
- No personalized financial recommendations.

Proposed System

The proposed Expense Tracker provides a centralized platform for managing personal income and expenses efficiently. Users can register and securely log in to maintain their financial information. The system allows users to record income and expenses by entering details such as amount, date, category, transaction type, and description.

Expenses can be organized into categories such as food, transportation, shopping, education, bills, and entertainment. The system automatically calculates total income, total expenses, and available balance. Users can view their transactions through a dashboard and search or filter records based on different criteria. The system provides graphical reports to display category-wise and monthly spending patterns. Users can set budgets for specific categories and monitor their spending against those limits. Notifications can be generated when expenses approach or exceed defined budget limits. All financial transactions are stored in a centralized database for easy retrieval and management. The system can also provide personalized insights and recommendations based on spending behavior. Overall, the proposed system makes personal financial management easier, faster, organized, and more efficient.

Advantages of Proposed System

- Easy online income and expense tracking.
- Automatic balance calculation.
- Organized expense categorization.
- Reduces manual calculations.
- Provides graphical spending reports.
- Supports budget creation and monitoring.
- Provides budget limit notifications.
- Easy searching and filtering of transactions.
- Maintains complete transaction history.

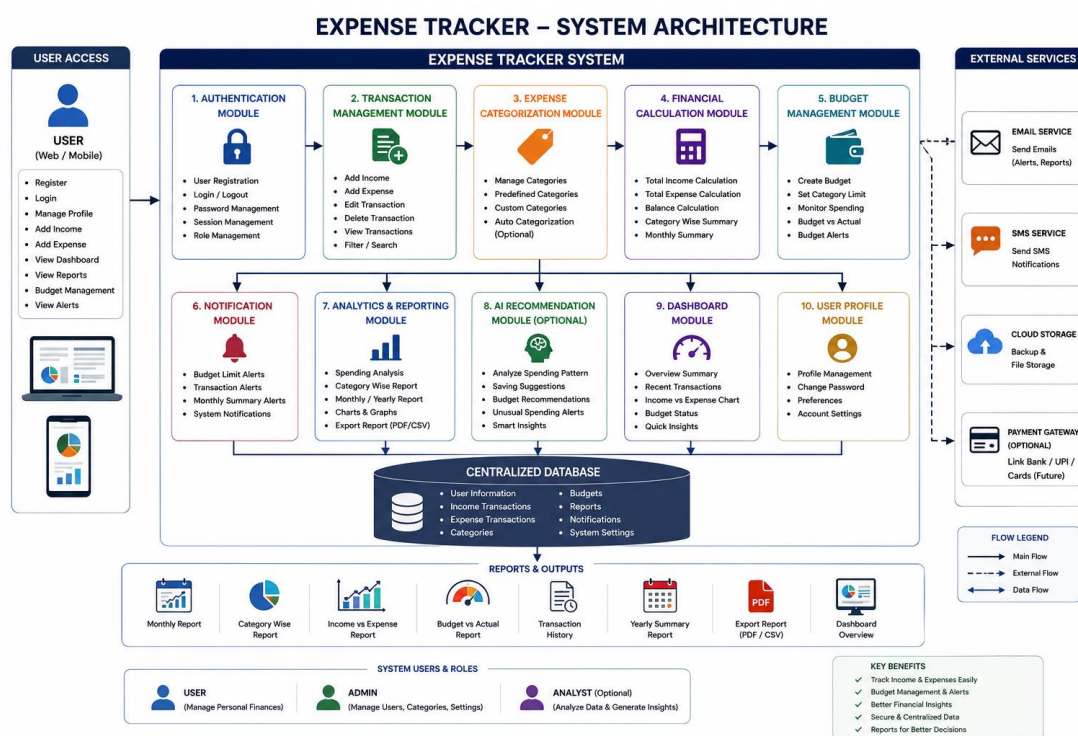
IV. Methodology

The methodology begins by identifying the requirements of users for managing their personal financial activities. Users register on the platform and securely log in to their accounts. Users can add income and expense transactions by providing the amount, date, category, type, and description. The system validates the transaction details and stores them in the centralized database. Expenses are organized into predefined categories to make financial analysis easier. The system automatically calculates total income, total expenses, and the user's current balance. Users can view, edit, delete, search, and filter their previous transactions through the dashboard. The budget module allows users to define spending limits for specific categories or periods. The system compares actual spending with the defined budget and generates alerts when limits are approached or exceeded. The reporting module generates monthly, category-wise, and overall financial summaries using charts and tables. An optional recommendation module can analyze spending patterns and provide suggestions for better financial management.

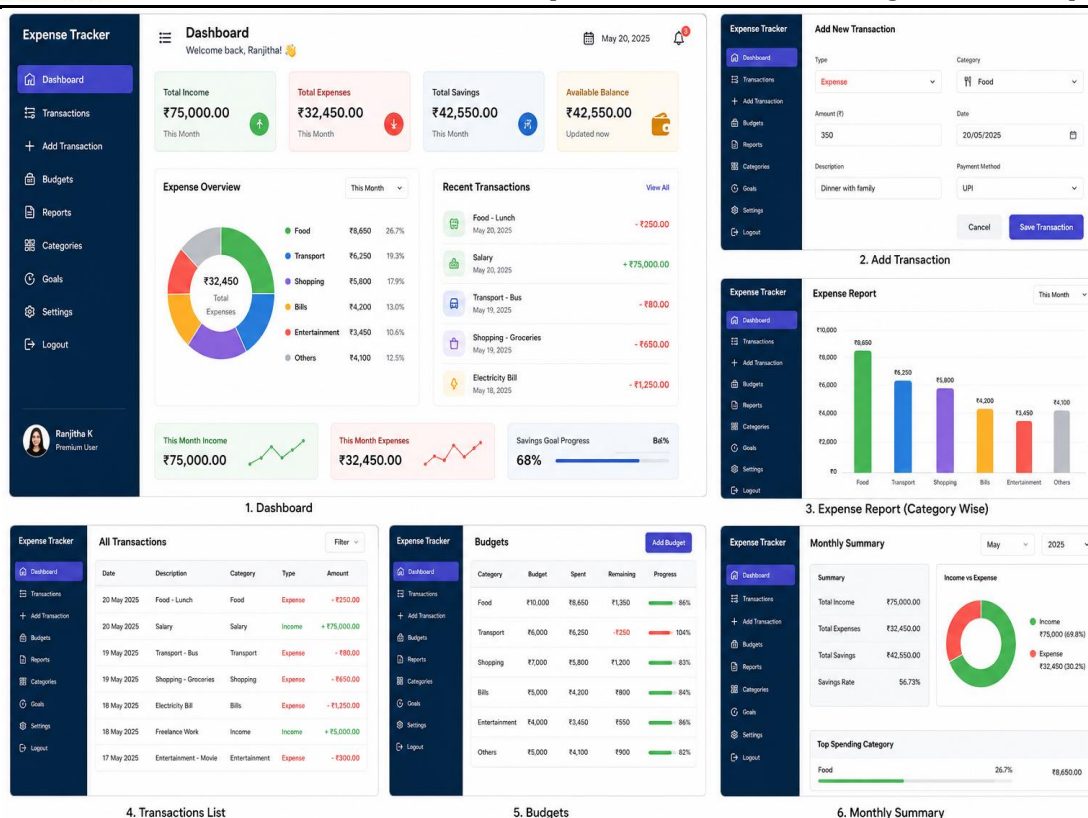
System Architecture

The system architecture represents the complete flow of information between the user, application modules, financial processing components, and centralized database. The process begins when the User accesses the Expense Tracker through a web or mobile interface. The Authentication Module verifies the user's credentials and provides secure access to the application. The user can manage income and expense

transactions through the Transaction Management Module. The Expense Categorization Module organizes transactions into categories such as food, transportation, shopping, bills, and entertainment. The Financial Calculation Module processes transactions to calculate total income, expenses, and available balance. The Budget Management Module allows users to create spending limits and monitors expenses against those limits. The Notification Module sends alerts when users approach or exceed their defined budgets. The Analytics and Reporting Module analyzes transaction data and generates charts, summaries, and spending reports. An optional AI Recommendation Module can analyze spending behavior and provide personalized financial suggestions. The User Dashboard displays financial summaries, recent transactions, budgets, charts, and recommendations. Overall, the architecture follows the workflow **User → Authentication → Dashboard → Transaction Management → Categorization → Financial Calculation → Budget Monitoring → Analytics & Reports → AI Recommendations → Database → Notifications**.



V. Result and Output



VI. Conclusion

The Expense Tracker project provides a simple, efficient, and user-friendly solution for managing personal financial activities. The system allows users to record income and expenses, categorize transactions, manage budgets, and monitor their financial balance through a centralized platform.

The application reduces the need for manual calculations and helps users maintain an organized history of their financial transactions. The dashboard and graphical reports provide a clear understanding of spending patterns, category-wise expenses, monthly expenses, and available balance.

The budget management feature helps users set spending limits and monitor their expenses, while notifications can alert users when their budget limits are reached or exceeded. Secure authentication and centralized database management also help protect and maintain financial information.

Overall, the proposed system makes personal finance management easier, faster, organized, and more effective. It helps users identify unnecessary spending and make better financial decisions based on their spending behavior.

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