

SAAS SUBSCRIPTION TREND DASHBOARD

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Abstract

The **Personal Budget and Spending Category Analysis** system is designed to help individuals monitor their income, expenses, budgets, and spending patterns through an organized analytical platform. The system collects financial information such as income, expense amounts, transaction dates, payment methods, and spending categories. The collected data is processed and categorized to provide a clear understanding of how money is being used across different expense areas. Users can set budget limits for categories such as food, transportation, shopping, bills, entertainment, and other personal expenses. The system compares actual spending with planned budgets to identify areas of overspending or savings. Monthly and category-wise spending trends can be analyzed using charts, graphs, tables, and key performance indicators. Important metrics such as total income, total expenses, remaining budget, savings, and category-wise expenditure are presented through an interactive dashboard. The system helps users identify high-spending categories and understand changes in their financial habits over time. Interactive filters can be used to analyze expenses based on dates, categories, or payment methods. The visual presentation of financial information makes it easier to understand complex spending data and supports better financial planning. Overall, the project demonstrates how data analysis and visualization can be used to improve personal budget management, spending awareness, and informed financial decision-making.

I. Introduction

Managing personal finances effectively requires a clear understanding of income, expenses, savings, and spending habits. Many individuals find it difficult to track their daily expenses and determine where most of their money is being spent. Manual recording of transactions in notebooks or spreadsheets can become time-consuming and may not provide a clear view of overall spending patterns. The Personal Budget and Spending Category Analysis system is developed to provide an organized approach for monitoring and analyzing personal financial activities. The system records information such as income, expense amount, transaction date, payment method, and spending category. Expenses can be grouped into categories such as food, transportation, shopping, bills, entertainment, education, and other personal requirements. Users can define budget limits for different categories and compare their planned budgets with actual spending. Monthly and category-wise analysis helps users identify changes in their spending behavior and areas of excessive expenditure. Charts, graphs, tables, and summary indicators can be used to present financial information in an easy-to-understand format. The system can display important information such as total income, total expenses, savings, remaining budget, and category-wise spending. Analyzing historical transactions can help users recognize frequently occurring expenses and improve future budgeting. The system reduces the effort required to manually calculate and compare financial records. Overall, the

project provides a simple analytical approach for improving personal budget management, understanding spending patterns, and supporting better financial decisions.

II. Literature Survey

Previous studies on personal financial management have emphasized the importance of tracking income, expenses, savings, and budgeting behavior. Traditional financial management approaches generally involve maintaining transaction records manually through notebooks, spreadsheets, or basic financial applications. Such methods can help users record their expenses but may provide limited analytical capabilities for understanding long-term spending patterns. Research in personal finance has therefore increasingly focused on using digital tools to organize financial information and support better budgeting decisions.

Expense categorization is an important area in personal budget analysis because it helps users understand where their money is being spent. Studies have explored the classification of transactions into categories such as food, transportation, housing, shopping, entertainment, and utilities. Category-based analysis makes it easier to identify high-spending areas and compare expenditure across different periods. Automated or structured categorization can also reduce the effort required to manually review individual transactions.

Budget monitoring has also been studied as an approach for improving financial planning and controlling unnecessary expenditure. Budgeting systems allow users to define spending limits and compare actual expenses against planned amounts. Monitoring the difference between budgeted and actual spending can help identify overspending and support adjustments to future budgets. Monthly and yearly comparisons can further help users understand changes in financial behavior and evaluate their progress toward savings goals.

Data visualization and dashboard-based financial analysis provide another useful approach for presenting personal financial information. Charts, graphs, tables, and key performance indicators can convert large numbers of financial transactions into understandable summaries. Visual analysis can help users recognize spending trends, compare categories, and identify significant changes in expenses more easily than reviewing raw transaction records. Interactive filtering based on dates, categories, and payment methods can further improve the analysis experience.

Based on these developments, the Personal Budget and Spending Category **Analysis** system combines expense tracking, budget comparison, category-wise analysis, and data visualization into a single platform. The system can provide insights into total income, total expenses, savings, budget utilization, and major spending categories. Historical spending analysis can help users understand their financial habits and identify areas where expenses can be controlled.

III. System Analysis

System analysis is an important stage in developing the Personal Budget and Spending Category Analysis system for managing individual financial information.

The system focuses on analyzing income, expenses, budgets, savings, transaction dates, and spending categories. Financial transactions are collected and organized into a structured dataset for further analysis. Expenses are classified into categories such as food, transportation, shopping, bills, entertainment, and other personal requirements. Budget limits can be defined for different spending categories according to the user's financial plan. Actual expenses are compared with planned budgets to identify overspending and remaining budget amounts. Monthly and category-wise spending trends are analyzed to understand changes in financial behavior. Key indicators such as total income, total expenses, savings, and budget utilization are calculated. Charts, graphs, tables, and summary cards are used to present financial information clearly. Interactive filters can help users analyze transactions based on dates, categories, and payment methods. The system helps users identify high-spending categories and areas where expenses can be controlled. Overall, the system provides a structured approach for understanding personal spending patterns and supporting better budget management.

Existing System

The existing system for personal financial management commonly depends on notebooks, spreadsheets, calculators, or basic expense-tracking applications. Users manually record their income and daily expenses along with transaction details. Expenses may be entered without consistent categorization, making it difficult to understand spending patterns. Budget limits are often maintained separately from actual expense records. Users generally calculate their total expenses and remaining budget manually at the end of a particular period. Comparing actual spending with planned budgets can therefore require considerable effort. Identifying high-spending categories becomes difficult when a large number of transactions are recorded. Traditional methods provide limited graphical representation of financial information. Monthly and yearly spending trends may not be easily visible from raw transaction records. Manual calculations can also result in data-entry mistakes or incorrect totals. Changes in spending behavior may take additional time to identify and analyze. Preparing financial summaries and reports requires repeated calculations and data organization. Therefore, a centralized analytical system with visualization and budget comparison can provide a more efficient approach to personal financial management.

Disadvantages of Existing System

- Requires manual entry and maintenance of financial records.
- Time-consuming to analyze large numbers of transactions.
- Difficult to identify major spending categories.
- Limited visualization of spending trends.
- Budget and expense information may be maintained separately.
- Manual budget comparison requires additional effort.
- Higher possibility of calculation and data-entry errors.
- Difficult to identify overspending quickly.
- Limited analysis of monthly and yearly spending patterns.
- Difficult to compare spending across categories.
- Manual preparation of financial summaries is time-consuming.
- Provides limited support for data-driven financial planning.

Proposed System

The proposed system provides an analytical platform for managing personal budgets and analyzing spending categories in a centralized environment. The system collects financial information such as income, expenses, transaction dates, payment methods, and spending categories. The collected data is cleaned and organized into a structured format for analysis. Expenses are classified into relevant categories such as food, transportation, shopping, bills, entertainment, and education. Users can define budget limits for individual spending categories based on their financial requirements. Actual spending is compared with the defined budgets to identify overspending and remaining budget amounts. Monthly and category-wise analysis is performed to understand changes in spending behavior. Important indicators such as total income, total expenses, savings, and budget utilization are calculated. Charts, graphs, tables, and KPI cards are used to present the financial information clearly. Interactive filters allow users to explore transactions according to dates, categories, and payment methods. The system helps identify high-spending areas and provides a better understanding of personal financial habits. Overall, the proposed system supports efficient expense monitoring, budget control, spending analysis, and informed personal financial decision-making.

Advantages of Proposed System

- Provides centralized personal financial analysis.
- Supports income and expense tracking.
- Enables category-wise spending analysis.
- Allows users to define category budgets.
- Helps identify overspending and budget deviations.
- Provides monthly and yearly spending trends.
- Displays important financial KPIs clearly.
- Provides charts, graphs, and visual summaries.
- Helps identify high-spending categories.
- Supports interactive filtering of transactions.
- Reduces manual calculation and reporting effort.
- Supports better budgeting and financial planning.

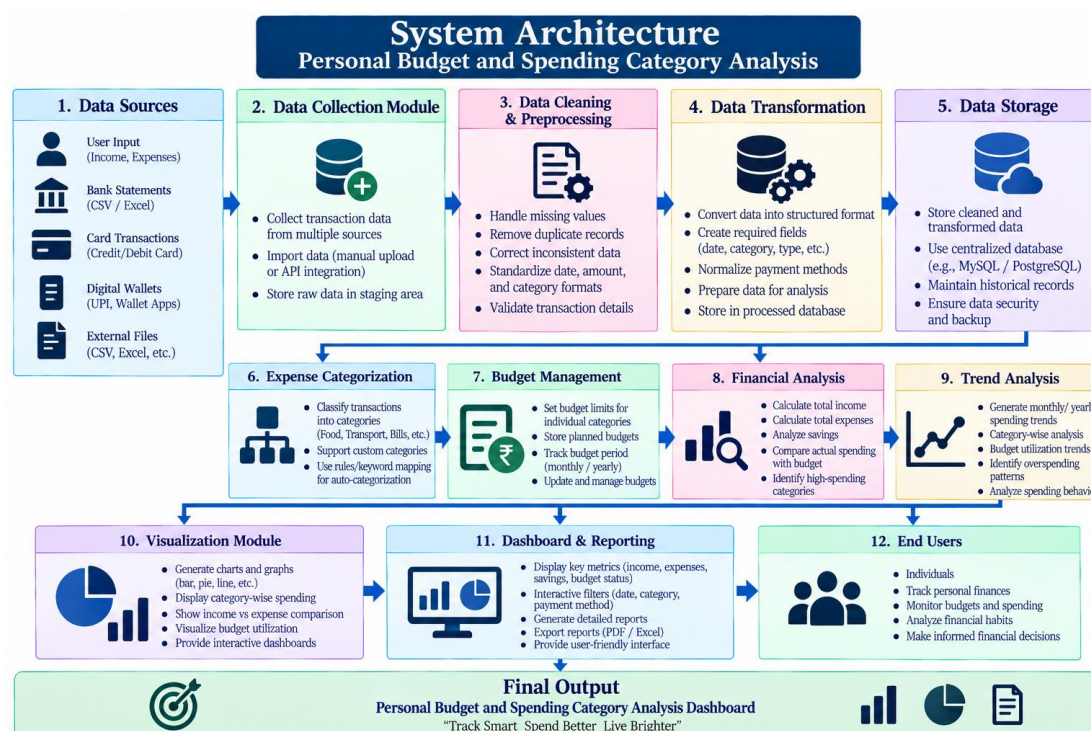
IV. Methodology

The methodology begins with collecting personal financial data such as income, expenses, transaction dates, payment methods, and spending categories. The collected transactions are examined to identify missing, duplicate, or inconsistent records. The data is cleaned and transformed into a structured format suitable for financial analysis. Each expense is assigned to an appropriate category based on its transaction information. Budget limits are defined for different spending categories according to the planned financial allocation. Total income and category-wise expenses are calculated from the processed transaction data. Actual spending is compared with the defined budget to determine budget utilization and overspending. Monthly, yearly, and category-wise trends are generated to understand changes in spending behavior. Suitable charts, graphs, tables, and KPI cards are selected to represent the analyzed financial information. An interactive dashboard is developed to provide users with a clear view of their financial performance. Filters are added to allow analysis based on

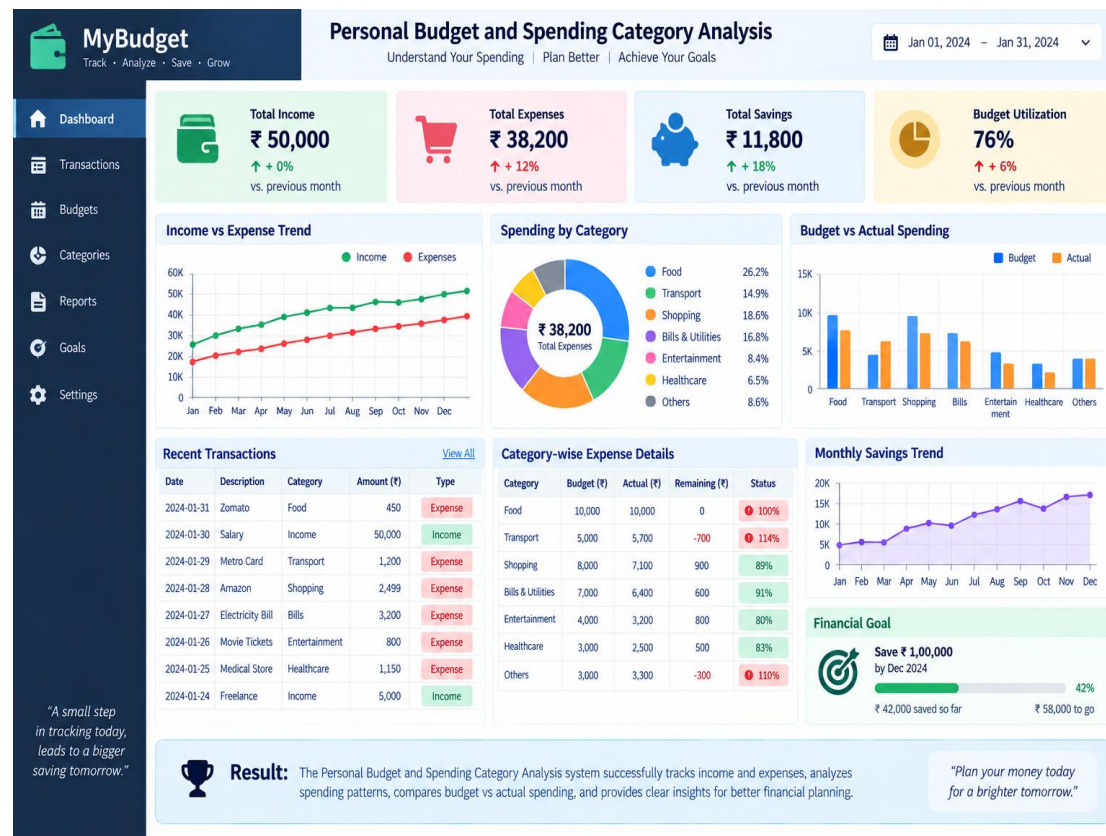
dates, categories, and payment methods. Finally, the system is tested to verify the accuracy of calculations, budget comparisons, visualizations, and displayed financial insights.

System Architecture

The system architecture represents the complete workflow of the Personal Budget and Spending Category Analysis system from financial data collection to final analysis. The process begins with the Financial Data Source, containing income, expense, transaction date, payment method, and category information. The Data Collection Module gathers the required financial transactions from the available records. The Data Cleaning Module removes duplicate, incomplete, and inconsistent transaction records. The Data Transformation Module organizes and formats the cleaned information for analysis. The Expense Categorization Module classifies transactions into categories such as food, transportation, shopping, bills, and entertainment. The Budget Management Module stores planned spending limits for different expense categories. The Financial Analysis Module calculates total income, expenses, savings, and category-wise spending. The Budget Comparison Module compares actual expenses with planned budgets to identify overspending and remaining amounts. The Trend Analysis Module generates monthly, yearly, and category-wise spending trends. The Visualization Module presents the analyzed information through charts, graphs, tables, and KPI cards. The Interactive Filter Module allows users to explore financial information by date, category, and payment method. Finally, the Dashboard and Reporting Module provides the completed financial summary and analytical insights for better budget management. Overall, the architecture follows the workflow **Financial Data → Data Collection → Data Cleaning → Data Transformation → Expense Categorization → Budget Management → Financial Analysis → Budget Comparison → Trend Analysis → Visualization → Interactive Filters → Dashboard & Reports**.



V. Result and Output



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