

BudgetBliss: Predictive Budget Planning using Neural Networks and Socioeconomic Factors

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Abstract

BudgetBliss is a transformative web application developed to revolutionize personal finance management through the integration of Artificial Neural Networks. Leveraging a sophisticated architecture, BudgetBliss provides users with a comprehensive platform to effectively plan and manage their income. The development process involved meticulous data collection and preprocessing, followed by the implementation of an Artificial Neural Network model. By analyzing users' spending habits and categorizing income, BudgetBliss offers detailed financial breakdowns tailored to individual needs. This methodology ensures the accuracy and relevance of the insights provided to users. Furthermore, BudgetBliss serves as an inadvertent educational tool, fostering financial literacy as users gain insights into their spending habits and make informed decisions about their money. Additionally, the automation of categorization, analysis of spending habits, and provision of personalized insights significantly reduce financial stress, empowering users to feel in control of their finances and focus on achieving their goals with confidence. In today's fast-paced society, where financial management significantly impacts overall well-being, BudgetBliss addresses the critical need for a system that enhances household financial control. By enabling users to make informed decisions and gain a deeper understanding of their financial landscape, BudgetBliss facilitates a path towards contentment and fulfillment in life.

Keywords - Budget planning, Personal finance, Artificial Neural Networks, Financial management, Well-being

I. INTRODUCTION

In this new digital era, not having an online web application for learning would be no less than taboo. BudgetBliss has proven to be a catalyst in the growth of the human mind. Considering how the pandemic affected our minds, it was crucial to set up a BudgetBliss which will help us to keep a track of our spending habits. In an increasingly complex and fast-paced world, achieving financial stability and pursuing personal aspirations can often feel like a daunting juggling act. Our ability to effectively manage our finances, which profoundly impacts our overall well-being, often falls short due to the demands of modern life.

BudgetBliss is a revolutionary web application designed to address this challenge head-on. It harnesses the power of advanced Machine Learning techniques to assist users in planning and managing their income intelligently. By analyzing spending habits, categorizing income sources, and providing detailed financial breakdowns, BudgetBliss empowers individuals to optimize their financial decisions, visualize their goals, and regain control over their financial lives. This project is driven by the belief that financial well-being is the cornerstone of a contented and fulfilling life, and BudgetBliss aims to make that belief a reality for individuals in today's rapidly evolving society. An interface is very much user friendly and elegant, using which one can understand his/her current way of spending. The web-application will not only help to plan the

future spendings but with visualization and LLMs he can get the help and understand the impact of the optimized plan on their finance management.

II. LITERATURE SURVEY

A. Survey of Existing System

1. *An Integrated Model for Financial Planning:*

Author: Natalie Chieffe and Ganas K. Rakes

The paper "An Integrated Model for Financial Planning" by Natalie Chieffe and Ganas K. Rakes introduces an integrated model for financial planning. This model comprises four categories, each addressing specific aspects of individual financial management: Money Management Issues, Emergency Fund and Insurance, Investing for Goals, Transference Planning. The model provides a comprehensive framework for financial planning that addresses a wide range of financial aspects, from short-term money management to long-term wealth preservation and transference. The emphasis on investing to achieve intermediate and long-term goals is a positive aspect. It encourages individuals to adopt a goal-oriented approach to their investments, which can lead to better financial outcomes.

2. *Intelligent Budget Planner:*

Author: Seng Kiat Tan

The dissertation, "Intelligent Budget Planner" by Seng Kiat Tan, introduces an intelligent budget planning system. The system generates reports summarizing various aspects of personal finance, including income types, expense

categories, expense types, and budget. It is designed to automate the generation of fixed records on a monthly basis, with the caveat that users must consistently utilize the system to avoid issues with generating these records. Furthermore, the application tracks users' spending and income and calculates the maximum daily spending limit to help users adhere to their personal budgets. The system's ability to automatically generate fixed records each month simplifies the process of maintaining financial records. This can save users time and effort in managing their finances. The application's emphasis on tracking users' spending and income aligns with a user-centric approach to budget planning. Understanding individual spending patterns is vital for creating effective budgets.

3. *Public Expenditure Management:*

Author: Arigapudi Premchand

The paper focuses on the topic of public expenditure management, particularly in the context of government finance and economics.

The International Monetary Fund (IMF) serves as the publisher of this work, highlighting its significance in the field of economic policy and public finance. While specific findings and details from the paper are not provided, it can be inferred that the paper likely addresses various aspects of public expenditure management, which is a crucial component of government financial management. Public expenditure management involves the planning, allocation, and utilization of government

funds for various programs and services. Effective management in this area is essential for achieving economic stability and development. This publication by Arigapudi Premchand, published by the IMF, underscores the importance of effective public expenditure management in the realm of government finance. Public funds play a critical role in driving economic growth, providing public services, and addressing societal needs. In Conclusion, While the specific findings and content of the paper are not provided, it's clear that this work contributes to the understanding of how governments can effectively manage their financial resources to achieve economic stability and better serve their citizens. It serves as a valuable resource for policymakers and economists interested in the field of public finance and expenditure management.

4. *Analytical Expense Management System:*

Author: Zeki Bozkus, Christophe Bisson, Taner Arsan

The research paper explores the development and implementation of an Analytical Expense Management System, focusing on the need for such systems in the context of increasing reliance on web applications and the economic challenges of the 2009 crisis. The paper highlights the limitations of existing expense management solutions, particularly those based on Intranet platforms, and emphasizes the potential benefits of web-based solutions for empowering employees and improving decision-making.

The paper proposes a comprehensive expense management tool that enables users to send, receive, request, and process expense-related information over the Internet from any device. Leveraging 3G technology, the proposed system aims to provide ubiquitous access to expense management functionalities. Key features include intuitive user interfaces, decision support capabilities, and fast reimbursement processes.

The research methodology involves examining the reasons for the importance of expense management programs for companies, benchmarking existing solutions, presenting the model of the proposed system, discussing the choice of technology stack (LAMP), and detailing the software architecture and layouts.

A notable aspect of the proposed system is its strong spending analyzer functionality, which categorizes and classifies employee spending and facilitates multi-dimensional analysis to identify savings opportunities. Overall, the paper contributes to advancing the field of expense management systems by offering a comprehensive and innovative solution tailored to the needs of modern businesses.

5. *Medicine Expenditure Prediction via a Variance-Based Generative Adversarial Network:*

Author: Shruti Kaushik, Abhinav Choudhury, Sayee Natarajan, Larry Pickett, Varun Dutt

The research paper explores the use of Variance-Based Generative Adversarial Networks (V-GANs) for predicting

medicine expenditures based on historical data and other healthcare variables. While traditional machine learning models like linear regression, gradient boosting regression, MLP, and LSTM have been used for similar predictions, the potential of generative approaches like GANs has not been fully explored, particularly for time-series predictions in healthcare expenditure.

The study introduces a V-GAN, a GAN architecture that minimizes variance difference between real and generated data during training. It utilizes an LSTM generator and either a CNN or MLP discriminator. The authors evaluate the VGAN's performance against existing GANs and traditional models on US patient expenditure data for a pain medication.

The study highlights the importance of accurately predicting patient-related expenditures in healthcare and the potential applications for various stakeholders, including patients, drug manufacturers, health insurers, pharmacies, and hospitals. By incorporating variance minimization into the loss function, the V-GAN model outperforms other GAN-based prediction models, as well as traditional ML models, in accurately predicting medical expenditures.

The paper also discusses the challenges in predicting healthcare expenditures, the limitations of existing prediction models, and the advantages of using neural network architectures like MLPs, LSTMs, and GANs for time-series predictions in healthcare expenditure. Overall, the research contributes to

advancing predictive analytics in healthcare and underscores the importance of exploring innovative approaches for better understanding and managing healthcare costs.

6. *Expenses Management System:*

Author: M. Vanitha, Alekhya. K, Sai Gowthami. A.

The Expense Management System is a mobile application designed to address the challenge of tracking monthly expenses and receivables. It provides users with a platform to record their expenses and manage their monthly budget effectively. The application allows users to set a budget for the month, receive notifications when they exceed their budget, and analyze their spending habits. Users can record their daily or weekly expenses, as well as any receivables they expect to receive. The application helps users track their spending against their budget for the month, with notifications for overspending. Users can manage shared expenses with friends or companions, keeping track of who owes what and for what purpose. The app notifies users when there are updates to expenses, they are involved in, such as adding comments or withdrawing posted bills. Users can attach images of their bills to their expenses for better record-keeping. The Expense Management System aims to simplify expense tracking and sharing among users, providing a user-friendly interface and convenient features for effective budget management. By leveraging OAuth for authentication, Firebase for data storage and retrieval,

and implementing a chatbot, the application enhances user experience and facilitates seamless communication and collaboration in managing expenses.

7. *Smart Expense Management Model for Smart Homes:*

Author: Sumit Yadav, Richa Malhotra, Jyoti Tripathi

The research paper focuses on the integration of smart home technology with an efficient expense management system to optimize household budgeting. Smart home technology, aimed at providing comfort and security while minimizing costs, forms the backdrop for the proposed model. By monitoring the timing and quantum of cash outflow, the model facilitates efficient expense management. Key features of the model include recording and tracking all types of expenses incurred by household owners, along with insightful categorization to analyze total spending patterns. The integration of smart home capabilities enhances the efficiency and effectiveness of household budget maintenance. The paper emphasizes the significance of such a system in achieving significant savings and facilitating future financial planning by analyzing daily household expenses in relation to available funds.

8. *How India Earns, Spends and Saves:*

Author: Rajesh Shukla

This research paper delves into the fascinating world of geographic expenditure patterns. By analyzing spending habits across metropolitan, urban, suburban, and rural communities,

the paper unveils some insightful trends. City dwellers and urban residents prioritize investments in education, resulting in significantly higher spending on this category compared to their rural counterparts. In contrast, rural communities, where agriculture is the lifeblood of many households, dedicate a substantial portion of their budgets (over 50%) to agricultural needs. Furthermore, the research highlights a negligible need for commuting expenses in rural areas, leading to lower transportation costs. Interestingly, the study also reveals a strong correlation between education levels and income, suggesting that higher education translates to higher earning potential.

9. Design and Implementation Money Management Web Based Application for Personal and Family Proposed for CV. X:

Author: Melvin Mumpunia and Subiakto Sukarno

The paper introduces a web-based money management application designed for personal and family finances, targeted at the Indonesian middle class. Developed by CV. X, the application aims to address the growing demand for practical financial planning solutions in Indonesia's middle-class demographic. It offers features such as transaction management, financial planning, and investment calculation, integrating various personal finance tools and knowledge.

Following the Rational Unified Process framework, the development process requires initial investment for software

development and operational costs. The application targets affordability, user-friendliness, and effectiveness in helping users achieve their financial goals. It also promotes community engagement and provides up-to-date financial information.

Key activities of the business include education, marketing, selling, and research, with partnerships formed with financial planners, institutions, and publications. Costs involve investment, operational, development, and technical support expenses, while revenue comes from membership fees and advertising. Overall, the application aims to offer a practical and accessible solution for personal finance management to Indonesia's middle class.

10. Budget Tracker:

Author: Mohamed Ameen A, Mohan Ram M, Mukesh Balaji N, Sathiya G

The Budget Tracker project aims to develop a comprehensive system for efficient management of personal and business finances. Leveraging the Random Forest machine-learning algorithm, the system will analyze financial data in real-time and provide predictions based on historical data, enabling users to track their spending patterns effectively.

Key features of the system include real-time financial information on income and expenses, with users able to input data easily through voice or typing. The regression algorithm will analyze transactional data and historical trends to offer insights into spending habits and

compare expenses with the estimated budget.

The development process prioritizes user-friendliness and intelligence in platform design, aiming to provide users with actionable insights and recommendations. By predicting the budget required for the next month, the system empowers individuals and businesses to achieve financial stability and prosperity.

Given the challenges faced by many in managing personal and business finances, the Budget Tracker system offers a solution that leverages advanced

B. Limitations of Existing Systems

machine learning techniques to provide real-time insights and recommendations. By assisting users in making informed financial decisions, the system contributes to improving overall financial well-being.

SYSTEM	LIMITATION
MoneySmart	While MoneySmart offers a wide range of general financial education materials, it may not offer personalized advice or tailored content based on individual financial situations.
Oxagile	Users without a background in finance or technology might find the tool's interface and features overwhelming or confusing.
Money Helper	While the tool provides budgeting assistance, it might not offer comprehensive educational content to help users understand financial concepts or improve their financial literacy.
NerdWallet	The worksheet primarily offers static budget plans, which might not engage users as effectively as interactive tools or simulations.

Table 1: Limitations of Existing Systems

C. Proposed System

This web application aims to empower users to take control of their finances through a personalized budgeting experience. The user initiates the process by inputting their current expenses. The system then caters to the user's intent by offering two options: address a general financial query or proceed with creating a budget. If the user chooses budgeting, the system delves into an analysis of their spending habits. For the analysis the user directly answers one or two questionnaires about their finances, to visually represent their spending patterns. Leveraging this analysis, the system generates a customized budget recommendation. The user has the

autonomy to accept this recommendation or craft their own budget. For users who accept the recommendation, an additional layer of optimization is available. Here, the system can integrate a large language model (LLM) to delve deeper. The LLM can dynamically generate supplementary prompts or questions to solicit more specific financial details. This information is then fed back into the system to refine the budget recommendation further. Ultimately, the user is presented with a meticulously crafted final spending plan, tailored to their unique financial landscape. By prioritizing the user's needs, this approach equips individuals with the ability to analyze their spending habits and subsequently make well-informed financial choices.

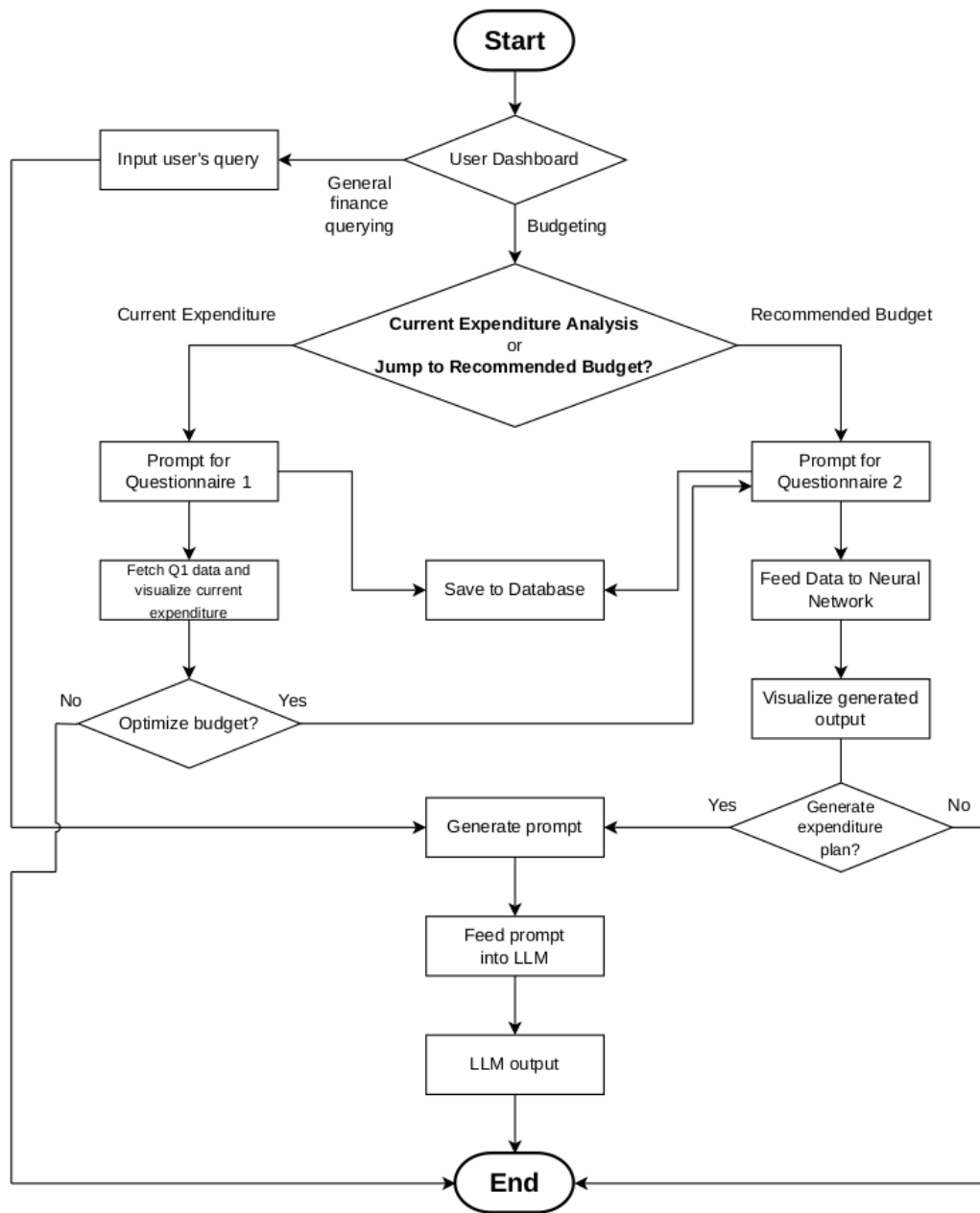


Figure 1: Proposed System

III. METHODOLOGY

The proposed budgeting web application leverages a user-centric methodology that blends user input, data analysis, and

machine learning to deliver personalized budget recommendations and spending plans. The journey begins with user input, where individuals enter their current expenses through a user-friendly

interface designed for ease of use. Once collected, this data undergoes preprocessing to ensure consistency and prepare it for insightful analysis. This preprocessing stage may involve cleaning the data, ensuring consistent formatting, and categorizing it into distinct spending categories (e.g., rent, groceries, transportation). The preprocessed data is then subjected to a two-pronged analysis to illuminate the user's spending habits. Firstly, the system meticulously analyzes the user's current expenditure structure to understand their financial tendencies. This involves examining where their money is currently being allocated.

Secondly, the system incorporates a built-in dataset that contains information on how people with different lifestyles typically spend money. By comparing the user's spending with this dataset, the system can identify areas where the user might be spending more than usual for their lifestyle. This comparative analysis offers valuable insights that would be missed by solely focusing on the user's individual data. Armed with these insights, the system generates a personalized budget recommendation. This recommendation is not a generic template; it meticulously considers the user's income, expenses, and most importantly, their financial goals (not shown in the flowchart). However, the user remains in complete control. They can meticulously review the proposed budget, accept it as is, or tailor it to their specific needs. This information is then used by the system to further refine the

budget recommendation, ensuring it aligns perfectly with the user's unique financial situation.

An optional layer of optimization can be implemented through a large language model (LLM). This LLM acts as a dynamic query engine, formulating supplementary questions to solicit even more specific financial details from the user. This additional information is then fed back into the system, allowing it to refine the budget recommendation to an even greater degree of personalization (not shown in the flowchart). Ultimately, the user receives a meticulously crafted final spending plan that reflects their unique financial landscape. This plan encompasses details such as recommended spending amounts per category and a personalized savings strategy. An instrumental component of the system is dashboard reporting. This feature empowers users to visualize their spending patterns over time and gauge their progress towards their financial objectives. This level of transparency fosters financial well-being by keeping users informed and motivated to make sound financial decisions.

IV. ARCHITECTURE OF SYSTEM

The proposed budgeting web application adopts a user-centric architectural flow designed to empower users to understand and manage their finances effectively. The journey begins with the user inputting their current expenses through a user-friendly interface. This data undergoes preprocessing to ensure consistency and facilitate analysis.

Next, the system employs a multi-pronged approach to analyze the user's spending habits. Machine learning algorithms unearth patterns within the data, potentially using clustering to group similar expenses. Statistical analysis provides a high-level view through calculations like average spending per category and total monthly expenditure.

Leveraging these insights, the system generates a personalized budget recommendation. This recommendation factors in the user's income, expenses, and spendings. The user has complete control to review, accept, or modify the proposed budget. They can also provide additional details about their financial aspirations or upcoming expenses, allowing the system to further refine the budget.

An optional layer of optimization can be integrated through a large language model (LLM). This LLM delves deeper by dynamically generating supplementary questions to gather more granular financial details. This information is then fed back into the system to create an even more tailored budget recommendation. Ultimately, the user receives a meticulously crafted final spending plan that reflects their unique financial landscape. This plan includes details like recommended spending amounts per category and a personalized savings strategy. To foster ongoing financial well-being, the system offers a dashboard for users to visualize their spending trends and monitor progress towards their financial goals. This level of transparency empowers users to stay motivated and make informed financial decisions.

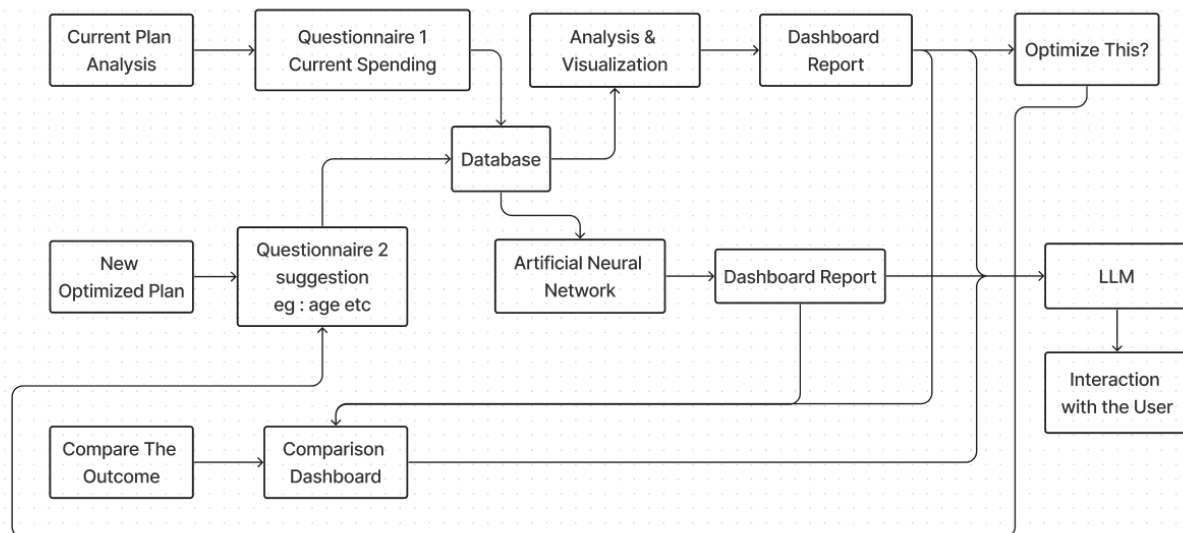


Figure 2: Architecture of System

V. DESCRIPTION OF SOFTWARE / TOOLS

React JS: It excels at creating single-page applications (SPAs) and manages the view layer of web and mobile apps. One of its key strengths is the ability to define reusable UI components. This promotes code efficiency and simplifies building complex interfaces. React utilizes JSX, a syntax extension for JavaScript, to write HTML-like code within JavaScript files. JSX enhances readability and simplifies writing UI code. React's virtual DOM (Document Object Model) optimizes updates and rendering in the browser. Additionally, React boasts a large and active community, providing a rich ecosystem of resources, libraries, and tools to support developers. Beyond building web apps, React can also be used for server-side rendering.

Material UI: Material-UI is a popular React framework that simplifies implementing Google's Material Design. It offers pre-built components like buttons, cards, and navigation elements, all adhering to Material Design guidelines. This streamlines development of beautiful, responsive, and functional web applications. Material-UI prioritizes responsiveness. The components automatically adapt to various screen sizes, guaranteeing your app looks great on any device, from desktop to mobile.

Styled Components: Styled Components offers a unique approach to styling React components using template

literals. It lets you write familiar CSS code directly within your components. This eliminates the need for separate CSS classes and simplifies the styling process. Styled Components creates reusable styled components – essentially React components with encapsulated styles. These components can accept props, allowing you to modify their appearance dynamically based on different states or data. This promotes adaptable and flexible UI elements. An additional benefit is support for server-side rendering, potentially enhancing both performance and Search Engine Optimization (SEO) for your application. Styled Components also embrace critical CSS, which can further optimize loading times.

Axios: Axios is a prominent JavaScript library for asynchronous HTTP requests. It streamlines the process in web development frameworks like React, Vue, and Angular. Functioning in both browsers and Node.js, Axios offers a user-friendly API for various HTTP methods like GET, POST, PUT, and DELETE. By leveraging promises, Axios simplifies handling asynchronous communication. Additionally, it safeguards against cross-site request forgery (XSRF) attacks for enhanced security.

PowerBI Client: Microsoft's Power BI empowers businesses with interactive data visualizations and insightful analytics. Its user-friendly interface simplifies report and dashboard creation. Power BI Client encompasses the tools users interact with, including Power BI

Desktop, Mobile, and the cloud-based service itself. The cloud service acts as a central hub for creating, sharing, and managing reports and dashboards. Accessible via web browser, it allows users to view and interact with data visualizations, fostering collaboration for teamwork on data analysis and reporting.

PowerBI Client React: Power BI Client React unlocks a powerful capability for web developers: embedding interactive Power BI reports and dashboards directly within your React application. This integration elevates the user experience by seamlessly presenting data insights alongside your core functionalities. No need to recreate data visualizations from scratch. Utilize pre-built Power BI reports, saving development time and resources.

Sr. No.	Framework	Version
1	React JS	18.2.0
2	Material UI	5.14.12

Table 2: Frontend Framework

Sr. No.	Library	Version
1	Styled Components	6.0.8
2	Axios	1.5.1
3	PowerBI Client	2.22.3

4	PowerBI Client React	1.4.0
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Table 3: Frontend Library

Express JS: Express.js stands out as a popular web framework for Node.js, known for its speed, flexibility, and minimalist approach. Designed for building web applications and APIs, it simplifies server creation, route definition, and HTTP request handling. Express.js empowers developers with a robust routing system. This system allows you to define clear paths for various HTTP methods and URLs, keeping your application's endpoints organized and efficient. A key strength of Express.js is its extensibility. Seamless integration with other libraries and tools is a breeze, enabling you to incorporate functionalities like database connections, user authentication, and more, for a feature-rich web application.

Python: Python's popularity as a general-purpose programming language stems from its readability and ease of use. This high-level, interpreted language, created by Guido van Rossum in 1991, emphasizes clear and concise code. This makes Python a favorite among beginners while also remaining powerful enough for experienced programmers. Python's versatility shines in its support for multiple programming paradigms. Whether you prefer a procedural, object-oriented, or functional approach, Python can adapt to your style. This flexibility empowers you to tackle a wide range of applications, including web

development, data analysis, scientific computing, and even artificial intelligence.

JavaScript: As a core technology alongside HTML and CSS, it fuels interactive features and dynamic user experiences. JavaScript's easy-to-learn nature makes it popular for beginners, but its capabilities extend far beyond web development. Beyond client-side scripting in web browsers, JavaScript has taken root in server-side environments with Node.js. This empowers developers for full-stack development, using a single language for both front-end and back-end logic. Furthermore, JavaScript's reach extends to game development and general-purpose programming tasks.

CORS: Web browsers enforce Cross-Origin Resource Sharing (CORS) as a security measure. It restricts malicious websites from accessing resources on domains different from the one that loaded the web page. This controlled access allows legitimate applications to request data from other domains, fostering communication between web services. CORS, a W3C standard, establishes a protocol for browsers and servers to collaborate and determine the legitimacy of cross-origin requests. This ensures secure data exchange between different web origins.

Mongoose: Mongoose streamlines data modeling for Node.js applications using MongoDB. It offers a schema-based approach, allowing you to define the structure of your data with ease. This

approach goes beyond just defining collections; it empowers you to: Enforce Data Integrity: Mongoose provides built-in validation for your schemas. Define validation rules for each field, and Mongoose automatically ensures data adheres to them before saving to the database. Effortless Data Manipulation: Mongoose simplifies querying and manipulating your data. Leverage its built-in functions for type casting, query building, and even attaching custom logic to handle specific data operations.

Sr. No.	Framework	Version
1	Express JS	4.18.2

Table 4: Backend Framework

Sr. No.	Language	Version
1	Python	3.10.0
2	JavaScript	16.13.2

Table 5: Backend Languages

Sr. No.	Library	Version
1	CORS	2.8.5
2	Mongoose	7.6.0

Table 6: Backend Libraries

Details of Database:

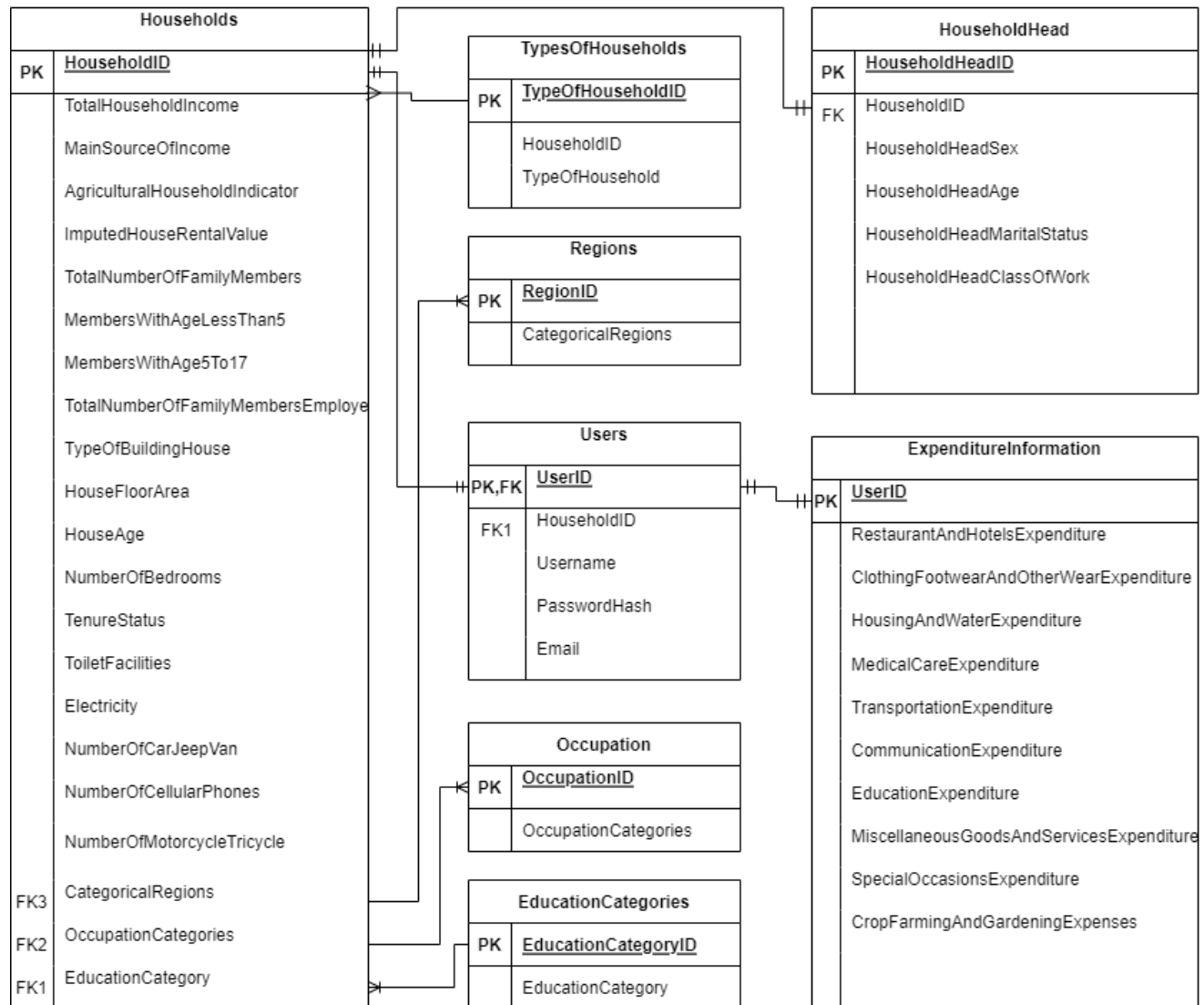


Figure 3: Database Design

V. RESULTS

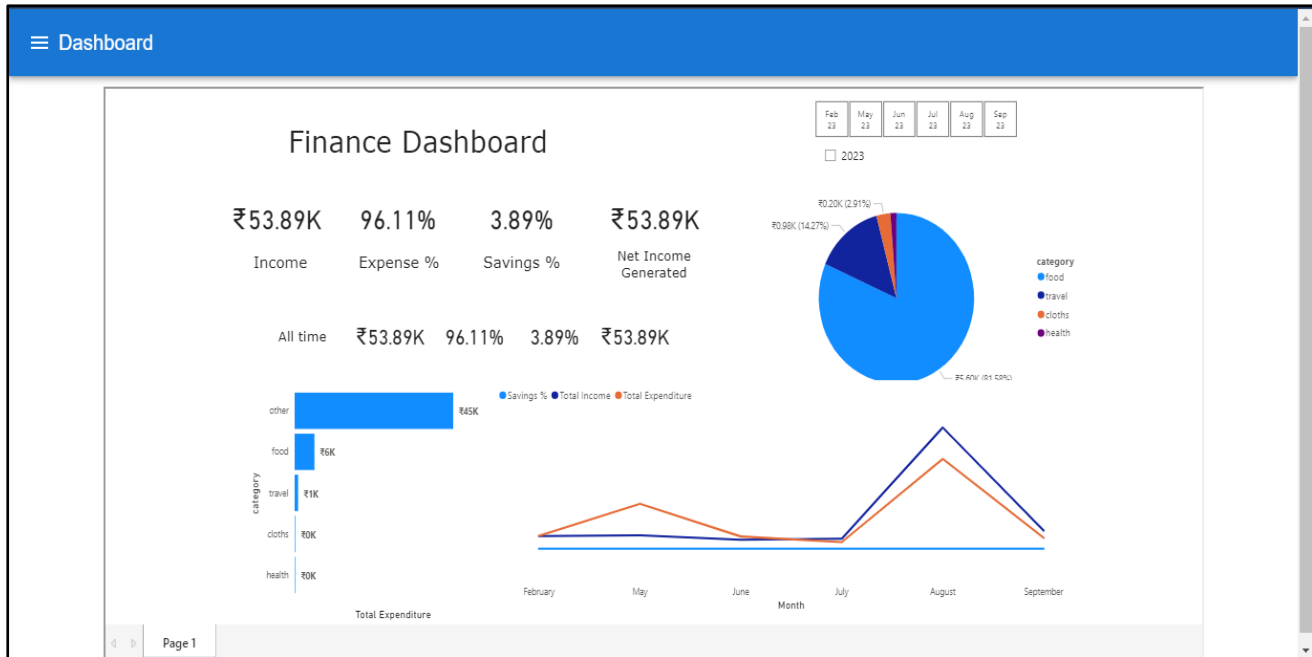


Figure 4: Dashboard displaying Current Expenditure of the User

Fig 4 displays the Power BI dashboard of the *current spending* of the user. A total of 3 such Dashboards will be displayed. One, as shown above, displays the “Current Spending” of the user. Second will be used to visualize the optimized finance management plan that BudgetBliss will suggest, and the third one will be the comparison between the first two, which will highlight the key aspects of the optimized plan in comparison to the existing one.

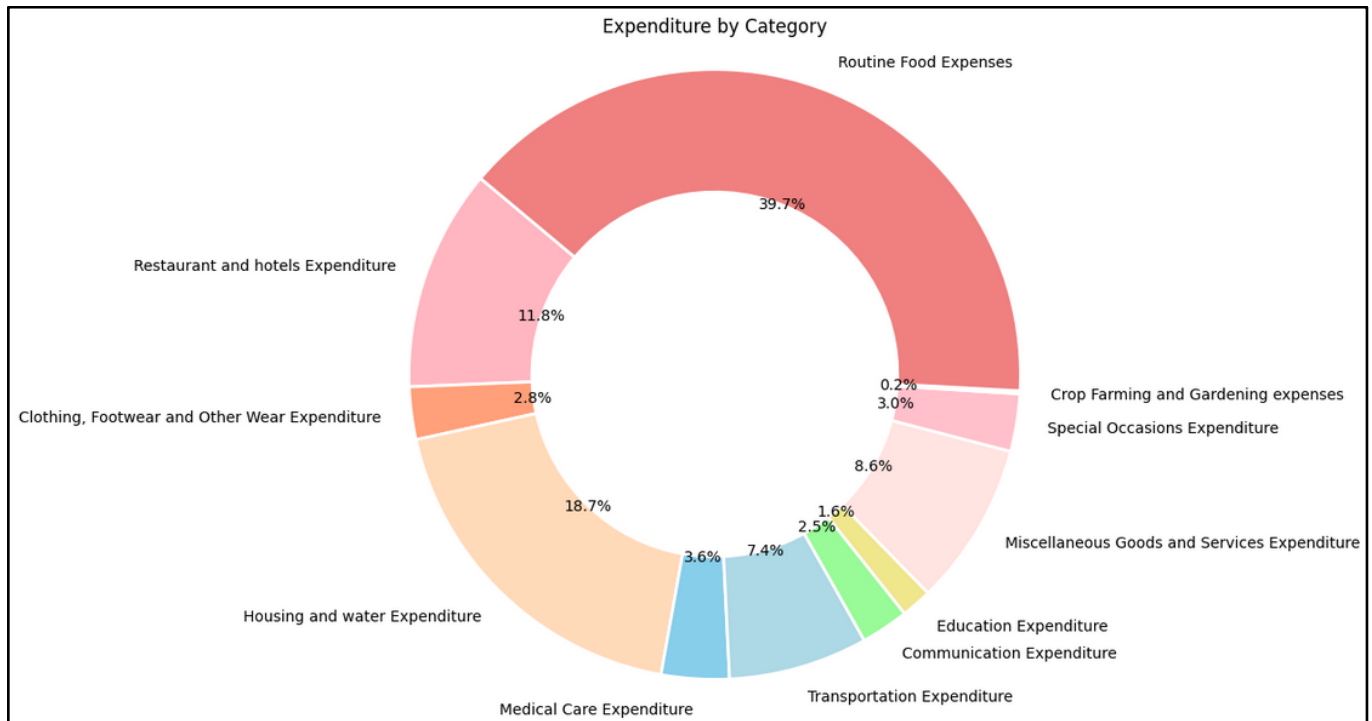


Figure 5: Metropolitan - Expenditure by Category

Fig 5 visualizes the suggested expenditure of a user living in the *metropolitan area*. It helps understand the Lifestyle and the spending patterns of the individual. We can see that the model has suggested the individual to spend the highest on *Routine Food Expenses*, *Housing and Water Expenditure* followed by *Restaurant and hotels expenditure* and then *transportation*. The cost of living is significantly higher in metropolitan areas and it only makes sense to allot a significantly high budget to routine food expenses and housing and water expenditures. Additionally, individuals living in the metropolitan areas tend to commute to work for long distances nearly every day and hence we get to see the model recognizing this lifestyle aspect and hence allot a substantial amount of budget to transport expenses as well.

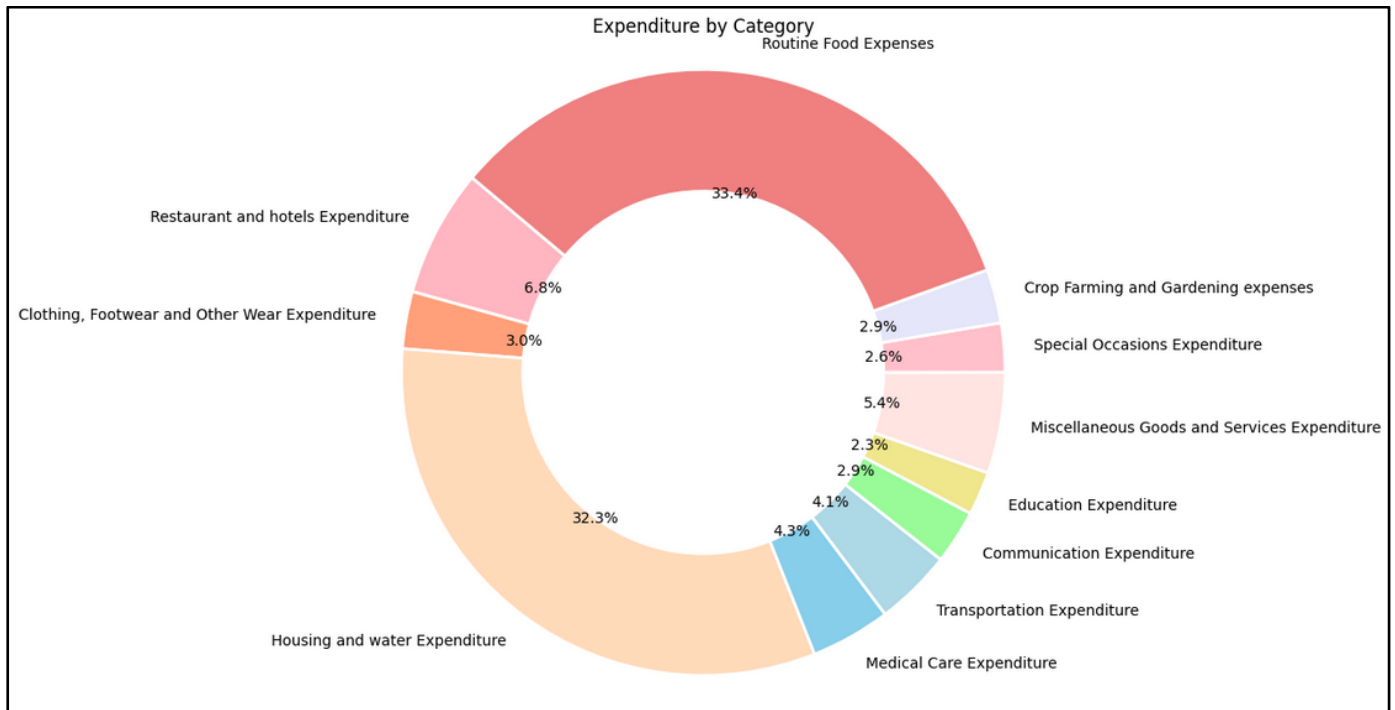


Figure 6: Urban - Expenditure by Category

Fig 6 visualizes the suggested expenditure of a user living in an *urban area*. We can see that this budget is slightly in coherence with the suggested budget for the individual living in a *metropolitan* area. Routine food expenditure and Housing and Water Expenditures are substantially high because of the higher cost of living. The same is true for restaurants and hotels expenditure.

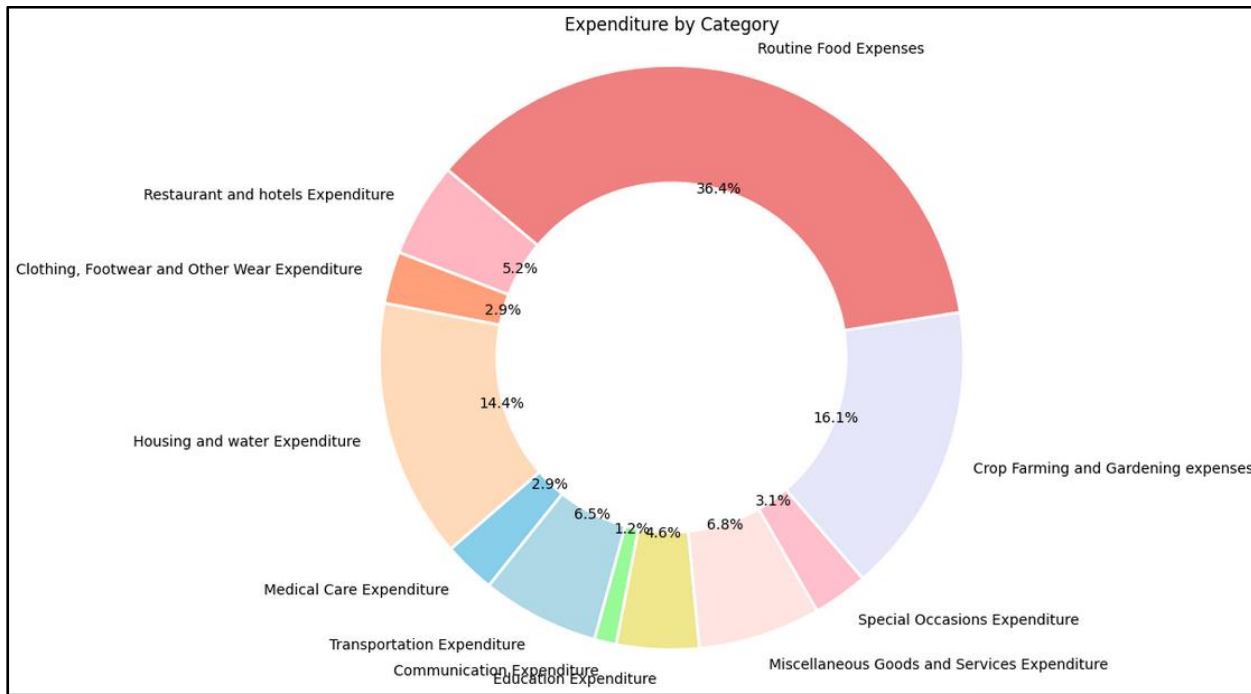


Figure 7: Suburban - Expenditure by Category

Fig 7 visualizes the suggested expenditure of a user living in a *suburban area*. This budget suggested by our model is slightly in contrast to the budget suggested for individuals from metropolitan and urban areas. Even though *routine food expenditures* and *housing and water expenditures* are quite high just like the results from Fig 5 and 6, we get to see quite a significant bump in the *Crop Farming and Gardening Expenses*. This, again makes sense because people from the suburbs tend to diversify their incomes such that they are also dependent on agriculture. This effect is only expected to be amplified in the predictions of the rural lifestyle expenditure.

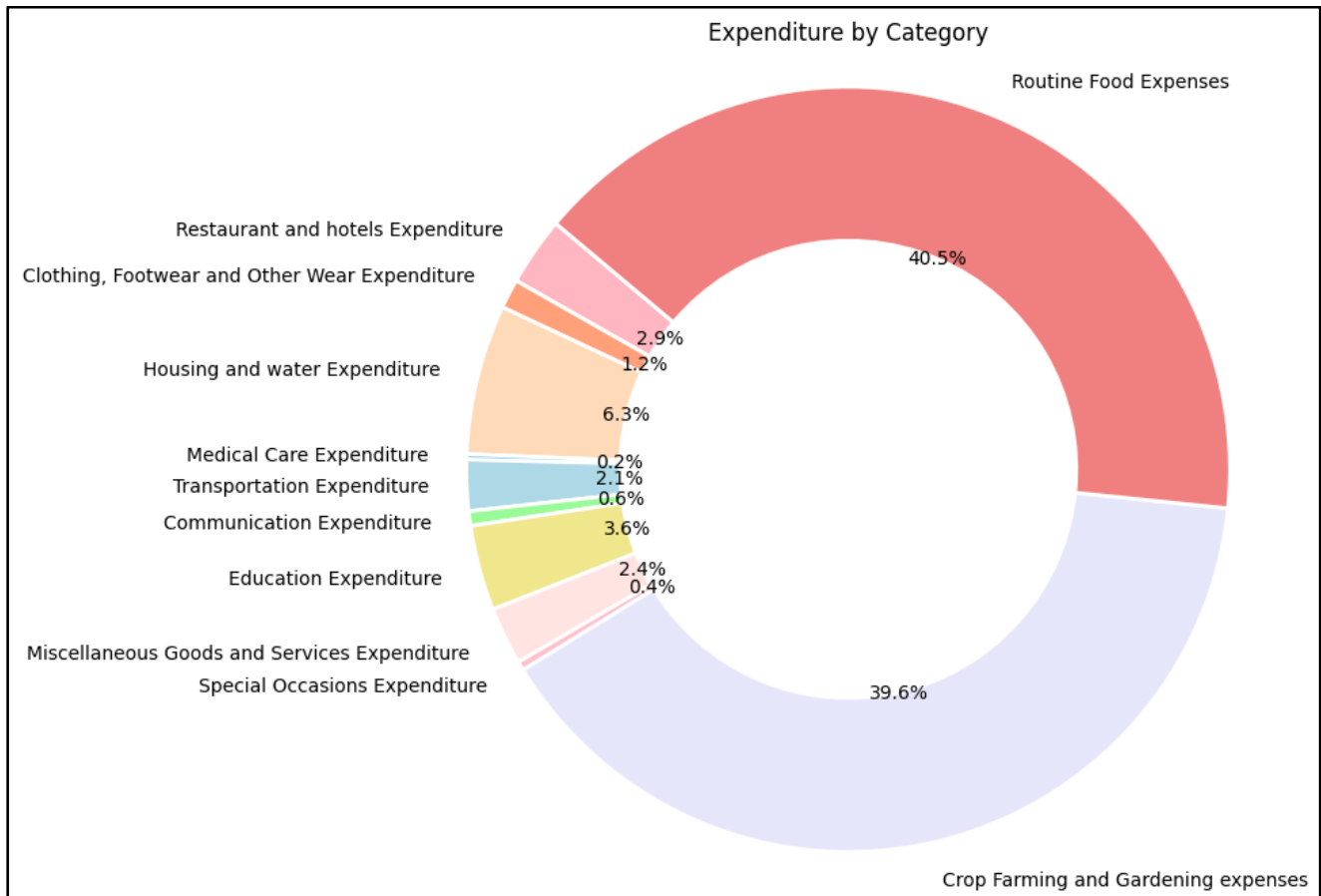


Figure 8: Rural - Expenditure by Category

Fig 8 visualizes the expenditure suggested for a user living in a *rural area*. We observe that the model has suggested that Crop Farming and Gardening 39.6% of the total household expenditure. This is in cohesion with the face that individuals in rural areas depend majorly on agriculture as their primary source of income. Moreover, routine food expenditure, just like the earlier suggestions from Figures 5,6,7 has a significant chunk in the budget. Not only that, but the medical expenditure has been allotted 0.2% which is extremely less and helps give us interesting insights into the quality of life in rural areas.

VI. CONCLUSION

The BudgetBliss project tackles a major hurdle in today's dynamic society: financial planning and management. This web application harnesses the power of Machine Learning to offer a user-friendly platform where individuals can reclaim control of their finances, set clear goals, and make optimal financial choices. In a world where

juggling multiple responsibilities is the norm, BudgetBliss emerges as a vital tool for fostering financial stability, personal aspirations, and overall well-being. As this project progresses and evolves, it holds the promise of transforming the way individuals approach their financial lives, ultimately leading to greater contentment and fulfillment.

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