

AI-Based Personal Financial Assistant

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CHAPTER 1

INTRODUCTION AND OBJECTIVE OF STUDY

1.1 Introduction

The current digital era has made personal finance management extremely complex owing to the ever-growing types of financial products, investments, and modes of spending money. Many people have problems with managing expenses, saving money, planning, and making investments owing to their poor financial knowledge and lack of expert advice. The technology of AI has revolutionized things by its ability to analyze huge amounts of financial information and generate intelligent suggestions for people. Personal finance management applications based on AI help people manage their spending habits, track their expenses, create budgets, and receive customized financial advice according to their incomes and expenses.

The suggested proposal, named "AI-Based Personal Financial Assistant," aims at building an intelligent solution that is intended to help people manage their finances in a better way. It uses various artificial intelligence approaches to make calculations, give financial health scores, and provide personalized tips for improving the process of savings and investing. The suggested project combines the approach to classic financial planning with modern technologies by using Excel

Financial management for oneself has become an important aspect of one's life because of the increasing usage of digital money systems, online shopping portals, and various investment options. People often find it hard to manage their finances efficiently because of inconsistent spending habits and the absence of efficient tools that can monitor finances. Without proper financial planning, people often face hindrances in achieving their financial goals.

However, with the development of financial technology, new ways have emerged, through which managing finances becomes easier than ever before. However, the reality is that many of today's systems require payments, expert financial knowledge, or professional advice. Thus, there is an urgent need for a cost-effective and easy-to-use financial management system that will help people make better financial decisions.

Excel is one of the most suitable platforms for creating financial management systems due to its strong capacity in analyzing, computing, visualizing, and automating information. Excel has such capabilities like formulas, functions, pivot tables, graphs, conditional formatting, and dashboards that can be used in developing an efficient personal finance management system. It is possible to gain useful knowledge regarding one's finances by integrating financial information in Excel analytical tools.

The personal financial assistant through AI, which is created using Excel, allows for recording and classification of expenses, monitoring of monthly budgeting, analysis of expenditure habits, and evaluation of one's financial condition. With the help of automated calculations and recommendation algorithms, personalized financial advice based on user information about finances is generated by the system. The purpose of such financial advice is to improve budget management and reduce unnecessary expenses.

The Financial Health Score has been included in the system as a measure that will help evaluate the financial health of a particular individual. This score is calculated based on various measures including income, saving rate, spending ratio, debts, and investments. With the help of this measure, one will be able to determine his or her strengths and weaknesses.

Moreover, the project offers dynamic dashboards and reports in visual form that can be created using Excel charts and graphs. These graphics allow users to track income distributions, expenditure groups, savings trends, and budget efficiency easily. Pie charts show the breakdown of expenditures in different groups, while bar and line charts help users analyze their financial trends on a monthly basis.

In addition, the project highlights how the software Excel can be utilized in making an academic finance management program through which the user is able to obtain advice similar to what can be provided by AI. This is achieved through combining the elements of analyzing financial information with decision-making systems to help one manage finances effectively.

The AI-Based Personal Financial Assistant plays a significant role in the improvement of financial literacy, inculcation of judicious spending habits, development of savings skills, and eventual generation of wealth. This study demonstrates how Artificial Intelligence principles can be integrated into spreadsheet technologies to create viable solutions for students, working individuals, and families.

1.2 Evolution of Personal Financial Management

Significant development has been observed in personal financial management during the last few decades. Individuals used traditional means for managing finances such as journals, diaries, and books. Although the approach was simple, it consumed much time and was prone to errors.

With the progress in information technology, the use of Excel became widespread as an important tool for managing personal finances. The program helped perform calculations automatically, organize financial data properly, and visualize results. Soon thereafter, financial organizations as well as FinTech companies developed applications offering budgeting, investment analysis, and tracking expenditure functions.

The introduction of AI has become a breakthrough in managing finances. AI-based systems are capable of analyzing user behavior, recognizing expenditure trends, projecting future development of finances, and generating personalized suggestions accordingly. Such innovations have improved the quality and efficiency of financial management for a wider public.

The project focuses on designing an AI-Based Personal Financial Assistant making use of the features of Excel and AI-based recommendation systems.

1.3 The Role of Artificial Intelligence in Personal Finances

Artificial Intelligence is revolutionizing the financial services sector by ensuring that the system is capable of processing large amounts of data and making conclusions from it. The AI methods being adopted in the financial sector include machine learning, data analysis, predictions, and recommendation algorithms.

In the area of personal finances, some of the roles played by AI include:

- Analysis of financial transactions.
- Determining unnecessary expenses.
- Predicting financial needs for the future.
- Making suggestions regarding saving money.

- Offering advice on investment areas.
- Evaluating budgets.
- Checking financial stability.

This project makes use of the AI methodology in analyzing financial information and giving out recommendations to help in decision making. Although it was done in Excel, the project showcases the application of AI in guiding personal finance decisions.

1.4 Importance of Financial Literacy

Financial literacy refers to an individual's ability to understand and manage financial resources. People who have high financial literacy tend to make better decisions about their budgeting, savings, investments, borrowing, and retirement planning.

Despite the presence of vast financial knowledge, individuals still struggle with:

- Over-spending.
- Not having enough money as an emergency fund.
- Poor debt management.
- Lack of investment planning.
- Not preparing for their future.

It is important to note that financial literacy plays an integral part in improving an individual's financial health. It is through this reason that the AI-Based Personal Financial Assistant aims at improving the level of financial literacy of its clients.

1.5 Use of Excel in Financial Analysis

Microsoft Excel is one of the most frequently used software applications in performing financial analysis and decision making. This application allows flexible creation and storage of financial data.

Some of the key Microsoft Excel features used in this project are listed below:

Formulas and Functions

- Formulas in Excel allow automation of income, expense, savings, investments, return on investments, and financial ratio calculations.

Pivot Tables

- Pivot tables help to extract information from large amounts of data by revealing spending trends and other financial insights.

Conditional Formatting

- It helps highlight critical financial metrics, including exceeding budgets, inadequate saving rates, and high spending.

Charts and Graphs

- With the help of charts, graphs, pie charts, bar graphs, and even interactive dashboards, we can conduct visual financial analysis in Excel.

Financial Dashboard

- An interactive dashboard helps us visualize our financial situation in more detail.

These features make it possible to build an AI-Based Personal Financial Assistant for analyzing our personal finances.

1.6 Features of the Proposed System

As for the AI-Based Personal Financial Assistant system, it will have some key features that will allow managing personal finances in an efficient way:

Income Management

- Recording all incomes from different sources.

Expense Tracking

- Tracking daily, weekly, or monthly expenses by categories.

Budget Planning

- Creating budgets according to expenditure categories.

Financial Health Score

- Calculating the user's financial health score.

AI-Based Recommendations

- Making customized recommendations for savings and expenses.

Savings Tracking

- Managing personal savings plans.

Investment Suggestions

- Providing some investment guidance based on financial data.

Dashboard Reporting

- Reporting about personal financial performance via charts and reports.

1.7 Anticipated Output from the Excel Project

The program creates various types of output for aiding the user with financial planning:

Dashboard

- Gives details about various financial aspects, such as income, expenditure, savings, and financial health scorecard.

Pie Chart

- Shows the percentage distribution of expenditure on various things, like food, transport, education, entertainment, and utility bills.

Bar Chart

- Shows comparison between income, expenditure, and savings on a monthly basis.

Line Graph

- Demonstrates the trend in the finances over time.

Financial Health Score Card

- Gives overall financial score of the user.

Recommendation Report

- Gives recommendation related to finances using AI.

1.8 Objectives of the Research

The main objective of this research is the development of an AI-enabled Personal Financial Assistant built on Microsoft Excel that will help individuals to effectively manage their finances through intelligent data analysis and recommendation.

The objectives include:

- Design and development of a personal finance tracking system that allows an efficient recording and monitoring of one's expenses and income.
- Development of a Financial Health Score model that measures the financial state of an individual based on such metrics as income, expenses, saving and budgeting habits.
- Provision of financial advice to users based on their financial data and analysis that helps improve personal finance management.
- Encouragement of savings habits through monitoring of financial behavior.
- Assistance in making investment decisions through provision of fundamental financial information and advice.
- Promotion of financial literacy and knowledge through presentation of financial information in the form of dashboard, charts and other visualizations.
- Financial budgeting and expense management through classification of expenses and budget performance monitoring.
- Development of a Microsoft Excel-based Decision Support System that provides a simple and affordable solution to financial problems.

CHAPTER 2

LITERATURE REVIEW

2.1 LITERATURE REVIEW

The explosive increase in the application of both Artificial Intelligence and FinTech in society has brought significant changes in how people take care of their finances. Conventional approaches to managing personal finances entail the manual calculation of incomes, expenditures, savings, and investments, which could lead to delays and inaccuracies. In response to this problem, several financial management systems employing artificial intelligence have been invented that automatically analyze a person's finances while providing useful insights for future decisions. The research paper called "AI-Powered Personal Finance Advisor" introduces an advanced system of managing personal finances by integrating Artificial Intelligence into it.

The research aims at designing a smart finance management application, which would help ordinary individuals plan their finances efficiently. The system under development will allow individuals to track their day-to-day expenses, manage their budgets, track their savings, and even invest their money in the most efficient manner. For this purpose, intelligent data analysis methods like K-Means clustering will be applied by the system to analyze the user's spending patterns, earnings trends, and risk tolerance. According to the findings of data analysis, appropriate suggestions will be provided.

One of the key contributions made by this research is the adoption of Artificial Intelligence in the management of personal finance. As shown in this study, AI has the ability to analyze financial transactions to establish some of the patterns which may not be easily discerned by the user. Based on the findings from this analysis, recommendations on

various issues related to personal finance can then be generated, thus eliminating the need for extensive knowledge in financial matters.

It is evident from the research conducted that budgeting and management of expenditures play a key role in obtaining financial stability. The created system enables users to enter their earnings and expenditures via the application and analyze their expenditure habits. Users receive notifications every time they go over the budget or fail to save. Such aspects enable individuals to maintain discipline in their financial dealings. According to the research conducted, monitoring of financial transactions helps greatly in managing finances.

The other major feature of the research includes the use of real-time notifications and alerts. These notifications provide information about various matters such as the limits of the budget, the financial targets to be achieved, any unusual financial activities, and any significant financial developments. Such notifications are essentially financial surveillance tools which help in staying informed about one's financial situation.

In addition to the features, the paper highlights the architecture of the proposed system. An AI-powered Personal Finance Advisor makes use of an architectural design comprising different components like data gathering, analysis, storage, processing, and visualization. A user would feed his financial data into the web-based application. This financial data will be analyzed by the backend system before being presented as reports and insights about the financial position of the user.

The findings point to the need for financial data organization when creating sound recommendations. Data pertaining to financial aspects such as sources of income, types of expenditures, payment schedules, and budget limits was collected and sorted out into various classifications. The data was then cleaned and standardized. According to the researchers, good data organization leads to better analysis of financial aspects and, therefore, better recommendations created by the AI.

One major element that is highlighted in this study is the creation of visual dashboards and reporting. Pie charts, bar graphs, savings reports, and expenditure reports are created by the system to give users insights into their financial behavior. Financial data become much easier to comprehend visually, thus aiding people to make better decisions about their finances. The researchers established that visual dashboards make users more engaged and help them see their spending patterns.

The study continues to analyze the concepts of savings planning and financial goals setting. The software will allow users to set up savings goals and target amounts and track their performance through visuals and reporting. The software will estimate the amount that is supposed to be saved and advise on ways of attaining the financial goals.

Other contributions made by the study include the role played by financial education and investments awareness. Through the mobile app, the users will be provided with information regarding investment, and will also be educated on financial matters. According to the authors, integrating financial education with finance management techniques would contribute towards improving financial literacy and making investment decisions.

The performance analysis carried out in this research highlights the efficiency of the suggested system. The system was analyzed using factors such as functionality, responsiveness, accuracy, and user experience. It is noted that the system was capable of dealing with tasks such as expense tracking, budgeting, saving, and financial report generation. Good user experience is attributed to the simple nature and easy usage of the system as well as personalized advice offered.

As per the findings of the study, an intelligent system for financial management can revolutionize personal financial management by minimizing the amount of labor required while simultaneously enhancing financial awareness. It is possible for individuals to exercise more control over their finances due to the automated analysis and real-time alerts coupled with customized financial advice and an interactive dashboard. This research clearly highlights that an artificial intelligence-based system for providing financial advisory services is a feasible and effective solution for personal financial management.

2.2 Research Gap

The research discussed herein has succeeded in designing a web-based AI-powered Personal Finance Advisor using Python, Streamlit, cloud computing, and the K-Means clustering method. This tool helps in expense tracking, budget planning, savings, investment planning, and offering personalized financial advice. Nevertheless, the creation process of such an advisor requires a high level of programming skills and access to technology.

In addition to this, the research paper emphasizes the importance of designing a solution in a web-based environment, while very little effort has been made towards designing a simpler financial management tool based on the use of Microsoft Excel. Further, there exists no Financial Health Score system which can calculate and assess the financial health status of users by using a performance indicator alone. In this research aims to design an AI-Based Personal Financial Assistant using Microsoft Excel, which comprises expenditure tracking, Financial Health Score evaluation, AI-assisted financial advice, savings assessment, and dashboards.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Problem Statement

It is difficult for most individuals to manage their finances owing to high living costs, several investment opportunities, and insufficient financial awareness. Most people have not been able to keep track of their expenditure and investments well enough; hence, there is a need for better financial management.

The primary problems include:

- Insufficient knowledge on personal finances and proper planning.
- Inability to keep track of expenses.
- Unproductive saving skills.
- Limited financial advice on investment opportunities.
- Difficulty in determining one's financial standing.

To address these challenges, the study proposes an “AI-Based Personal Financial Assistant using Microsoft Excel” which analyzes financial data and provides intelligent recommendations to improve financial well-being.

3.2 Research Design

The Research design refers to the entire framework of the research process, involving the planning and implementation of data gathering, data measurement, and data analysis processes in order to solve the problem of the research study and achieve its objectives.

This research work uses a Descriptive and Analytical Research Design in order to conduct research on the financial management of a person and the development of an AI Based Personal Financial Assistant through the help of Microsoft Excel.

The use of the descriptive research design will enable researchers to learn about the financial behavior of individuals by acquiring information regarding income, expenses, saving, investing, and financial objectives. This will help to find out some typical problems that are faced by people in managing their finances.

The analytical research design will be applied in the analysis of the financial data collected using financial equations, financial scoring, and decision rules. The system will use the financial data collected from the users to evaluate critical factors such as savings rate, expense rate, adequacy of emergency funds, and investment activity. The evaluated factors are used to compute the financial health score and offer financial advice to the user.

This study will apply a quantitative approach whereby numerical financial data will be analyzed using Microsoft Excel software. The generated model will use the financial logic and scoring criteria to evaluate the financial health status of users and recommend appropriate actions.

The design of this research includes the following steps:

Identification of the Problem - Awareness of problems related to personal finance management.

Data Collection - Acquisition of financial data about individuals using questionnaires.

Data Processing - Arrangement and validation of collected data in Microsoft Excel.

Financial Analysis - Calculation of savings rate, expense ratio, funds needed for emergencies, and investment scores.

Scoring of Financial Health - Evaluation of scores assigned to financial parameters and overall health score.

Generation of Recommendations - Provision of financial advice generated by AI, warnings, and investment recommendations.

Result Interpretation - Evaluation of efficiency of developed financial system in managing personal finances.

This type of research design has been chosen to be the most suitable one for carrying out this project as it will allow not only to understand individual financial behaviors but also to develop an adequate model for helping individuals in managing their finances.

3.3 Proposed Research Framework

The proposed AI-Based Personal Financial Assistant is developed on the basis of Input-Processing-Output (IPO) Framework. This framework transforms financial data into meaningful suggestions through a series of processes. The overall process illustrated in the form of flow chart as shown in figure 3.3



Figure 3.3 Flow chart of IPO Model

3.4 Sample size

The study used 44 respondents for its analysis. These people were picked via convenience sampling and came from various sectors are Employees, Student, Self-Employed, Business Owner, and Others. This mix was thought sufficient to grasp personal money handling, saving actions, investment routines, and awareness about financial planning.

The study consists of people who are actively engaged in personal financial activities such as income management, saving, investing, and financial planning. To obtain a comprehensive view of personal financial management practices, respondents from different backgrounds were included in the study as financial behavior differs across occupational groups.

The study employed a convenience sampling technique, which is a type of non-probability sampling. Here, participants were picked based on who was easiest to reach and willing to take part. It worked well because of time limits and the simplicity of recruiting people online.

The sample was selected to achieve the following objectives:

- To understand the financial behavior of different categories of individuals.

- To identify common challenges faced in personal financial management.
- To evaluate savings and investment habits.
- To assess awareness regarding financial planning.
- To collect real-world financial data for testing the proposed AI-Based Personal Financial Assistant.

By collecting responses from people with varied financial backgrounds, the study made sure to create a model that works for lots of different users. The chosen group gave enough info to spot financial trends and to build a personalized recommendation system. So, the model can offer tailored advice based on individual situations.

3.5 Research Instruments Used

Choosing the right research tools is key to making sure our findings are accurate, reliable, and valid. These tools help collect, organize, and analyze data. For this study, we used survey method to get financial info from participants and to create the AI-based financial helper using Microsoft Excel.

We used a structured questionnaire in Google Forms, along with Microsoft Excel for analysis. Also, we applied a Financial Health Scoring Model and visualized data with dashboard tools. Every instrument was picked to meet the research goals specifically.

We used a structured questionnaire as our main tool for gathering data. This method was picked because it gets standardized info from lots of people quickly. These questionnaires are common in management studies since they produce consistent, easy-to-quantify answers that are simple to analyze too.

We made the questionnaire to gather data on people's money habits. To make it easy to understand and to keep biases low, we kept the questions simple and neutral. Most questions were close-ended and multiple choice, letting people pick what best matches their finances.

The questionnaire focused on the following dimensions:

- Monthly income levels
- Monthly expenditure patterns
- Savings behavior
- Investment practices
- Emergency fund availability
- Financial planning activities
- Financial goals and objectives

People responses gave us key insights into their money habits and formed the basis for the new financial help program we're suggesting.

3.6 Research Data Collection Methods

Data collection is important in research because it really shapes how reliable and valid your findings are. You want to gather accurate and relevant info to tackle the research issue and hit the study's goals. With a solid data collection process, researchers can gain meaningful insights and reach good conclusions. So, it's crucial for getting it right.

The study 'AI-Based Personal Financial Assistant Using Microsoft Excel' aims to look at how people handle money and to create a system that gives personal finance advice. I collected the data by using a survey. The results help in understanding money habits, checking financial health, and making the AI helper better. So, the collected info is key in developing their proposed assistive model.

The data collection process was carefully planned and executed to ensure that the information obtained was reliable, relevant, and useful for analysis. The study relied on a survey to obtain a comprehensive understanding of personal financial management practices.

3.6.1 Implementation of Research Instruments

- I made a questionnaire using Google Forms and got it checked before sending it out to make sure it was clear and fit with what we wanted to know. I shared the link through various online ways and told people what the study was about so they could give honest answers.
- The survey was live for a set time, and all responses went straight into Google Forms. After that, I downloaded the responses into Microsoft Excel to analyze them further.
- Google Forms helped us out big time by making questionnaires easier and more accessible. I used it because it's super user-friendly and can auto-collect data.
- Going online offered tons of perks compared to old-school paper surveys. It sped up data collection, slashed mistakes from manually entering info, and kept everything organized neatly.
- Plus, people could fill it out whenever fit their schedule, boosting our chances of getting more participants and improving our results' quality overall.
- A Google Form was made to fit the study's needs. It had several parts to gather data systematically.
- I sent out the survey link through various online platforms, and respondents' answers went straight into the Google Forms database as they finished up.
- Once the survey ended, I checked all the responses for any missing or inconsistent info. After that, I exported everything to Microsoft Excel to clean, organize, and analyze the data.

CHAPTER 4

DATA ANALYSIS

AND INTERPRETATION

4.1 Data Analysis and Interpretation

Data analysis and interpretation are most important in research. They turn raw data into useful info for making decisions and supporting conclusions. Analysis helps organize, sum up, and assess the gathered info systematically, and interpretation explains why the results matter and how they fit the research goals.

The present study, titled "AI-Based Personal Financial Assistant Using Microsoft Excel," aims to understand the financial behavior and financial management practices of individuals. To achieve this objective, primary data was collected through a structured Google Form questionnaire administered to respondents from different occupational backgrounds. The collected responses were subsequently organized, processed, and analyzed using Microsoft Excel.

The study looks at how people manage money— incomes, spending, saving, investing, and emergency funds. It also covers financial planning and use of AI tools. To make the info easy to understand, data is shown through tables, pie charts, bar graphs, and percentages.

Looked at each survey question separately, showing results in tables and graphs. These findings help us understand what people do with money, what they like, and their problems. This lets us see respondents' financial situations better and spot places where they need advice and help.

The data backs up how useful the AI-Based Personal Financial Assistant really is. We use survey results to see how much people want automation for finances. This helps show how our system can help respondents manage money better—covering budgeting, saving, spending control, and investing tips.

The chapter divides into various sections, each zooming in on a different piece of survey data. For every variable, it shows the responses in tables and graphs, then analyzes and interprets them. At the end, it sums up the key findings, highlighting how they connect to the study's goals.

4.2 Age Group of Respondents

Table 4.2: Age-wise Distribution of Respondents

Age Group	Number of Respondents	Percentage
Below 20	0	0%
21–30	36	81.8%
31–40	8	18.2%
41–50	0	0%
Above 50	0	0%
Total	44	100%

1. What is your age group?

44 responses

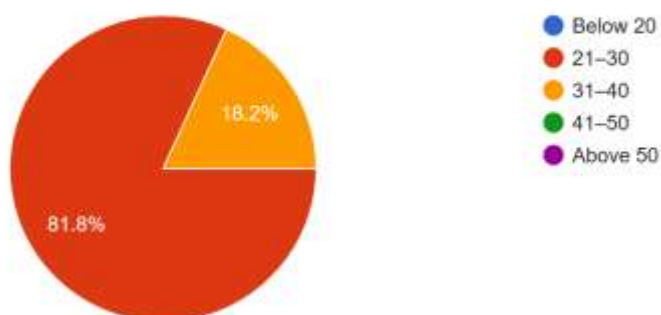


Figure 4.2: Age-wise Distribution of Respondents

Analysis

The above table and figure present the age-wise distribution of respondents who participated in the survey. Out of the total 44 respondents, 36 respondents (81.8%) belong to the age group of 21–30 years, while 8 respondents (18.2%) belong to the age group of 31–40 years. No respondents were recorded in the age groups below 20 years, 41–50 years, and above 50 years.

The data clearly indicates that the majority of respondents belong to the 21–30 years age category.

Interpretation

The findings indicate that the survey was predominantly represented by young adults aged between 21 and 30 years. This age group generally consists of students, early-career professionals, and young employees who are actively involved in managing their income, expenses, savings, and investment decisions.

Since the majority of respondents belong to the young working-age population, the results of the study provide valuable insights into the financial management practices and financial planning behavior of individuals who are at the beginning stages of their financial journey. The findings further suggest that there is significant potential for AI-based financial assistance tools to support young individuals in improving budgeting, savings, and investment decisions.

4.3 Occupation of Respondents

Table 4.3: Occupation-wise Distribution of Respondents

Occupation	Number of Respondents	Percentage
Student	13	29.5%
Employee	25	56.8%
Self-Employed	4	9.1%
Business Owner	1	2.3%
Other	1	2.3%
Total	44	100%

2. What is your occupation?

44 responses

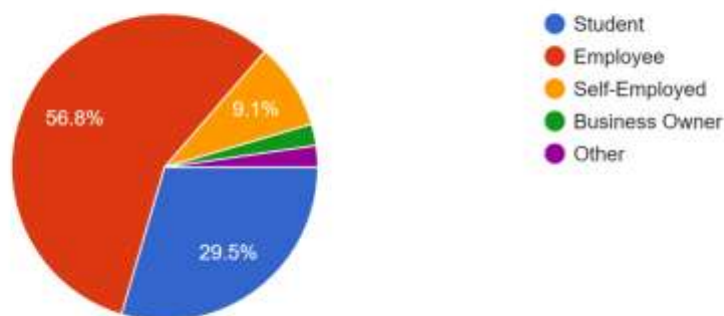


Figure 4.3: Occupation-wise Distribution of Respondents

Analysis

The above table and figure illustrate the occupational distribution of respondents participating in the survey. Out of the total 44 respondents, 25 respondents (56.8%) are employees, representing the largest category in the sample. Students account for 13 respondents (29.5%), making them the second-largest group. Self-employed individuals constitute 4

respondents (9.1%), while business owners and respondents belonging to other occupational categories each account for 1 respondent (2.3%).

The data indicates that the majority of respondents are employees, followed by students and self-employed individuals.

Interpretation

The findings reveal that most respondents belong to the employee category, suggesting that the study primarily reflects the financial behavior and financial management practices of working professionals. Employees typically receive regular income and are actively involved in budgeting, saving, investment planning, and financial decision-making.

The significant participation of students indicates growing awareness regarding personal finance among younger individuals. The inclusion of self-employed individuals, business owners, and respondents from other categories provides additional perspectives on financial management practices across different occupational groups.

The occupational diversity of respondents enhances the reliability of the study and enables the proposed AI-Based Personal Financial Assistant to address the financial needs of individuals from various professional backgrounds. The findings also support the relevance of personalized financial guidance, as different occupational groups may face different financial planning challenges and requirements.

4.4 Average Monthly Income of Respondents

Table 4.4: Average Monthly Income of Respondents

Monthly Income	Number of Respondents	Percentage
Below ₹20,000	15	34.1%
₹20,001 – ₹40,000	12	27.3%
₹40,001 – ₹60,000	5	11.4%
₹60,001 – ₹80,000	4	9.1%
Above ₹80,000	8	18.2%
Total	44	100%

3. What is your average monthly income?

44 responses

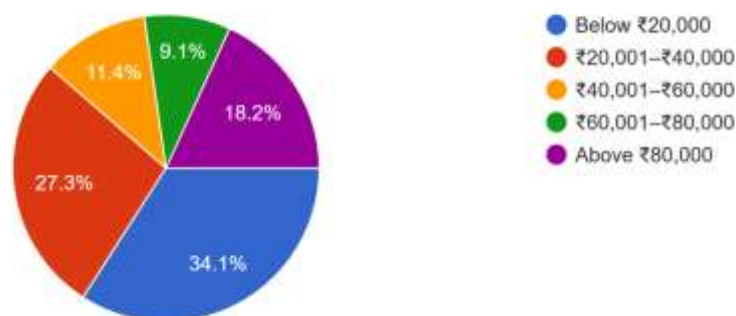


Figure 4.4: Average Monthly Income of Respondents

Analysis

The above table and figure illustrate the average monthly income distribution of the respondents. Out of the total 44 respondents, 15 respondents (34.1%) reported a monthly income below ₹20,000, making it the largest income category. A total of 12 respondents (27.3%) fall within the income range of ₹20,001–₹40,000. Further, 5 respondents (11.4%) earn between ₹40,001 and ₹60,000, while 4 respondents (9.1%) belong to the ₹60,001–₹80,000 income group. Additionally, 8 respondents (18.2%) reported a monthly income above ₹80,000.

The findings indicate that a significant proportion of respondents belong to the lower and middle-income categories, while a smaller percentage falls into the higher-income brackets.

Interpretation

The results suggest that the majority of respondents have monthly incomes below ₹40,000, indicating that most participants belong to the lower and middle-income segments. Individuals in these income groups generally need effective financial planning, budgeting, and savings strategies to manage their financial obligations and achieve their financial goals.

The presence of respondents from higher income groups, particularly those earning above ₹80,000 per month, reflects diversity in the sample and provides insights into different financial management practices across income levels. The variation in income categories highlights the importance of personalized financial guidance, as financial needs and priorities differ significantly based on income levels.

The findings support the relevance of the proposed **AI-Based Personal Financial Assistant**, which can provide customized recommendations according to the user's income profile. By analyzing income levels along with expenses, savings, and investments, the system can help individuals make informed financial decisions, improve budgeting practices, and enhance overall financial well-being.

4.5 Average Monthly Expenditure of Respondents

Table 4.5: Average Monthly Expenditure of Respondents

Monthly Expenditure	Number of Respondents	Percentage
Below ₹10,000	15	34.1%
₹10,001 – ₹20,000	13	29.5%
₹20,001 – ₹40,000	6	13.6%
₹40,001 – ₹60,000	7	15.9%
Above ₹60,000	3	6.8%
Total	44	100%

4. What is your average monthly expenditure?

44 responses

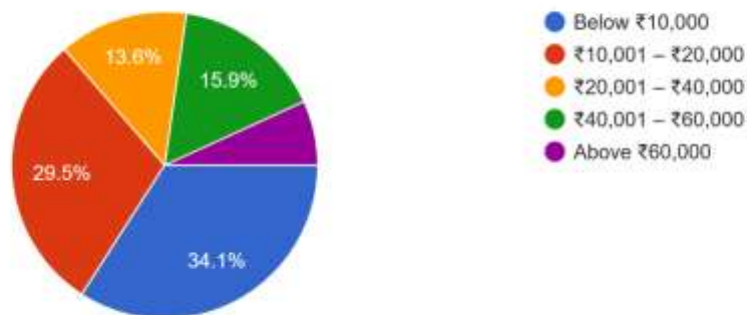


Figure 4.5: Average Monthly Expenditure of Respondents

Analysis

The above table and figure present the average monthly expenditure pattern of the respondents. Out of the total 44 respondents, 15 respondents (34.1%) reported monthly expenditure below ₹10,000, representing the largest expenditure category. A total of 13 respondents (29.5%) spend between ₹10,001 and ₹20,000 per month. Further, 6 respondents (13.6%) have monthly expenditure ranging from ₹20,001 to ₹40,000, while 7 respondents (15.9%) spend between ₹40,001 and ₹60,000. Only 3 respondents (6.8%) reported monthly expenditure above ₹60,000.

The analysis indicates that the majority of respondents maintain their monthly expenditure below ₹20,000, while a relatively smaller proportion falls into the higher expenditure categories.

Interpretation

The findings suggest that most respondents have controlled spending habits and maintain expenditure levels within a manageable range. Since a significant proportion of respondents spend less than ₹20,000 per month, it indicates a conscious effort toward budgeting and financial discipline.

However, respondents belonging to higher expenditure categories may face greater challenges in maintaining savings and achieving long-term financial goals. Excessive expenditure can reduce disposable income available for savings and investments, thereby affecting overall financial health.

The results highlight the importance of effective expense management in personal financial planning. The proposed **AI-Based Personal Financial Assistant** can assist users in monitoring spending patterns, identifying unnecessary expenses, and providing personalized recommendations to improve budgeting practices. By analyzing expenditure behavior alongside income and savings data, the system can help users maintain financial stability and achieve better financial outcomes.

4.6 Average Monthly Savings of Respondents

Table 4.6: Average Monthly Savings of Respondents

Monthly Savings	Number of Respondents	Percentage
Below ₹5,000	26	59.1%
₹5,001 – ₹10,000	12	27.3%
₹10,001 – ₹20,000	1	2.3%
₹20,001 – ₹30,000	3	6.8%
Above ₹30,000	2	4.5%
Total	44	100%

5. How much do you save on average per month?
44 responses

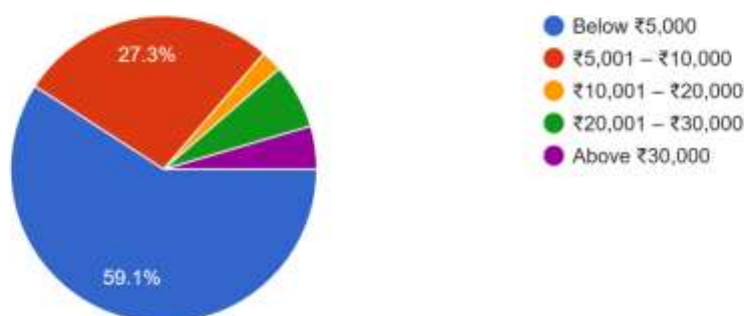


Figure 4.6: Average Monthly Savings of Respondents

Analysis

The above table and figure depict the average monthly savings of the respondents. Out of the total 44 respondents, 26 respondents (59.1%) save less than ₹5,000 per month, making it the largest savings category. A total of 12 respondents (27.3%) save between ₹5,001 and ₹10,000 per month. Only 1 respondent (2.3%) saves between ₹10,001 and ₹20,000, while 3 respondents (6.8%) save between ₹20,001 and ₹30,000. Further, 2 respondents (4.5%) reported monthly savings above ₹30,000.

The data clearly indicates that a majority of respondents maintain relatively low levels of monthly savings.

Interpretation

The findings reveal that most respondents save less than ₹5,000 per month despite having different income levels. This suggests that a significant portion of income may be allocated towards regular expenses and other financial commitments, leaving limited scope for savings.

The relatively low savings levels among respondents may affect their ability to build emergency funds, achieve long-term financial goals, and create wealth through investments. The small percentage of respondents saving more than ₹20,000 per month indicates that only a few individuals possess strong saving capacity and financial discipline.

These findings highlight the importance of effective financial planning and budgeting practices. The proposed **AI-Based Personal Financial Assistant** can help users improve their savings habits by analyzing income and expenditure patterns, identifying unnecessary expenses, and providing personalized recommendations for increasing monthly savings. By encouraging disciplined saving behavior, the system can contribute to improved financial stability and long-term financial well-being.

4.7 Financial Goals of Respondents

Table 4.7: Availability of Specific Financial Goals Among Respondents

Response	Number of Respondents	Percentage
Yes	40	90.9%
No	4	9.1%
Total	44	100%

6. Do you have a specific financial goal?

44 responses

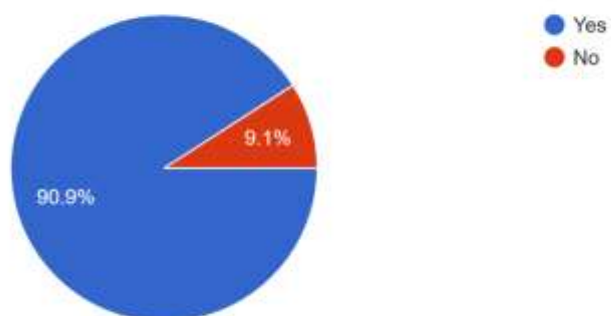


Figure 4.7: Availability of Specific Financial Goals Among Respondents

Analysis

The above table and figure illustrate whether respondents have specific financial goals. Out of the total 44 respondents, 40 respondents (90.9%) stated that they have a specific financial goal, whereas only 4 respondents (9.1%) reported that they do not have any specific financial goal.

The results clearly indicate that the overwhelming majority of respondents have defined financial objectives that they intend to achieve in the future.

Interpretation

The findings suggest that financial goal-setting is a common practice among the respondents. The high percentage of individuals with specific financial goals reflects a growing awareness of the importance of financial planning and long-term wealth management. Financial goals may include purchasing a house, funding higher education, building an emergency fund, retirement planning, wealth creation, or achieving financial independence.

The presence of clearly defined financial goals indicates that respondents recognize the need for systematic financial management and disciplined saving and investment practices. However, merely having financial goals does not guarantee their achievement. Effective monitoring, budgeting, savings planning, and investment management are necessary to successfully accomplish these objectives.

The findings support the relevance of the proposed **AI-Based Personal Financial Assistant**, as the system can help users track their financial progress, evaluate their financial health, and provide personalized recommendations aligned with their specific goals. By assisting users in making informed financial decisions, the system can contribute significantly toward achieving their short-term and long-term financial objectives.

4.8 Primary Financial Goal of Respondents

Table 4.8: Primary Financial Goal of Respondents

Financial Goal	Number of Respondents	Percentage
Emergency Fund	8	18.2%
Buying a House	17	38.6%
Education	1	2.3%
Retirement Planning	1	2.3%
Wealth Creation	11	25.0%
Other	6	13.6%
Total	44	100%

7. What is your primary financial goal?

44 responses

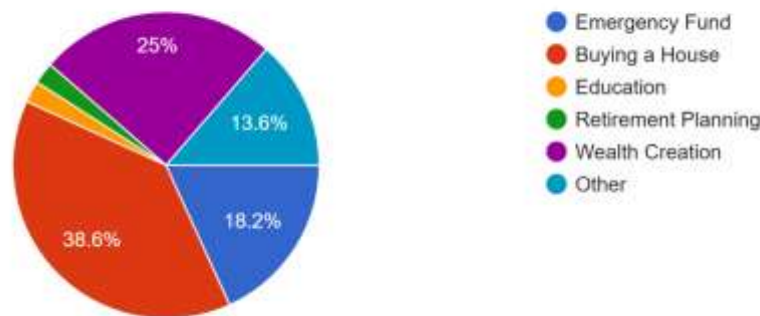


Figure 4.8: Primary Financial Goal of Respondents

Analysis

The above table and figure illustrate the primary financial goals of the respondents. Out of the total 44 respondents, 17 respondents (38.6%) identified **buying a house** as their primary financial goal, making it the most preferred objective. This is followed by **wealth creation**, which was selected by 11 respondents (25.0%). A total of 8 respondents (18.2%) stated that building an **emergency fund** is their primary financial goal, while 6 respondents (13.6%) selected other financial objectives.

Only 1 respondent (2.3%) identified **education** as the primary financial goal, and another 1 respondent (2.3%) selected **retirement planning** as the main financial objective.

The results indicate that asset acquisition and wealth accumulation are the major financial priorities among the respondents.

Interpretation

The findings suggest that the majority of respondents are focused on long-term financial security and asset creation. The high preference for purchasing a house indicates that home ownership remains one of the most important financial aspirations among individuals. Owning a house is often considered a symbol of financial stability and long-term security, which explains its prominence among respondents.

The significant proportion of respondents prioritizing wealth creation demonstrates an increasing awareness of investment and financial growth opportunities. Individuals are becoming more conscious of the need to build wealth for future financial independence and improved living standards.

The relatively lower percentage of respondents focusing on retirement planning and education may indicate that these goals are either considered long-term priorities or are currently less important compared to immediate financial objectives such as home ownership and wealth accumulation.

The study shows how crucial personalized financial planning is. The AI-Based Personal Financial Assistant helps users match their money stuff—like income, spending, saving, and investing—with their goals. It gives custom tips to reach those aims quicker and easier. So, it can really boost your chances of meeting your financial dreams.

4.9 Investment Habits of Respondents

Table 4.9: Investment Behavior of Respondents

Response	Number of Respondents	Percentage
Yes	18	40.9%
No	26	59.1%
Total	44	100%

8. Do you currently invest your savings?

44 responses

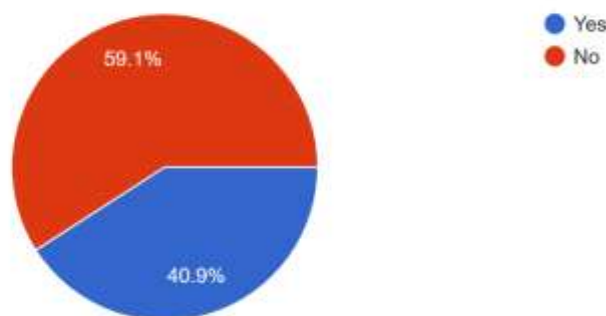


Figure 4.9: Investment Behavior of Respondents

Analysis

The above table and figure present the investment behavior of the respondents. Out of the total 44 respondents, 18 respondents (40.9%) stated that they currently invest their savings, whereas 26 respondents (59.1%) reported that they do not invest their savings.

The data indicates that a majority of respondents are not actively investing their savings despite having financial goals and maintaining savings habits.

Interpretation

The findings reveal that although many respondents save a portion of their income, a significant percentage do not invest their savings in financial instruments. This may be due to a lack of financial knowledge, risk aversion, insufficient investment awareness, or uncertainty regarding suitable investment options.

Investing plays a crucial role in wealth creation and long-term financial growth. Individuals who do not invest their savings may miss opportunities to earn higher returns and achieve their financial goals more effectively. The results suggest that there is a gap between saving behavior and investment behavior among respondents.

The findings support the need for personalized financial guidance and investment education. The proposed **AI-Based Personal Financial Assistant** can assist users by analyzing their financial profile, identifying surplus funds, and recommending suitable investment options based on their financial goals, risk tolerance, and savings capacity. Such recommendations can encourage individuals to transition from merely saving money to actively investing for future financial security.

4.10 Preferred Investment Option of Respondents

Table 4.10: Preferred Investment Option of Respondents

Investment Option	Number of Respondents	Percentage
Fixed Deposit	7	15.9%
Mutual Funds	8	18.2%
Stocks	4	9.1%
Gold	9	20.5%
Real Estate	7	15.9%
Others	9	20.5%
Total	44	100%

9. Which investment option do you prefer?

44 responses

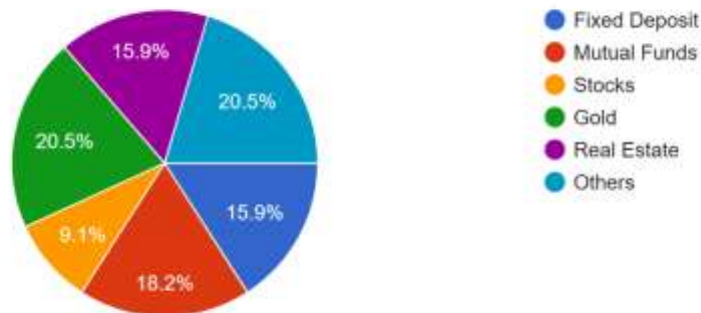


Figure 4.10: Preferred Investment Option of Respondents

Analysis

The above table and figure show the preferred investment options selected by the respondents. Among the 44 respondents, **Gold** and **Other investment options** emerged as the most preferred choices, each accounting for 9 respondents (20.5%). **Mutual Funds** were preferred by 8 respondents (18.2%), while **Fixed Deposits** and **Real Estate** were chosen by 7 respondents (15.9%) each. Only 4 respondents (9.1%) preferred investing in **Stocks**, making it the least preferred investment option among the respondents.

The findings indicate that respondents prefer relatively stable and familiar investment avenues over high-risk investment instruments.

Interpretation

The results suggest that respondents have diverse investment preferences based on their financial goals, risk tolerance, and investment knowledge. The popularity of gold as an investment option indicates that many individuals perceive it as a safe and reliable asset that can preserve value during uncertain economic conditions.

The preference for mutual funds reflects growing awareness regarding professionally managed investment products that offer diversification and long-term wealth creation opportunities. Fixed deposits continue to attract investors due to their safety, guaranteed returns, and low-risk nature.

The comparatively lower preference for stocks may indicate concerns regarding market volatility, lack of investment knowledge, or fear of financial loss. Similarly, real estate remains an attractive option for respondents seeking long-term asset appreciation and financial security.

The presence of a significant percentage of respondents selecting "Other" investment options suggests that investors are exploring alternative financial instruments based on their individual requirements and financial objectives.

These findings emphasize the importance of personalized investment guidance. Since investment preferences vary considerably among individuals, a one-size-fits-all approach may not be effective. The proposed **AI-Based Personal Financial Assistant** can analyze user financial profiles and recommend suitable investment options based on income level, savings capacity, risk tolerance, and financial goals.

4.11 Acceptance of AI-Based Personal Financial Assistant

Table 4.11: Respondents' Willingness to Use an AI-Based Personal Financial Assistant for Financial Planning and Investment Suggestions

Response	Number of Respondents	Percentage
Strongly Agree	11	25.0%
Agree	13	29.5%
Neutral	17	38.6%
Disagree	3	6.8%
Strongly Disagree	0	0.0%
Total	44	100%

10. Would you use an AI-based Personal Financial Assistant for financial planning and investment suggestions?

44 responses

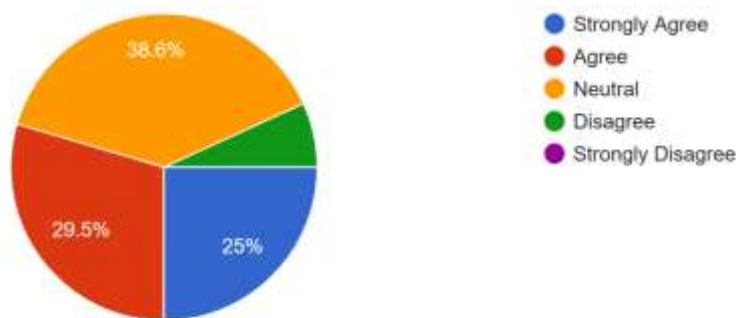


Figure 4.11: Willingness to Use an AI-Based Personal Financial Assistant

Analysis

The above table and figure present the respondents' opinions regarding the use of an AI-Based Personal Financial Assistant for financial planning and investment suggestions. Out of the total 44 respondents, 17 respondents (38.6%) expressed a neutral opinion regarding the adoption of an AI-based financial assistant. A total of 13 respondents (29.5%) agreed with the concept, while 11 respondents (25.0%) strongly agreed.

Only 3 respondents (6.8%) disagreed with the use of an AI-Based Personal Financial Assistant, and none of the respondents strongly disagreed with the concept.

The results indicate that the majority of respondents have a positive or open attitude toward the adoption of AI-based financial assistance tools.

Interpretation

The findings suggest that respondents are increasingly receptive to the use of technology in personal financial management. More than half of the respondents either agreed or strongly agreed that they would use an AI-Based Personal Financial Assistant for financial planning and investment recommendations. This demonstrates a growing interest in digital financial solutions that can simplify financial decision-making and provide personalized guidance.

The relatively high percentage of neutral responses may indicate that some respondents are unfamiliar with AI-based financial advisory systems or may require greater awareness regarding their benefits and functionality. As AI technology continues to gain acceptance in financial services, these users may become more willing to adopt such solutions in the future.

The low percentage of disagreement indicates minimal resistance toward the use of AI in personal finance. This finding supports the feasibility and practical relevance of the proposed AI-Based Personal Financial Assistant.

The proposed system can assist users by analyzing income, expenses, savings, investments, and financial goals to generate personalized recommendations and financial insights. Such capabilities can improve financial decision-making, encourage disciplined financial behavior, and support the achievement of long-term financial objectives.

CHAPTER 5

CONCLUSION, DISCUSSIONS, LIMITATIONS, FUTURE RESEARCH DIRECTIONS AND SUGGESTIONS

5.1 Conclusion

This study showed that an AI-based personal financial assistant in Microsoft Excel really works. People see the need for proper financial planning but struggle with saving, investing, and reaching goals. So, the assistant helps them manage their finances better.

Survey results showed that people need smarter financial help systems for personal guidance and useful advice. The suggested system answers this by looking at finances, checking overall health, and creating tailored tips – just what people want.

Though it has some limits, this study shows how AI can boost financial literacy and better decision-making, helping people in the long run too. It gives important info for researchers, financial professionals, and technology developers to advance AI in personal finance management.

The proposed system turns raw financial info into useful insights. It analyzes financial habits and spots areas for improvement too. This helps users make smart choices about budgeting, saving, and investing.

Respondents' positive reaction confirms the practicality of AI-based financial advisory tools. People seem more willing to use these smart systems for simpler money management and achieving goals, showing the growing trust in such technologies.

The study shows AI-powered financial help systems can really boost financial stability, improve saving and investments, and aid in making smart money choices in today's complicated financial world.

The study concludes that AI-powered financial assistance systems can play a significant role in helping individuals achieve financial stability, improve savings and investment behavior, and make informed financial decisions in an increasingly complex financial environment.

5.2 Discussion of Findings

The analysis of survey data generated several important findings regarding personal financial behavior and financial planning practices.

The majority of respondents are between 21 and 30 years old, showing that young adults care more about financial planning. They want to manage money better too. This trend indicates a rising need for digital tools to help with finance, making it easier for them to keep track and control their spending.

The occupational analysis showed employees make up the biggest group. Because they get steady pay, these people often need help with money stuff like budgeting and investing. This really underlines how relevant the suggested system is for working people.

The study showed that many respondents are in lower and middle-income brackets. Although they have steady incomes, their savings aren't high. This implies that spending habits and financial obligations really affect how much they can save.

Another key finding is that while most people have financial goals, many don't actually invest their savings. This shows a gap between wanting to achieve financial aims and taking action. People might know investing is smart but still lack the knowledge, confidence, or advice to get started.

Analyzing investment preferences shows that people like safer bets. They go for gold, mutual funds, fixed deposits, and real estate. This means they see risk as super important when choosing where to invest.

The study showed that people really like AI-based financial advice too. Most people said they'd be happy using an AI tool for things like budgeting, planning, and investing. This definitely shows the real-world value and market potential of such systems.

It looks like people need personalized financial help to save better, manage money, and make smart investments. The suggested AI assistant tackles these needs by using smart analysis and giving tailored recommendations.

5.3 Limitations of the Study

Although our study met its goals, there are some limits we need to address.

1. Limited Sample Size

First, we only got responses from 44 participants. While this gave us valuable data, having more people would make our results more reliable and applicable to a wider group.

2. Geographic Constraints

Second, the majority of respondents came from one specific area. This means our findings might not reflect the financial behaviors of people from other regions or cultures.

3. Dependence on Self-Reported Data

Third, the study depended on self-reports from the participants. So, the accuracy of our results depends on their honesty when filling out the surveys.

4. Limited Financial Variables

Fourth, our system focused mainly on income, expenses, savings, investments, and goals. But it didn't cover other important factors like debt management, insurance, tax planning, and credit scores.

5. Rule-Based Recommendation System

Fifth, we used a rule-based recommendation model without any fancy machine learning algorithms or real-time market data.

6. Technology Constraints

Lastly, we built our system using Microsoft Excel. This worked great for educational use but it lacks the advanced features needed for bigger applications compared to specialized financial software.

Still, despite these limitations, our study offers a good starting point for grasping personal financial management and helping to create better AI-based financial support systems.

5.4 Future Research Directions

The results and limitations of this study open up several paths for future research and improving the system.

1. Larger Sample Size

Firstly, researchers could work with more people from different backgrounds. Having a bigger, more varied group would make the findings stronger and more trustworthy.

2. Integration of Machine Learning Algorithms

Secondly, the system could use machine learning and AI to get better at offering tailored advice. This means it could learn from what users do and adjust recommendations based on their past financial info.

3. Mobile Application Development

Thirdly, turning the current Excel setup into a mobile app would let folks check their finances anytime, anywhere.

4. Real-Time Financial Data Integration

Next, integrating real-time financial market info and updates could give users way more current data and help with quicker decision-making.

5. Advanced Financial Planning Features

Another area is building out features for advanced planning. Things like tax planning, insurance, retirement savings, loan management, credit score checks, and portfolio tuning are key here.

6. Personalized Risk Assessment

Also, personal risk assessments can help recommend safe investment options that match how much risk someone's okay with taking on.

7. Predictive Financial Analytics

Advanced AI techniques can be utilized to forecast future financial conditions, predict spending patterns, and identify potential financial risks before they occur.

8. Integration with Banking and FinTech Platforms

Future research can explore integration with banking systems and financial technology platforms to automate data collection and improve recommendation accuracy.

5.5 Suggestions

Based on the study's results, here are some suggestions to help with managing money better and make the AI-Based Personal Financial Assistant work even better: improve personal finances and boost the assistant's usefulness.

1. Encourage Regular Savings Habits

The study found that most people save less than ₹5,000 a month. So, people should try to set aside more by setting up regular savings from their paychecks. Doing this consistently helps build that financial security and allows you to reach your long-term money goals too.

2. Promote Budget Planning and Expense Tracking

Lots of survey participants are from lower or middle-income groups, where effective budgeting really matters. People should create monthly budgets and keep an eye on their expenses regularly. This helps spot unnecessary spending, boosts financial control, and ups savings potential.

3. Improve Investment Awareness

The results showed that many people with savings don't actually invest, even if they have financial goals. So, we need more programs to teach people about investments, managing risks, and growing wealth. That way, more people can reach their money goals.

4. Build and Maintain Emergency Funds

Lots of people think building emergency funds is super important. It's wise to keep at least three to six months' worth of living costs saved up. This way, if something unexpected happens, like car repairs or medical bills, you don't have to worry. You can handle these issues without messing up your other financial goals.

5. Adopt Goal-Oriented Financial Planning

Since most people want to buy a house or build wealth, they should use organized financial plans. Aligning financial choices with both short-term and long-term goals boosts achieving those aims and stabilizes finances, so it's wise to do this planning.

6. Encourage the Use of AI-Based Financial Tools

The survey showed people like AI in finances, so let's keep pushing that. Using digital tools for budgeting, saving, investing, and tracking money is a win. They make decisions easier and help boost financial know-how.

CHAPTER 6

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