PERSONAL FINANCE MANAGEMENT

A PROJECT REPORT

Submitted by

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in partial fulfillment of requirements for the award of the course

CGB1201 - JAVA PROGRAMMING

In

COMPUTER SCIENCE AND ENGINEERING

K. RAMAKRISHNAN COLLEGE OF TECHNOLOGY

(An Autonomous Institution, affiliated to Anna University Chennai and Approved by AICTE, New Delhi)

SAMAYAPURAM – 621 112

NOVEMBER- 2024

K. RAMAKRISHNAN COLLEGE OF TECHNOLOGY (AUTONOMOUS)

SAMAYAPURAM – 621 112

BONAFIDE CERTIFICATE

Certified that this project report on **" PERSONAL FINANCE MANAGEMENT "** is the bonafide work of **HARIPRIYA S (2303811710422056)** who carried out the project work during the academic year 2024 - 2025 under my supervision.

SIGNATURE	**SIGNATURE**
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HEAD OF THE DEPARTMENT	**SUPERVISOR**
PROFESSOR	ASSISTANT PROFESSOR
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Submitted for the viva-voce examination held on 02.12.2024

INTERNAL EXAMINER EXTERNAL EXAMINER

DECLARATION

I declare that the project report on **" PERSONAL FINANCE MANAGEMENT"** is the result of original work done by us and best of our knowledge, similar work has not been submitted to **"ANNA UNIVERSITY CHENNAI"** for the requirement of Degree of **BACHELOR OF ENGINEERING**. This project report is submitted on the partial fulfilment of the requirement of the completion of the course **CGB1201 - JAVA PROGRAMMING.**

Signature

Name of the Student

Place: Samayapuram

Date: 02-12-2024

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VISION OF THE INSTITUTION

To serve the society by offering top-notch technical education on par with global standards

MISSION OF THE INSTITUTION

- Be a center of excellence for technical education in emerging technologies by exceeding the needs of the industry and society.
- Be an institute with world class research facilities
- Be an institute nurturing talent and enhancing the competency of students to transform them as all-round personality respecting moral and ethical values

VISION OF DEPARTMENT

To be a center of eminence in creating competent software professionals with research and innovative skills.

MISSION OF DEPARTMENT

M1: Industry Specific: To nurture students in working with various hardware and software platforms inclined with the best practices of industry.

M2: Research: To prepare students for research-oriented activities.

M3: Society: To empower students with the required skills to solve complex technological problems of society.

PROGRAM EDUCATIONAL OBJECTIVES

1. PEO1: Domain Knowledge

To produce graduates who have strong foundation of knowledge and skills in the field of Computer Science and Engineering.

2. PEO2: Employability Skills and Research

To produce graduates who are employable in industries/public sector/research organizations or work as an entrepreneur.

3. PEO3: Ethics and Values

To develop leadership skills and ethically collaborate with society to tackle real-world challenges.

PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO 1: Domain Knowledge

To analyze, design and develop computing solutions by applying foundational concepts of Computer Science and Engineering.

PSO 2: Quality Software

To apply software engineering principles and practices for developing quality software for scientific and business applications.

PSO 3: Innovation Ideas

To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems

PROGRAM OUTCOMES (POs)

Engineering students will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

ABSTRACT

The Personal Finance Management System is a comprehensive application developed using Java, designed to assist individuals in managing their financial activities efficiently. It provides users with tools to track income, expenses, savings, and investments, promoting better financial discipline and awareness. The system features modules for budget planning, expense categorization, and detailed financial reports generated through intuitive graphical visualizations. Users can set financial goals, monitor progress, and receive automated reminders for bill payments and deadlines, ensuring timely financial actions. To ensure data security and reliability, the system employs a robust database for persistent data storage and retrieval. The application is designed with a modular structure, enabling easy scalability and integration of additional features in the future. Its platform-independent nature, achieved through Java, ensures compatibility with various operating systems, including Windows, machos, and Linux. The system also offers personalized financial insights, helping users identify spending patterns and optimize their budgets effectively. By combining user-friendly design with powerful financial tools, this system caters to both individuals and small businesses, aiming to improve financial literacy and decision-making. Ultimately, the Personal Finance Management System empowers users to take control of their finances, achieve their goals, and secure their financial future.

ABSTRACT WITH POs AND PSOs MAPPING

CO 5 : BUILD JAVA APPLICATIONS FOR SOLVING REAL-TIME PROBLEMS.

ABSTRACT	POs MAPPED	PSOs MAPPED
A Personal Finance Management System for a Point of Sale (POS) environment, developed in Java, offers an efficient way to manage and track finances. The system streamlines expense tracking, income recording, and transaction monitoring in retail or small business settings. It integrates features such as automated invoice generation, expense categorization, and real-time financial summaries to ensure seamless operations. Built using Java's robust libraries, the application prioritizes data security, scalability, and a user-friendly interface for quick adaptation by non-technical users. This system empowers businesses to make informed financial decisions by providing comprehensive and actionable insights into their financial activities.	**PO1 -3** **PO2 -3** **PO3 -3** **PO4 -3** **PO5 -3** **PO6 -3** **PO7 -3** **PO8 -3** **PO9 -3** **PO10 -3** **PO11-3** **PO12 -3**	**PSO1 -3** **PSO2 -3** **PSO3 -3**

Note: 1- Low, 2-Medium, 3- High

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CHAPTER 1

INTRODUCTION

1.1Objective

The objective of the Personal Finance Management project in Java is to provide an intuitive platform for users to track, analyze, and optimize their financial activities. It aims to enable effective budgeting by categorizing expenses, monitoring income, and generating insightful reports. The project includes features for setting financial goals, tracking progress, and providing alerts for overspending or missed payments. By leveraging Java's robust framework, it ensures data security and seamless user interaction. Overall, the system promotes informed decision-making, empowering users to achieve financial stability and growth.

1.2 Overview

A personal finance management project in Java is designed to help users effectively track and manage their finances. It typically includes features for budgeting, expense tracking, income monitoring, and financial reporting. Users can categorize their transactions, view spending trends, and set financial goals. The project leverages Java's object-oriented programming principles to ensure scalability and maintainability, often utilizing libraries like JavaFX for a graphical user interface or JDBC for database integration. This tool provides a streamlined approach to financial planning, fostering better decision-making and financial discipline.

1.3 Java Programming Concepts

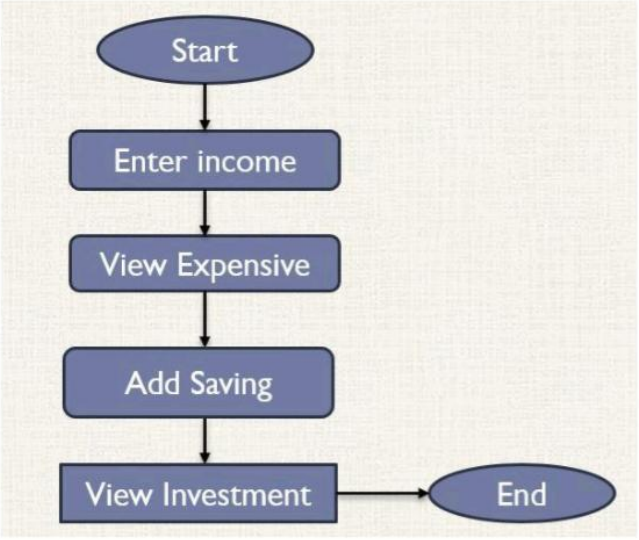
Creating a Personal Finance Management project in Java is an excellent way to integrate fundamental Object-Oriented Programming (OOP) concepts while building a practical application. This project can track income, expenses, and savings, helping users manage their finances efficiently. The program's core functionality is structured around OOP principles such as Encapsulation, Inheritance, Abstraction, and Polymorphism. The system could have a base class FinanceManager, which encapsulates attributes like total Income, total Expense, and savings. Specific functionalities, like adding income or expenses, can be implemented as methods in this class. Subclasses such as Budget Tracker and Expense Category may inherit from the base class to provide more specialized features, like categorizing expenses or setting monthly budgets. Polymorphism can be used for methods like display Details(), allowing different outputs for income, expenses, and savings. Encapsulation ensures data security by making sensitive variables private and accessing them through getters and setters. The project also introduces basic file handling for storing and retrieving financial data, ensuring persistence. Additionally, simple exception handling can manage scenarios like invalid inputs or exceeding budget limits. The project is not only a demonstration of Java OOP concepts but also a useful tool for users to organize and analyze their personal finances effectively.

CHAPTER 2
PROJECT METHODOLOGY

2.1Proposed Work

The proposed work for the personal finance management project using Java focuses on developing a user-friendly application that enables individuals to efficiently track and manage their income, expenses, and savings. The application will feature modules for budgeting, expense categorization, and real-time financial analytics, ensuring better financial decision-making. Additionally, secure data handling and user authentication mechanisms will be implemented to protect sensitive financial information.

2.2 Block Diagram



CHAPTER 3

MODULE DESCRIPTION

3.1 User Authentication and Profile Management

User authentication and profile management in a personal finance management project allow users to securely log in with their credentials and access personalized features. This system stores user data, such as transaction history and financial goals, while ensuring data privacy and allowing users to update their profile information

3.2 Income and Expense Tracker

The Income and Expense Tracker is a Java-based personal finance management tool that helps users track their income and expenses, providing a clear overview of their financial situation. It allows users to input, categorize, and view financial transactions, generating reports to analyze spending patterns and manage their budget effectively.

3.3 Budget Planning and Goal Setting

The Budget Planning and Goal Setting feature in a personal finance management project allows users to set financial goals, allocate funds to various categories, and track their spending. This helps individuals plan their budgets effectively, ensuring they stay on track to meet their financial objectives.

3.4 Reports

In a personal finance management project using Java, reports and analytics can be generated to track income, expenses, and savings, providing a clear

overview of financial health. These reports can include visual charts **and detailed** summaries to help users make informed decisions about their spending habits and long-term financial goals.

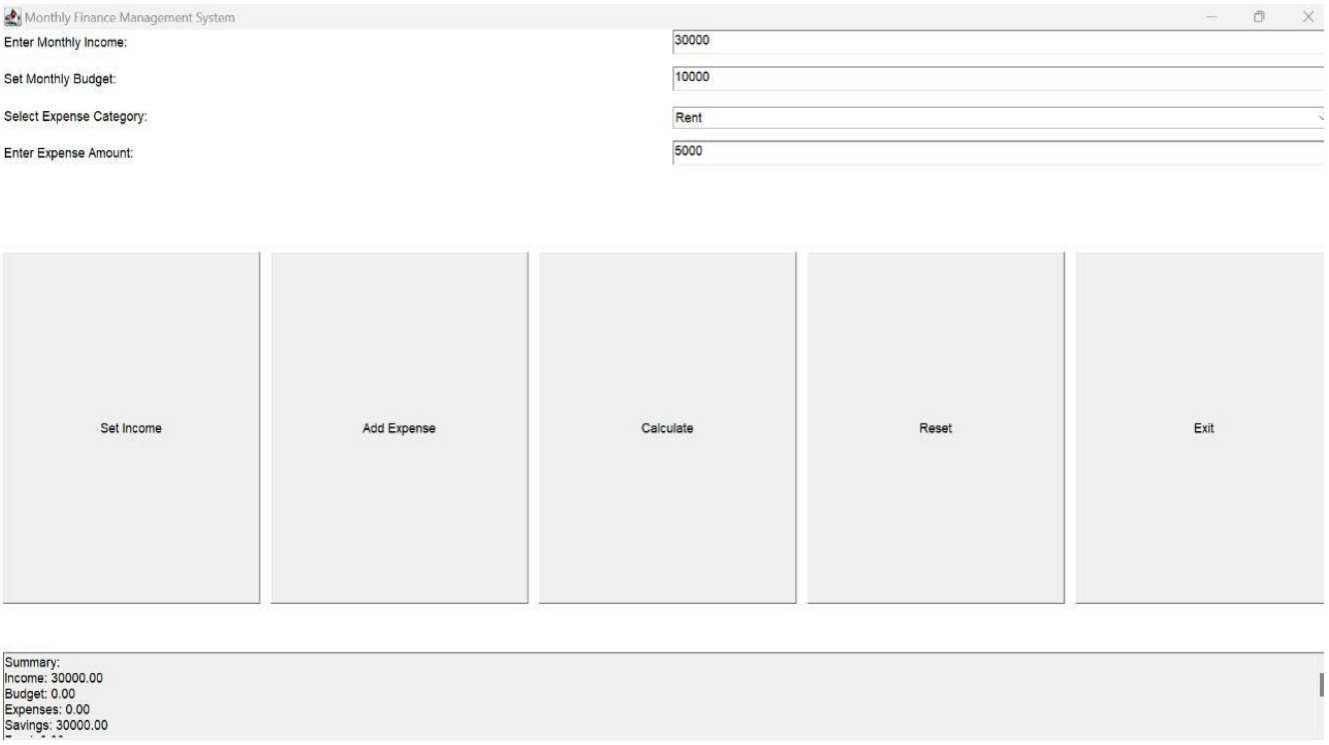
3.5 Alerts and Notifications

In a personal finance management project using Java, alerts and notifications can be implemented to notify users of important events, such as upcoming bill payments or low account balances. This can be achieved by setting up scheduled tasks or timers that trigger notifications via pop-ups, emails, or SMS, ensuring users stay on top of their financial responsibilities.

CHAPTER 4

RESULTS AND DISCUSSION

PERSONAL FINANCE MANAGEMENT



CHAPTER 5
CONCLUSION

The Personal Finance Management project developed using Java provides an efficient and user-friendly platform for managing personal finances. Through the use of core Java concepts such as object-oriented programming, file handling, and database connectivity, the project ensures secure data storage and easy retrieval of financial records. The project also offers various features such as expense tracking, budget creation, and financial goal setting, empowering users to make informed decisions about their money. By providing clear insights into income and expenditure patterns, it helps users maintain a balanced financial life. Future improvements could include integrating mobile support and adding more advanced analytics features. Overall, this project demonstrates the practical application of Java in solving real-world financial challenges.

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APPENDIX

PERSONAL FINANCE MANAGEMENT

```
Import java.awt.*;
Import java.awt.event.*;

Public class PersonalFinanceManagement extends Frame implements
ActionListener {
    // Components for inputs and labels
    Label lblIncome, lblBudget, lblCategory, lblAmount, lblWarning;
    TextField txtIncome, txtBudget, txtAmount;
    Choice categoryChoice;
    Button btnAddIncome, btnAddExpense, btnCalculate, btnReset,
btnExit;

    // Text area for summary
    TextArea txtSummary;

    // Variables for tracking finances
    Double monthlyIncome = 0, monthlyBudget = 0, totalExpenses = 0,
totalSavings = 0;
    Double foodExpenses = 0, rentExpenses = 0, utilitiesExpenses = 0,
entertainmentExpenses = 0;

    Public PersonalFinanceManagement() {
      setTitle("Monthly Finance Management System");
      setSize(600, 500);
      setLayout(new BorderLayout(10, 10));

      // Top Panel for Inputs
      Panel inputPanel = new Panel(new GridLayout(6, 2, 10, 10));

      lblIncome = new Label("Enter Monthly Income:");
      txtIncome = new TextField();
      inputPanel.add(lblIncome);
      inputPanel.add(txtIncome);

      lblBudget = new Label("Set Monthly Budget:");
      txtBudget = new TextField();
      inputPanel.add(lblBudget);
      inputPanel.add(txtBudget);

      lblCategory = new Label("Select Expense Category:");
```

```
categoryChoice = new Choice();
categoryChoice.add(“Food”);
categoryChoice.add(“Rent”);
categoryChoice.add(“Utilities”);
categoryChoice.add(“Entertainment”);
inputPanel.add(lblCategory);
inputPanel.add(categoryChoice);

lblAmount = new Label(“Enter Expense Amount:”);
txtAmount = new TextField();
inputPanel.add(lblAmount);
inputPanel.add(txtAmount);

add(inputPanel, BorderLayout.NORTH);

// Middle Panel for Buttons
Panel buttonPanel = new Panel(new GridLayout(1, 5, 10, 10));

btnAddIncome = new Button(“Set Income”);
btnAddIncome.addActionListener(this);
buttonPanel.add(btnAddIncome);

btnAddExpense = new Button(“Add Expense”);
btnAddExpense.addActionListener(this);
buttonPanel.add(btnAddExpense);

btnCalculate = new Button(“Calculate”);
btnCalculate.addActionListener(this);
buttonPanel.add(btnCalculate);

btnReset = new Button(“Reset”);
btnReset.addActionListener(this);
buttonPanel.add(btnReset);

btnExit = new Button(“Exit”);
btnExit.addActionListener(this);
buttonPanel.add(btnExit);

add(buttonPanel, BorderLayout.CENTER);

// Bottom Panel for Summary and Warnings
Panel summaryPanel = new Panel(new BorderLayout(10, 10));
```

```
            lblWarning = new Label("", Label.CENTER);
            lblWarning.setForeground(Color.RED);
            summaryPanel.add(lblWarning, BorderLayout.NORTH);

            txtSummary = new TextArea("Summary: \nIncome: 0\nBudget:
0\nExpenses: 0\nSavings: 0\n", 5, 50);
            txtSummary.setEditable(false);
            summaryPanel.add(txtSummary, BorderLayout.CENTER);

            add(summaryPanel, BorderLayout.SOUTH);

            // Window Listener
            addWindowListener(new WindowAdapter() {
               public void windowClosing(WindowEvent e) {
                  System.exit(0);
               }
            });

            setVisible(true);
         }

         @Override
         Public void actionPerformed(ActionEvent e) {
            Try {
               If (e.getSource() == btnAddIncome) {
                  // Set Monthly Income
                  monthlyIncome = Double.parseDouble(txtIncome.getText());
                  lblWarning.setText("");
                  updateSummary();

               } else if (e.getSource() == btnAddExpense) {
                  // Add Expense
                  Double amount = Double.parseDouble(txtAmount.getText());
                  String category = categoryChoice.getSelectedItem();

                  Switch (category) {
                     Case "Food":
                        foodExpenses += amount;
                        break;
                     case "Rent":
                        rentExpenses += amount;
                        break;
                     case "Utilities":
```

```
                    utilitiesExpenses += amount;
                    break;
                case “Entertainment”:
                    entertainmentExpenses += amount;
                    break;
            }
            totalExpenses += amount;
            lblWarning.setText(“”);
            updateSummary();

        } else if (e.getSource() == btnCalculate) {
            // Calculate Monthly Finances
            If (monthlyIncome == 0) {
                lblWarning.setText(“Set Monthly Income first!”);
            } else {
                totalSavings = monthlyIncome – totalExpenses;

                if (txtBudget.getText().isEmpty()) {
                    monthlyBudget = 0; // Default to 0 if not set
                } else {
                    monthlyBudget =
Double.parseDouble(txtBudget.getText());
                }

                If (totalSavings < 0) {
                    lblWarning.setText(“Warning: Deficit! You’re
overspending.”);
                } else {
                    lblWarning.setText(“”);
                }

                updateSummary();
            }

        } else if (e.getSource() == btnReset) {
            // Reset all data
            monthlyIncome = 0;
            monthlyBudget = 0;
            totalExpenses = 0;
            totalSavings = 0;
            foodExpenses = 0;
            rentExpenses = 0;
            utilitiesExpenses = 0;
```

```
                    entertainmentExpenses = 0;

                    txtIncome.setText("");
                    txtBudget.setText("");
                    txtAmount.setText("");
                    txtSummary.setText("Summary: \nIncome: 0\nBudget:
0\nExpenses: 0\nSavings: 0\n");
                    lblWarning.setText("");

                } else if (e.getSource() == btnExit) {
                    // Exit the application
                    System.exit(0);
                }
            } catch (NumberFormatException ex) {
                lblWarning.setText("Error: Please enter valid numeric values!");
            }
        }

        Private void updateSummary() {
            txtSummary.setText(String.format(
                    "Summary:\nIncome: %.2f\nBudget: %.2f\nExpenses:
%.2f\nSavings: %.2f\nFood: %.2f\nRent: %.2f\nUtilities: %.2f\nEntertainment:
%.2f\n",
                    monthlyIncome, monthlyBudget, totalExpenses,
(monthlyIncome – totalExpenses),
                    foodExpenses, rentExpenses, utilitiesExpenses,
entertainmentExpenses
            ));
        }

        Public static void main(String[] args) {
            New PersonalFinanceManagement();
        }
    }
```