PERSONAL FINANCE MANAGEMENT SYSTEM

A PROJECT REPORT

Submitted by

HARSHATHA V P(8115U23EC035)

in partial fulfillment of requirements for the award of the course

EGB1201 - JAVA PROGRAMMING

in

ELECTRONICS AND COMMUNICATION ENGINEERING

K. RAMAKRISHNAN COLLEGE OF ENGINEERING

(An Autonomous Institution, affiliated to Anna University Chennai and Approved by AICTE, New Delhi)
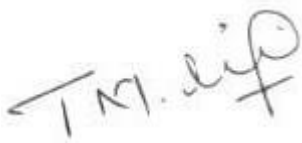
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DECEMBER - 2024

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K. RAMAKRISHNAN COLLEGE OF ENGINEERING (AUTONOMOUS)

SAMAYAPURAM – 621 112

BONAFIDE CERTIFICATE

Certified that this project report on **"PERSONAL FINANCE MANAGEMENT SYSTEM"** is the Bonafide work of **HARSHATHA V P (8115U23EC035)** who carried out the project work during the academic year 2024 - 2025 under my supervision.

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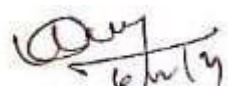
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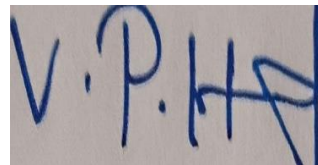Submitted for the viva-voce examination held on …………….

INTERNAL EXAMINER

EXTERNAL EXAMINER

DECLARATION

I declare that the project report on **"PERSONAL FINANCE MANAGEMENT SYSTEM"** 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 **EGB1201 - JAVA PROGRAMMING.**

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Signature

_____
HARSHATHA V P

Place: Samayapuram
Date:06/12/2024

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It is with great pride that I express our gratitude and in-debt to our institution "**K.Ramakrishnan College of Engineering (Autonomous)**", for providing us with the opportunity to do this project.

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VISION OF THE INSTITUTION

 To achieve a prominent position among the top technical institutions.

MISSION OF THE INSTITUTION

> M1: To bestow standard technical education par excellence through state of the art infrastructure, competent faculty and high ethical standards.

> M2: To nurture research and entrepreneurial skills among students in cutting edge technologies.

> M3: To provide education for developing high-quality professionals to transform the society.

VISION OF DEPARTMENT

 To create eminent professionals of Computer Science and Engineering by imparting quality education.

MISSION OF DEPARTMENT

M1: To provide technical exposure in the field of Computer Science and Engineering through state of the art infrastructure and ethical standards.

M2: To engage the students in research and development activities in the field of Computer Science and Engineering.

M3: To empower the learners to involve in industrial and multi-disciplinary projects for addressing the societal needs.

PROGRAM EDUCATIONAL OBJECTIVES

Our graduates shall

PEO1: Analyse, design and create innovative products for addressing social needs.

PEO2: Equip themselves for employability, higher studies and research.

PEO3: Nurture the leadership qualities and entrepreneurial skills for their successful career.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1:** Apply the basic and advanced knowledge in developing software, hardware and firmware solutions addressing real life problems.

- **PSO2:** Design, develop, test and implement product-based solutions for their career enhancement.

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 Java-based application that helps users track income, manage expenses, set budgets, and plan savings. It provides tools for analyzing spending patterns and generating financial reports, enabling informed financial decisions and promoting financial stability and innovative Java-based application designed to streamline financial management. It provides tools for income tracking, expense control, budgeting, and savings planning. With advanced analytics and report generation, the system promotes informed decision-making and enhances financial stability by empowering users to better understand and optimize their financial health**.**

ABSTRACT WITH POs AND PSOs MAPPING

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

ABSTRACT	POs MAPPED	PSOs MAPPED
The Personal Finance Management System is a Java-based application that helps users track income, manage expenses, set budgets, and plan savings. It provides tools for analyzing spending patterns and generating financial reports, enabling informed financial decisions and promoting financial stability.	**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**

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

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CHAPTER 1

INTRODUCTION

1.1 Objective

The objective of the Personal Finance Management System is to provide a user-friendly platform for individuals to efficiently manage their finances. It aims to simplify the processes of income tracking, expense management, budgeting, and savings planning. By offering insightful financial analysis and reporting tools, the system seeks to empower users to make informed financial decisions, cultivate better spending habits, and achieve long-term financial stability.

1.2 Overview

The Personal Finance Management System is a Java-based software application designed to assist users in managing their personal finances effectively. The system integrates various features such as income tracking, expense monitoring, budget setting, and savings planning. It provides a centralized platform where users can organize their financial data, analyze spending patterns, and generate detailed financial reports. By offering intuitive tools for financial planning and decision-making, the system supports users in maintaining financial discipline, achieving savings goals, and fostering long-term financial stability.

1.3 Java Programming Concepts

1. **AWT (Abstract Window Toolkit):**

    AWT is a Java package (java.awt) used for building graphical user interface (GUI) applications. It provides platform-independent components, such as buttons, text fields, labels, and frames, to create GUI applications.

2. **Event Handling:**

    Event handling in Java refers to managing user interactions (e.g., mouse clicks, key presses) in GUI applications.

3. **Collections Framework (Array List):**

    The Java Collection Framework (java.util) provides data structures and algorithms for storing and manipulating groups of objects efficiently.

4. **Object-Oriented Programming (OOPS):**

    Object-Oriented Programming (OOP) is a programming paradigm based on the concept of objects, which encapsulate data (attributes) and behavior (methods). It emphasizes modularity, reusability, and organization

5. **File Handling:**

    File handling in Java enables reading from and writing to files. The java.io and java.nio packages provide classes for handling files.

    - **FileReader/FileWriter**
    - **BufferedReader/BufferedWriter**
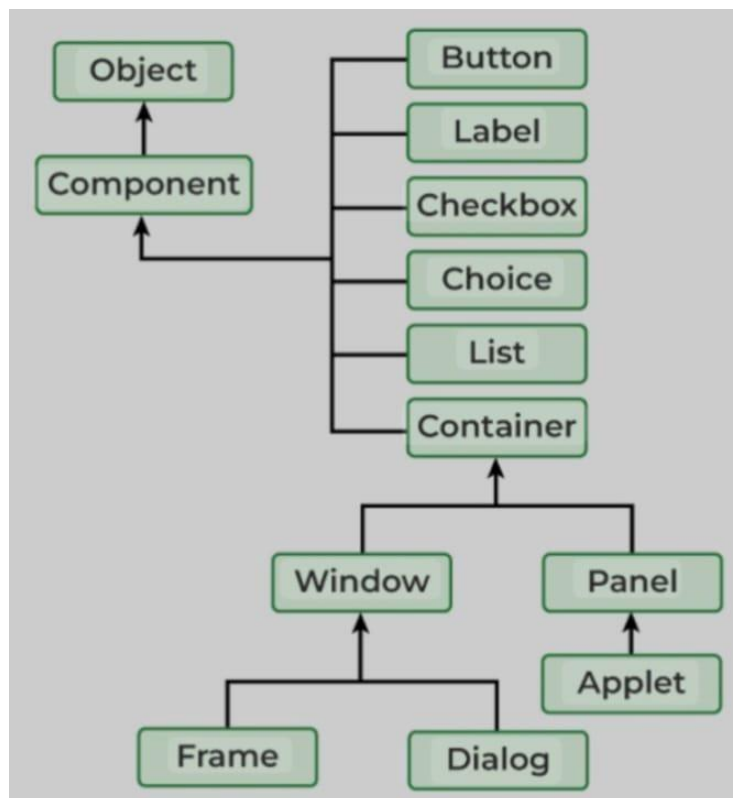   - **FileInputStream/FileOutputStream**

CHAPTER 2
PROJECT METHODOLOGY

2.1 Proposed Work

It focuses on developing a Java-based Personal Finance Management System to help users manage their finances effectively. The system will include features for tracking income, managing expenses, setting budgets, and planning savings. It will provide detailed financial reports and insights through intuitive charts and graphs, enabling users to analyze spending patterns and make informed decisions. With a user-friendly interface, the application aims to streamline financial management and promote better financial planning for long-term stability.

2.2 Block Diagram

CHAPTER 3
MODULE DESCRIPTION

3.1 Income Management Module:

Users to record and view various income sources. Allows categorization of income (e.g., salary, investments)

3.2 Expense Tracking Module:

Users to track daily expenses categorized into groups (e.g., rent, food, travel). Displays total expenses and remaining balance.

3.3 Budgeting Module:

Helps users set monthly budgets for specific categories. Warns when spending nears or exceeds the budget.

3.4 Savings and Goals Module:

The user's savings and helps plan financial goals (e.g., buying a car or vacation). Displays progress toward goals.

3.5 Reports and Analytics Module:

It Provides graphical reports and spending analysis. Shows trends in income and expenses over time.

CHAPTER 4
CONCLUSION & FUTURE SCOPE

4.1 CONCLUSION

The Personal Finance Management System ensures seamless handling of user inputs. By dividing responsibilities, processing and storage, output generates a report which consists of all the given input and calculated results, through a well-structured approach to input processing, storage, and analysis, the system delivers comprehensive reports summarizing user data and calculated financial outcomes. By leveraging these features, users gain deeper insights into their financial activities, enabling better decision-making and long-term financial planning. This system promotes financial discipline and empowers users to achieve stability and growth in their financial journey.

4.2 FUTURE SCOPE

The Personal Finance Management System has significant potential for future enhancements to meet evolving user needs and technological advancements. Future developments could include the integration of AI-driven insights for personalized financial recommendations, machine learning algorithms for predicting spending patterns, and automated reminders for bill payments and savings goals. Cloud-based storage can enable seamless access to financial data across multiple devices, while robust security features like biometric authentication and encryption can ensure data safety. The system can also incorporate multi-currency support and financial planning tools for investments and retirement.

APPENDIX A
(SOURCE CODE)

```java
Package java.util;

import java.awt.*;

import java.awt.event.*;

import java.util.ArrayList;



public class PersonalFinanceManager extends Frame implements ActionListener {
    // Main components
    TextField incomeField, expenseField, budgetField, savingsField;
    TextArea displayArea;
    Button addIncomeBtn, addExpenseBtn, setBudgetBtn, calculateSavingsBtn,
generateReportBtn;
    ArrayList<String> transactions = new ArrayList<>();
    double totalIncome = 0, totalExpenses = 0, budget = 0, savings = 0;

    // Constructor
    public PersonalFinanceManager() {
        // Frame properties
        setTitle("Personal Finance Management System");
        setSize(600, 600);
        setLayout(new FlowLayout());
        setResizable(false);

        // Income Management Module
        Label incomeLabel = new Label("Enter Income:");
        incomeField = new TextField(15);
        addIncomeBtn = new Button("Add Income");
```

```java
addIncomeBtn.addActionListener(this);

// Expense Tracking Module
Label expenseLabel = new Label("Enter Expense:");
expenseField = new TextField(15);
addExpenseBtn = new Button("Add Expense");
addExpenseBtn.addActionListener(this);

// Budgeting Module
Label budgetLabel = new Label("Set Monthly Budget:");
budgetField = new TextField(15);
setBudgetBtn = new Button("Set Budget");
setBudgetBtn.addActionListener(this);

// Savings and Goals Module
Label savingsLabel = new Label("Savings Goal:");
savingsField = new TextField(15);
calculateSavingsBtn = new Button("Calculate Savings");
calculateSavingsBtn.addActionListener(this);

// Reports and Analytics Module
generateReportBtn = new Button("Generate Report");
generateReportBtn.addActionListener(this);

// Display Area
displayArea = new TextArea(20, 50);
displayArea.setEditable(false);

// Adding components to the frame
```

```java
        add(incomeLabel);

        add(incomeField);

        add(addIncomeBtn);

        add(expenseLabel);

        add(expenseField);

        add(addExpenseBtn);

        add(budgetLabel);

        add(budgetField);

        add(setBudgetBtn);

        add(savingsLabel);

        add(savingsField);

        add(calculateSavingsBtn);

        add(generateReportBtn);

        add(displayArea);


        // Closing the window
        addWindowListener(new WindowAdapter() {
            public void windowClosing(WindowEvent we) {
                System.exit(0);
            }
        });
    }


    // Action handling
    public void actionPerformed(ActionEvent ae) {
        String command = ae.getActionCommand();


        if (command.equals("Add Income")) {
            double income = Double.parseDouble(incomeField.getText());
```

```java
            totalIncome += income;

            transactions.add("Income: $" + income);

            displayArea.append("Added Income: $" + income + "\n");

            incomeField.setText("");

        } else if (command.equals("Add Expense")) {

            double expense = Double.parseDouble(expenseField.getText());

            totalExpenses += expense;

            transactions.add("Expense: $" + expense);

            displayArea.append("Added Expense: $" + expense + "\n");

            expenseField.setText("");

        } else if (command.equals("Set Budget")) {

            budget = Double.parseDouble(budgetField.getText());

            displayArea.append("Monthly Budget Set to: $" + budget + "\n");

            budgetField.setText("");

        } else if (command.equals("Calculate Savings")) {

            savings = totalIncome - totalExpenses;

            displayArea.append("Current Savings: $" + savings + "\n");

            if (savings < 0) {

                displayArea.append("Warning: Expenses exceed income!\n");

            }

        } else if (command.equals("Generate Report")) {

            displayArea.append("\n=== Financial Report ===\n");

            displayArea.append("Total Income: $" + totalIncome + "\n");

            displayArea.append("Total Expenses: $" + totalExpenses + "\n");

            displayArea.append("Monthly Budget: $" + budget + "\n");

            displayArea.append("Remaining Savings: $" + savings + "\n");

            displayArea.append("Transactions:\n");

            for (String transaction : transactions) {

                displayArea.append(transaction + "\n");
```

```java
        }
      }
    }


    // Main method
    public static void main(String[] args) {
      new PersonalFinanceManager().setVisible(true);
    }
}
```

APPENDIX B

(SCREENSHOTS)

Enter Income: [_____]   [Add Income]   Enter Expense: [_____]

[Add Expense]   Set Monthly Budget: [_____]   [Set Budget]   Savings Goal:

[_____]   [Calculate Savings]   [Generate Report]

```
Added Income: $50000.0
Added Expense: $1500.0
Monthly Budget Set to: $3000.0
Current Savings: $48500.0
Current Savings: $48500.0

=== Financial Report ===
Total Income: $50000.0
Total Expenses: $1500.0
Monthly Budget: $3000.0
Remaining Savings: $48500.0
Transactions:
Income: $50000.0
Expense: $1500.0
```

REFERENCES

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☐Mishra, A., & Jain, S., "Personal Financial Management Tools: A Comparative Study of User Adoption Trends," *International Journal of Financial Studies*, 2021