EXPENSE TRACKER APPLICATION

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–621112

NOVEMBER- 2024

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BONAFIDECERTIFICATE

Certified that this project report on **"EXPENSE TRACKER APLICATION"** is the bonafide work of **YOGESHWARI M (2303811710422187)** who carried out the project work during the academic year 2024 - 2025 under my supervision.

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Submitted for theviva-voce examination held on …06/12/2024…….

INTERNAL EXAMINER EXTERNAL EXAMINER

DECLARATION

I declare that the project report on **"EXPENSE TRACKER APPLICATION"** is the result of original work done by us and best of our knowledge, similar workhas 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

YOGESHWARI M

Place: Samayapuram

Date: 06/12/2024

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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 Expense tracker application is a digital tool designed to help users monitor and manage their personal or business finances by tracking income, expenditures, and budgeting. The application provides an intuitive interface for users to record daily expenses, categorize them, and generate reports to analyze spending habits over time. Features often include the ability to set budget limits, visualize financial data through graphs and charts, receive alerts for overspending, and manage recurring transactions. By offering real-time insights, customizable categories, and easy access to financial history, the app empowers users to make informed decisions, improve financial discipline, and achieve their monetary goals. ensuring safe transactions and storage of sensitive financial data.

Designed to offer cloud synchronization, allowing users to access their financial data across multiple devices, ensuring convenience and flexibility. By leveraging data analytics and machine learning algorithms, the app can provide predictive expense forecasts, identify saving opportunities, and suggest tailored financial strategies.The Accessible on multiple platforms, such as mobile and desktop, this application is ideal for individuals, families, and small businesses looking to simplify financial management, reduce unnecessary expenditures, and achieve their financial goals efficiently and securely.

ABSTRACT WITH POs AND PSOs MAPPING

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

ABSTRACT	POs MAPPED	PSOs MAPPED
The Expense Tracker Application is a comprehensive financial management tool designed to help individuals and small businesses effectively monitor and control their spending. The application allows users to track daily expenses, categorize transactions, set financial goals, and generate insightful reports to make informed decisions about their financial well-being. It features an intuitive user interface that provides seamless navigation for both tech-savvy and non-tech-savvy users.Key functionalities of the app include adding, editing, and deleting expense entries, linking bank accounts for automatic transaction import, and categorizing expenses into predefined or custom categories.	**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 expense tracker application is designed to help individuals and businesses manage their finances effectively by tracking, categorizing, and analyzing their spending. The main objective of such an app is to provide users with a simple and intuitive way to log daily expenses, set budgets, and monitor their financial habits. By categorizing expenses into various groups like groceries, entertainment, or transportation, users can easily see where their money is going and identify areas where they can save. Additionally, the app often includes features like generating reports, providing financial insights through graphs or charts, and setting alerts to help users stay within their budgets. Some advanced apps also integrate with bank accounts or payment systems to automatically track expenses, offering a seamless experience. Overall, an expense tracker aims to empower users with better financial control, encouraging smarter spending and informed financial decisions, while ensuring data security and privacy.

1.2Overview

The expense tracker application is a digital tool designed to help users monitor and manage their financial activities by tracking their spending habits. It allows individuals to record expenses, categorize them into different types (such as groceries, transportation, or entertainment), and set budgets to stay within financial limits. The app typically offers features like expense reports, data visualization (graphs and charts), and personalized spending insights, helping users make more informed financial decisions. Some advanced applications also integrate with bank accounts or credit cards to automatically import transactions, streamlining the tracking process. By providing a clear overview of spending patterns and financial trends, an expense tracker supports users in achieving better financial control, saving money, and reaching their financial goals.

1.3 Java Programming Concepts

1.Basic Syntax and Structure

Variables and Data Types: Java is a statically typed language, meaning you must declare the type of a variable before using it. Common data types include int double, Boolean, char and string Methods: Methods define reusable blocks of code and are used to perform specific tasks.They can accept parameters and return values.

2.Object-Oriented Programming

Classes and Objects**:** A class is a blueprint for creating objects (instances), defining properties and methods. An object is an instance of a class.

Encapsulation**:** This refers to bundling the data (variables) and methods that operate on the data into a single unit, i.e., the class. It also involves restricting access to certain components using access modifiers .

Inheritance: Inheritance allows one class (subclass) to inherit properties and methods from another class (superclass), promoting code reuse.

Polymorphism: Polymorphism allows a method or object to take many forms. by leveraging principles like encapsulation, inheritance, and polymorphism, the application ensures that features like setting budgets, tracking spending trends, and generating financial reports are easy to implement and maintain. This approach not only simplifies the user's financial management but also makes the system flexible for future enhancements, such as integration with bank APIs or adding advanced analytics features.

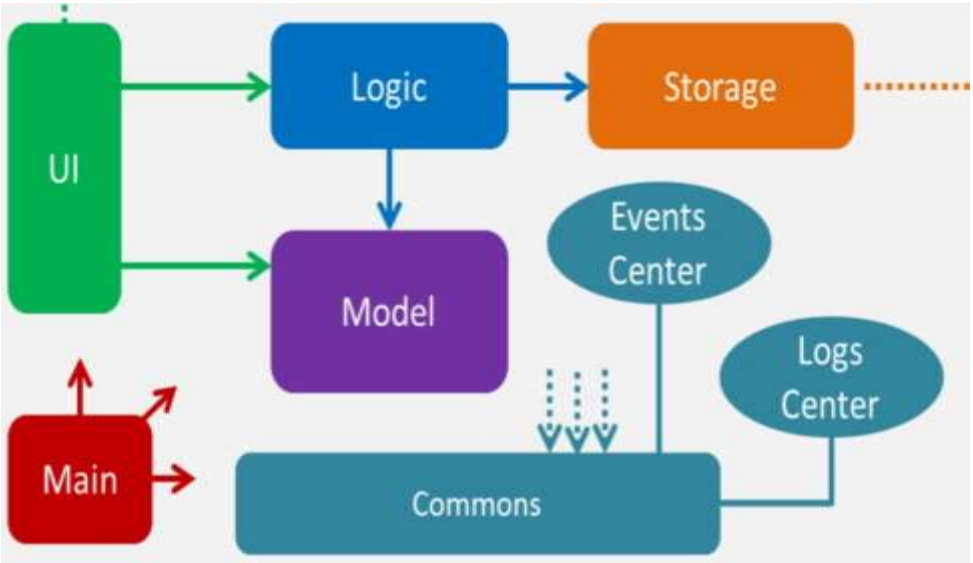
CHAPTER 2

PROJECT METHODOLOGY

2.1 Proposed Work

The Expenses Tracker program is a comprehensive and user-friendly application designed to help individuals track and manage their expenses effectively. The program allows users to add expenses, view their total expenses, and quit the program, providing a simple and intuitive way to monitor their spending habits. Additionally, the program keeps track of the number of expenses added, providing users with a clear picture of their financial situation. With its robust features and easy-to-use interface, the Expenses Tracker program is an ideal tool for anyone looking to manage their finances effectively, whether it's for personal or business purposes. Furthermore, the program's ability to categorize expenses and provide analysis of spending habits makes it an invaluable resource for individuals looking to make informed financial decisions.

2.2 Block Diagram



CHAPTER 3
MODULE DESCRIPTION

3.1 User Management Module:

The User Management Module is a fundamental component of an expense tracker application, responsible for handling all user-specific data and operations. It provides functionalities such as creating user profiles with attributes like name, email, and budget, and managing lists of expenses and incomes associated with each user. Through methods like and , it enables users to log transactions, calculate their remaining balance, and view financial summaries. This module also ensures data isolation, where each user's financial data is maintained independently, enabling personalized financial management. Additionally, it serves as a bridge to other modules, such as transaction tracking and report generation, ensuring seamless integration and modularity.

3.2 Expense and Income Module:

The Expense and Income Module is a key component of an expense tracker application, designed to manage the financial transactions of users by encapsulating data related to their spending and earnings. This module defines Expense and Income classes, which store attributes such as amount, category, date, and description, providing a structured way to log and track transactions. These classes include methods for easy representation and validation of data, ensuring accurate and consistent records. The module facilitates seamless addition, deletion, and retrieval of transactions, enabling users to maintain a clear overview of their financial activities

3.3 Categorization and Budgeting Module:

The Categorization and Budgeting Module is an essential feature of an expense tracker application, enabling users to organize their financial transactions and manage their spending effectively. This module allows users to assign categories to expenses and incomes, such as Food, Rent, or Entertainment, providing a clear structure for tracking transactions. Additionally, users can set budget limits for each category, ensuring they stay within their financial goals.

3.4 Summary and Reports Module:

The Summary and Reports Module is a crucial component of an expense tracker application, designed to provide users with a comprehensive overview of their financial activities. It consolidates data from expenses, incomes, and budgets to generate clear, insightful reports. Users can view summaries that include total income, total expenses, balance, and spending trends over specified periods. The module offers detailed category-wise breakdowns, highlighting areas where spending is concentrated or budgets are exceeded. Advanced features like graphical representations and spending trends make financial data easier to understand and analyze.

3.5 Basic Data Storage Module:

The Basic Data Storage Module is an essential part of an expense tracker application, responsible for saving and retrieving user data, ensuring that financial information is persistent across sessions. This module handles the storage of user profiles, transaction records (expenses and incomes), and budget settings, typically using simple file formats like CSV or JSON. By enabling data persistence, it ensures that users' financial history is securely stored and accessible when needed. The module allows for smooth data retrieval, so users can continue tracking their expenses and incomes over time, even after closing and reopening the application. It can be extended to support more complex databases, such as SQLite, for more scalable storage.

CHAPTER 4
CONCLUSION & FUTURE SCOPE

4.1 CONCLUSION

The Java is a versatile, object-oriented programming language that offers a rich set of features for building robust, scalable applications. Its foundational concepts, including basic syntax, data types, control flow, and methods, form the core of Java development. The language's object-oriented principles such as encapsulation, inheritance, polymorphism, and abstraction enable developers to create modular, reusable, and maintainable code. Java's extensive libraries and frameworks, along with advanced features like generics, multithreading, and the Streams API, provide powerful tools for tackling a wide range of programming challenges. Additionally, Java's platform independence, thanks to the Java Virtual Machine (JVM), and its broad ecosystem of tools and frameworks, make it a popular choice for everything from small applications to large enterprise system.

4.2 FUTURE SCOPE

The technology evolves, the application can be integrated with more advanced features, such as real-time bank account syncing, allowing automatic tracking of transactions. Additionally, incorporating machine learning algorithms could enable smart categorization of expenses, personalized spending insights, and budget predictions based on user behavior. Integration with third-party APIs for financial services or investment tracking could further enrich the user experience. The application could also expand to include multi-currency support, enabling users to manage expenses in different currencies for global users. Cloud-based storage solutions could enhance data security, accessibility, and synchronization across multiple devices. Furthermore, adding more robust reporting features, such as interactive dashboards or AI-driven financial advice, could make the app even more valuable for users seeking deeper insights into their financial health. With these potential improvements, the application could become a comprehensive financial management tool, catering to a wider range of users and use cases.

APPENDIX A
(SOURCE CODE)

```
import java.awt.*;
import java.awt.event.*;
import java.util.ArrayList;
public class ExpenseTracker {
   private Frame mainFrame;
   private TextField descriptionField, amountField;
   private TextArea expenseList;
   private Label totalLabel;
   private ArrayList<String> expenses;
   private double totalExpense;
   public ExpenseTracker() {
      expenses = new ArrayList();
      totalExpense = 0.0;
      prepareGUI();
   }

   public static void main(String[] args) {
      ExpenseTracker tracker = new ExpenseTracker();
      tracker.showEventDemo();
   }

   private void prepareGUI() {
      mainFrame = new Frame("Expense Tracker");
      mainFrame.setSize(400, 400);
      mainFrame.setLayout(new FlowLayout());
      mainFrame.addWindowListener(new WindowAdapter() {
         public void windowClosing(WindowEvent windowEvent) {
            System.exit(0);
         }
      }
```

```
        Label descriptionLabel = new Label("Description:");
        Label amountLabel = new Label("Amount:");

        descriptionField = new TextField(20);
        amountField = new TextField(10);

        Button addButton = new Button("Add Expense");
        addButton.addActionListener(new AddExpenseListener());
        expenseList = new TextArea(10, 40);
        expenseList.setEditable(false);
        totalLabel = new Label("Total: $0.00");
        mainFrame.add(descriptionLabel);
        mainFrame.add(descriptionField);
        mainFrame.add(amountLabel);
        mainFrame.add(amountField);
        mainFrame.add(addButton);
        mainFrame.add(expenseList);
        mainFrame.add(totalLabel);
        mainFrame.setVisible(true);
    }

    private void showEventDemo() {
    }

    class AddExpenseListener implements ActionListener {
        public void actionPerformed(ActionEvent e) {
            String description = descriptionField.getText();
            String amountText = amountField.getText();

try {
                double amount = Double.parseDouble(amountText);
                totalExpense += amount;
                String expenseEntry = description + " - $" + String.format("%.2f", amount);
```

```
            expenses.add(expenseEntry);
            expenseList.append(expenseEntry + "\n");
            totalLabel.setText("Total: $" + String.format("%.2f", totalExpense));
            descriptionField.setText("");
            amountField.setText("");
        } catch (NumberFormatException ex) {
            amountField.setText("");
            totalLabel.setText("Invalid amount! Please enter a number.");
        }
    }
  }
}
```

(SCREENSHOTS)

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