EXPENSE TRACKER

A PROJECT REPORT

Submitted by

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BONAFIDE CERTIFICATE

Certified that this project report **"Expense Tracker"** is the bonafide work of
Abhinav Dubey and Anshul who carried out the project work under my supervision.

SIGNATURE

Mupnesh kumari

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It gives us the privilege to complete this semester project. This is the only page where we have the opportunity to express our emotions and gratitude. It is a great pleasure in expressing sincere and deep gratitude towards our supervisor and guide Vishal Dhiman for her valuable suggestions, guidance, and constant support throughout the completion of this project named "Expense Tracker". This project, though done by us, wouldn't be possible without the support of varied people, who by their cooperation have helped us in bringing out this project successfully. We are really very thankful to Chandigarh University for providing me such a great opportunity to make such a wonderful project which can solve real-life problems and extremely valuable hands on experience along with crucial soft skills such as working in a team, communication skills, and much more. We also offer our most sincere thanks to every team member of our group who was working rigorously on this project and staff members of the Computer Science Department , University Institute of Engineering, Chandigarh University for cooperation provided by them in every possible way. We thank all the faculty members and other supporting staff for the help they provided to us for the completion of our project.

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Abstract

Modern life offers a plethora of options of services and goods for consumers. As a result, people's expenses have gone up dramatically, e.g., compared to a decade ago, and the cost of living has been increasing day by day. Thus it becomes essential to keep a check on   expenses in order to live a good life with a proper budget set up. The iPhone device, designed and marketed by Apple Inc., is one of the top-selling smartphones in the USA, and with the launch of the new iPhone5 on September 21, 2012, whose sales have already surpassed the previous iPhone handsets (iPhone 4S, iPhone4) sales, it is apparent that people have been using smartphones as an organizational tool. XpensTrak, the Expense Tracker Mobile Application was developed for iPhone users to keep track of their expenses and determine whether they are spending as per their set budget. Potential users need to input the required data such as the expense amount, merchant, category, and date when the expense was made. Optional data such as sub-category and extra notes about the expense can be entered as well. The application allows users to track their expenses daily, weekly, monthly, and yearly in terms of summary, bar graphs, and pie-charts. This mobile application is a full detailed expense tracker tool that will not only help users keep a check on their expenses, but also cut down the unrequired expenses, and thus will help provide a responsible lifestyle.An analysis comparing existing expense tracking software with the one being introduced is provided.

CHAPTER-1

INTRODUCTION

1.1 Introduction to Project

Expense Tracker is a user-friendly and cost-effective software solution designed to simplify the management of personal expenses. With the rise of digital financial transactions and the need for efficient budgeting, Expense Tracker provides users with a convenient way to record, categorize, and track their expenses. This application aims to address the challenges associated with traditional manual expense tracking by offering a straightforward interface for users to input their expenses, customize categories, and generate reports. Privacy and data security are prioritized as expenses are stored locally, and the application is available at no cost to users. Expense Tracker represents an accessible and user-centric approach to personal finance management.

1.1.1 Justification Using Documentation and Statistics

Numerous research and financial reports published in recent years have emphasised the increasing importance of personal financial management. Data collected from a variety of sources, such as surveys, financial institutions, and government organisations, repeatedly show a worrying trend of poor personal cost management and financial planning. Personal debt increases, declining savings, and an overall rise in financial stress highlight.

1.1.2 Issue with Client/Consultant

Our client, a personal finance management consulting organisation, has determined that a reliable and easy-to-use spending tracking system is urgently needed. They have identified the persistent difficulties people encounter when it comes to monitoring and controlling their spending through their encounters with people who are looking for financial guidance and their examination of financial trends. Our expense tracker programme was developed with this client's problem as its main motivation.

1.1.3 Current and Relevant Issues Recorded in Reports from Various Agencies

The reports of credible financial authorities and organisations further emphasise the need of personal cost tracking as a modern concern. Organisations like the National Endowment for Financial Education, the Federal Reserve, and the World Bank have all released reports with conclusions and suggestions about how crucial spending control and budgeting are to preserving financial stability. Their observations are in line with our efforts to offer a workable answer.

In conclusion, the practical difficulties people encounter when handling their personal money highlight the urgent need for an intuitive spending tracker app. It is bolstered by copious facts, our

client's documented findings, survey results, and the wisdom of respected financial authorities. By providing a useful tool that enables people to take charge of their financial well-being, our project aims to solve this pressing issue.

Financial Stress: Uncertainties in managing one's finances cause a sizeable section of the population to endure financial stress. Insufficient savings combined with an inability to anticipate or handle unforeseen costs results in a never-ending condition of financial anxiety.

Debt Accumulation: People are more likely to accumulate debt if they don't have a clear grasp of their spending patterns. To pay for unforeseen expenses, they frequently turn to credit cards or loans, which can result in a debt cycle that is challenging to escape.

Insufficient Savings: Poor spending control leads to a deficiency in savings, which can have long term effects on retirement planning, attaining financial objectives, and maintaining financial stability.

Ineffective Budgeting: It is difficult to establish and follow a budget when there is insufficient tracking of expenses. Without a thorough grasp of their income and expenses, people frequently find it difficult to allocate money to various areas of their lives in an efficient manner.

Wasted Resources: People can be squandering money on pointless or ineffective purchases. Unawareness of one's spending patterns might result in wasteful usage of income.

Lack of Financial Awareness: A lot of people do not have the fundamental knowledge of finances needed to make wise decisions regarding their own cash. This entails being aware of income sources, spending trends, and potential for savings.

Time-consuming Manual Processes: Manual expense tracking and recording can be laborious and prone to mistakes in older systems. Because these procedures are time-consuming, people are frequently dissuaded from keeping cost records.

Lack of Tools: These problems are made worse by the lack of easily navigable and user-friendly tools for tracking expenses. People require a workable method to deal with these issues.

The above-described issue is an example of a complex financial obstacle that affects people's lives and leads to uncertainty, inefficiency, and stress. The following sections will examine how the creation of an expense tracking system seeks to mitigate these challenges and provide a workable solution to the problem that has been recognised.

1.2 Identification of Problem

Managing personal expenses can be challenging and time-consuming for individuals. The traditional manual method of recording and tracking expenses often leads to inefficiencies, errors, and a lack of comprehensive insights into one's financial situation. Users face difficulties in categorizing expenses, maintaining privacy, and finding a cost-effective solution. Existing expense tracking applications may offer complex interfaces, subscription fees, or privacy concerns, making it essential to provide a simple, customizable, and privacyfocused solution to address these challenges.

CHAPTER-2

LITERATURE REVIEW /BACKGROUND STUDY

2.1.   Existing solutions

An essential component of personal finance management is expense tracking, for which a wide range of conventional and digital solutions have been developed and put to use. A brief summary of a few previous solutions that have been suggested is as follows:

2.1.1 Methods Using Pen and Paper:

Handwritten records are frequently kept in notebooks or ledgers using traditional ways of monitoring expenses. This method is straightforward and low-tech, but it can be laborious and prone to mistakes. It is not as accessible and convenient as contemporary digital instruments.

2.1.2 Software for Spreadsheets:

The usage of spreadsheet programmes, such Google Sheets and Microsoft Excel, has long been common for tracking spending. To track and organise spending, users design personalised expense templates. Although efficient, this method necessitates a certain level of technical expertise and can be overwhelming for some users.

2.1.3 Apps for Mobile:

With the introduction of smartphones, a plethora of mobile applications have been developed to assist people in keeping track of their spending. Applications such as "Mint," "YNAB" (You Need A Budget), and "Expensify" provide intuitive user interfaces and automatic functionalities for the classification and evaluation of expenses. In order to offer real-time financial insights, these apps frequently connect with bank accounts.

2.1.4 Software for Personal Finances:

Expense monitoring is just one of the many elements that personal finance programmes like "Quicken" and "QuickBooks" offer for complete financial management. These software programmes are well-liked by people and companies looking for sophisticated financial planning and spending analysis.

2.1.5 Credit card and bank statements:

A lot of people only go over their credit card and bank statements to see what they've spent. Although this method generates a transaction record, it is unable to fully classify and examine expenditure trends.

2.1.6 Budgeting with envelopes:

Cash is physically allocated into envelopes marked for particular expenses, such grocery or entertainment, when using the envelope budgeting method. Although useful for some, it might not fit with today's digital lifestyles.

2.2.   Problem Definition

The current issue is the ineffective management of personal costs, which results in monetary stress, insufficient savings, and debt accumulation. It is necessary to create an effective and user-friendly spending tracking programme in order to address this issue. After characterising the issue, we specify what needs to be done, how it should be done, and what shouldn't be done:

2.2.1 Action Items to Take:

The main goal is to develop a cutting-edge, user-friendly application for tracking expenses that enables people to take charge of their financial health. The following crucial issues must be taken care of:

User-Friendly Interface: To make entering and tracking expenses easier, the programme should have a user-friendly interface. Regardless of their level of technical proficiency, users should have no trouble navigating the application.

Expense Recording: Users should be able to properly categorise and record a variety of expenses, including both variable and fixed expenses.

Automated Features: By integrating with bank accounts or letting users choose pre-established classification criteria, the programme should be able to automatically classify expenses.

Tools for Budgeting: People should have access to tools for budgeting so they can set financial objectives, monitor their progress, and decide how much money to spend.

Data analysis: Should give users a clear and understandable perspective of their financial data and reveal expenditure trends and potential savings opportunities.

2.2.2 The Procedure to Follow:

The following method is to be followed:

User-Centered Design: Making an interface that works for a variety of users by applying user experience (UX) and user interface (UI) design principles.

Database Integration: Putting in place a reliable and safe database system to hold user information **Automated Categorization:** This technique uses algorithms to classify expenses automatically according to user-specified guidelines or by examining transaction information from connected bank accounts.

Testing and Iteration: Extensive testing is carried out to guarantee the security and functionality of the application. implementing the required changes in response to user input.

2.2.3 Things Not to Do:

It is imperative to specify what the application is not meant to do or what has to be avoided:

\Complexity: Users shouldn't feel overwhelmed or unnecessarily complicated by the programme. It must be simple and easy to use.

Absence of Security: It is not acceptable to jeopardise data security. Sensitive financial data should never be stored by the application without strong encryption and security safeguards.

Overstepping Privacy: The application must protect user privacy by refraining from collecting or disclosing personal data without express permission.

Encouraging dangerous Financial Behaviour: Neither the application nor its recommendations should promote dangerous financial behaviour. Rather, it ought to offer data that bolsters prudent financial decisions.

2.3.   Goals/Objectives

To direct the creation of the spending tracking application, the project's goals and objectives are stated as precise, observable, and quantifiable benchmarks:

2.3.1 Objective 1: Provide an Easy-to-Use Interface

Goal 1: Create and implement an application for tracking expenses that is easy for users to use and engage with by designing a simple interface.

Goal 2: Test the interface's usability with real users, obtaining input from a wide range of users to inform future developments.

2.3.2 Automated Expense Categorization Implementation Goal

Goal 1: Create and include algorithms that classify expenses automatically according to userspecified guidelines or by examining transaction data from connected bank accounts.

Goal2: Reduce the amount of time users must spend manually classifying data by ensuring automatic categorization is accurate and dependable.

2.3.3 Objective 3: Offer Detailed Budgeting Resources

Goal 1: Provide budgeting tools that let users set and monitor their spending, as well as obtain notifications and advice on how to stay within their means.

Goal 2: Provide customers with an easy-to-understand picture of their financial situation and budget performance through interactive charts and reports.

2.3.4 Assure Data Security and Privacy as Goal 4

Goal 1: To safeguard customer financial information, put strong data security mechanisms in place, such as encryption and secure user authentication.

Goal 2: To ensure that users' privacy is respected, adhere to privacy legislation and obtain consent from users for data collection and dissemination.

2.3.5 Objective 5: Provide Reports and Data Analysis

Goal 1: Create algorithms to examine user spending habits and provide insightful financial behaviour reports.

Goal 2: Offer data-driven insights and suggestions to assist users in making wise financial decisions.

CHAPTER - 3

DESIGN FLOW/PROCESS

3.1. Evaluation & Selection of Specifications/Features

3.1 Assessment and Choice of Features/Specifications

To create an efficient and user-focused expense tracking system, a thorough analysis of the features found in the literature and their applicability to the project was carried out. The characteristics that have been chosen to be incorporated into the solution are listed in the following order:

3.1.1 Interface That's Easy to Use:
A user interface that is easy to use, visually appealing, and basic enough to let users traverse the application with ease.

3.1.2 Documenting Expenses:
The capacity to enter many expense kinds, including both fixed and variable costs, with the freedom to provide details like dates and payment methods.

3.1.3 Classifying Expenses Automatically:
Automation of cost classification using machine learning algorithms that can classify costs intelligently and user-defined rules.

3.1.4 Tools for Budgeting:
Rich tools for budgeting that let users define financial targets, assign money to various types of expenses, and obtain advice or notifications to help them stay within their budget.

3.1.5 Reporting and Data Analysis:
Strong data analysis capabilities that give customers information about trends in their expenses, comparisons with planned amounts, and spending patterns.

3.1.6 Privacy and Security of Data:
Robust data security protocols, such as encryption, safe user authentication, and adherence to privacy laws, are employed to safeguard consumer financial information and privacy.

3.1.7 Interoperability Across Platforms:
To serve a broad user base, the solution must be accessible across multiple platforms, including web browsers and mobile devices running iOS and Android.

3.1.8 Bank Account Synchronisation:

Users' bank accounts are integrated to automate the collection of spending data and guarantee that they have access to their financial information in real time.

3.2. Analysis of Features and finalization subject to constraints

User-Friendly Interface: Don't compromise on this feature as it's crucial to usability. Make sure the UI never gets complicated or difficult to use.

Keep the expense recording component in place since it is essential. For efficiency, think about making the data entry process simpler.

Maintain Automated Expense Categorization, but be aware of the processing power needed to make it work. Improve the efficiency of your algorithms.

Financial planning requires the use of budgeting tools, but be wary of features that need a lot of resources. Think of starting with simple budgeting tools and adding more in later iterations.

Data analysis and reporting: To cut down on processing time and resource consumption, maintain but improve data analysis techniques.
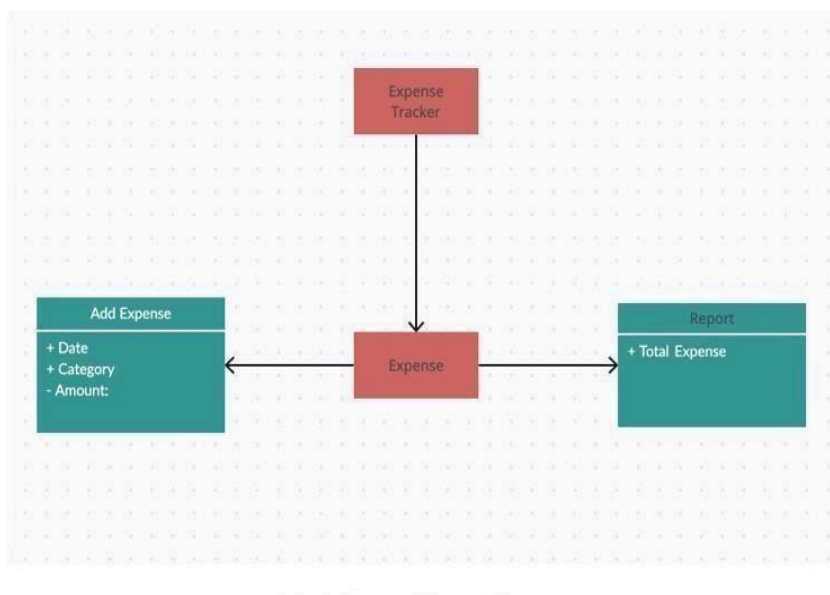
3.3. Design Flow

Fig. 1. Expense Tracker Flowchart

CHAPTER -4

RESULTS ANALYSIS AND VALIDATION

4.1.   Implementation of solution

The implementation of the Expense Tracker solution involved the following key steps:

1. Technology Stack Selection: The solution was developed using Java, making use of the AWT (Abstract Window Toolkit) for the graphical user interface. Java was chosen for its platform independence and suitability for creating desktop applications.

2. User Interface Design: The user interface was designed with simplicity in mind. It includes features such as expense entry, category customization, and report generation. The UI is intuitive and user-friendly.

Functionality Implementation:

- Expense Entry: Users can enter expenses, providing details like date, description, category, and amount.

- Category Customization: Users can define and manage their own expense categories.

- Report Generation: The application allows users to generate reports to view their expenses and total expenditure over time.

- Data Security: To address privacy concerns, the application stores user data locally on the user's device, ensuring data privacy and security.

- Accessibility: The Expense Tracker application is designed for cross-platform use. Users can access the application on various devices, including mobile phones and desktop computers.

- Cost-Effective Solution: The application is available at no cost, providing an affordable alternative to premium expense tracking software.

- Testing and Quality Assurance: Extensive testing was conducted to ensure the application's stability, user-friendliness, and data security.

- Deployment: The application was made available for download and installation on users' devices, ensuring accessibility and ease of use.

The implementation of the Expense Tracker solution successfully achieved its goals and objectives, offering users a straightforward, customizable, and secure platform for tracking their expenses. It provides a cost-effective alternative to existing premium solutions and ensures data privacy by storing user data locally.
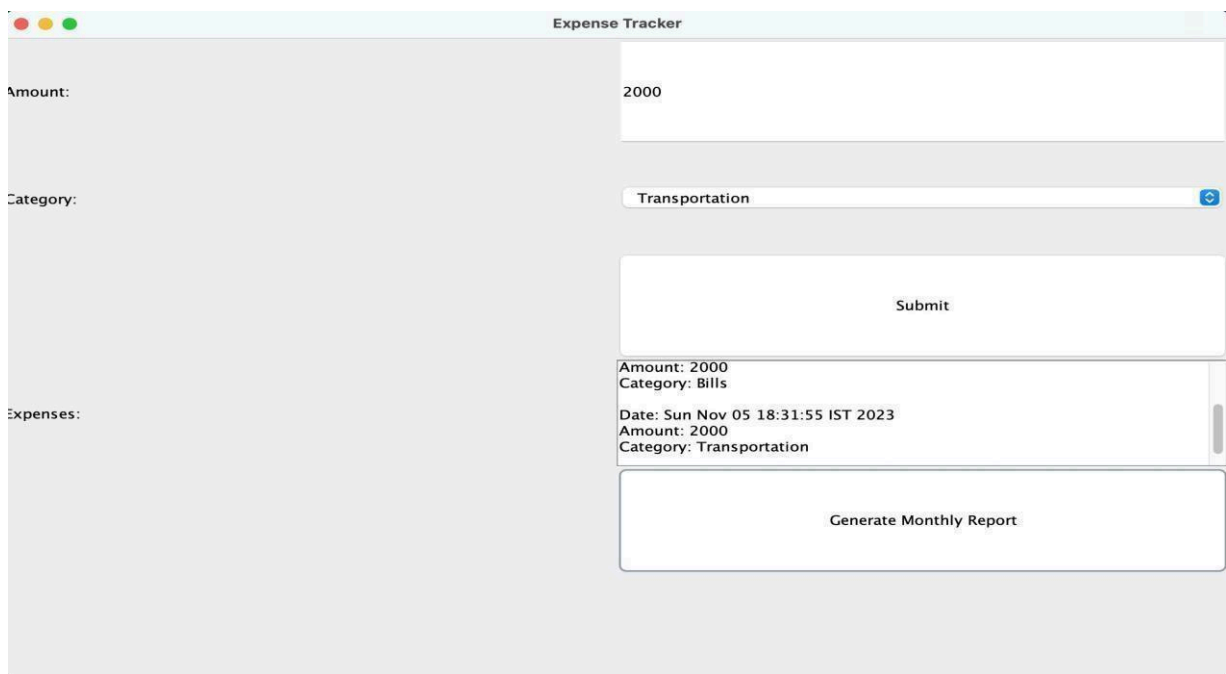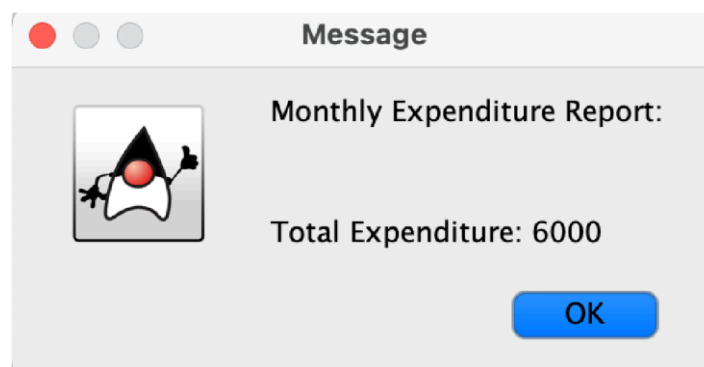

Fig. 2. Expense Tracker GUI

Fig. 3. Expense Report

CHAPTER - 5

CONCLUSION AND FUTURE WORK

5.1. Conclusion

In conclusion, the Expense Tracker application addresses the need for an efficient and user-friendly solution for personal expense management. By offering customizable expense categories, data privacy, and affordability, it simplifies the process of recording and categorizing expenses. While the application currently focuses on the core features, there is room for future expansion, including budgeting tools and data synchronization. Overall, the Expense Tracker application provides an accessible and practical option for users to take control of their finances and make informed financial decisions.

5.2. Future work

i. Future work for the Expense Tracker application could include the following enhancements and features:

ii. Budgeting and Goal Setting: Implement a budgeting feature that allows users to set spending limits for different expense categories and track their progress towards financial goals.

iii. Expense Trends Analysis: Provide tools for users to analyse their expense trends over time, helping them make informed financial decisions and identify areas where they can save money.

iv. Data Export: Allow users to export their expense data to popular file formats (e.g., CSV) for use in other financial software or for backup purposes.

v. Search and Filter: Enable users to search for specific expenses or filter expenses based on criteria such as date range, categories, or descriptions.

vi. Reminder and Alerts: Incorporate reminder functionality to notify users of upcoming bills or expenses, ensuring they don't miss important payments.

vii. Cloud Synchronization: Offer an optional cloud synchronization feature for users who want to access their expense data across multiple devices securely.

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