A CAPSTONE PROJECT REPORT

ON

Personal Expense Management System

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Under the Guidance of:

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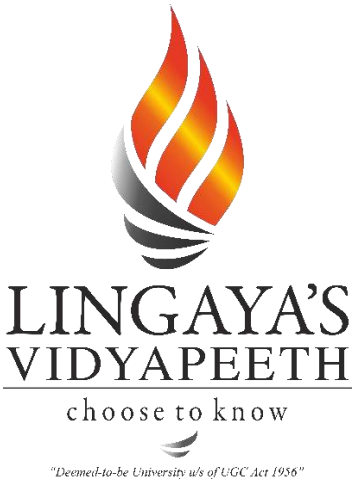
in partial fulfillment for the award of the degree of

BACHELOR OF COMPUTER APPLICATION



Department of Computer Application

LINGAYAS VIDYAPEETH, FARIDABAD

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Declaration

I hereby declare that this project report entitled "Personal Expense Management" *by* Raj Kumar Madheshiya (23BCA60) and Upasna Yadav(23BCA10), being submitted in partial fulfillment of the requirements for the degree of Bachelor of Computer Application under the Department of Computer Application of Lingaya's Vidyapeeth, Faridabad, during the academic year 2025, is a bona fide record of our original work carried out under the guidance of Dr. Avinash Kumar Namdeo.

We further declare that we have not submitted the matter presented in this Project for the award of any other Degree/Diploma of this University or any other University/Institute.

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Certificate

This is to certify that this project report entitled "Personal Expense Management System" is the bona fide work of Raj Kumar Madheshiya(23BCA60) and Upasna Yadav(23BCA10), who carried out the project in collaboration with Department of Computer Application, Lingaya's Vidyapeeth Faridabad, during the academic year 2024-25.

The requirements have been fulfilled as per the rules of the Vidyapeeth, for the completion of Project. This work is original and has not been submitted in part or in full to any Vidyapeeth or Institution.

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.

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ABSTRACT

The **Personal Expense Management System** is a GUI-based desktop application developed using **Python**, **Tkinter**, and **SQLite** to help users efficiently record, manage, and analyze their daily expenses.

In today's fast-paced lifestyle, individuals often find it difficult to track their expenses manually, which leads to poor financial planning, unnecessary spending, and lack of awareness about money usage. Traditional methods such as notebooks or simple notes are time-consuming and prone to calculation errors.

This system provides a digital solution by allowing users to securely log in, add expense details such as date, category, item, and amount, and store them in a structured database. The application supports **CRUD operations** (Create, Read, Update, Delete) to manage expense records effectively.

Additionally, the system generates **category-wise expense analysis** using graphical visualization, which helps users understand their spending patterns clearly. The use of SQLite ensures persistent and secure data storage, while the Tkinter-based graphical interface makes the system easy to use for users with basic computer knowledge.

Overall, the Personal Expense Management System improves financial awareness, reduces manual errors, saves time, and provides an efficient way to manage personal expenses digitally.

CHAPTER-I

INTRODUCTION

1.1 Introduction

In the modern digital era, effective management of personal finances has become an essential requirement for individuals. People spend money daily on various activities such as food, travel, shopping, and utilities, but often fail to maintain accurate records of their expenses. As a result, they are unable to analyze their spending patterns, which leads to poor financial planning and unnecessary expenses.

Traditional methods of expense tracking, such as maintaining notebooks or manual records, are time-consuming and prone to calculation errors. These methods do not provide proper categorization or analytical insights, making it difficult for users to understand where their money is being spent. With the increasing use of computers and software applications, there is a need for a digital system that can simplify expense management.

The Personal Expense Management System is a GUI-based desktop application developed using Python, Tkinter, and SQLite. The system provides a user-friendly interface that allows users to record, store, and analyze their expenses digitally. By automating expense tracking and providing visual analysis, the system helps users improve financial awareness and maintain better control over their personal finances.

1.2 Problem Statement

Managing expenses manually presents several challenges that affect accuracy and efficiency. The major problems associated with traditional expense tracking methods are:

- Manual record keeping is time-consuming and difficult to maintain
- High chances of calculation errors while totaling expenses
- Lack of proper categorization and analysis of expenses
- Difficulty in tracking long-term spending patterns
- No secure storage of financial records

1.3 Proposed Solution

The proposed solution is a Personal Expense Management System that provides a digital platform for recording and managing expenses efficiently. The system allows users to securely log in and enter expense details such as date, category, item name, and amount through a graphical user interface.

1.4 Objectives

- To develop a user-friendly GUI-based expense tracking application
- To store expense data securely using a database system
- To reduce errors associated with manual expense calculations
- To provide category-wise expense analysis and visualization
- To help users improve financial planning and budgeting skills

CHAPTER-II

LITERATURE REVIEW

A literature review is an important part of any project as it helps in understanding the existing systems, technologies, and approaches related to the problem domain. In the context of personal expense management, various methods and tools have been developed to help individuals track and control their expenses.

Traditionally, people have relied on manual methods such as notebooks, diaries, or spreadsheets to record their daily expenses. While these methods are simple, they require continuous effort and are prone to human errors. Manual calculations often lead to incorrect totals, and maintaining records over a long period becomes difficult. Additionally, these methods do not provide proper analysis or visualization of spending patterns.

With the advancement of technology, several mobile and web-based expense tracking applications have been introduced. These applications allow users to enter expenses digitally and sometimes provide basic categorization features. However, many existing systems have limitations such as complex user interfaces, dependency on internet connectivity, paid subscription models, and lack of customization. Some applications also store user data on external servers, which may raise privacy and security concerns.

Existing systems often focus only on data entry and fail to provide meaningful insights into spending behavior. Many applications do not support editing or deleting records easily, and few provide graphical analysis to help users understand category-wise expenses. In addition, beginner-level users may find such applications difficult to use due to complicated navigation and unnecessary features.

The review of existing systems highlights the need for a simple, secure, and user-friendly expense management solution that works offline and provides clear analytical insights. The **Personal Expense Management System** is designed to overcome these limitations by offering a desktop-based application with a graphical user interface, local database storage using SQLite, and category-wise expense visualization. This approach ensures ease of use, data security, accuracy, and improved financial awareness for users.

CHAPTER-III

METHODOLOGY

3.1 System Architecture & Work Design

The **Personal Expense Management System** is designed using a layered architecture approach to ensure simplicity, modularity, and ease of maintenance. The architecture divides the system into three main layers: **User Interface Layer**, **Application Logic Layer**, and **Database Layer**. Each layer performs a specific function and communicates with the other layers in a structured manner.

User Interface Layer

The User Interface Layer is developed using **Tkinter**, which provides a graphical interface for user interaction. This layer allows users to log in, enter expense details such as date, category, item, and amount, and view stored expense records. The interface is designed to be simple and user-friendly so that users with basic computer knowledge can operate the system easily.

Application Logic Layer

The Application Logic Layer is implemented using **Python** and acts as the core processing unit of the system. This layer handles input validation, calculation of total expenses, execution of CRUD operations (Create, Read, Update, Delete), and interaction between the user interface and the database. It ensures that all user inputs are processed correctly before being stored in the database.

Database Layer

The Database Layer uses **SQLite** to store expense records securely. SQLite is a lightweight, server-less database suitable for desktop applications. It ensures persistent storage of expense data, allowing users to access their records even after restarting the application.

```
User → GUI (Tkinter) → Application Logic (Python) → Database (SQLite)
```

3.2 Implementation Details

This section explains how different components of the system are implemented and integrated to provide complete functionality.

Expense Entry and Validation

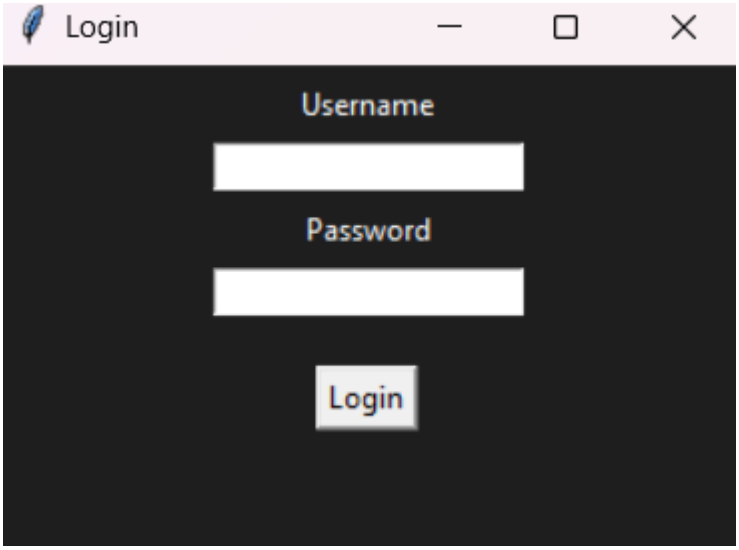
Users enter expense details through the GUI form. The system validates inputs such as date format and numeric values for amount to prevent incorrect data entry. Once validated, the data is passed to the database layer for storage.

Database Operations

The application performs CRUD operations on the SQLite database. Users can add new expenses, view existing records in tabular format, update selected records, and delete unwanted entries. These operations ensure flexible and efficient expense management.

Expense Visualization

The system provides category-wise expense analysis using graphical representation. Matplotlib is used to generate bar charts that display spending patterns clearly. This visual analysis helps users understand how much they spend in each category.

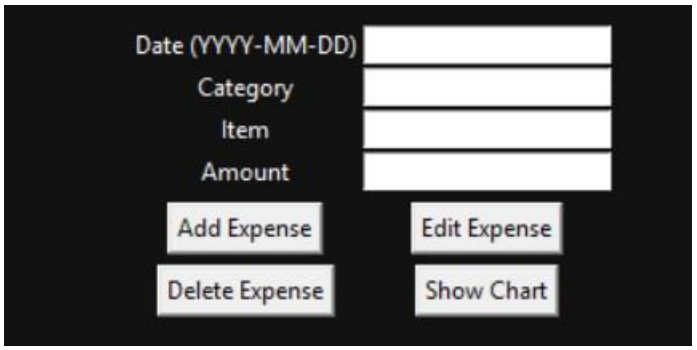


3.3 Workflow of the System

The overall workflow of the system follows a structured sequence:

1. User logs into the application
2. Expense details are entered through the GUI
3. Data is validated and stored in the database
4. Stored records are displayed in tabular form
5. Category-wise charts are generated for analysis

This workflow ensures smooth interaction between the user and the system while maintaining data accuracy and consistency.



CHAPTER-IV

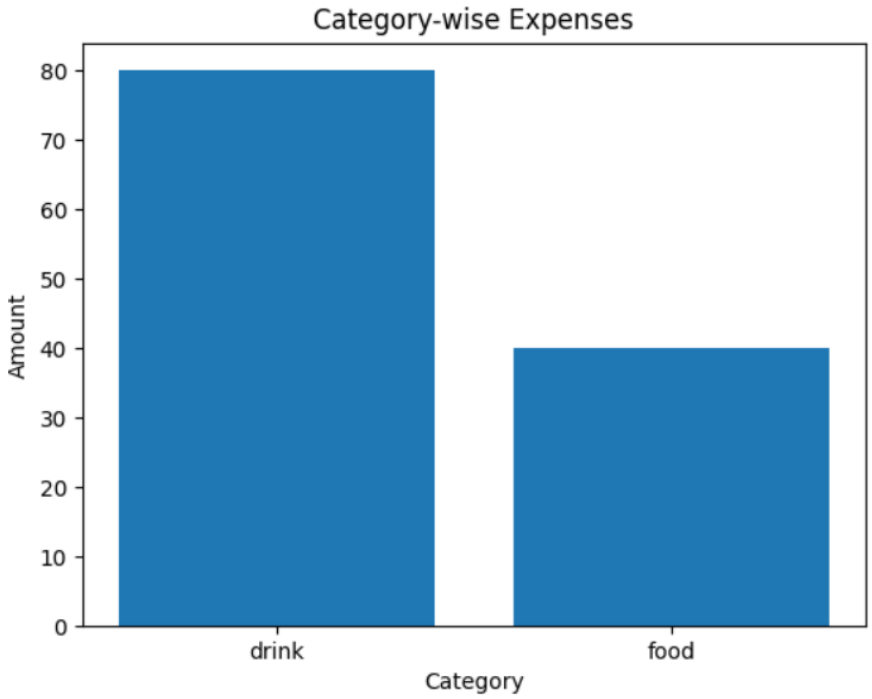
RESULTS AND DISCUSSION

4.1 Results

After successful implementation of the Personal Expense Management System, the application was tested with sample expense data to evaluate its functionality and performance. The system performed as expected and provided accurate results for expense recording, storage, and analysis.

The login module successfully restricts unauthorized access and ensures that only authenticated users can use the application. Once logged in, users are able to add expense details such as date, category, item name, and amount through a simple graphical interface. All entered data is validated and stored securely in the SQLite database.

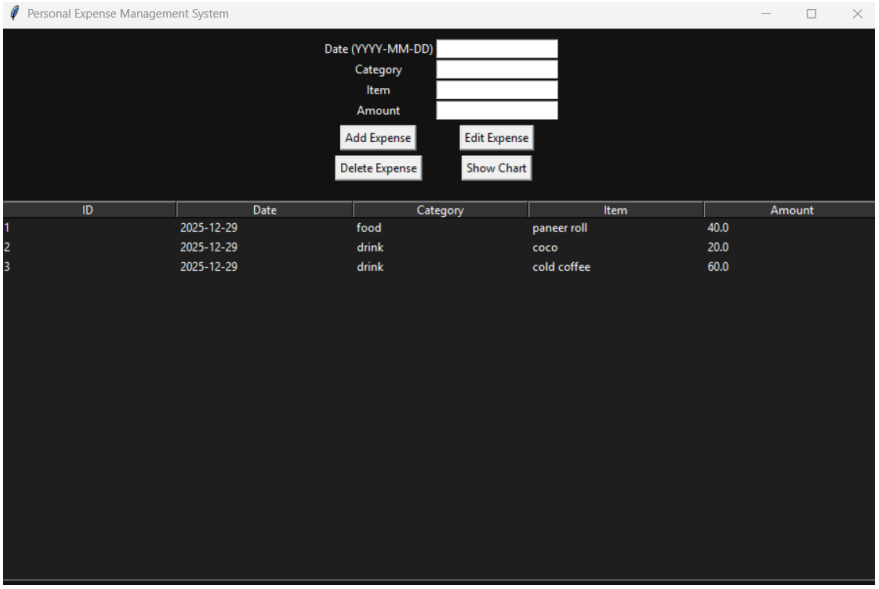
The stored expense records are displayed in a tabular format, allowing users to view all expenses clearly. The system automatically calculates the total amount spent, eliminating the need for manual calculations. The edit and delete functionalities allow users to modify or remove expense records easily, providing flexibility in expense management.

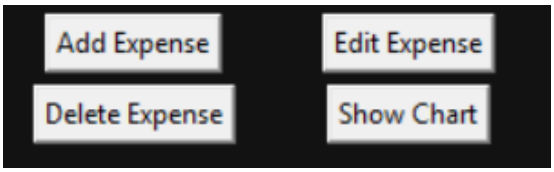


4.2 Category-wise Expense Analysis

One of the key features of the system is its ability to analyze expenses based on categories. The application groups expenses into categories such as food, travel, shopping, and others, and calculates the total amount spent in each category.

The system uses Matplotlib to generate a bar chart that visually represents category-wise expenses. This graphical representation makes it easy for users to understand their spending patterns and identify areas where expenses can be controlled or reduced.





ID	Date	Category	Item	Amount
1	2025-12-29	food	paneer roll	40.0
2	2025-12-29	drink	coco	20.0
3	2025-12-29	drink	cold coffee	60.0

4.3 Discussion

The results obtained from the implementation demonstrate that the Personal Expense Management System effectively addresses the limitations of manual expense tracking. The system reduces calculation errors, saves time, and provides accurate and organized expense records.

The graphical visualization enhances financial awareness by allowing users to compare expenses across different categories. Since the application stores data locally using SQLite, it ensures data persistence and security without requiring internet connectivity. The user-friendly interface makes the system accessible even to users with basic technical knowledge.

Overall, the system successfully achieves its intended objectives and proves to be a practical and efficient solution for personal expense management.

CHAPTER-V

CONCLUSION

The **Personal Expense Management System** successfully fulfills its objective of providing a simple, efficient, and user-friendly solution for managing daily expenses. The project addresses the limitations of traditional manual expense tracking methods by offering a digital platform that ensures accuracy, reliability, and ease of use.

The system allows users to record expense details, store them securely in an SQLite database, and manage records using essential CRUD operations. By automating calculations and organizing data in a structured manner, the application significantly reduces human errors and saves time. The inclusion of category-wise expense analysis through graphical representation further enhances the user's ability to understand and control spending habits.

The graphical user interface developed using Tkinter makes the application accessible even to users with basic computer knowledge. The use of SQLite ensures persistent data storage without the need for internet connectivity, making the system suitable for personal and academic use.

Through the development of this project, practical knowledge of Python programming, GUI design, database management, and data visualization has been gained. The project demonstrates how software applications can be effectively used to solve real-world problems related to financial management.

In conclusion, the Personal Expense Management System is a practical and reliable tool for personal expense tracking and provides a strong foundation for future enhancements such as multi-user support, cloud integration, and advanced reporting features.

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Appendix A: Sample Code Snippet

```
import tkinter as tk
from tkinter import messagebox

def check_login():
    username = username_entry.get()
    password = password_entry.get()

    if username == "admin" and password == "admin":
        messagebox.showinfo("Login", "Login Successful")
    else:
        messagebox.showerror("Login", "Invalid Username or Password")

# Create window
root = tk.Tk()
root.title("Login")
root.geometry("350x220")
root.configure(bg="#1e1e1e")

# Username
tk.Label(root, text="Username", bg="#1e1e1e", fg="white").pack(pady=(20, 5))
username_entry = tk.Entry(root, width=30)
username_entry.pack()

# Password
tk.Label(root, text="Password", bg="#1e1e1e", fg="white").pack(pady=(10, 5))
password_entry = tk.Entry(root, width=30, show="*")
password_entry.pack()

# Login Button
tk.Button(root, text="Login", width=10, command=check_login).pack(pady=20)

root.mainloop()
```

Output: