

# PENNY WISE

A Full stack ML powered  
Expense Tracker

Minor Project - IS6C06  
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# AGENDA



Introduction

Problem & Objective

Literary Review

Proposed System

Data flow

System Requirements

Conclusion

# INTRODUCTION →

## **Penny wise - an expense tracker ...**

- Helps the user to track and analyze all his expenses.
- Graphically represent on which category the user is spending all his money.
- Creates a history of all the expenses .
- Helps the user to maintain his personal finance.



# PROBLEM

- Managing expenses has become a significant concern for individuals .
- Keeping track of expenses manually can be difficult and time-consuming.
- Categorizing the expenses is essential as it helps the user to find out on which category he is spending more .
- Managing multiple accounts and payments is challenging.



# OBJECTIVE

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- To Design and develop a Web Application that enables users to keep track of their expenses.
- To provide an automatic categorization feature {by incorporating machine learning algorithms} that classifies expenses into various categories .



# OBJECTIVE

- To provide insightful reports and visualizations which helps the users to gain a better understanding of their spending patterns.
- Offer customization options, such as budget setting and expense categorization, to allow users to tailor the application to their individual financial goals and preferences.
- Enhance the security and privacy of user data by implementing robust authentication and data encryption measures.





# LITERARY REVIEW



- The research paper {Published in: 2020 IJARSCT} presents an "Expense Tracker," which is a web application for efficient daily expense management. Users can input income for daily expense calculations, with provisions for predictive data mining. The application includes three user logins with different privileges for admin, manager, and staff roles, allowing for expense and income management, verifications, and custom report generation.



# LITERARY REVIEW



- The research paper which is Published in 2018 4th International Conference on ICEEICT } introduces "eExpense," an automated Android-based expense tracking system. Users can scan bills or receipts to extract expense details, and the application monitors income through SMS tracking. The system calculates monthly and yearly balances, providing a smart and automated solution for expense tracking.



# LITERARY REVIEW



- In a study by S K Singh (2019) on the adoption of expense tracker applications in India, it was found that users appreciated the ease and convenience of these apps, but expressed concerns over data security and privacy. The study recommends that app developers should provide users with more information about how their data is collected, stored and used.

# PROPOSED SYSTEM



- The proposed system is a web-based application that allows users to easily track their expenses from any device with internet connectivity.
- The application will provide an intuitive and user-friendly interface, making it easy for users to add, edit, and delete transactions.
- Users will be able to categorize their transactions based on the type of expense, such as food, travel, rent, etc.
- The application will use machine learning algorithms to automatically categorize transactions based on their descriptions and amounts, reducing manual effort for users.

# PROPOSED SYSTEM



- Users will be able to generate detailed reports, including graphs and charts, to better understand their spending habits and make informed decisions about their finances.
- Users will be able to set budgets for different expense categories and receive alerts when they exceed their budget limits.
- The proposed system will also prioritize data security and privacy, ensuring that user data is protected with appropriate measures.

# PROPOSED SYSTEM WITH RESPECT TO SYSTEM REQUIREMENTS



# PROPOSED SYSTEM WITH RESPECT TO SYSTEM REQUIREMENTS



- Bootstrap & other front end frameworks will be used to develop a good looking and responsive web page.
- Machine learning algorithms will be used to automatically categorize transactions based on their type and provide personalized insights and recommendations to users.
- Python's NumPy and Pandas libraries will be used to perform data manipulation and preprocessing tasks, while scikit-learn will be used to implement machine learning algorithms for expense categorization.

# Data Flow

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UML Activity diagram =

[Click here to view the diagram](#)

# Data Flow



- The user logs in to the PennyWise application using their credentials and is redirected to the dashboard.
- The dashboard displays an overview of the user's financial status and the current month's expenses.
- The user can input expenses by selecting the category and adding the transaction details such as date, amount, and description.
- The application stores the transaction data in a database and applies machine learning algorithms to categorize the transactions automatically.

# Data Flow

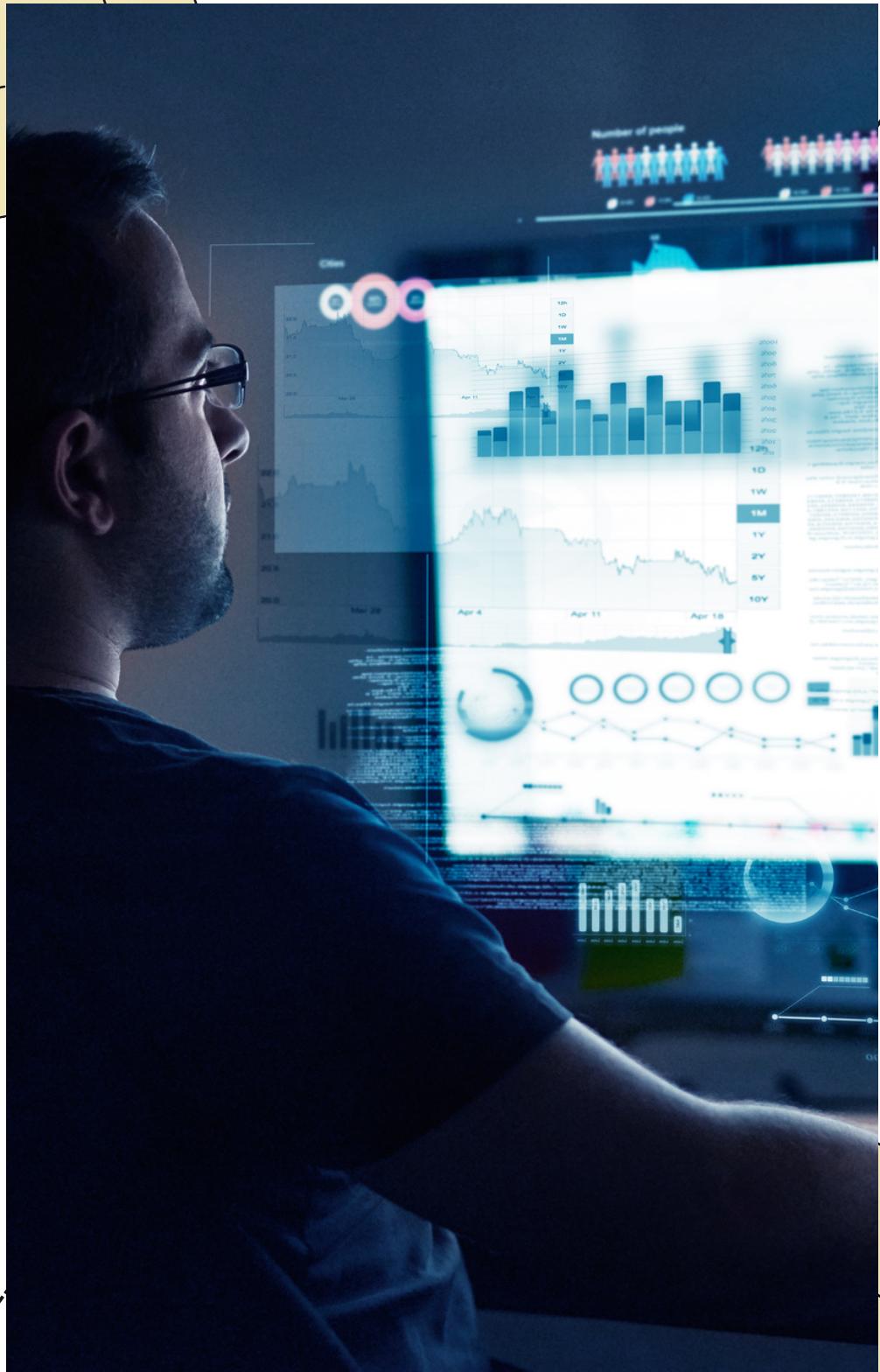


- The categorized transactions are displayed in the dashboard & can be viewed by the user based on categories, dates, & other filters.
- The application generates graphical reports and insights to provide a clear overview of the user's expenses, including a pie chart of expenses by category and a line chart of expenses over time.
- The user can set up budget goals and alerts for specific categories to monitor their spending habits effectively.
- The data flow is secured through encryption and authentication mechanisms to protect the user's sensitive financial information.

# SOFTWARE REQUIREMENTS

- Jupyter Notebook
- VS Code
- Python 3.10
- NumPy
- Pandas
- Node.js
- Express.js
- EJS
- Bootstrap
- MongoDB





# HARDWARE REQUIREMENTS

- Processor: 8th gen Intel Core i5 or higher
- Memory: 8GB RAM or above

# Conclusion & Future Enhancements

- In conclusion, we believe PennyWise can provide immense value to users looking to manage their expenses effectively.
- We also believe that PennyWise has the potential to become a popular choice among all kind of users who are looking for an effective and hassle-free way to manage their expenses.
- We are confident that the application will be well-received by our target audience.



# Conclusion & Future Enhancements

- In the future, we plan to add more advanced features to PennyWise, such as predictive analytics that can help users predict their expenses and create budgets accordingly.
- Integration of user's mobile messages containing money transactions to automatically add expenses to the PennyWise app.
- Lastly, we plan to make the application more accessible to users by developing mobile versions of PennyWise for both Android and iOS platforms, allowing users to track their expenses on-the-go.





Thank  
You

