Microsoft Elevate

CAPSTONE PROJECT

POCKETPILOTAI – NAVIGATE YOUR EXPENSES WITH CONFIDENCE

PRESENTED BY

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PROBLEM STATEMENT:

Managing personal finances effectively remains a challenge for many individuals, especially students and young professionals. Although several tools exist for expense tracking, they largely focus on data entry rather than providing meaningful insights. Users often record expenses regularly but struggle to interpret spending patterns, identify inefficiencies, or take actionable steps to improve savings and financial discipline, particularly when dealing with limited income and impulse purchases.

There is a need for an intelligent, automated solution that goes beyond simple tracking to offer personalized financial insights and guidance. Such a system should analyze user-provided data, understand individual financial behavior, and deliver timely, actionable recommendations in a simple and accessible manner without requiring complex applications or financial expertise.

PROPOSED SOLUTION:

The proposed system aims to simplify and automate personal expense analysis by leveraging **AI-driven insights and no-code automation**. The solution focuses on collecting user financial data through an accessible interface, analyzing spending behavior using generative AI, and delivering personalized financial guidance directly via email.

Data Collection

- User financial data is collected through a Google Form, which captures personal details, income range, expense breakdown, spending habits, and financial goals. Each form submission acts as a trigger event within Zapier, ensuring real-time processing without manual intervention.

Data Processing and Analysis

- Once a new response is received, Zapier forwards the structured form data to Google Gemini AI. The AI model processes the input to identify spending patterns, behavioral challenges such as impulse purchases, and opportunities for better expense control. The AI is guided by a carefully designed prompt to generate structured, plain-text financial insights suitable for automated email delivery.

Automation and Delivery

- Zapier orchestrates the entire workflow by connecting Google Forms, Gemini AI, and Gmail. The generated insights are formatted and automatically sent to the user's email address as a personalized expense analysis report. This eliminates the need for dashboards or mobile applications, ensuring ease of access and user convenience.

Evaluation and Outcome

- The effectiveness of the system is evaluated based on the clarity, relevance, and usefulness of the insights delivered to users. Successful automation, timely email delivery, and improved user awareness of spending behavior indicate the effectiveness of the proposed methodology.

SYSTEM APPROACH:

The system approach defines the overall strategy adopted to design, develop, and deploy **PocketPilotAI**, an AI-powered finance co-pilot that automates expense analysis and delivers personalized insights. The system is designed using a **no-code automation platform (Zapier)** integrated with **Google Forms, Google Gemini AI, and Gmail**, ensuring scalability, reliability, and ease of use.

System Requirements

- The proposed system requires minimal hardware and software resources, making it accessible and cost-effective. A stable internet connection and a web browser are sufficient for both users and administrators. Users interact with the system through Google Forms to submit expense details, while the backend automation is managed entirely through Zapier. The system relies on Google Gemini AI for intelligent analysis and Gmail for automated report delivery.

Software Requirements:

- Google Forms (for data input)

- Zapier (for workflow automation)

- Google AI Studio – Gemini (for AI-based analysis)

- Gmail (for automated email delivery)

- Web browser (Google Chrome / Edge)

SYSTEM APPROACH:

Hardware Requirements:

- Any device with internet access (Laptop / Mobile / Tablet)

- No dedicated server or local infrastructure required

Libraries / Tools Required to Build the System

- Since the system is implemented using a no-code approach, traditional programming libraries are not required. Instead, cloud-based tools and APIs are used to build and operate the system efficiently.

- **Google Forms API** – For collecting structured user expense data

- **Google Gemini AI API** – For generating intelligent financial insights

- **Zapier Automation Engine** – For orchestrating triggers, actions, and data flow

- **Gmail API** – For sending automated financial analysis reports

- This approach eliminates the need for complex coding while still enabling advanced AI-driven functionality, aligning with modern **Copilot-enabled automation practices**.

ALGORITHM & DEPLOYMENT:

1. Algorithm Selection

- The proposed system employs a **Generative AI–based reasoning algorithm using Google Gemini** rather than a traditional numerical machine learning model. This approach is chosen because the problem involves **qualitative financial behavior analysis**, such as identifying spending habits, impulse purchases, and savings opportunities, rather than predicting a single numeric value. Google Gemini is capable of understanding structured user inputs, interpreting contextual information, and generating personalized financial insights in natural language. Its ability to reason over incomplete or approximate data makes it suitable for real-world personal finance scenarios where exact numerical values may not always be available.

2. Data Input

- The algorithm takes structured user input collected through Google Forms. The key input features include:

- User demographic details (age group and occupation)

- Monthly income range

- Total monthly expenses

- Category-wise expense details (food, rent, transportation, utilities, subscriptions, etc.)

- Expense tracking frequency

- Identified spending challenges (e.g., impulse purchases)

- Financial goals (such as saving money or expense control)

- These inputs provide sufficient context for the AI model to analyze spending behavior and generate relevant, personalized recommendations.

ALGORITHM & DEPLOYMENT:

3. Processing and Analysis Approach (Training Equivalent)

- Unlike traditional machine learning models that require explicit training on historical datasets, Google Gemini operates as a **pre-trained large language model**. The system leverages **prompt engineering** to guide the model's reasoning process. Carefully designed prompts define the AI's role, constraints, and output structure, ensuring consistent and meaningful analysis. This eliminates the need for manual training, cross-validation, or hyperparameter tuning, while still delivering intelligent and context-aware outputs.
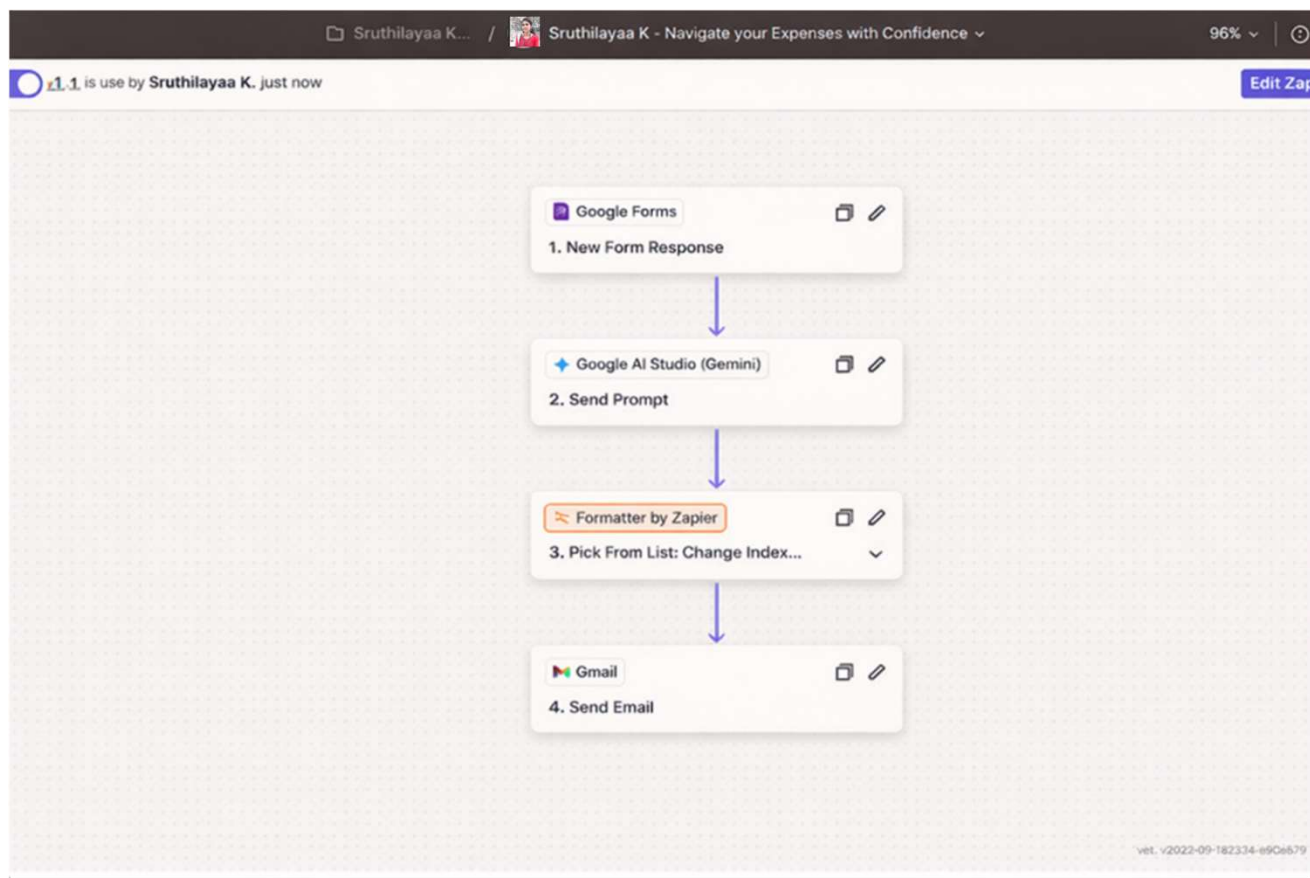
4. Prediction and Insight Generation Process

- Once a new Google Form response is submitted, the automation workflow triggers the Gemini model through Zapier. The AI processes the input data in real time and generates:

- A summary of the user's financial health

- Key spending insights

- Actionable recommendations for expense control and savings

- A short 7-day action plan

- The generated output is then automatically delivered to the user via email. This real-time processing ensures timely feedback and enables users to take immediate corrective actions based on their spending behavior.
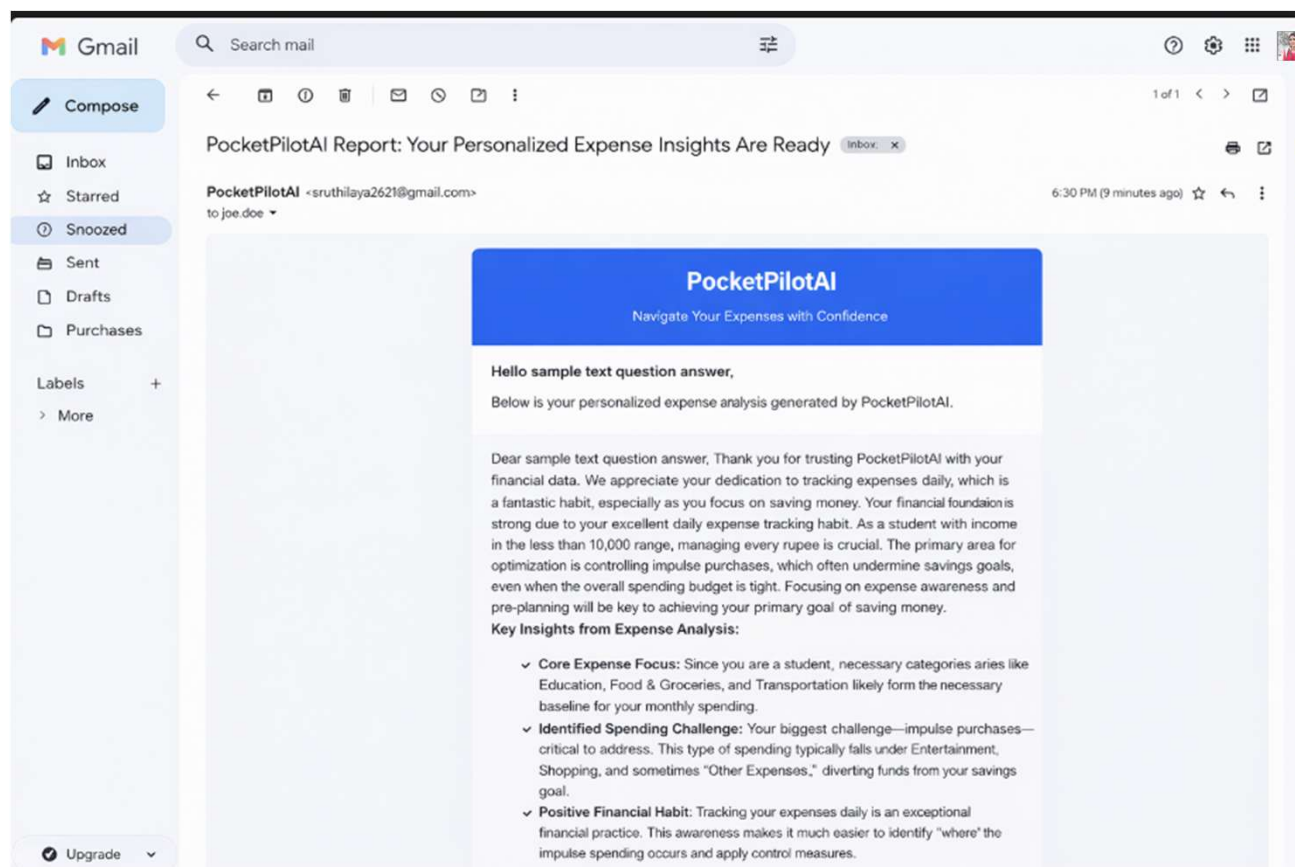
ALGORITHM & DEPLOYMENT:

5. Deployment

- The system is deployed using **Zapier**, which orchestrates the entire workflow. Google Forms serves as the data input interface, Google Gemini performs the AI-based analysis, and Gmail is used for automated report delivery. Since the solution is cloud-based and no-code, it is highly scalable, requires no local infrastructure, and can be accessed from any device with an internet connection.
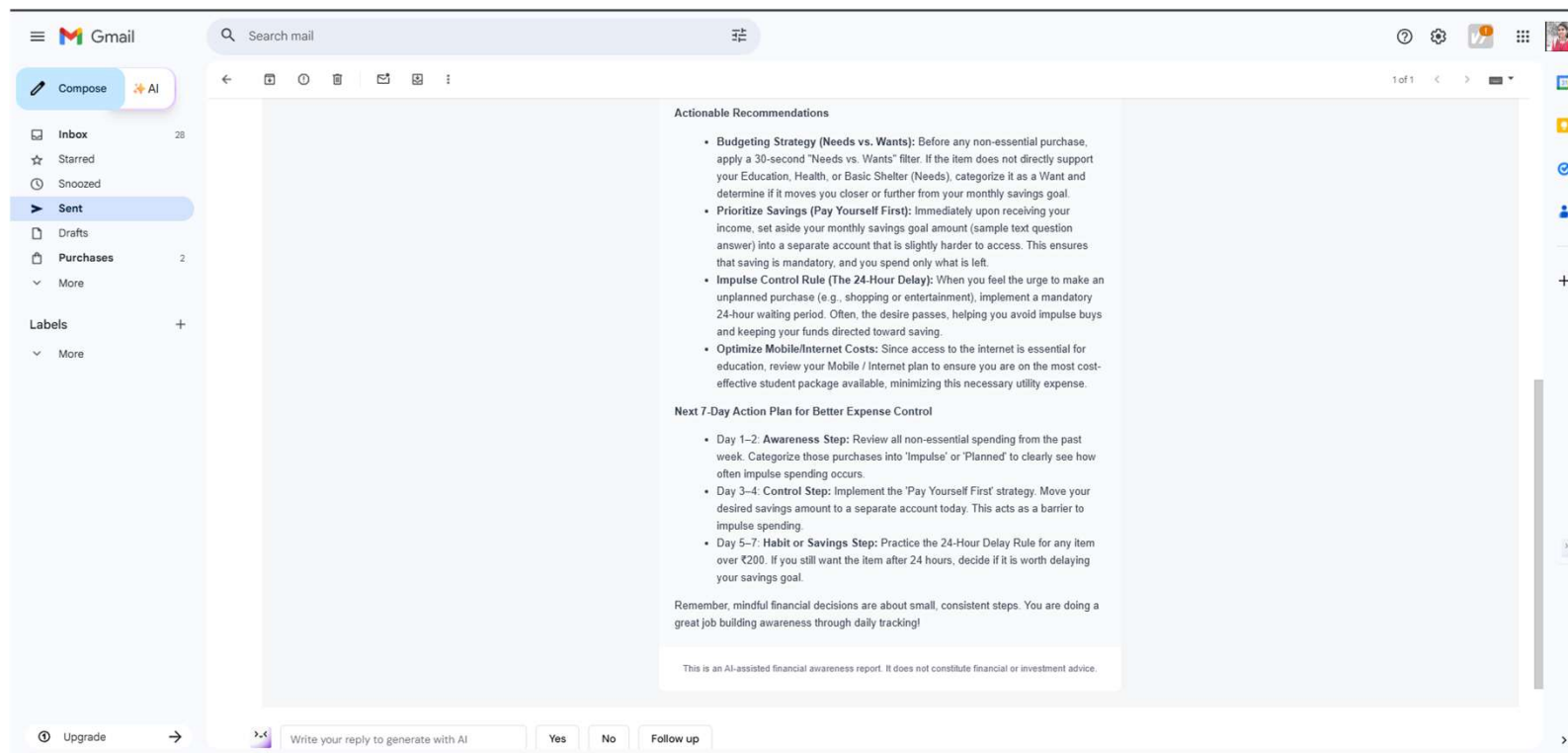
RESULT:

Workflow Preview

RESULT:

E-Mail Received (By AI Agent - Zapier)

RESULT:

E-Mail Received (By AI Agent - Zapier)

CONCLUSION:

The PocketPilotAI system successfully demonstrates how AI-driven automation can transform basic expense tracking into meaningful financial awareness and decision support. By integrating Google Forms, Google Gemini AI, and Zapier, the proposed solution effectively analyzes user-provided financial data and delivers personalized insights and recommendations directly via email. The system reduces manual effort, improves accessibility, and helps users bridge the gap between expense awareness and expense control, particularly for students and individuals with limited income.

During implementation, challenges such as inconsistent user input, formatting issues in automated email delivery, and AI output handling were encountered. These challenges were addressed through structured prompt engineering, output formatting control, and workflow optimization in Zapier. Potential improvements include adding historical expense comparison, monthly trend analysis, and integration with dashboards for long-term financial monitoring.

Accurate and timely analysis of personal expenses plays a crucial role in ensuring better financial discipline and sustainable savings habits in today's fast-paced digital environment.

FUTURE SCOPE:

The PocketPilotAI system can be further enhanced and expanded to provide more advanced and personalized financial assistance. One potential improvement is the integration of **additional data sources**, such as bank transaction summaries, digital wallet data, or monthly expense histories, to enable deeper analysis of long-term spending patterns. Incorporating calendar-based data (festivals, academic schedules, or subscription renewal dates) can also improve the relevance and timing of financial recommendations.

From an algorithmic perspective, the system can be optimized by combining **generative AI with traditional machine learning techniques**, such as clustering users based on spending behavior or predicting future expense trends using time-series models. This hybrid approach would allow PocketPilotAI to move beyond descriptive analysis toward **predictive and prescriptive financial guidance**, such as forecasting upcoming expenses or suggesting optimal savings targets.

The system can also be expanded to support **multiple regions or financial contexts**, including region-specific expense categories, currency support, and localized financial advice. Integration with **emerging technologies such as edge computing** could enable on-device preprocessing of sensitive financial data, improving privacy and reducing cloud dependency.

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- **Brownlee, J.:** A Gentle Introduction to Prompt Engineering.
  Available at: https://machinelearningmastery.com/prompt-engineering/

- **GitHub Link:** https://github.com/Sruthilayaaa-K/POCKETPILOTAI-NAVIGATE-YOUR-EXPENSES-WITH-CONFIDENCE

- **Zapier Template Link:** Click Here

Thank You