Team Details

a. **Team name: Team Spirit**
b. **Team leader name: AKSHAY ELLENDULA**
c. **Problem statement:** Managing physical receipts is cumbersome, leading to lost records, difficulty tracking expenses, and missed opportunities to leverage purchase data. Google Wallet users need a seamless way to digitize, organize, and analyze receipts to gain financial insights and optimize spending.

Brief about the idea

Project Raseed is an innovative AI-powered personal assistant that transforms receipt management by seamlessly integrating with Google Wallet. Designed to empower everyday users, Raseed leverages cutting-edge Google AI technologies, including Gemini and Vertex AI, to deliver a robust, scalable, and user-friendly solution. It digitizes receipts from photos, videos, or live streams in any language, extracting critical details like items, prices, taxes, and fees, and stores them as dynamic Google Wallet passes. Users can interact with Raseed through natural language queries in their local language, such as "What did I spend on groceries last month?" or "What can I cook with my recent purchases?" The assistant responds with actionable insights, generating passes for shopping lists or financial summaries. By analyzing spending patterns, Raseed offers personalized savings suggestions, such as identifying cheaper alternatives or flagging unused subscriptions. Real-time pass updates and push notifications via the Google Wallet API ensure users stay informed, making financial management intuitive and accessible. Raseed's serverless architecture, built on Firebase and Google Cloud, ensures scalability and global reach, redefining how users interact with their purchase data.

Opportunities

1.How different is it from any of the other existing ideas?

- Unlike traditional receipt apps, Raseed integrates directly with Google Wallet, leveraging its ecosystem for seamless pass creation and   management.
- Multimodal AI (Gemini) supports photos, videos, and live streams, handling receipts in any language, unlike OCR-based solutions with limited language support.
- Proactive savings suggestions and dynamic pass updates set Raseed apart from static expense trackers.
- Real-Time Adaptability: Raseed dynamically updates passes based on new data or user queries, unlike static apps that require manual updates.

2.How will it be able to solve the problem?

- **Digitization**: Instantly converts physical receipts into structured data stored as Google Wallet passes.
- **Insights**: Analyzes spending trends and suggests savings (e.g., cheaper alternatives, subscription reviews).
- **Accessibility**: Supports natural language queries in local languages for intuitive user interaction.
- **Global Usability:** Handles multilingual inputs, making it accessible to diverse user bases worldwide.
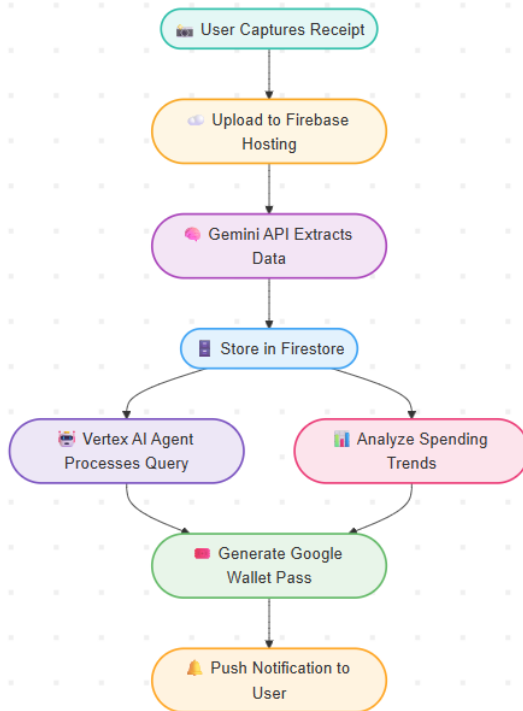
3.USP of the proposed solution

- Seamless Google Wallet integration for pass-based receipt and insight management.
- Multilingual, multimodal AI for universal receipt processing.
- Actionable financial insights with real-time pass updates and push notifications.
- Scalable serverless architecture ensures performance and cost-efficiency for global deployment.

List of features offered by the solution

- **Multimodal Receipt Ingestion**: Process photos, videos, or live streams of receipts using Gemini API.
- **Local Language Queries**: Handle queries like "What did I spend on groceries?" or "What can I cook?" in any language.
- **Spending Analysis**: Categorize expenses and provide savings suggestions (e.g., "Switch to brand X for 20% savings").
- **Google Wallet Passes**: Create passes for receipts, shopping lists, and insights with embedded details and links.
- **Push Notifications**: Alert users to updated insights via Google Wallet API.
- **Scalable Backend**: Real-time data storage and processing with Firestore and Cloud Functions.
- **Secure User Authentication:** Implement Firebase Authentication to provide secure, personalized access, linking user accounts to their Google Wallet for seamless pass management and data privacy.
- **Cross-Platform Accessibility:** Support web-based access via Firebase Hosting and potential mobile app integration, ensuring users can interact with Raseed on any device.
- **Historical Data Insights:** Enable users to query historical spending patterns (e.g., "Compare my grocery spending this year vs. last year") with Gemini-driven analysis for long-term financial planning.
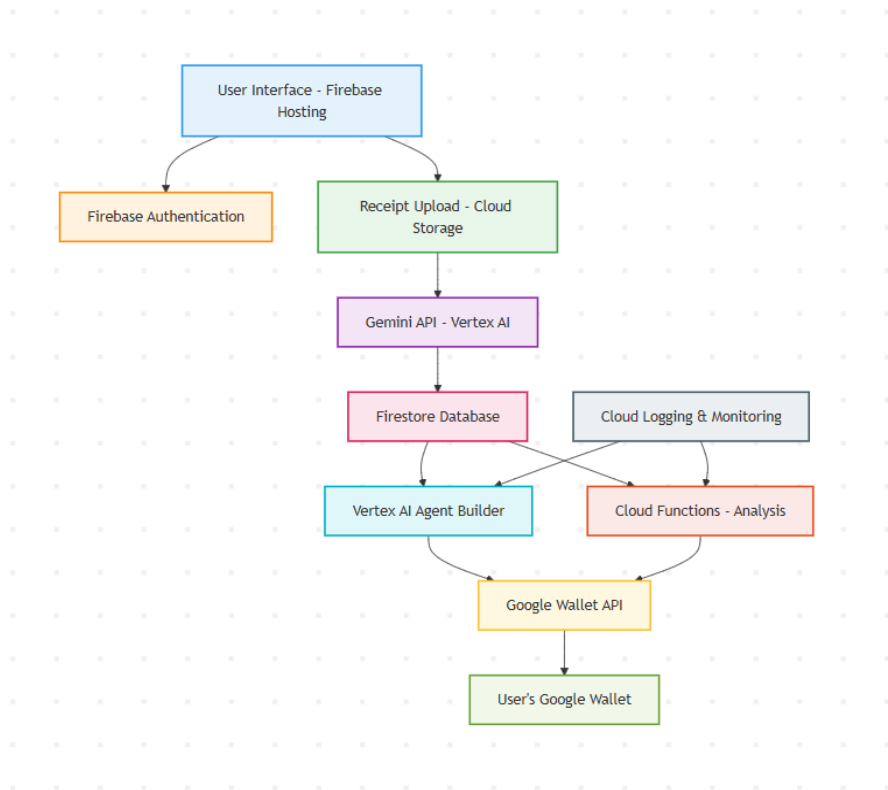
Process flow diagram or use-case diagram

Technologies to be used in the solution

- **Google AI**: Gemini API for multimodal receipt processing, Vertex AI Agent Builder for conversational queries.
- **Firebase**: Firestore for data storage, Firebase Hosting for UI, Firebase Authentication for user management.
- **Google Cloud**: Cloud Functions for event-driven processing, Cloud Storage for media, Cloud Run for scalable deployment, Cloud Logging for monitoring.
- **Google Wallet API**: For creating and managing passes and push notifications.
- **Firestore:** A scalable NoSQL database for storing structured receipt data, user queries, and spending analysis results, enabling real-time data access and synchronization across devices.
- **Cloud Functions:** Facilitates event-driven processing for tasks like receipt data extraction, query handling, and pass generation, enabling a serverless architecture for cost-efficiency and scalability.
- **Cloud Storage:** Stores raw receipt media (e.g., images, videos) before processing by the Gemini API, providing reliable and scalable storage for large volumes of user-uploaded content.
- **Cloud Logging & Monitoring:** Tracks application performance, logs errors, and monitors usage metrics to ensure smooth operation and quick debugging during receipt processing and API interactions.

Architecture diagram of the proposed solution

Wireframes/Mock diagrams of the proposed solution (optional)

- **Home Screen**: Upload button for receipt media, text input for queries, and recent passes overview.
- **Receipt Pass Mockup**: Displays extracted items, total, taxes, and a link to query the assistant.
- **Insights Pass Mockup**: Shows spending trends (e.g., "$200 on groceries") with savings tips and update button.
- **Query Interface**: Chat-like UI for local language queries, with options to generate shopping list passes.
- **Dashboard:** Allows users to manage account preferences, such as linking Google Wallet, enabling push notifications, or selecting preferred languages for queries. Includes toggles for privacy settings and notification frequency to enhance user control.
- **Receipt Gallery View:** A grid-based view showcasing uploaded receipt media with previews, allowing users to filter by date, category (e.g., groceries, dining), or store, and select receipts for detailed analysis or pass creation.Budget
- **Planner Interface:** Displays user-defined budget goals (e.g., "$100/month on groceries") with progress bars and alerts for nearing limits, integrated with Google Wallet passes to provide actionable budget tracking and savings suggestions.