Google Cloud

GenAI Hackathon
APAC Edition

Team Name : HSBC Dynamos

Problem Statement : Revolutionizing Credit Scoring with AI-Powered Personalization

Brief about the Idea:

This project is replacing out the old way of calculating credit scores and building a brand new system. Like a futuristic detective solving a mystery, they use advanced computer programs i.e. Generate AI, similar to those that create realistic pictures, to analyse your financial situation in a whole new way.

Here's the game-changer:

• Forget just bank statements! They consider your social media activity and how you pay your bills, getting a more complete picture.

• They become your personal financial coach, offering customized advice to improve your score.

• Ever wondered "what if" you did something different? This system lets you see how your score would change based on your actions.

• Confused about your score? No problem! They have a friendly AI assistant you can chat with to ask questions, like a virtual sidekick helping you navigate the credit score world.

• Uploading your credit card statements is as easy as taking a selfie. This gives them all the details they need to paint a clearer picture of your financial health and give you the most accurate score possible.

In a nutshell, this project wants to make understanding and managing your credit score a piece of cake, not a confusing puzzle. They achieve this by Generate AI technology and features that are easy for everyone to understand and use. This way, everyone can have a fair chance at a good credit score and a brighter financial future.

Opportunity :

1. Innovation in Credit Scoring:
Our approach leverages Generative AI to revolutionize credit scoring, incorporating alternative data sources and advanced features not commonly found in traditional models.

2. Comprehensive User Engagement:
The inclusion of personalized insights, real-time credit score simulation, NLP chatbot interaction, and explainable AI sets our model apart, creating a holistic and user-centric credit scoring experience.

3. Alternative Data Integration:
Unlike conventional models relying solely on financial data, our model integrates diverse sources, including social media activity, utility payments, and now, seamlessly imports credit card statements for a more comprehensive financial analysis.

4. Automated Data Extraction:
Our solution simplifies the user experience by allowing effortless uploading of credit card statements and employs automated data extraction, a unique feature streamlining the incorporation of transaction-level details.

5. Future-Ready Integration:
With multiple import options, including PDF/CSV uploads and potential API integration in the future, our model ensures adaptability and scalability in the rapidly evolving financial technology landscape.

6. Incorporating User Feedback:
Continuous refinement based on user feedback is integral to our model's development, ensuring an evolving and user-responsive credit scoring system.

7. Transparent Credit Decisions:
The integration of Explainable AI ensures transparent credit score predictions, allowing users to understand and trust the factors influencing their creditworthiness.

8. Addressing Financial Health Holistically:
Our model goes beyond a simple credit score by offering personalized insights, budget optimizations, and scenario-based simulations, providing users with actionable steps to improve their overall financial health.

9. Unique Combination of Features:
The combination of Generative AI, alternative data, seamless data importing, and a user-friendly interface positions our model uniquely in the market, offering a distinct and innovative solution to the credit scoring problem.

List of features offered by the solution :

1. Generative AI-Enhanced Credit Scoring:
- Leverage Generative AI for a personalized and dynamic credit score experience.
- Incorporate alternative data sources, including social media activity and utility payments.

2. Comprehensive User Input:
- Allow users to input a wide range of financial data, covering demographics, credit history, financial status, and alternative data.
- Alternative Data Sources Integration:
- Integrate social media activity and utility payments for a holistic credit scoring model.

3. Real-time Credit Score Simulation:
- Enable users to simulate the impact of various financial decisions on their credit score in real-time.

4. NLP Chatbot Interaction:
- Implement a Natural Language Processing (NLP) chatbot for interactive user engagement.
- Provide explanations for credit score changes and offer financial tips in a conversational manner.

5. Explainable AI (XAI):
- Integrate Explainable AI for transparent and interpretable credit score predictions.
- Offer users insights into the factors influencing their credit score changes.

6. Credit Card Statement Import:
- Allow users to seamlessly import credit card statements for enhanced credit analysis.
- Provide options for manual entry, file upload (PDF/CSV), and potential future API integration.

7. Automated Data Extraction:
- Implement automated data extraction from credit card statements using OCR or text extraction techniques.
- Extract transaction details, dates, merchants, amounts, and other relevant information for analysis.
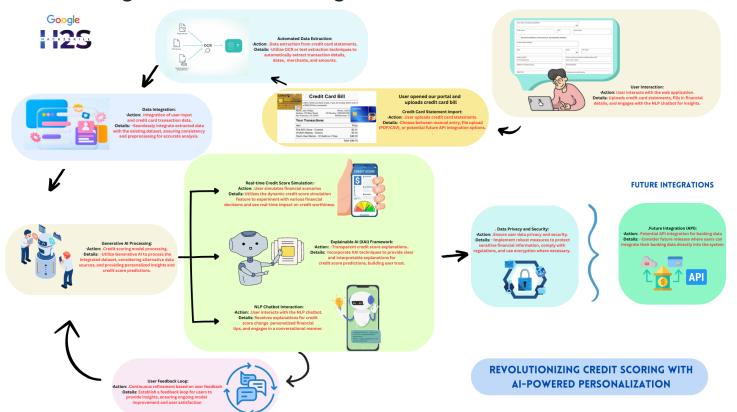
8. Enhanced Credit Score Analysis:
- Utilize additional transaction details for more refined credit score predictions.
- Consider features like merchant categories, transaction frequency, and spending patterns for a granular analysis.

Process Flow Diagram/ Usecase Diagram:

Automated Data Extraction:
- **Action:** Data extraction from credit card statements.
- **Details:** Utilize OCR or text extraction techniques to automatically extract transaction details, dates, merchants, and amounts.

User Interaction:
- **Action:** User interacts with the web application.
- **Details:** Uploads credit card statements, fills in financial details, and engages with the NLP chatbot for insights.

Data Integration:
- **Action:** Integration of user-input and credit card transaction data.
- **Details:** Seamlessly integrate extracted data with the existing dataset, ensuring consistency and preprocessing for accurate analysis.

User opened our portal and uploads credit card bill

Credit Card Statement Import:
- **Action:** User uploads credit card statements.
- **Details:** Choose between manual entry, file upload (PDF/CSV), or potential future API integration options.

Real-time Credit Score Simulation:
- **Action:** User simulates financial scenarios
- **Details:** Utilizes the dynamic credit score simulation feature to experiment with various financial decisions and see real-time impact on credit worthiness.

Generative AI Processing:
- **Action:** Credit scoring model processing.
- **Details:** Utilize Generative AI to process the integrated dataset, considering alternative data sources, and providing personalized insights and credit score predictions.

Explainable AI (XAI) Framework:
- **Action:** Transparent credit score explanations.
- **Details:** Incorporate XAI techniques to provide clear and interpretable explanations for credit score predictions, building user trust.

Data Privacy and Security:
- **Action:** Ensure user data privacy and security.
- **Details:** Implement robust measures to protect sensitive financial information, comply with regulations, and use encryption where necessary.

FUTURE INTEGRATIONS

Future Integration (API):
- **Action:** Potential API integration for banking data
- **Details:** Consider future releases where users can integrate their banking data directly into the system

NLP Chatbot Interaction:
- **Action:** User interacts with the NLP chatbot.
- **Details:** Receives explanations for credit score change personalized financial tips, and engages in a conversational manner.

User Feedback Loop:
- **Action:** Continuous refinement based on user feedback
- **Details:** Establish a feedback loop for users to provide insights, ensuring ongoing model improvement and user satisfaction

REVOLUTIONIZING CREDIT SCORING WITH AI-POWERED PERSONALIZATION

Technology used :

Here's how Google GenAI tools can be leveraged in our project:

1. Personalized Insights (Partially):
Training the Generative AI model: We can utilize Google's AI Platform, specifically Vertex AI, to train our Generative AI model for analyzing user data. Vertex AI provides tools for managing the entire machine learning lifecycle, including data preparation, model training, and deployment.

2. Dynamic Credit Score Simulation (Partially):
Generating hypothetical scenarios: While the core functionality of simulating credit score changes might not directly involve GenAI, but we can potentially use GenAI to generate text descriptions of the simulated scenarios in a user-friendly manner.

3. Natural Language Processing (NLP) Chatbot:
Training the chatbot: Google's Dialogflow is a powerful NLP platform that can be used to build and train our chatbot. Dialogflow allows us to design conversation flows, train the bot on our specific data, and integrate it with our web application.

Here's why other functionalities don't directly involve GenAI tools:
- Credit Card Statement Import: This involves data processing and integration, not text or code generation.
- Explainable AI (XAI): While XAI is crucial for our project, it doesn't directly involve generating new content, which is GenAI's core strength.

Additional considerations:
- Vertex AI and Dialogflow are part of Google Cloud, not directly GenAI tools. However, they utilize Generative AI principles under the hood.
- We'll also explore other Google Cloud services like BigQuery for data storage and management, and Cloud Functions for serverless functionalities in our project.
- By combining these tools with our custom functionalities, we can create a comprehensive and user-friendly credit analysis experience.
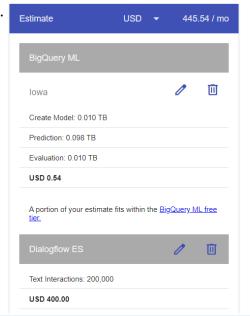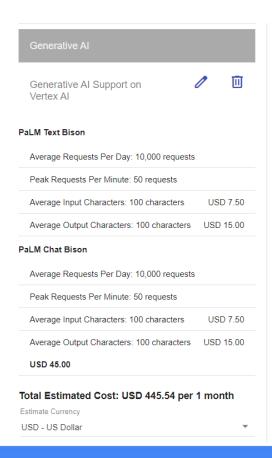
Estimated cost of/after implementing the solution :

If using Google Cloud Platform (GCP), costs for:
- Vertex AI: Training and running the Generative AI model for personalized insights.
- Dialogflow: Building and deploying the NLP chatbot.
- Cloud Storage: Storing user data and credit card statements (if applicable).
- Compute resources: Running your application and APIs.

Estimate   USD ▾   445.54 / mo

BigQuery ML

Iowa ✏ 🗑

Create Model: 0.010 TB

Prediction: 0.098 TB

Evaluation: 0.010 TB

USD 0.54

A portion of your estimate fits within the BigQuery ML free tier.

Dialogflow ES ✏ 🗑

Text Interactions: 200,000

USD 400.00

Generative AI

Generative AI Support on Vertex AI   ✏ 🗑

PaLM Text Bison

Average Requests Per Day: 10,000 requests

Peak Requests Per Minute: 50 requests

Average Input Characters: 100 characters   USD 7.50

Average Output Characters: 100 characters   USD 15.00

PaLM Chat Bison

Average Requests Per Day: 10,000 requests

Peak Requests Per Minute: 50 requests

Average Input Characters: 100 characters   USD 7.50

Average Output Characters: 100 characters   USD 15.00

USD 45.00

Total Estimated Cost: USD 445.54 per 1 month

Estimate Currency

USD - US Dollar ▾