## Lab 2-01: Use Case Discovery – Gen AI in Retail, Finance, and Healthcare

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| **Introduction:**  Generative AI is transforming industries by enabling businesses to analyze data, automate processes, and generate human-like content at scale. In sectors like Retail, Finance, and Healthcare, AI can be used for personalized recommendations, fraud detection, patient support, and more. Google Cloud offers tools like Vertex AI, Generative AI Studio, and pre-trained models from Model Garden, which make it easier to build and deploy tailored solutions. This lab focuses on exploring how Gen AI use cases can be identified and prototyped for these industries using Google Cloud’s AI ecosystem.  **Problem Scenario:**  A leading multinational company operates in three major sectors, retail, finance, and healthcare, and faces challenges in enhancing customer engagement, optimizing operational efficiency, and making data-driven decisions. In retail, the company struggles with providing personalized product recommendations and managing inventory effectively. In finance, they need advanced tools for detecting fraudulent activities and improving customer service through intelligent automation. In healthcare, the organization aims to streamline patient data analysis, assist in early disease detection, and improve patient communication. The company wants to leverage Generative AI solutions on Google Cloud to uncover potential use cases tailored to each industry, enabling them to address these challenges, unlock innovation, and deliver strategic business value beyond traditional automation.  **Solution:**  ***Prerequisites***  Ensure you have the following before beginning:   * A billing-enabled Google Cloud Project * Vertex AI API is enabled in your project * Sufficient permissions (e.g., Owner or Editor role)   **Step 1: Enable Required APIs**   1. Go to the Google Cloud Console: <https://console.cloud.google.com/>      1. Open the Navigation Menu (☰) > APIs & Services > Library.      1. Enable these APIs:    * Vertex AI API      * + Gemini API (PaLM API)      * + Cloud Storage API     **Step 2: Open Vertex AI**   1. From the Navigation Menu, select Vertex AI.      1. Click Enable Vertex AI API if prompted.      1. Go to AI Studio under Vertex AI.     **Step 3: Explore Use Cases with Model Garden**   1. In Vertex AI, click Model Garden.      1. All the models are listed here.     **Step 4: Design Prompts for Each Use Case**  In Generative AI Studio, test prompts:   1. Retail Prompt Example:   "You are an AI assistant for a large retail chain specializing in fashion and accessories. Analyze recent sales trends from the past six months and identify three major opportunities to boost revenue. Suggest creative marketing campaigns, personalized product recommendations, and inventory optimization strategies. Provide actionable insights in a bullet-point format suitable for the marketing team’s presentation."     * + Run the prompts and review responses      1. Finance Prompt Example:   "You are a generative AI advisor for a financial services firm. Given a dataset of customer transaction patterns, detect possible fraudulent activities and generate a summary report highlighting suspicious behaviors. Include risk scoring, reasoning for flagged activities, and recommended actions for compliance officers to investigate. Present the information in a professional compliance report style."     * + Run the prompts and review responses      1. Healthcare Prompt Example:   "You are an AI system assisting a hospital network. Based on anonymized patient records and recent health trends, propose innovative AI-driven solutions to improve patient care for chronic diseases. Include preventive care strategies, personalized treatment recommendations, and operational workflow optimizations for hospital staff. Present findings in a structured, concise medical advisory report."     * + Run the prompts and review responses |