FinSight360: Automated US Financial Analytics Dashboard

1. Project Overview

FinSight360 is an automated financial dashboard built using Power BI. It integrates email-based data sourcing, automated file management, cloud API connections, data cleaning, and powerful visual insights tailored for stakeholders in the US financial sector. The project automates the process of extracting data from stakeholder emails, saving the data to Google Drive, processing it via a Python-powered API, and visualizing it in Power BI with regular auto-refresh enabled.

2. Tools & Technologies Used

- Microsoft Outlook
- Power Automate
- Google Drive
- GCP (Google Cloud Platform)
- Python
- Power BI Desktop & Query Editor
- Power BI Service

3. Project Workflow

1. Created an Outlook folder to collect emails with the subject 'Credit Score'.
2. Used Power Automate to build a flow:
   - Triggered when a new email arrives.
   - Retrieved email attachments.
   - Uploaded attachments to a Google Drive folder.
3. Connected Google Drive to Power BI using an API key generated from GCP.
4. Used a Python script to load all Excel files from Drive into Power BI.
5. Performed data cleaning and transformation in Power Query Editor.
6. Created new calculated columns and implemented complex DAX measures.
7. Built a two-page interactive and visually rich dashboard.
8. Published the report to Power BI Service and enabled daily auto-refresh.

4. Key Dashboard Insights

- Display of average annual income, monthly balance, delays in payments, and credit utilization.
- Age-based analysis of credit limit changes.

- Payment behavior by credit mix.
- Age group classification and credit score distribution.
- Identification of potential customers based on inquiry trends.
- Customized promotional suggestions using calculated LTV scores.
- Analysis of credit card and loan usage across age groups.
- Loan count distribution insights for strategic targeting.

5. Challenges Faced

- Integrating automated email-to-drive flow required careful configuration of Power Automate.
- Establishing a secure and authenticated API connection between Google Drive and Power BI took time to configure properly.
- Handling multiple Excel files dynamically in Python and ensuring schema consistency for Power BI ingestion.
- Designing visually appealing yet informative dashboards that answer complex stakeholder questions.
- Ensuring auto-refresh worked flawlessly without breaking the data connection.

6. Outcome

The final dashboard is a fully automated, cloud-refreshed financial analytics tool. It helps stakeholders monitor key financial metrics, identify potential customers, and strategize promotional campaigns based on data-driven insights. The automation ensures that no manual data pulling is required, significantly reducing overhead.

7. Scope of the Project

This project focuses on automating the end-to-end pipeline of financial data reporting using cloud services and Power BI. It covers email-based data acquisition, cloud-based file management, data ingestion using API and Python, and rich financial insights through Power BI dashboards. It is designed for stakeholders who need timely, accurate, and meaningful financial insights with minimal manual effort.

8. Project Objectives

- To automate the data collection pipeline by fetching attachments from Outlook emails.
- To ensure seamless integration with Google Drive and Power BI via GCP APIs and Python.
- To clean, transform, and enrich financial data using Power Query and DAX.
- To provide an interactive dashboard to support data-driven decision making.
- To enable scheduled auto-refresh, making the dashboard self-sufficient and always up to date.

9. Future Scope and Advancements

- Implement machine learning models to predict credit risk and customer churn.
- Develop real-time API connections to fetch financial data instead of using email attachments.
- Expand the solution to handle international data with localized currency and regulation support.
- Build role-specific dashboards with row-level security for different business units.
- Add alerting systems using Power Automate to flag abnormal financial patterns.
- Enable automated feedback loops into CRMs like Salesforce or Zoho to act on insights.
- Integrate a dynamic LTV prediction model based on real-time financial behaviors.