Project Report: Banking Client Insights & Relationship Analysis

# 1. Project Title

Banking Client Insights & Relationship Analysis

# 2. Objective

The objective of this project is to create an end-to-end data analytics solution for a banking institution to explore client profiles, engagement levels, and financial relationships. By integrating multiple technologies—Python, MySQL, Power BI, and Canva—the project simulates a real-world data workflow from raw data ingestion to business reporting through dashboards.

# 3. Tools & Technologies Used

- Python (Pandas, SQLAlchemy, Seaborn)

- MySQL Database

- Power BI for Dashboarding

- Jupyter Notebook for scripting and EDA

- Canva for Dashboard Layout Planning

# 4. Dataset Overview

The project uses multiple CSV files containing data on:

- Client demographics (`banking-clients.csv`)

- Financial relationship histories (`banking-realtionships.csv`)

- Gender mapping (`gender.csv`)

- Investment advisor and product data (`investment-advisiors.csv`)

# 5. Methodology

1. Data Ingestion: Imported raw CSVs into Python.

2. Data Cleaning: Standardized columns, merged gender and advisor mappings.

3. EDA: Explored data trends using plots and summary stats.

4. Database Design: Defined MySQL schema and pushed cleaned data using SQLAlchemy.

5. Dashboard Mockup: Created a layout wireframe using Canva.

6. Dashboard Development: Built interactive dashboard in Power BI using MySQL as a data source.

# 6. Key Findings

- High-value clients are mostly handled by a small subset of advisors.

- Female clients have longer retention but lower product diversity.

- Urban, high-income clients tend to use more financial products.

- Advisor performance and relationship duration strongly influence client engagement.

# 7. Power BI Dashboard Features

- Client segmentation by gender, income, region.

- Advisor-level analytics: no. of clients, product coverage.

- Product distribution and penetration.

- Relationship duration bucket analysis.

- Real-time filters for gender, advisor, year, and region.

# 8. Business Implications

- Helps identify high-impact advisors and distribute workload.

- Enables targeted marketing for under-engaged segments.

- Supports data-driven decision-making in financial planning and relationship management.

# 9. Conclusion

This project demonstrates the ability to create a unified analytics solution that integrates modern tools for both technical and business stakeholders. It showcases a full-stack data pipeline and the power of combining Python, SQL, and BI tools to deliver actionable insights.

# 10. Future Enhancements

- Automate data ingestion and refresh cycle using scripts or scheduling tools.

- Integrate transaction data for behavioral analytics.

- Apply clustering for persona creation and targeting.

- Deploy dashboard to Power BI Service for broader access.