Exercise 4A: Automated Reporting Pipeline

MGMT 675: Generative AI for Finance

Build an automated reporting pipeline that transforms raw data into a polished PowerPoint deck. Use Claude Code to create the pipeline.

Your pipeline should include these stages:

1. **Data query**: Load a financial dataset (CSV, Excel, or database query)
2. **Transform**: Compute at least 3 KPIs (e.g., revenue growth, profit margin, variance vs. budget)
3. **Visualize**: Generate at least 2 charts (e.g., trend line, waterfall, bar chart)
4. **Narrative**: Use an LLM to generate a 2–3 sentence executive summary from the computed metrics
5. **PowerPoint output**: Assemble a 3–5 slide deck using `python-pptx` with a title slide, KPI summary, charts, and the AI-generated narrative

You may use any financial dataset (the Chinook database, a budget-vs-actual spreadsheet, stock return data from the Rice Data Portal, etc.).

Run the pipeline end-to-end and verify that the PowerPoint file opens correctly and the charts match the underlying data.

Deliverables.

- Python script or notebook that runs the pipeline (`4A-Pipeline.py` or `4A-Pipeline.ipynb`)
- Generated PowerPoint deck (`4A-Report.pptx`)
- Screenshot of the pipeline running (`4A-Screenshot.png`)