Project 3: Flagship Project: End-to-End Financial Analytics Suite

- **Module 1: Predictive Cash Flow Forecasting Dashboard with External Data Integration:**
  - **Task:** Developed a system that pulls historical financial data (from a mock SQL database), integrates external economic indicators, uses Python (Pandas, Scikit-learn for basic time-series models, using Prophet) to generate cash flow forecasts, and presents historical data, forecasts, and scenario analyses ("what-if" based on changing external factors) in an interactive Power BI dashboard using advanced DAX for comparisons.
  - **Combined Skills Developed:** Advanced SQL (data extraction/prep), Python (Pandas, API/scraping, basic time-series forecasting), Advanced Power BI & DAX (complex visualization, scenario modeling), Financial Analysis Automation.
  - **Output:** A comprehensive Power BI dashboard demonstrating end-to-end forecasting capability, backed by documented Python scripts and SQL queries.
  - **Strategic Value:** Moves beyond basic reporting to predictive analytics, a high-demand skill in finance. Shows integration capability.
- **Module 2: Intelligent Budget Allocation Optimizer:**
  - **Task:** Design and build a proof-of-concept tool. Create a mock dataset (SQL) representing departmental budget requests and historical performance data (e.g., ROI on marketing spend, operational efficiency metrics). Use Python to build a simple optimization model (rule-based or potentially using basic linear programming libraries like PuLP) that suggests budget allocations to maximize a defined objective (e.g., overall ROI, efficiency gain), subject to constraints (total budget). Use Power BI to visualize the proposed allocations versus historical or requested amounts, allowing users to adjust constraints and see the impact.
  - **Combined Skills Developed:** Python (Optimization basics, data manipulation), SQL (Data structure), Power BI (Interactive scenario modeling), Applying Financial/Business Logic (Optimization goals).
  - **Output:** Python script for the optimization logic, SQL data setup, Power BI interactive dashboard, documentation explaining the model's logic and limitations.
  - **Strategic Value:** Demonstrates higher-level analytical thinking – moving from reporting to optimization and decision support, a key area where human+AI collaboration shines.
- **Module 3: AI-Enhanced Competitor Financial Benchmarking Tool:**
  - **Task:** Scrape (using Python - libraries like BeautifulSoup/Scrapy, ethically) or manually collect key public financial data for a set of competitor companies (store in SQL). Use Python to calculate standardized financial metrics and ratios. Use an LLM API (via Python) to summarize key findings from competitors' annual

reports or news articles related to financial performance. Build a Power BI dashboard allowing comparison of your mock company against competitors on various metrics, incorporating the AI-generated qualitative summaries alongside quantitative charts. Use advanced DAX for peer group comparisons.

- ○ **Combined Skills Developed:** Python (Web scraping basics, API integration), SQL (Data storage), Financial Analysis (Benchmarking), Power BI & DAX (Comparative dashboards), Research Synthesis (via AI).
- ○ **Output:** Python scripts for data collection/analysis, SQL database, Power BI benchmarking dashboard, sample AI-generated competitor summaries.
- ○ **Strategic Value:** Shows ability to integrate external data, perform competitive analysis, and combine quantitative charts with qualitative AI insights.