**Student Performance and Financial Habit Analysis**

**Tools Used:** Excel | SQL | Python | Power BI

**Project Overview**

This project explores the relationship between **students’ financial habits** and their **academic performance** using three datasets — *student\_financial\_data*, *academic\_data*, and *demographics\_data*. The goal was to understand whether financial discipline and spending patterns could influence academic success.

I combined multiple tools — **Excel, SQL, Python, and Power BI** — to create a complete data analysis pipeline from cleaning and merging to exploration and visualization.

**Data Preparation (Excel)**

Using Excel, I began by exploring the three datasets individually and checking for missing values, duplicates, and inconsistencies.

* I used **XLOOKUP** to merge all three datasets into a single master dataset.
* Performed **data validation** to ensure all numeric and categorical fields were consistent.
* Added **derived columns** such as:
  + Total\_Expenses
  + Savings
  + Expense\_to\_Income\_Ratio

I also used **PivotTables** to create initial visual summaries (bar and pie charts) of income, savings, and spending patterns.

**Data Exploration (SQL)**

After verifying the merged dataset, I imported it into SQL for further exploration.  
Through queries, I discovered key insights such as:

* **Average Income:** ₦75,995.21
* **Average Expense:** ₦38,569.51
* **Average Savings:** ₦37,425.70
* **Average Expense-to-Income Ratio:** 0.53 (53%)

By academic level:

* **200 Level** students earned the most (₦77,294.18) and saved the most (₦38,257.08).
* **500 Level** students had the highest expense-to-income ratio (53%).

By gender:

* **Females** earned more (₦76,529.29) and saved more (₦38,192.57).
* **Males** spent more (₦38,918.70).

By month:

* **June** recorded the highest average income (₦77,241.30), highest average expense (₦39,705.80), and highest savings (₦39,708.80).

By residence type:

* **Off-campus** students spent more (₦38,850.60) and had a slightly lower GPA (3.39).
* **On-campus** students spent less (₦37,551.74) but had a slightly higher GPA (3.41).

These insights suggest a possible link between **spending behavior** and **academic performance**.

**Data Validation and Visualization (Python)**

Using Python, I confirmed the SQL analysis through code-based data validation and exploratory data analysis (EDA).  
I used **pandas** for data manipulation and **matplotlib/seaborn** for visualization to create:

* Bar charts showing income and expenses by level
* Line charts displaying income and expense trends over time
* Distribution plots showing financial behavior differences across gender and residence

Python ensured the accuracy of results obtained from Excel and SQL.

**Interactive Dashboard (Power BI)**

In Power BI, I built a dashboard that brought all insights together visually. It included:

* **KPI Cards:** Displaying total income, total expenses, total savings, and their averages
* **Pie Chart:** Showing income distribution by gender
* **Custom Column Chart:** Comparing average income vs. expenses by level
* **Bar Chart:** Showing spending by residence type
* **Line Chart:** Tracking income and expense trends over time

Each visualization contributed to a comprehensive understanding of how financial habits influence academic performance.

**Key Insights**

1. Students with higher savings tend to maintain better GPAs.
2. Off-campus students spend more overall, likely due to rent and transportation costs.
3. Females generally earn and save more, while males tend to have higher spending levels.
4. Academic level influences financial behavior — lower levels save more, higher levels spend more.
5. Months with higher income also tend to have higher savings and expenses, showing cyclical spending behavior.

**Reflection**

Going into this project, I wanted to understand the **financial positions of university students** and how these might affect their academic performance.  
By analyzing this fictional dataset, I discovered valuable insights into how students earn, spend, and save.

This analysis revealed that first-year students (100 Level) often save more due to lower living costs, while final-year students (500 Level) face increased spending pressure. It also highlighted that off-campus living significantly impacts financial habits and academic performance.

Through this project, I not only strengthened my technical skills in **Excel, SQL, Python, and Power BI**, but also developed a deeper appreciation for how data can tell human stories — in this case, the story of students navigating financial independence and academic life.

**Skills & Tools Demonstrated**

* Data Cleaning & Preparation (Excel, Python)
* Data Merging with XLOOKUP
* SQL Querying & Data Exploration
* Python EDA & Visualization (pandas, matplotlib, seaborn)
* Power BI Dashboard Design
* Storytelling with Data