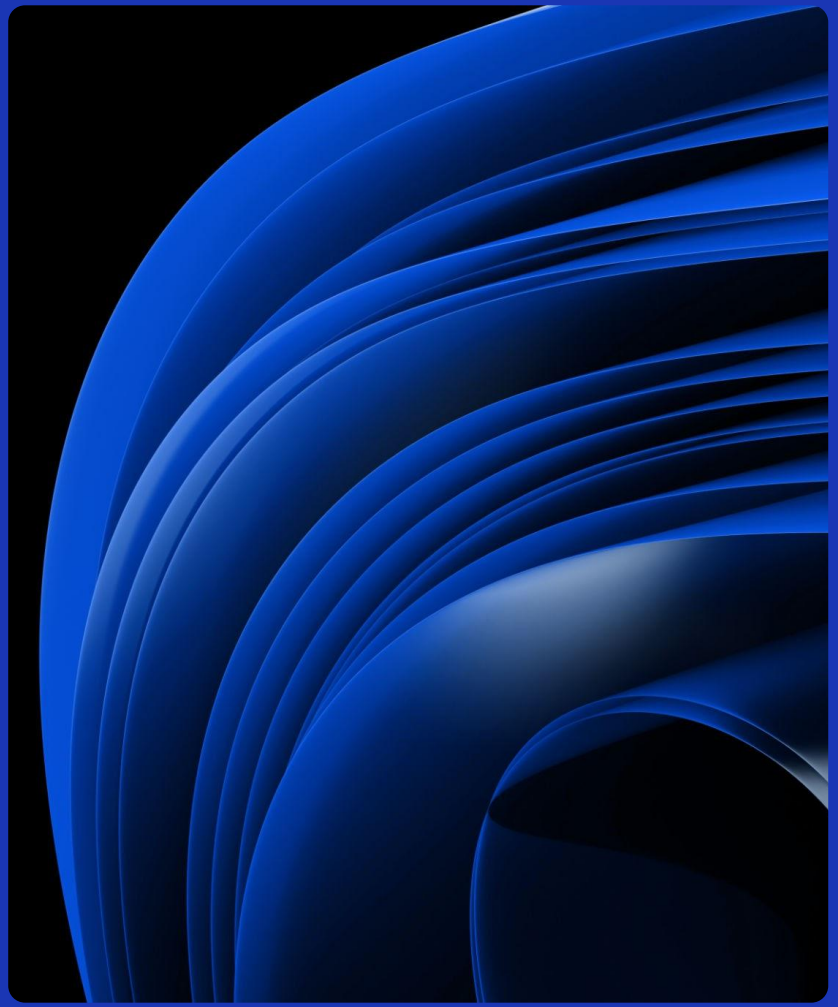
COMSC230 - FINAL PRESENTATION

Made By Brian Brimner, Cam Sjostedt, and Alexander Oliveira



DATASET

- **Weekly Sales Transactions**

Contains weekly purchased quantities of 800 over products over 52 weeks. ***The data was reduced to 100 products for easier viewing.***

GitHub Account Details:

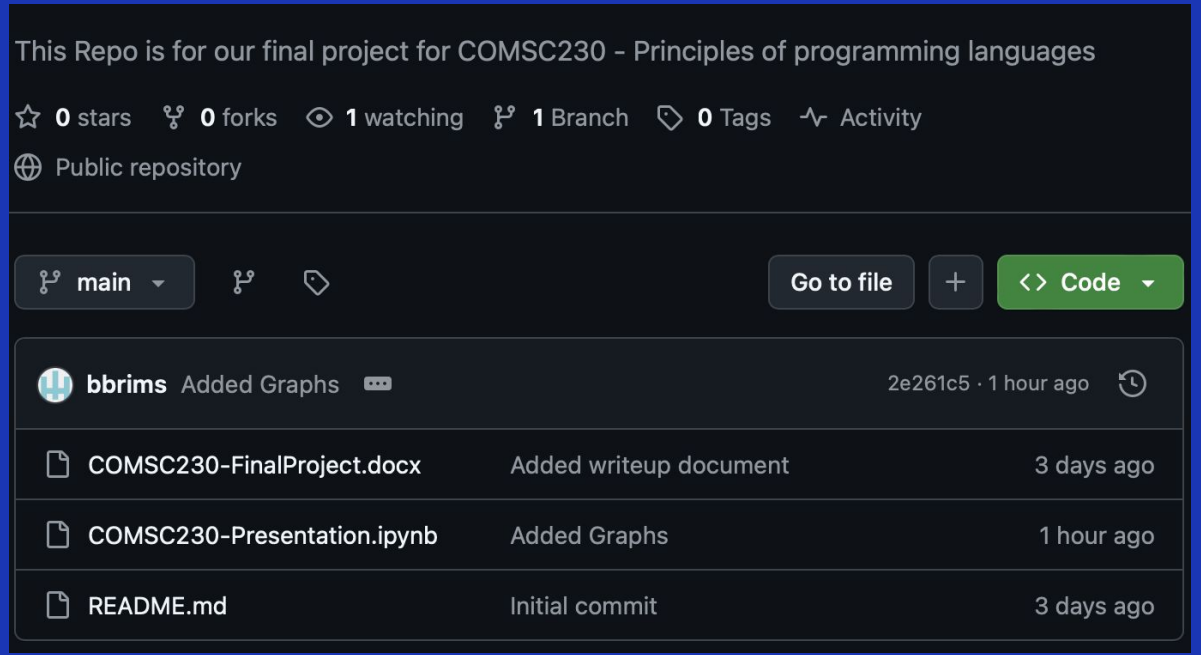
https://github.com/bbrims/COMSC230-Presentation

Contains:

- Jupyter Notebook file
- Final Report Document
- Powerpoint Presentation
- README

Version Control:

- Continuous updates and collaboration
- Frequent commits
- Mergin for collaborative changes



Hypotheses

- **Research Hypothesis:** Certain products show seasonality, with higher sales during specific weeks or periods.

- **Statistical Hypothesis:**
    1. **Null Hypothesis (H_0):**
       There is no significant difference in weekly sales across different weeks or periods (no seasonality).
    2. **Alternative Hypothesis (H_1):**
       There is a significant difference in weekly sales across different weeks or periods, indicating seasonality.

Dataset Overview & Structure:

Dataset Overview:

- The dataset contains **819 rows** of weekly sales data across multiple products for **52 weeks**.
- For this analysis, the dataset was **slimmed down to 100 products** for more focused visualization and analysis.
- Custom product names were assigned to replace generic labels (P1, P2, etc.), making the dataset more realistic.

Data Structure:

- **Product Codes:** Unique identifiers for each product (e.g., EcoTherm Bottle, SmartHome Speaker).
- **Weekly Sales:** Number of items sold per product each week. The key variable used to identify patterns and trends in product performance.
- **Week:** Week number (W0-W51) tracking sales trends across time.

Dataset features:

- Product names (Fictitious)
- Weeks of the year
- Number of sales transactions per week

	Product_Code	W0	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
0	UltraSoft Towels	11	12	10	8	13	12	14	21	6	14	11	14	16
1	SmartHome Speaker	7	6	3	2	7	1	6	3	3	3	2	2	6
2	EcoTherm Bottle	7	11	8	9	10	8	7	13	12	6	14	9	4
3	PowerMax Charger	12	8	13	5	9	6	9	13	13	11	8	4	5
4	ComfySole Sneakers	8	5	13	11	6	7	9	14	9	9	11	18	8
5	FlexiGrip Hammer	3	3	2	7	6	3	8	6	6	3	1	1	5

Potential Sales Trends & Seasonality

Sales Trends Exploration:

- Weekly sales data shows variation across products:
  - Some products display consistent sales, while others show sporadic fluctuations in sales volume.

Potential Seasonal Patterns:

- At a glance, sales data may appear relatively stable, but closer inspection reveals potential spikes during specific weeks.
  - These fluctuations could be influenced by **seasonal factors**, such as **holidays**, **paydays**, or other events that cause a surge in spending

Initial Observations:

- Certain products might exhibit sales surges during specific weeks, possibly due to **seasonal influences**.
- There may be **seasonal shifts** in the sales data that are influenced by external factors like **holidays** or **promotions**, which could lead to specific **peaks** and **dips** in sales across the year.

CONCLUSIONS

QUESTIONS?