# PROJECT 3 ONLINE TECH SALES

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# OBJECTIVE

The purpose of this project is to analyze potential trends in sales outcomes by examining detailed consumer behavior and spending patterns within a dataset from 2023. Our goal is to uncover insights into several key aspects of sales, including:

- **Spending Trends:** Identifying whether consumers are actively spending and the overall direction of sales momentum.
- **Categories of Interest:** Understanding which product categories are driving the most consumer engagement and revenue.
- **Monetary Insights:** Analyzing the average and total amounts consumers are spending across different segments.
- **Geographic Preferences:** Exploring regional or location-based differences in purchasing habits.
- **Brand and Product Popularity:** Highlighting which specific products or brands are resonating most with consumers.
- **Consumerism Patterns:** Examining broader consumer behavior to determine how economic and social factors might be influencing purchasing decisions.

By diving into this data, we aim to provide actionable insights into what drives consumer purchases, the brands or products capturing the market's attention, and how these trends might shape future sales strategies.

# HYPOTHESIS

We hypothesize that Apple will lead in sales across 2023, consistently outperforming competitors across all demographics; genders, locations, and income levels, driven by its unparalleled product popularity and strong brand loyalty. While the creator economy is heavily influenced by female creators, we anticipate a significant shift in sales toward male consumers. This trend aligns with the dominance of males in IT and tech-driven fields, where Apple products are often preferred for their functionality and ecosystem integration. This dual influence of brand loyalty and industry trends positions Apple as a key player across diverse consumer segments.

# PROJECT SCOPE AND METHODOLOGY

- Data Source: Tech Sales 2023 Dataset including product brands, gender, income levels and sales
- Variables Analyzed: Demographics, Purchasing Trends, Seasonality, Holiday Impact, Customer Loyalty
- Tools Used:
  - Data Analysis: Python(Pandas, Matplotlib, Seaborn)
  - Visualizations: Heatmaps, bar charts, Venn diagram
  - HTML ,CSS & JavaScript for interactive visual reports

Total Sales

Tech Sales

Insights

# TECH REQUIREMENTS

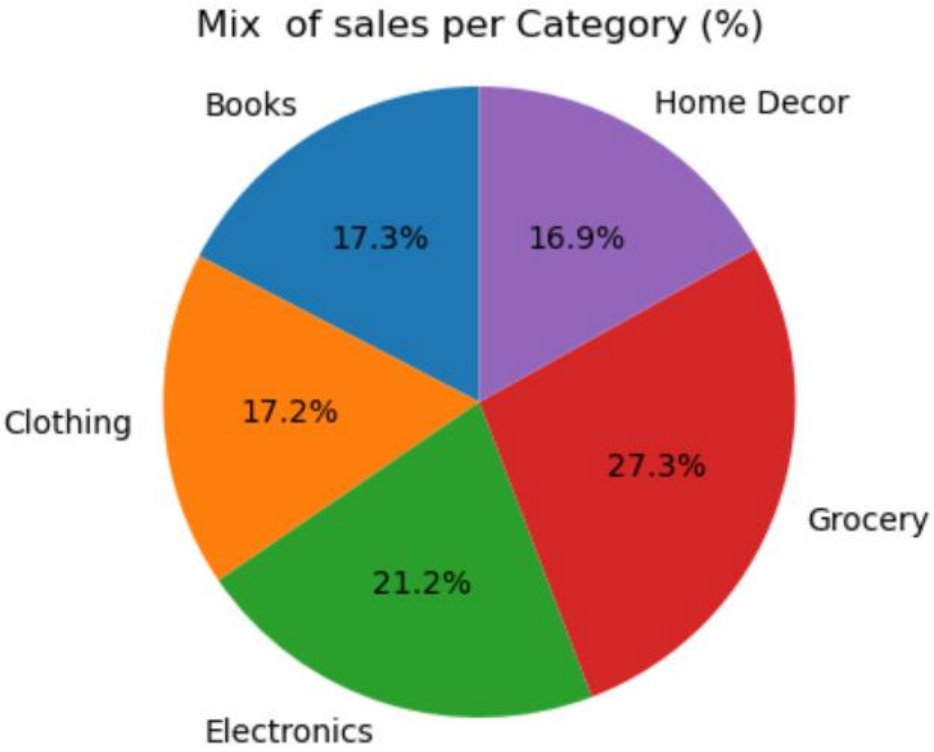
Total Sales

Tech Sales

Insights

# TOTAL SALES 2023 $105MM

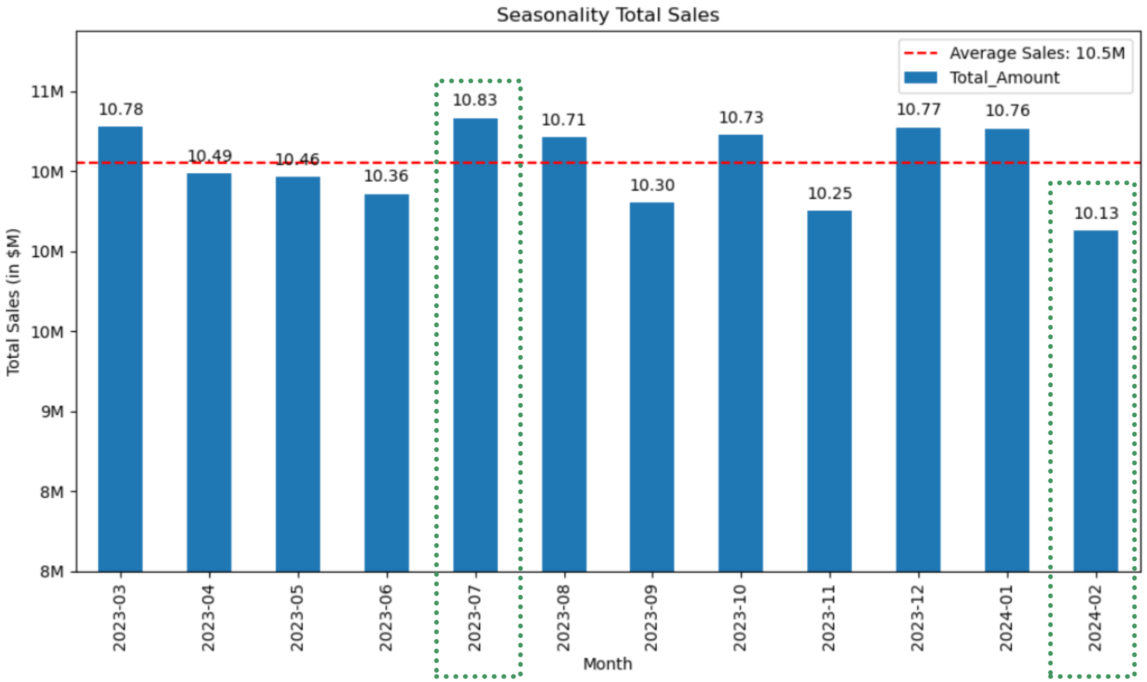
## GROCERY AND TECH THE LARGEST CATEGORIES OF SALES

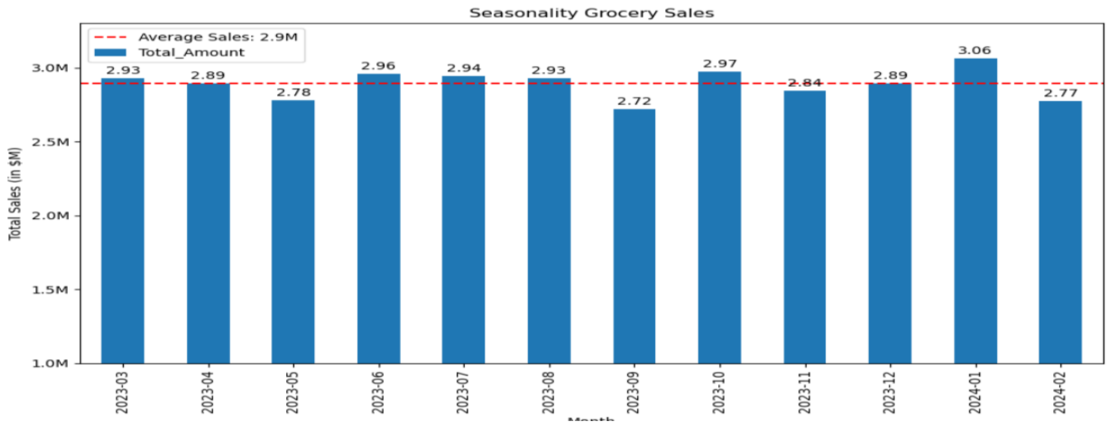
# TOTAL SALES 2023 $105M

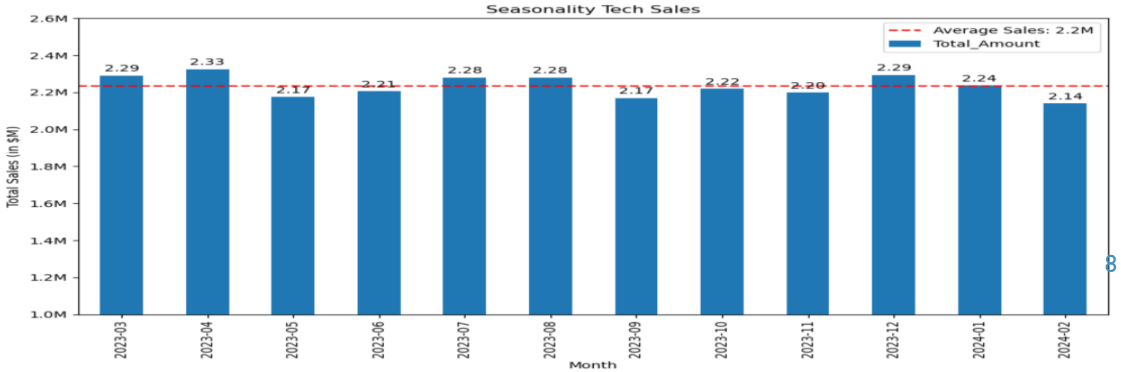
## AVERAGE OF $10.5M SALES PER MONTH, HIGHEST SALES IN JULY LOWEST DECEMBER

Total Sales are higher in the Summer and Year end, while decline in February



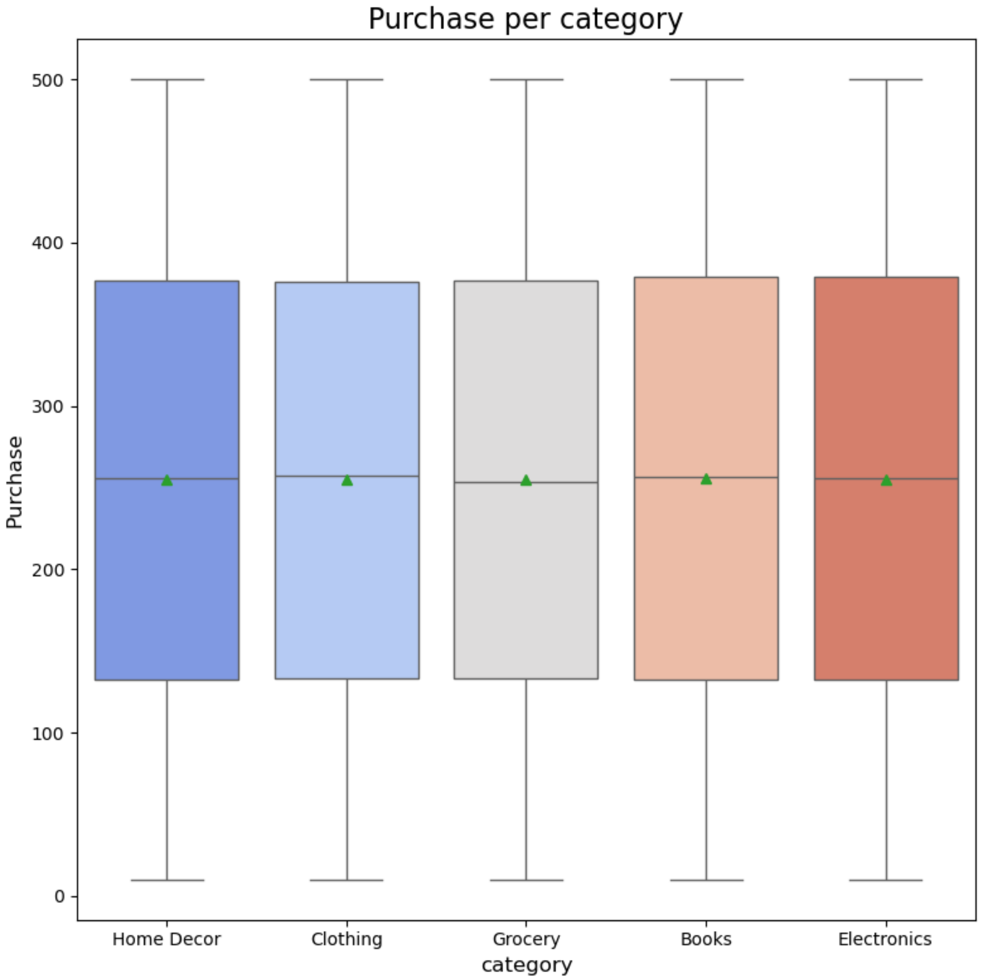

Grocery Sales are higher in January and lowest in September, while tech sales are higher in December and Back to School(Aug)



# TOTAL SALES 2023

## PURCHASES AMOUNT IS VERY SIMILAR BETWEEN CATEGORIES



Total Sales

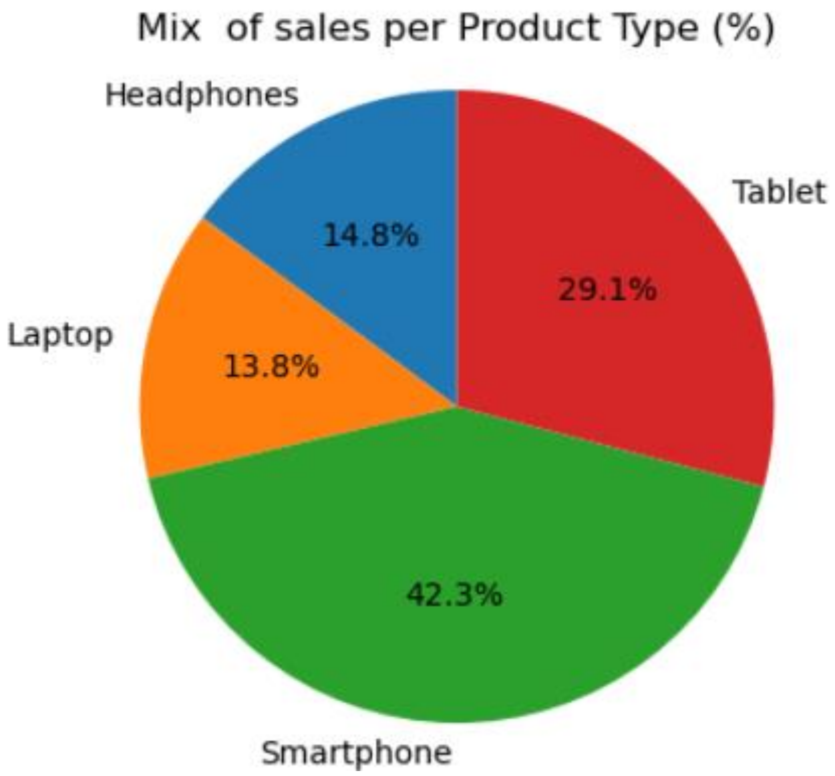
Tech Sales

Insights

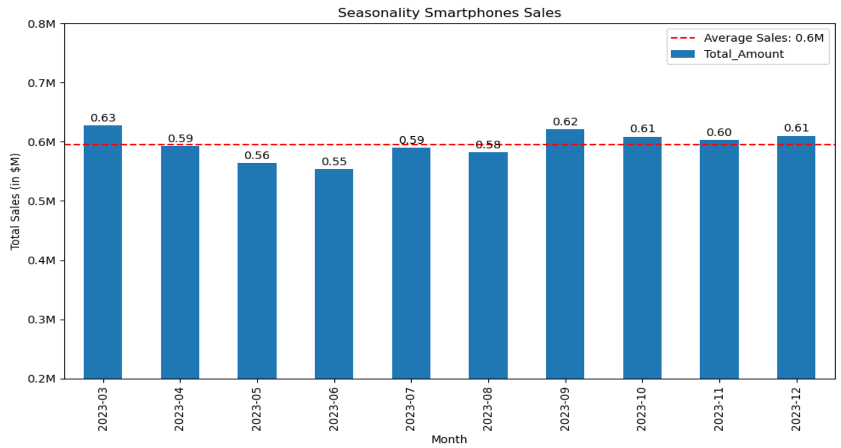
# TOTAL TECH SALES 2023 $14MM*

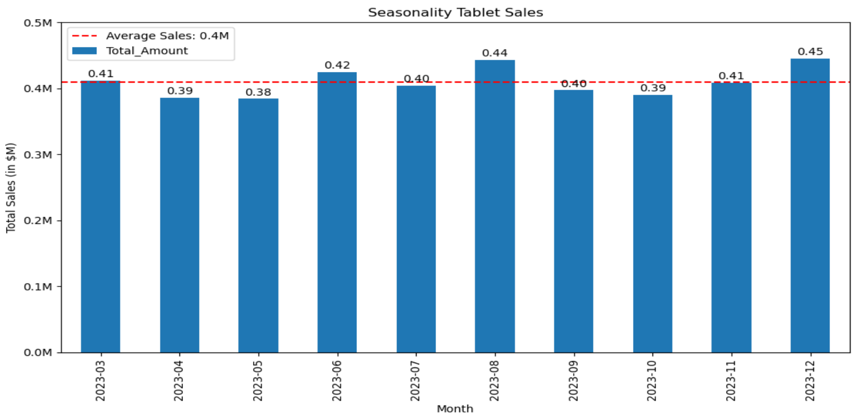
## SMARTPHONE, TABLETS ARE THE TWO PRODUCTS OF HIGHER SALES

Largest category is Smartphone, followed by tablets




Smartphones sales are higher in December and tablets on Back-to-School period



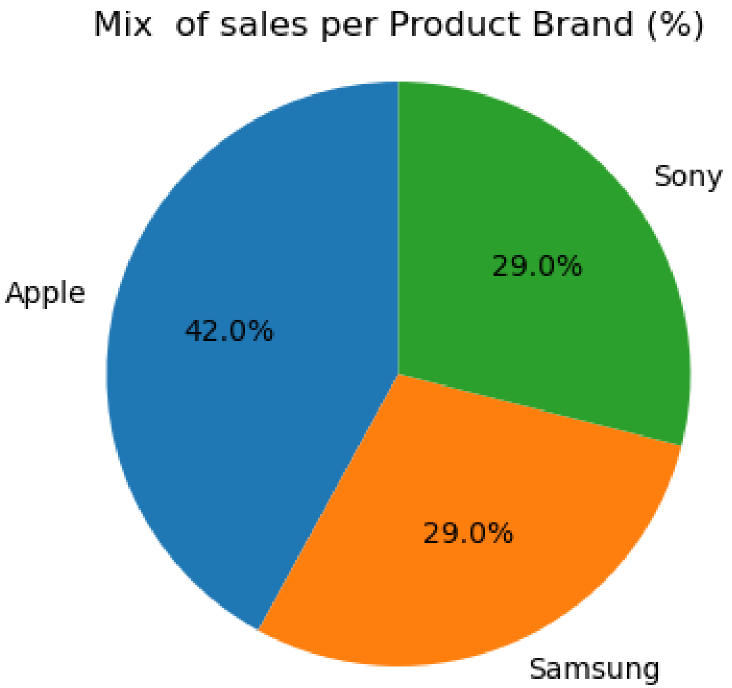



* Excludes Fridges, TV and AC

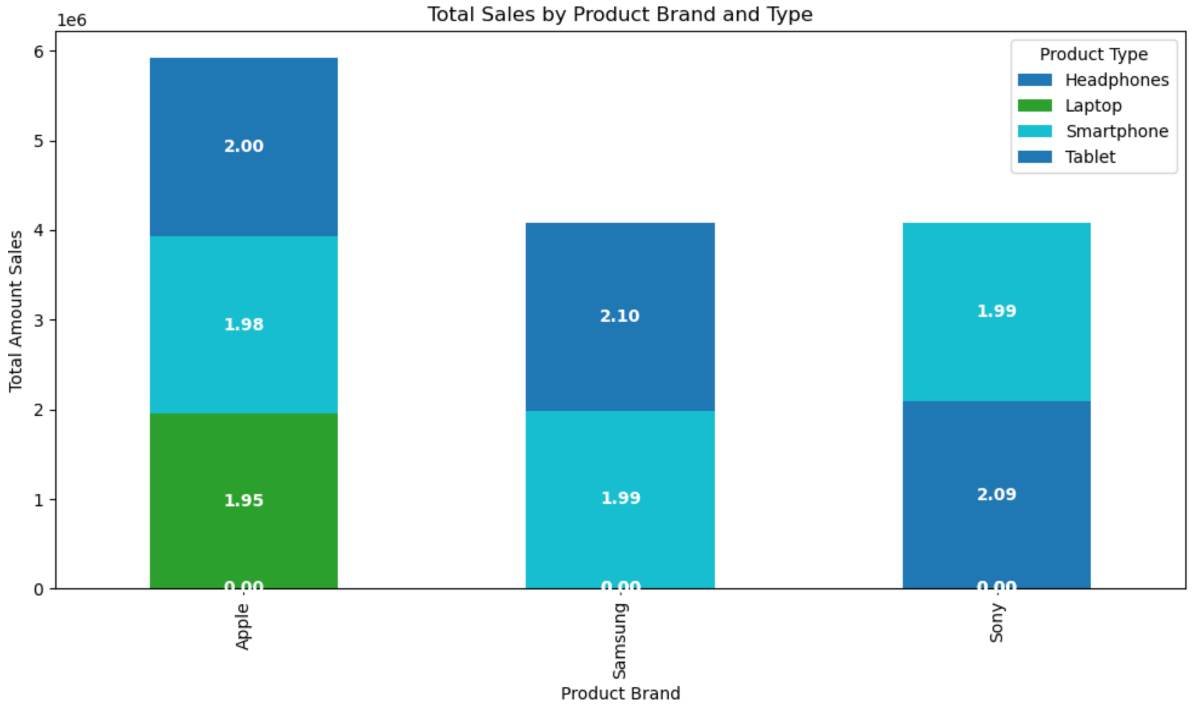
# TOTAL TECH SALES 2023

## SPLIT OF SALES

Apple leading brand in the tech sales in value and transactions, Sony and Samsung with similar share




Apple's most relevant sales correspond to headphones, followed by smartphones and laptops being their smaller category. The higher sales are represented by this category which is unique to Apple.



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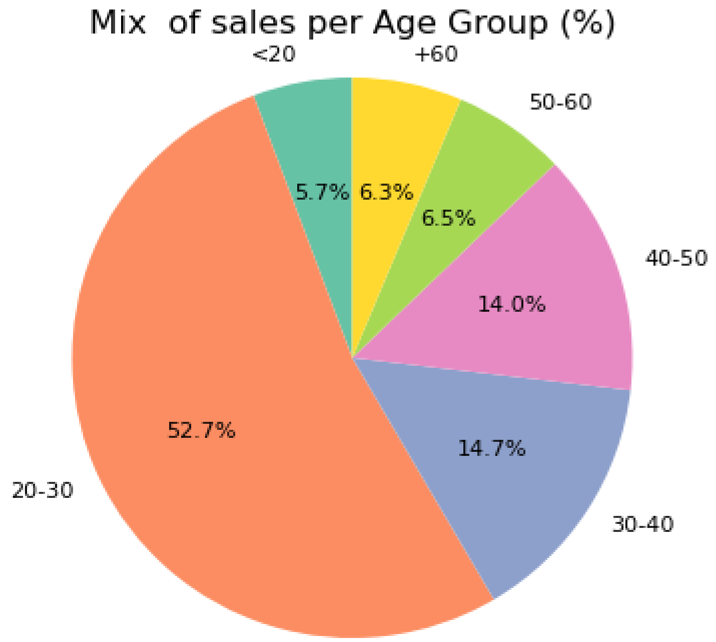
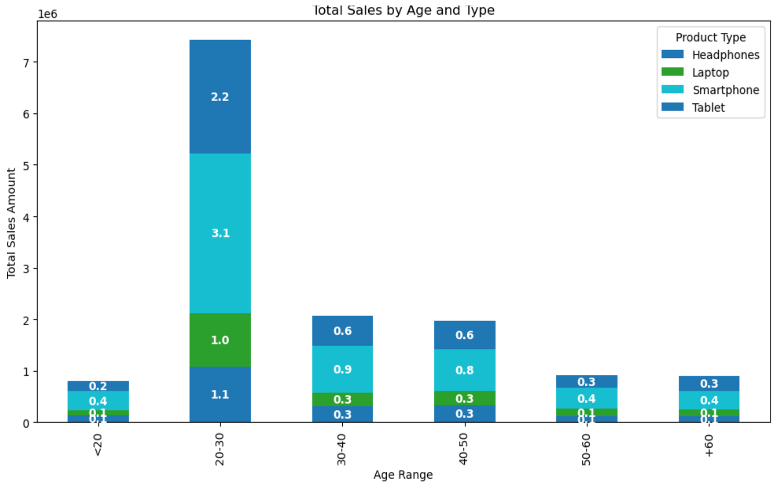
# TOTAL TECH SALES 2023

## SPLIT OF SALES

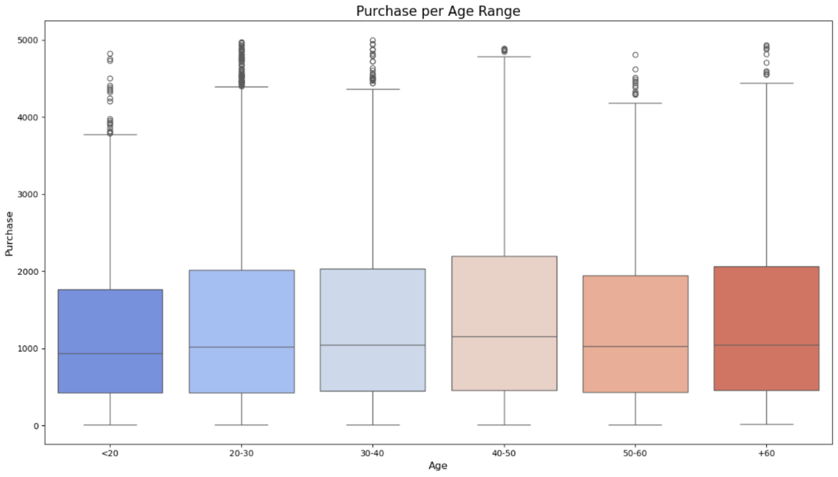
Largest sales in the Age group between 20-30 followed by 30-40 yrs




20-30 largest Product Type is Smartphones, followed by headphones




Total purchased amount is larger in average for 40- 50 yrs group

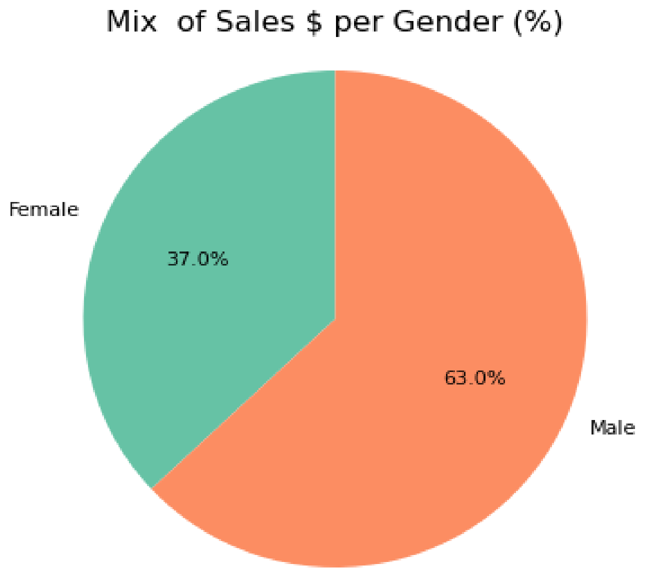



Largest dispersion of sales in the 20-30 yrs group
Purchases decline in value after 50 yrs

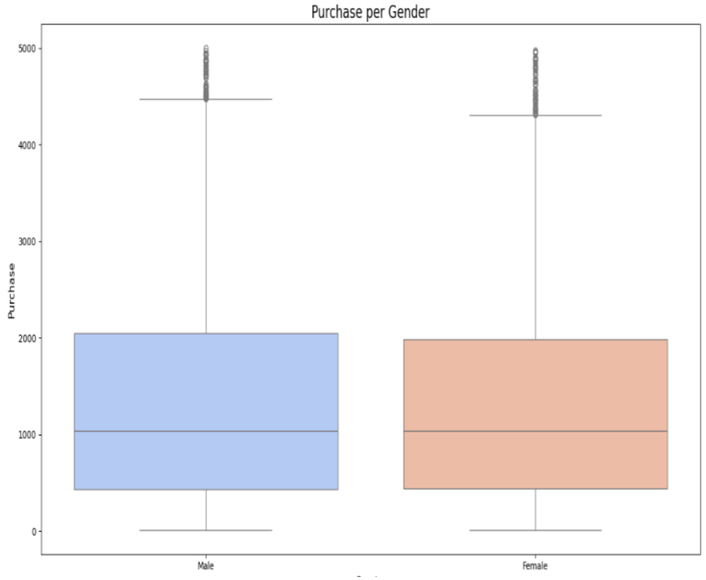
# TOTAL TECH SALES 2023

## GREAT OPPORTUNITY TO INCREASE FOCUS ON WOMAN, THE SALES ARE LOWER IN % BUT IN VALUE ARE AROUND THE SAME

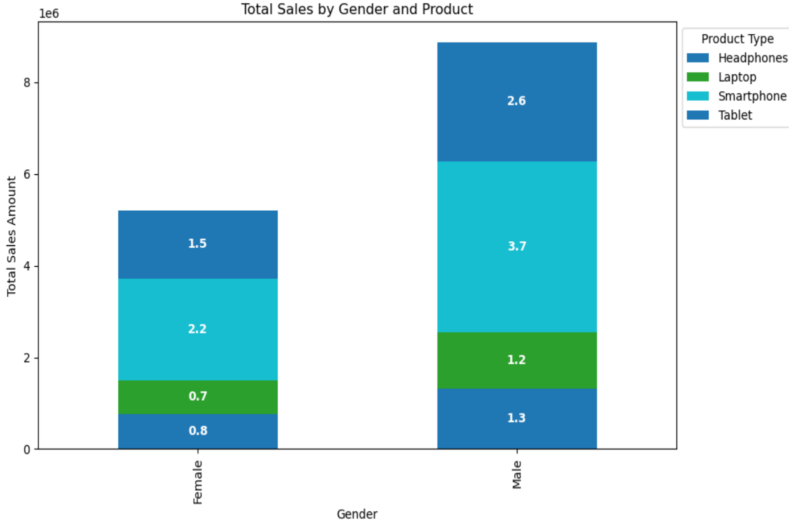
Women still under 50% of sales, could imply an opportunity given the increase in purchasing power of women




Women total amount purchased per transaction is very similar to men's




Even consumption behavior is similar Smartphones represent 42% of purchases of women and men, while headphones are 29%



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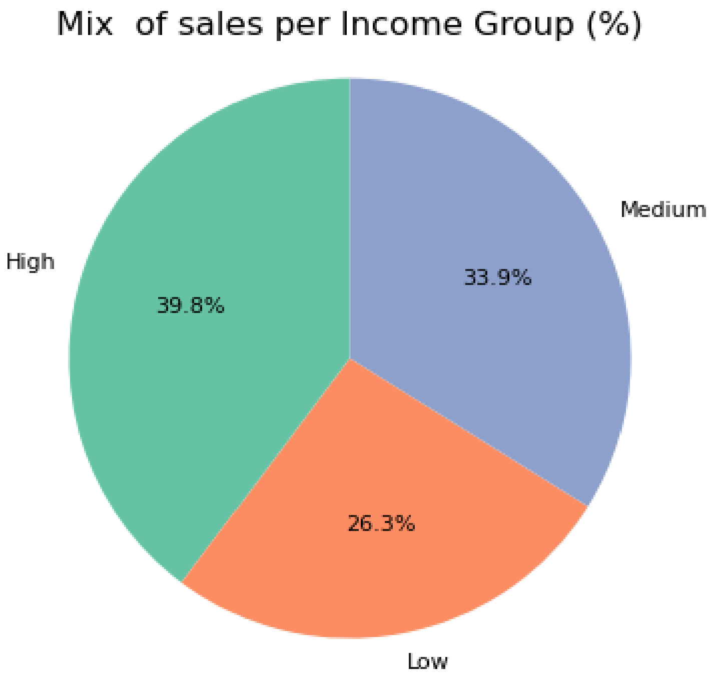
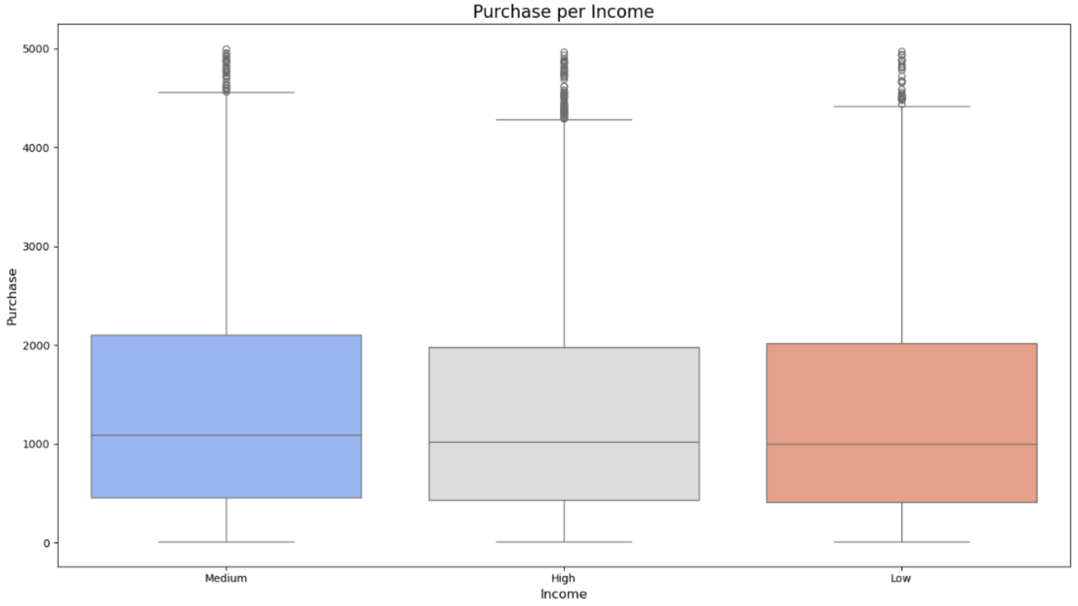
# TOTAL TECH SALES 2023

## CONTINUE TO ADVERTISE HIGH PRICE ITEMS TO HIGH INCOME, WHILE AN OPPORTUNITY TO DEVELOP LOWER PRICING ITEMS FOR AFFORDABILITY

High income group consumes almost 40% of total sales




However, high income purchase average is slightly below the medium income group, with high deviations, continues to be a target for sales of high value items



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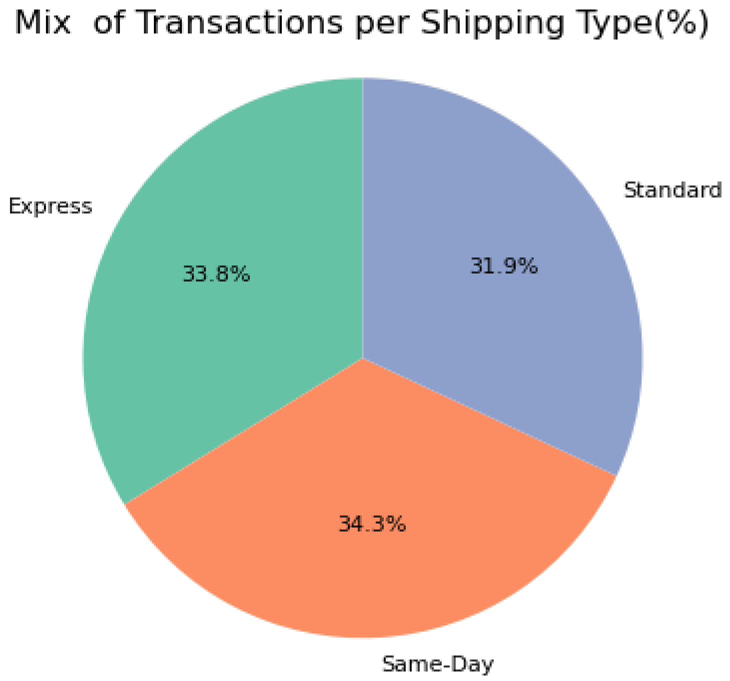
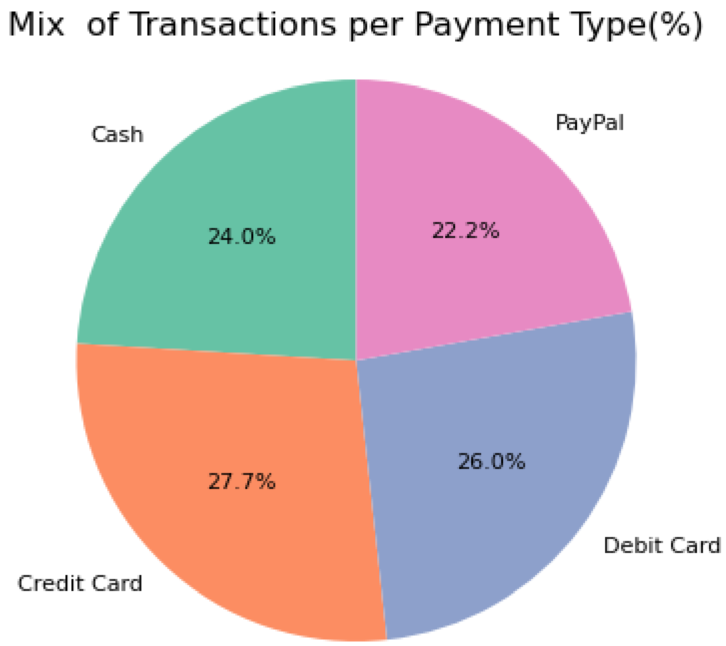
# TOTAL TECH SALES 2023

## DIVERSE OFFERINGS IN SHIPPING AND PAYMENTS CONTINUE TO BE KEY TO MAINTAIN SALES



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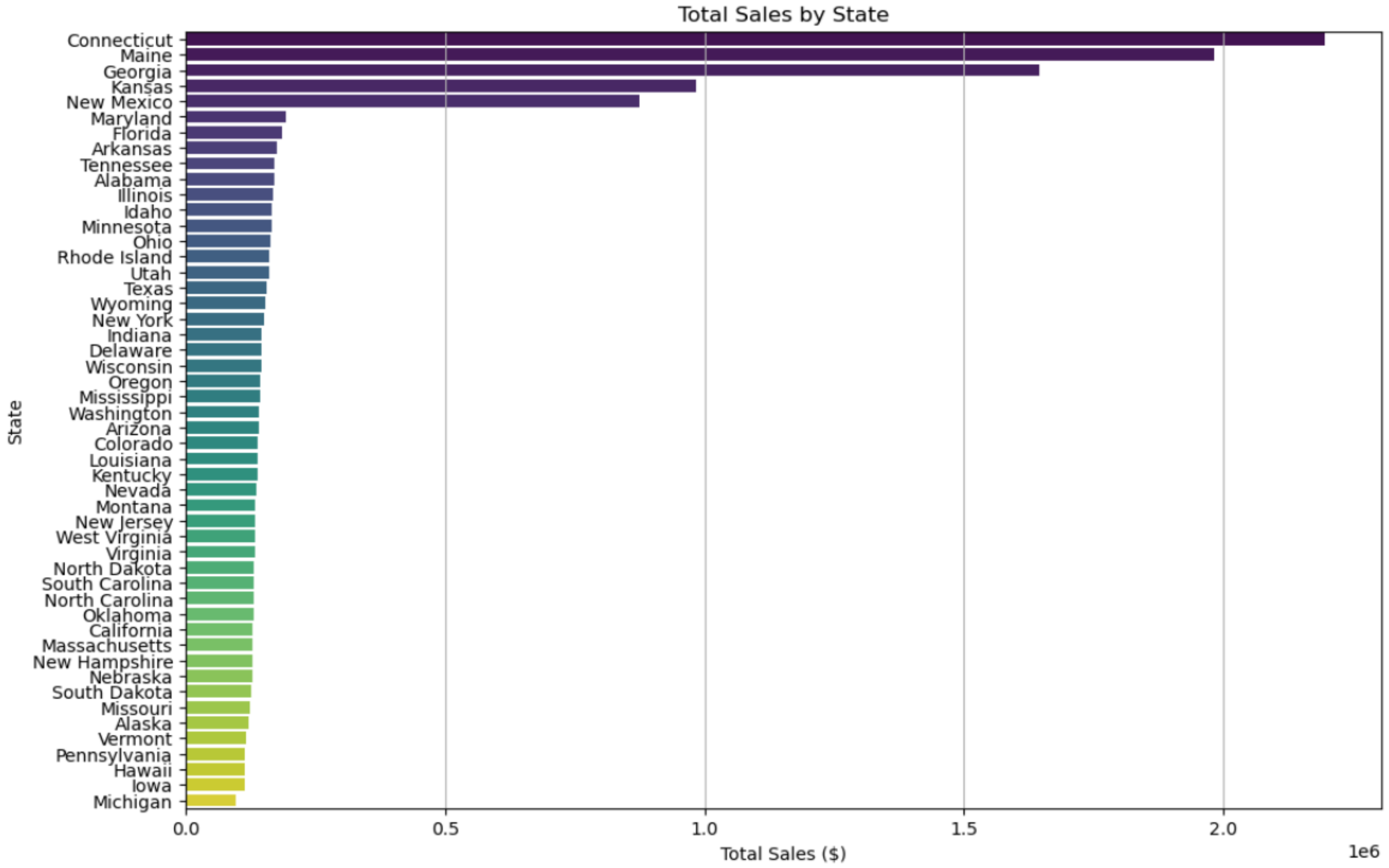
# TOTAL TECH SALES 2023

## TOTAL SALES BY STATE



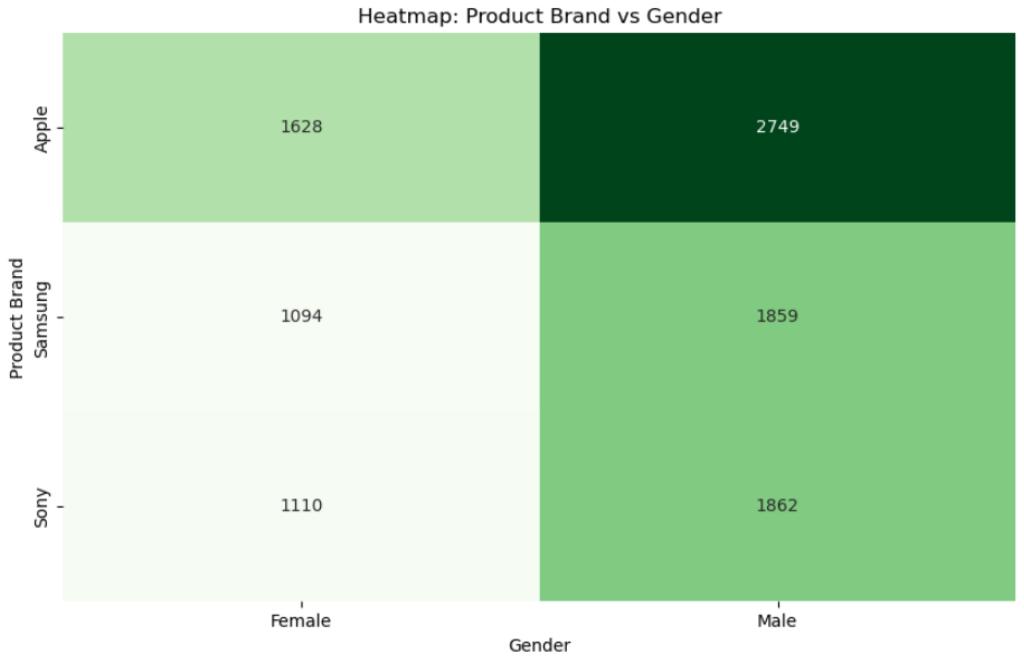
Total Sales

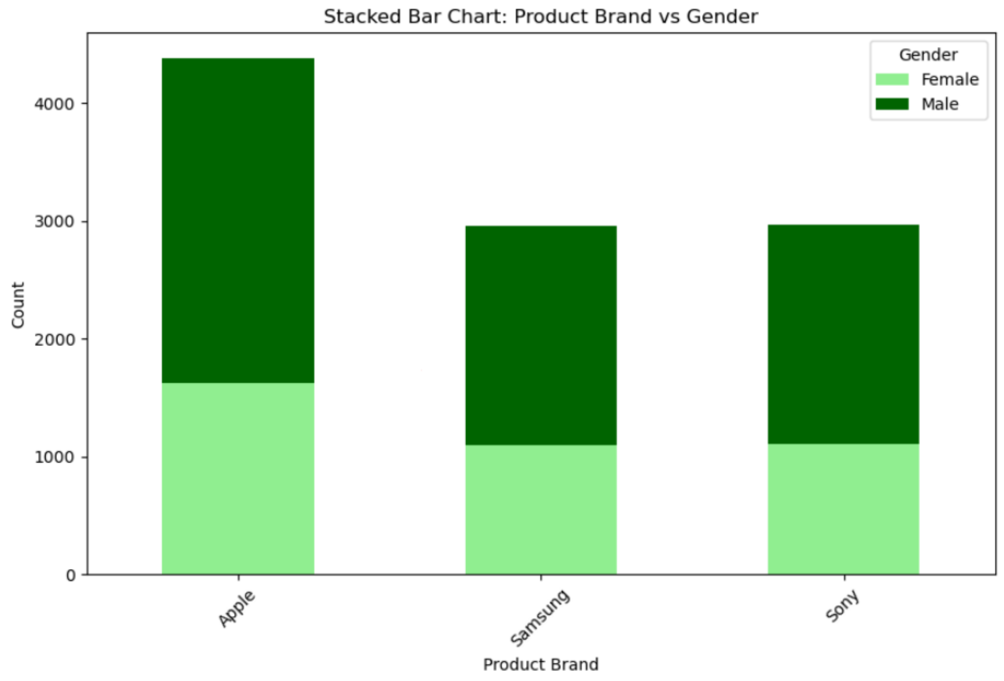
Tech Sales

Insights

# TOTAL TECH SALES

## PRODUCT BRAND VS GENDER

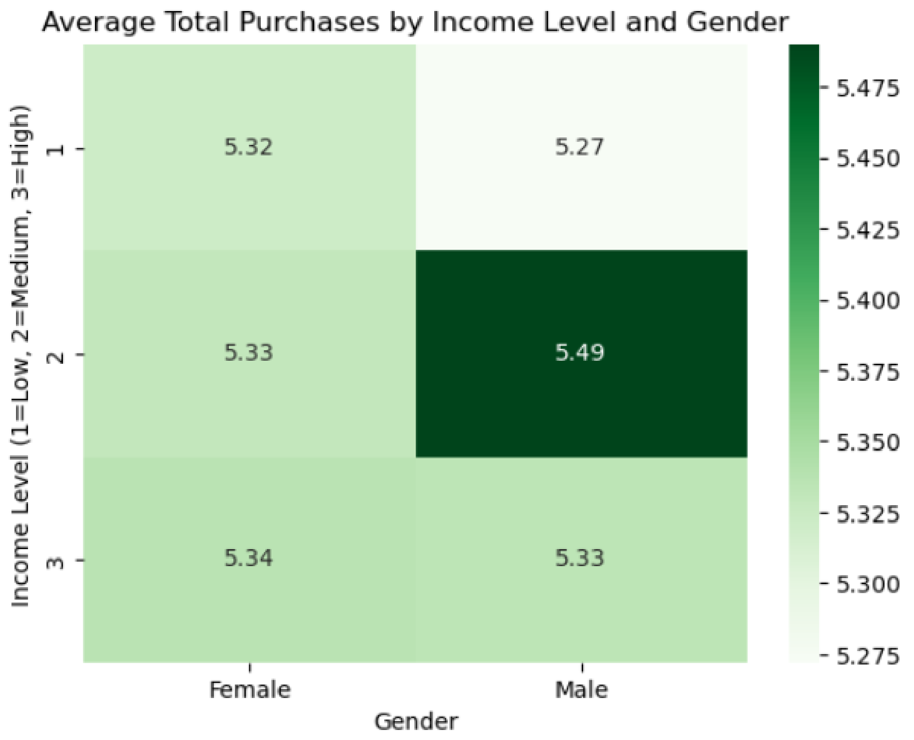


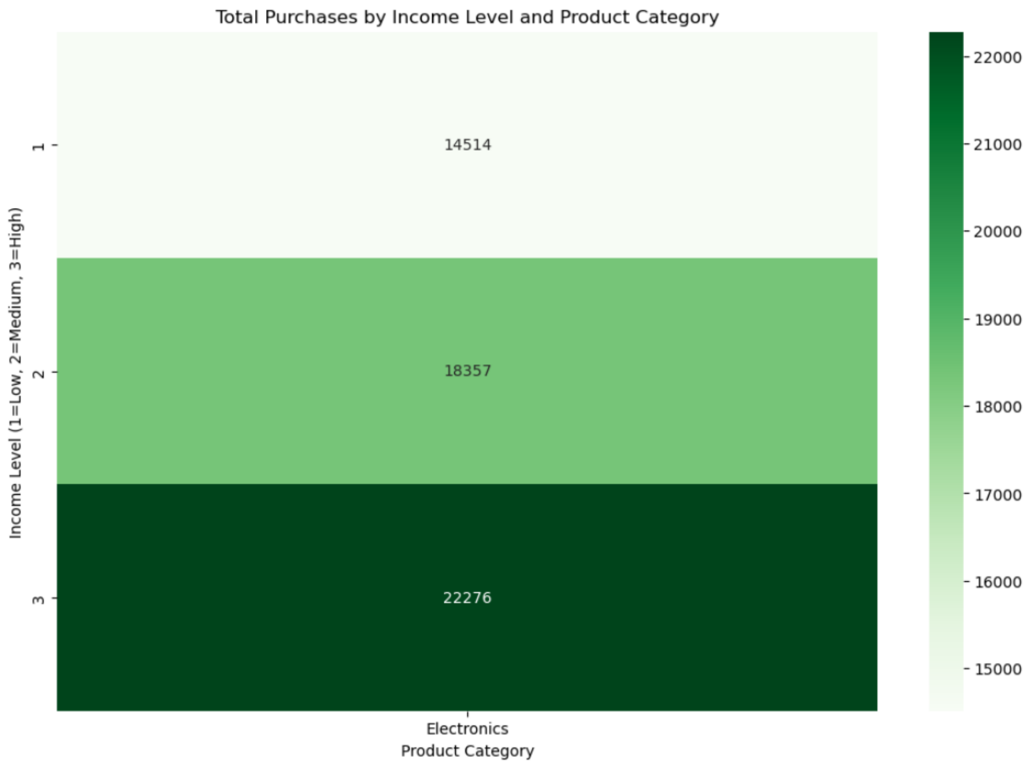




Apple is the preferred choice among both genders, with males purchasing significantly more than females.

# TOTAL TECH SALES 2023

## AVG TOTAL PURCHASES BY INCOME & GENDER

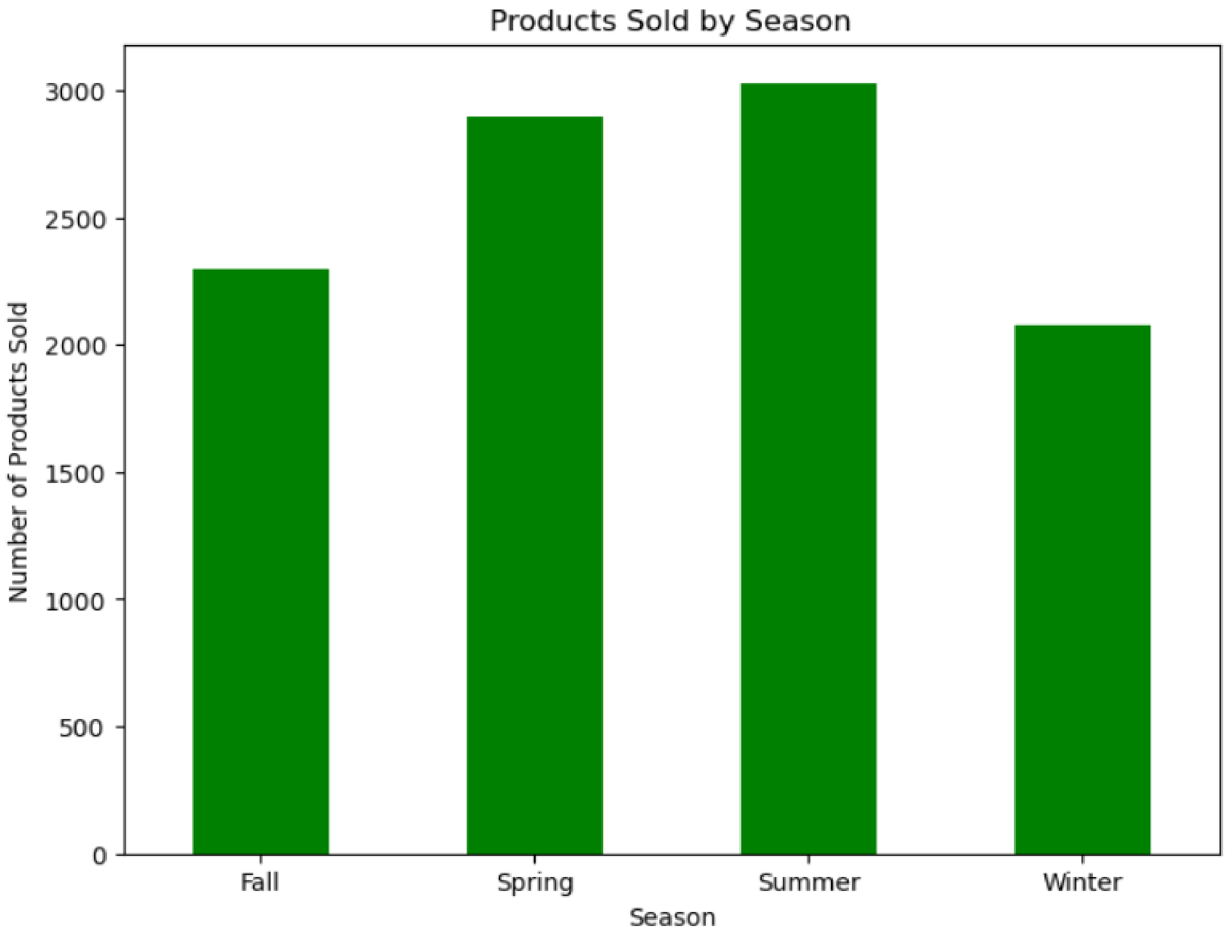



Income levels play a significant role in total tech purchases.

# TOTAL TECH SALES 2023
## PURCHASES BY GENDER

# TOTAL TECH SALES 2023
## PRODUCTS SOLD BY SEASON




Tech Products Sold by Season:

Fall 2295

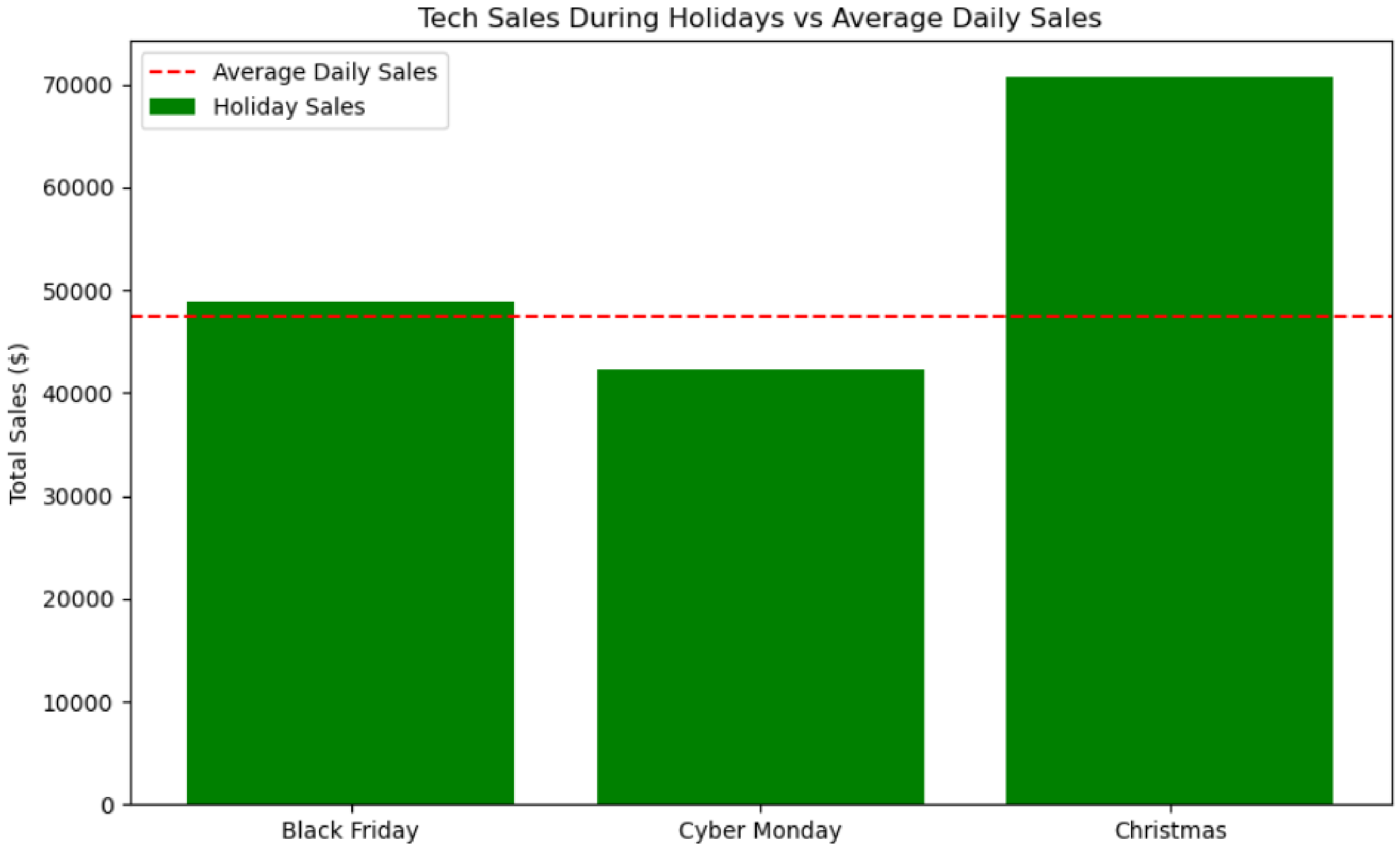
Spring 2899

Summer 3029

Winter 2079

# TOTAL TECH SALES 2023

## TECH SALES DURING HOLIDAYS




Holiday Sales:

Black Friday: $48,859.15

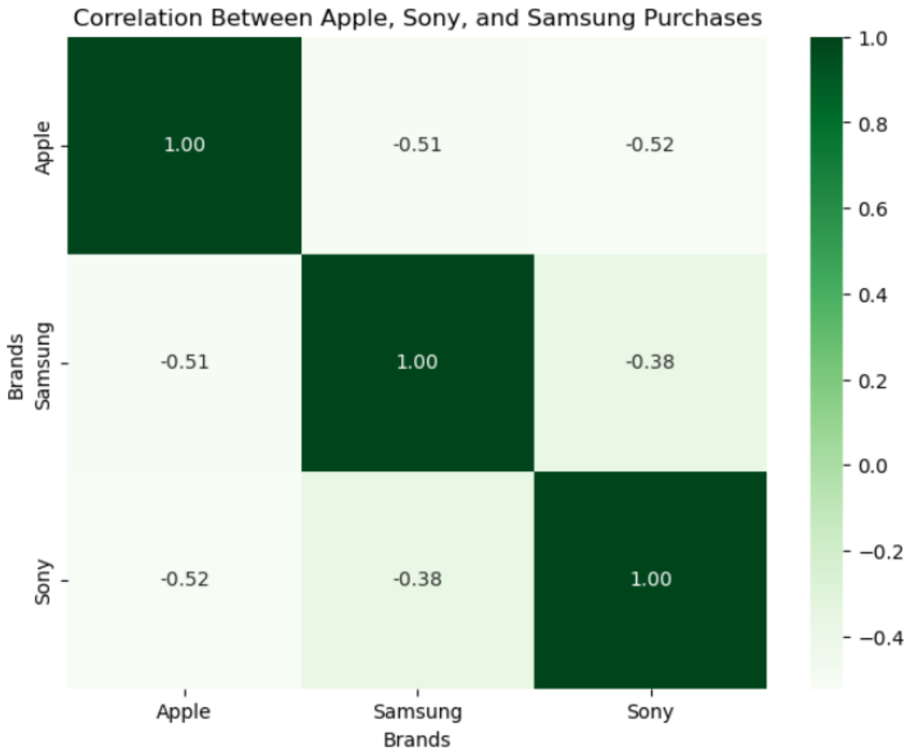
Cyber Monday: $42,337.76

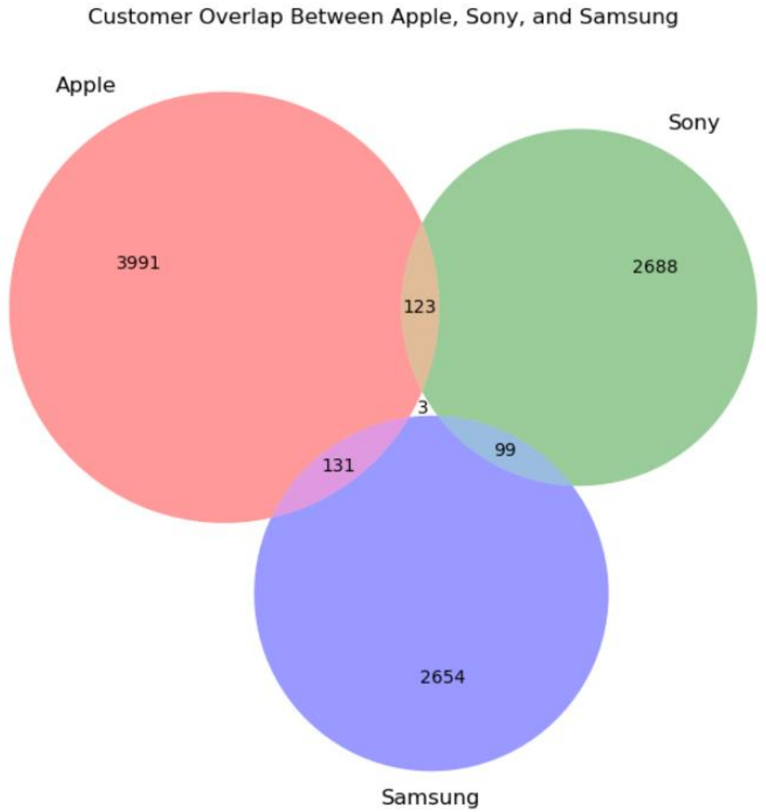
Christmas: $70,711.41

Average Daily Sales for November and December: $47,394.99

# TOTAL TECH SALES 2023

## CORRELATIONS BETWEEN APPLE, SONY, & SAMSUNG



# OUR WEB PAGE

## MAPS



* Excludes Fridges, TV and AC

# CONCLUSION

- **Apple Leads the Market:** Apple dominates overall sales, particularly among male customers, with the highest exclusive customer base compared to Samsung and Sony.
- **Seasonal Trends:** Summer and spring are peak sales periods, with Christmas driving the highest holiday sales. Winter shows the lowest sales, presenting an opportunity for targeted promotions.
- **Income's Impact on Purchases:** Higher-income individuals drive greater total purchases.
- **Brand Loyalty Prevails:** Strong brand loyalty is evident, with minimal overlap between customers purchasing from multiple brands.
- **Opportunities for Samsung and Sony:** Targeted marketing campaigns or strategic partnerships could help these brands capture customers from competitors and expand their market share.

# LIMITATIONS

**Limited Scope**: The dataset may not cover all relevant brands, product categories, or customer demographics.

**Sampling Bias**: The dataset might not represent the entire customer base, as it is limited to those who made specific purchases in specific product categories or from specific brands. Over representation or under representation of certain genders, income levels, or regions might lead to biased conclusions.

**Interpretation of Results:** Correlation results do not necessarily imply causation. External factors like marketing, promotions, or competitor actions could influence customer behavior.

**Market and Economic Conditions:** The dataset does not account for external influences such as economic downturns, product launches, or seasonal trends that could impact sales.

# IMPROVEMENT FOR ANALYSIS

- To enhance the depth and accuracy of this analysis, several improvements can be made to the dataset and methodology. Expanding the dataset to include additional brands and product categories would provide a more comprehensive view of customer behavior.
- Incorporating time related data, such as monthly or seasonal trends, would enable analysis of patterns like holiday sales spikes over time.
- Capturing external factors such as promotions, economic conditions, or competitive actions would allow for more insight into causation rather than relying on correlation alone.
- Including a broader geographic scope with more location data would help identify regional trends.
- Incorporating additional data spanning multiple years would provide a more comprehensive view of trends and patterns. With multi-year data, we could explore an increase or decrease of sales for specific brands or product categories. Multi-year data could improve the accuracy to forecast future sales and to further understand the market.

# THANK YOU