

Task 1: Exploratory Data Analysis (EDA) and Business Insights

2. Derive at least 5 business insights from the EDA.

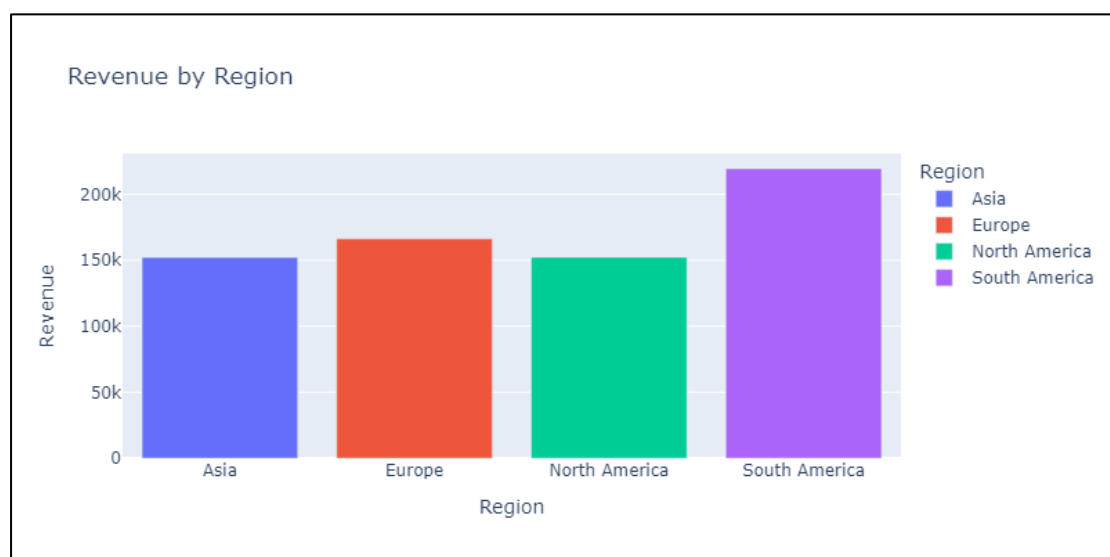
- Write these insights in **short point-wise sentences** (maximum 100 words per insight)

In my EDA Jupyter Notebook, I have explored the following:

- Signup trends over time
- Distribution of products by category
- Total Revenue for the year
- Revenue by Region
- Revenue by Product Category
- Popular Products
- Popular Regions
- Popular Products by Region
- Customer Lifetime Value
- Monthly Revenue
- Product Price Distribution by Category

Here, the following few insights stand out as the most important for a business-focused analysis, as they provide actionable intelligence and align with common business goals like revenue growth, market targeting, and product optimization.

1. Revenue by Region

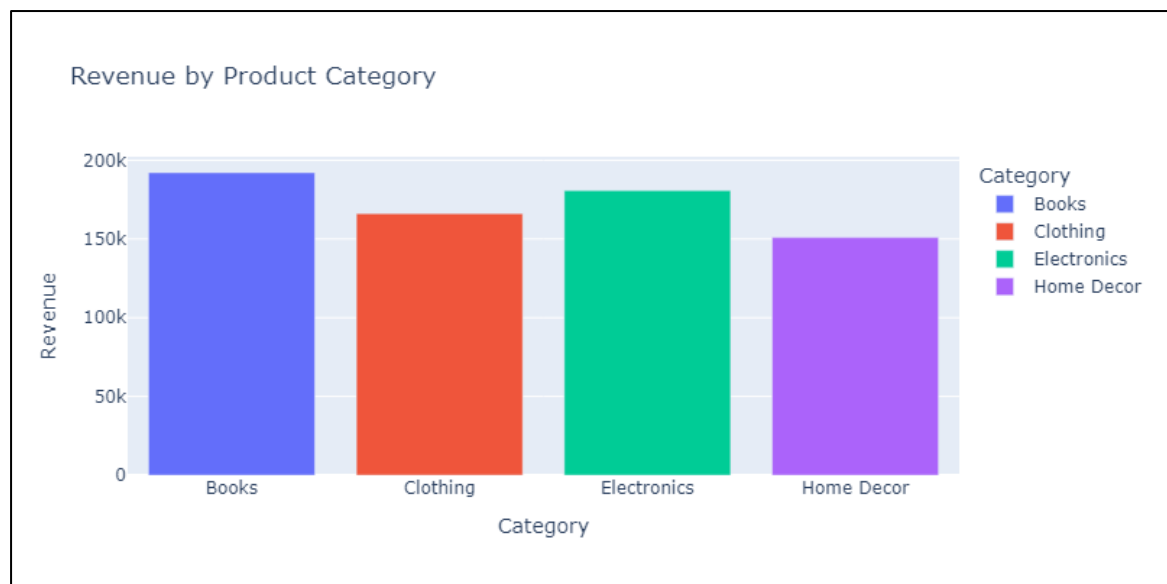


Understanding which regions contribute the most revenue helps identify top-performing markets and areas for expansion or targeted marketing efforts.

As seen in figure,

- South America contributes the highest revenue, generating **\$219,352.56**, surpassing all other regions.
- Europe follows closely at **\$166,254.63**, while North America and Asia contribute nearly equal revenues at **\$152,313.40** and **\$152,074.97**, respectively.
- This indicates that South America is the most profitable region, offering opportunities for further market penetration, while Asia and North America might benefit from tailored strategies to boost sales.

2. Revenue by Product Category



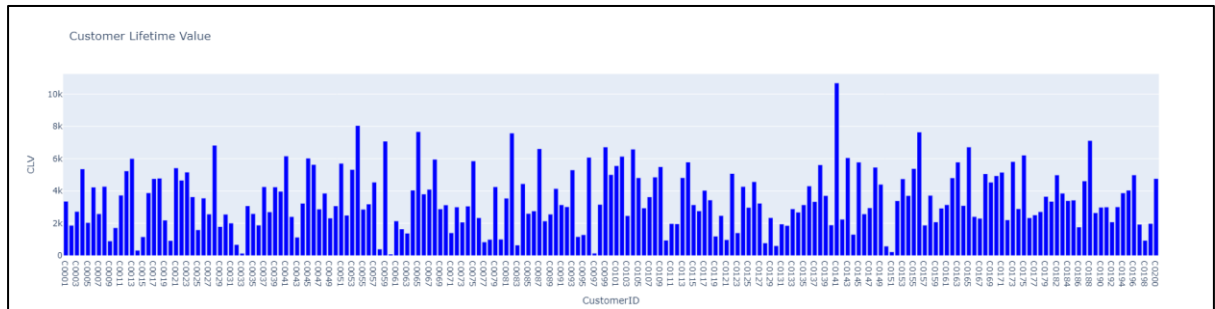
Analysing revenue by category highlights which product lines are most profitable and informs inventory management, pricing strategies, and promotional campaigns.

As seen in the figure,

- The **Books** category dominates revenue at **192,147.47 USD**, highlighting its strong demand.
- **Electronics** follow closely at **180,783.50 USD**, suggesting high-value items drive significant revenue.
- **Clothing** generates **166,170.66 USD**, indicating consistent consumer interest, potentially boosted by trends or seasonal factors.
- **Home Decor**, while contributing **150,893.93 USD**, lags behind other categories.
- This could be due to limited demand, lower pricing, or ineffective marketing. To optimize profitability, focus can be placed on promoting top-performing

products within Books and Electronics, while re-evaluating strategies to boost Home Decor sales, such as bundling, discount campaigns, or improving product visibility.

3. Customer Lifetime Value (CLV)

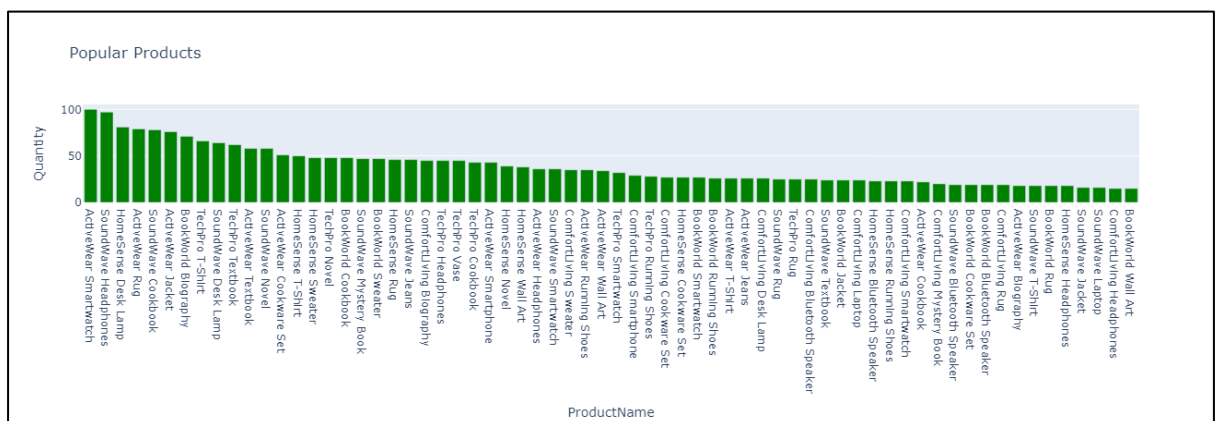


Measuring CLV reveals the value customers bring to the business over time, helping prioritize customer retention efforts and evaluate the impact of marketing strategies.

As seen in the figure,

- The **Customer Lifetime Value (CLV)** analysis highlights that customers contribute highly variable revenues over time.
- The top-performing customer (C0141) has a CLV of **\$10,673.87**, significantly surpassing others, followed by C028 with **\$6,819.57**.
- A small portion of customers drive most of the revenue, suggesting a **Pareto distribution (80/20 rule)**.
- On the lower end, customers like C0133 and C0060 contribute less than **\$1,000**, indicating limited engagement or smaller transaction sizes.
- This insight underscores the importance of focusing on high-value customers with loyalty programs and marketing campaigns, while re-engaging low-value customers to increase their contribution.

4. Popular Products



Identifying the best-selling products helps focus on optimizing inventory, cross-selling, and upselling opportunities.

As seen in the figure,

- The **ActiveWear Smartwatch** is the most purchased product, with a total quantity of **100 units sold**, followed closely by **SoundWave Headphones** (97 units) and **HomeSense Desk Lamp** (81 units).
- Products across diverse categories, such as smartwatches, headphones, and home decor items, dominate the top ranks, indicating strong customer interest in both technology and lifestyle products.
- ActiveWear products appear multiple times in the top rankings, highlighting its popularity.
- These insights suggest focusing on expanding the inventory of best-selling categories and promoting high-demand products through targeted campaigns to maximize revenue.

5. Signup trends over time

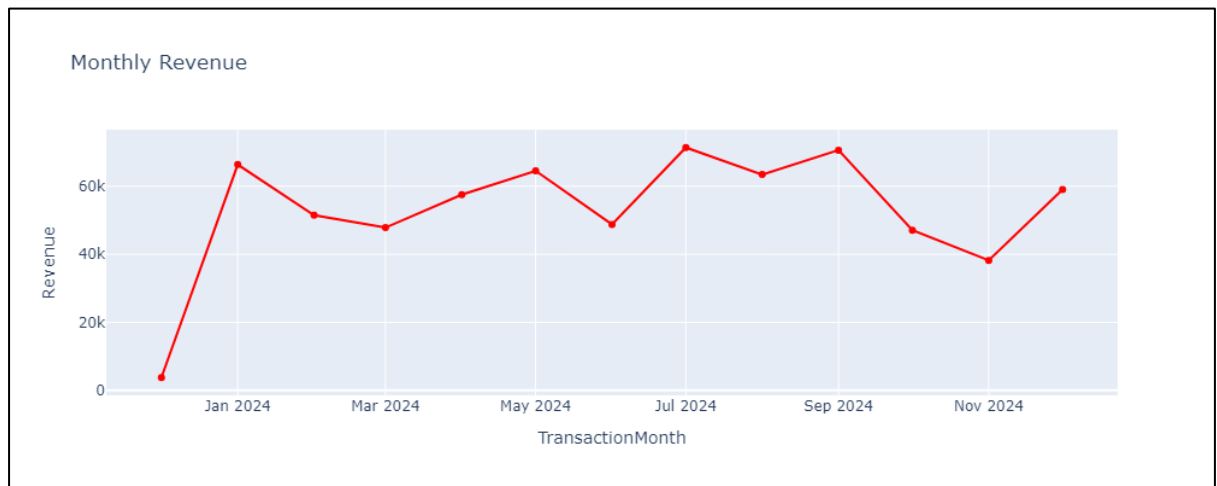
Signup	Year
2022	64
2022	57
2024	79

Analysing customer signup trends uncovers periods of high growth and potential reasons (e.g., marketing campaigns, seasonal trends), which can guide future customer acquisition strategies.

As seen in the table,

- From 2022 to 2023, the number of customer signups decreased by **10.94%** (from 64 to 57).
- However, in 2024, there was a significant **38.60% increase** (from 57 to 79), signalling a positive growth trend.
- This suggests that despite a dip in 2023, the platform's appeal grew in 2024, possibly due to improved marketing efforts, product offerings, or other strategic initiatives.

6. Monthly Revenue



This helps to optimize marketing efforts, forecast future sales, plan for seasonal fluctuations, and make data-driven decisions to maximize revenue and adjust strategies during both peak and slow periods.

As seen in the figure,

- The **monthly revenue** shows significant fluctuations, with a sharp increase from **December 2023** (37,699.52 USD) to **January 2024** (66,376.39 USD), marking the beginning of a strong revenue growth.
- The highest revenue occurred in **July 2024** (71,366.39 USD), while **October 2024** (47,063.22 USD) saw the lowest monthly revenue.
- This pattern suggests seasonal variations, with some months experiencing higher customer activity, possibly due to promotions, seasonal trends, or increased customer demand.