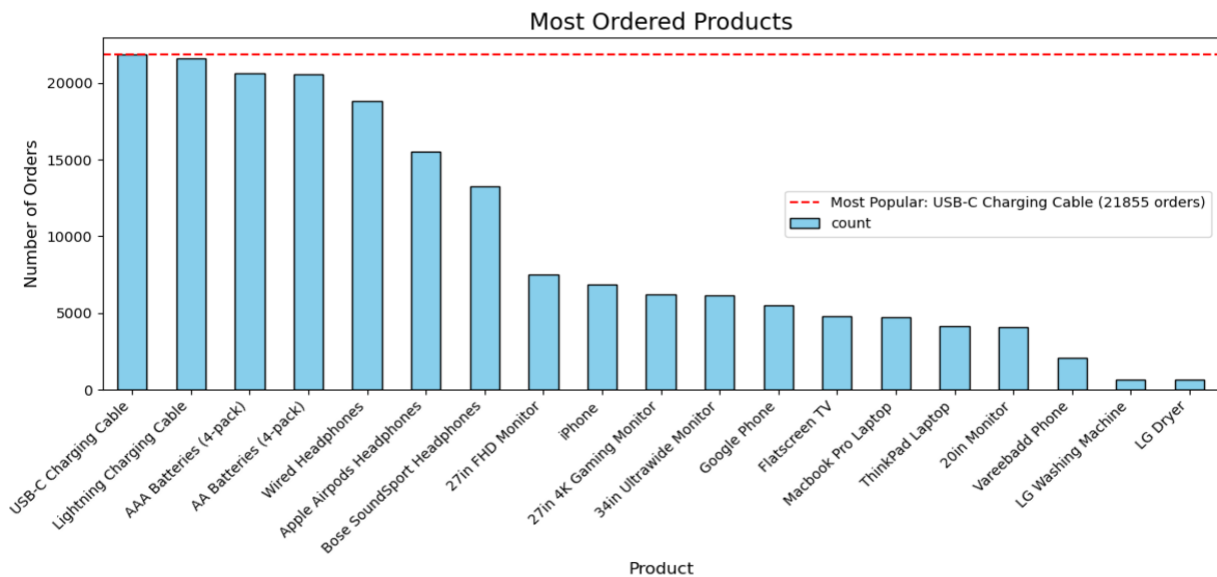# Sales Data Analysis Assignment

in this report we will see the visual of the dataset is provided as a zipped file containing monthly sales data files for the year 2019, discuss the result and give advices.

Business Questions

1. Product Analysis:

- The product that appears in the most orders.

As shown in figure (1) the product with most order number is _USB-C Charging Cable_ in the other hand the least order number product is _LG Dryer_

- The product with the highest quantity ordered.

As shown in figure (2) the product with most order quantity is _AAA Batteries (4-pack)_ in the other hand the least order quantity product is _LG Dryer_

- The product generating the highest revenue.

Price of Each Product

Total Revenue by Product
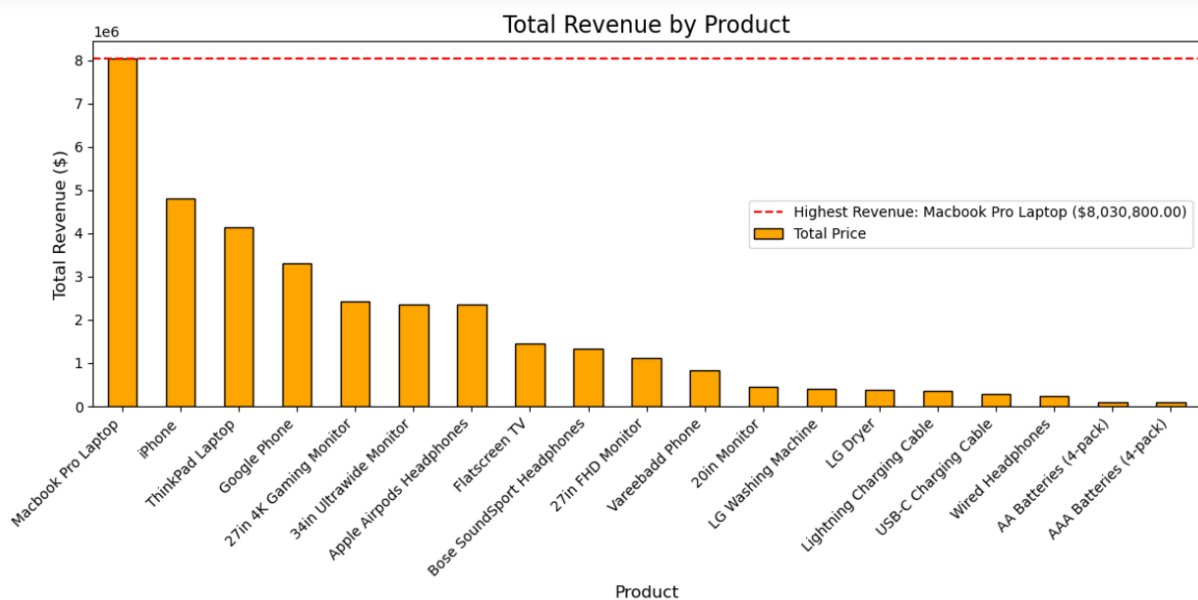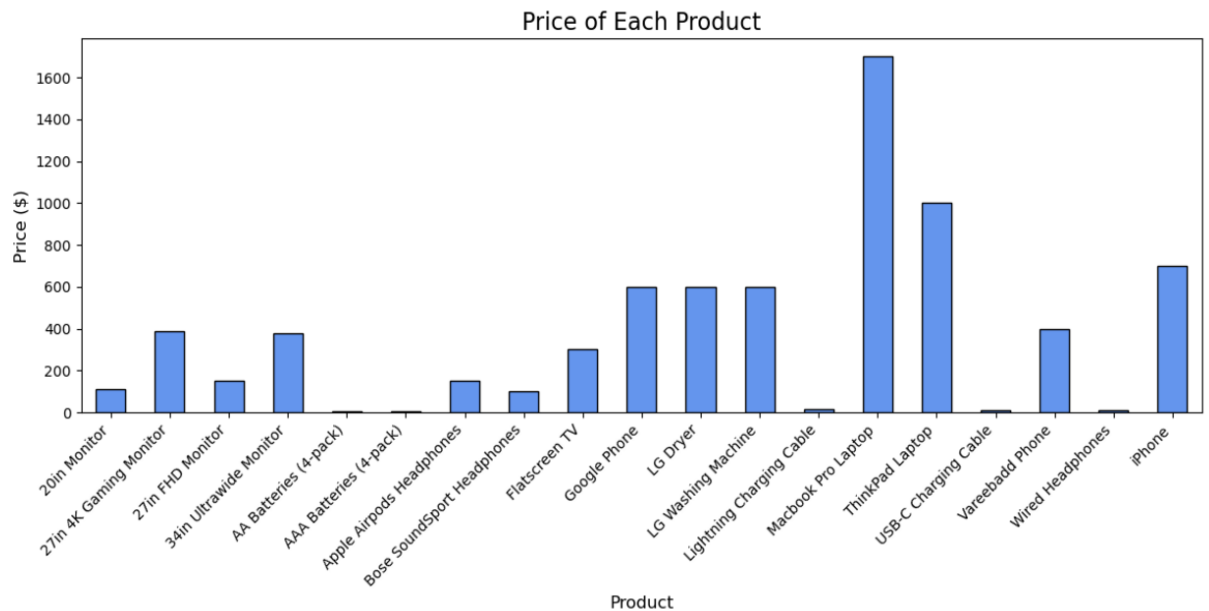
As shown in figure (3) and (4) the _Macbook Pro Laptop_ is the product with most price and revenue and the _AAA Batteries (4-pack)_ is the least revenue and price unless the _AAA Batteries (4-pack)_ is the most product with order quantity so you could try to make the _Macbook Pro Laptop_ and its category more popular to increase the revenue.

2. Trend Analysis:

- Analyze weekly trends to determine the number of orders placed during weekends.

Number of Orders by Day of the Week
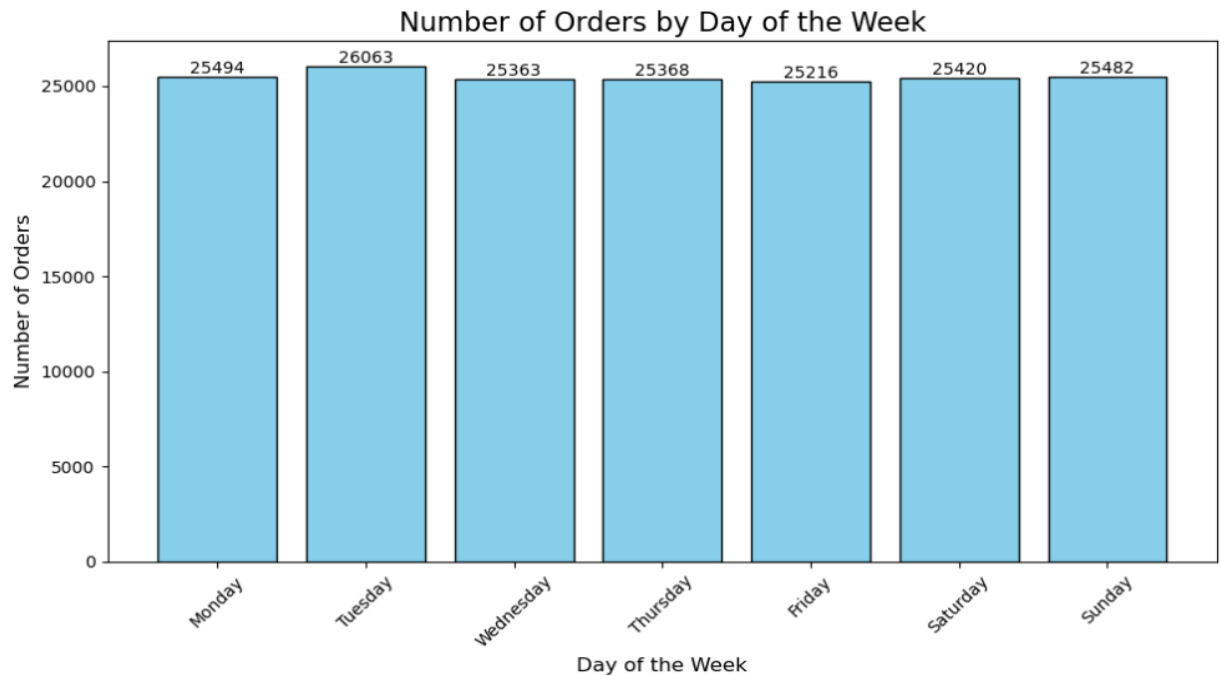
As shown in the figure (5) all the days have almost the same load of order and the most popular day for the user is *Tuesday* unless the weekend days that has medium number of orders.

- Identify preferred months for customer orders.


Preferred Months for Customer Orders

As shown in figure (6) the most popular months is at *the end of the year and April* in the other hand the less popular moths are at *the first and from May to September*

You can also employee a part time employer in the most popular months.

3. Hourly Analysis:

- Determine the peak hours for order placement. Use this information to recommend ideal staff

scheduling times to handle peak customer demand.
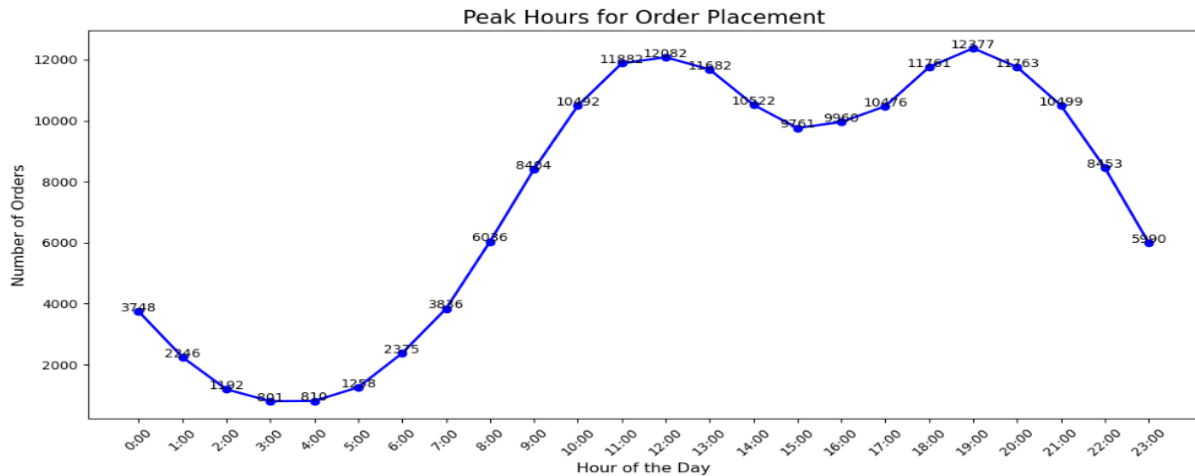
As shown in figure (7) the most popular time is _(10 am- 9 pm)_ you can increase the number of employers in peak time and decrease them in the rest time

4. Category Analysis:

- Analyze each product category over time. Identify trends and find out which category performs

best in terms of sales and revenue.
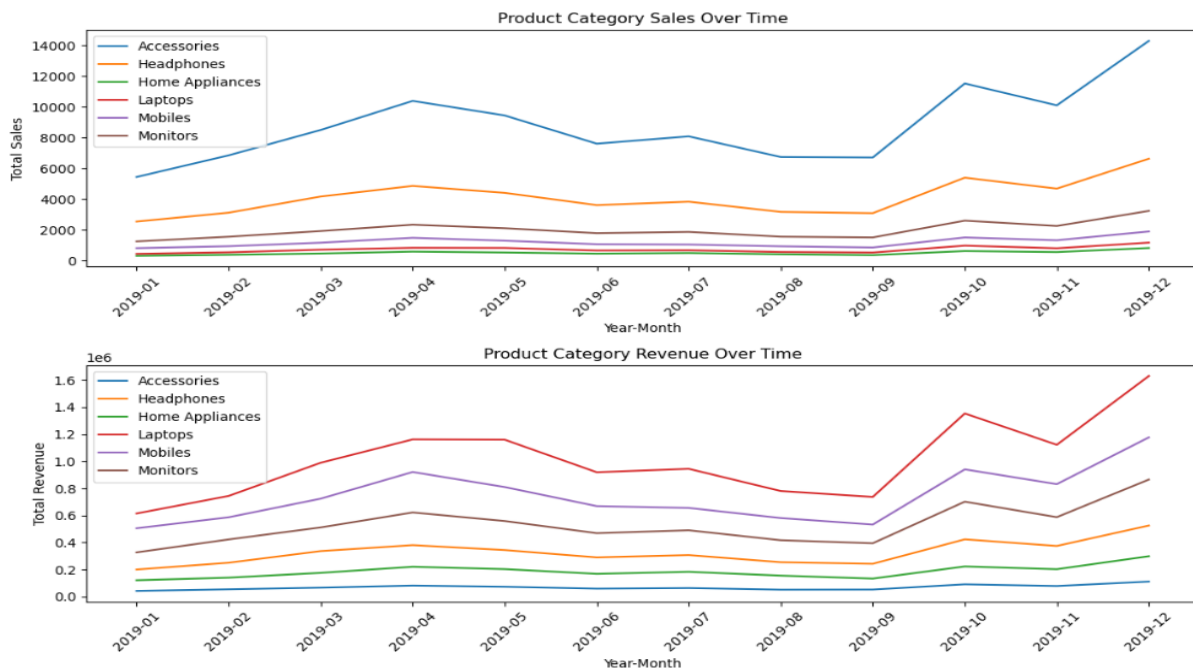
As shown in figure (8) the category with highest sales is _Accessories and Headphones_ and their sales is increasing the rest categories is has less sales and almost fixed sales
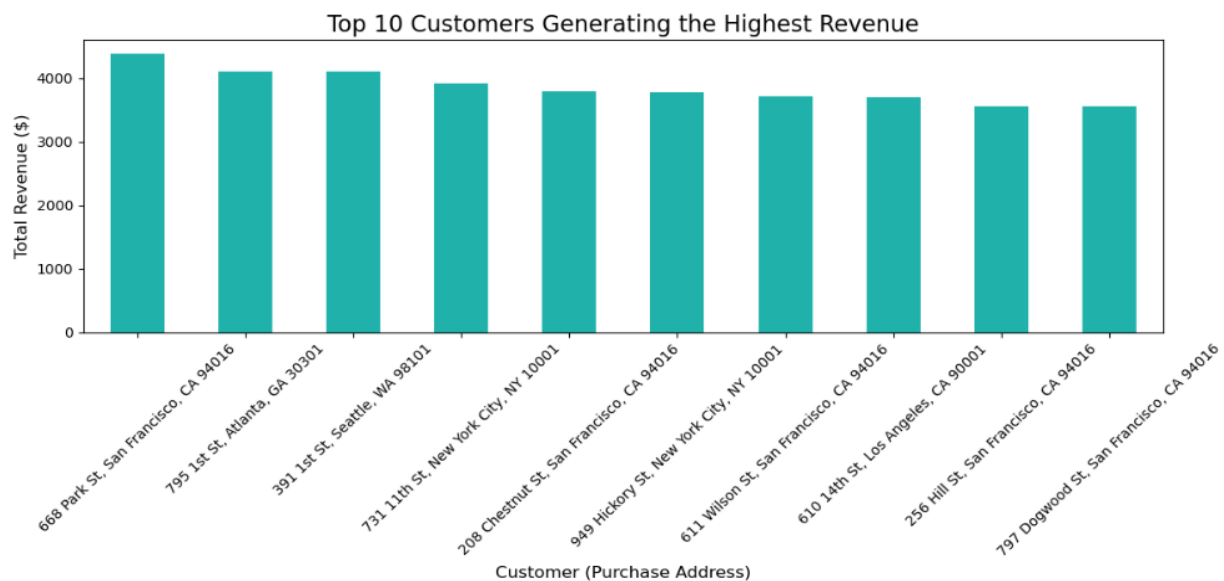
In the other hand the _Laptop and Mobiles_ has the highest revenue and their revenue is in increase the rest is almost has fixed revenue

5. Customer Loyalty:

 - **The customer with the highest number of orders.**
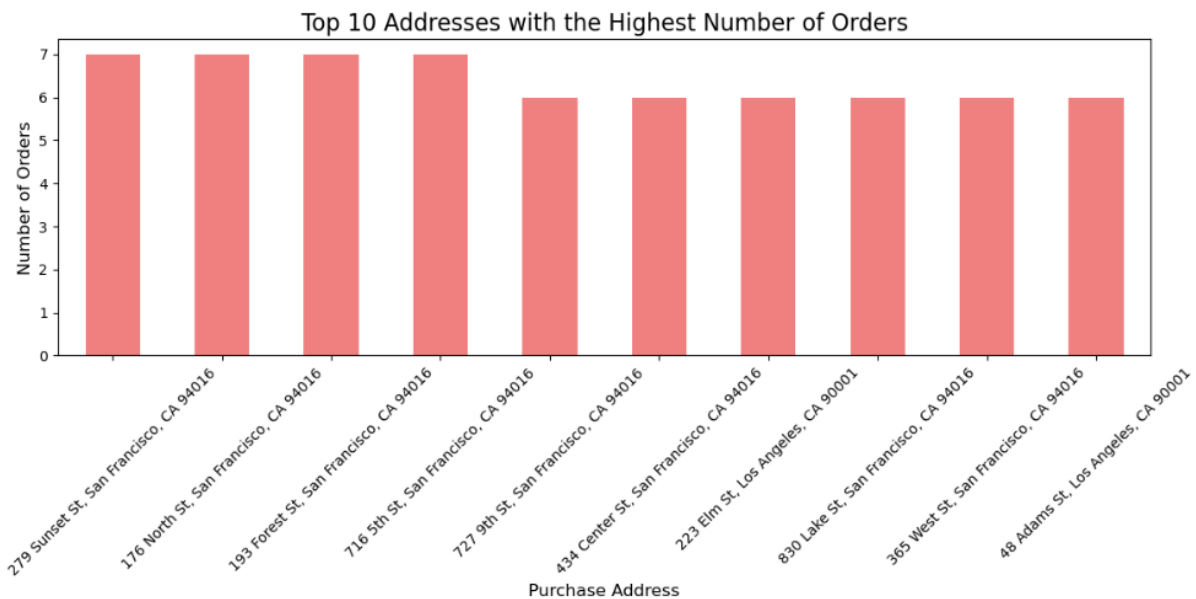
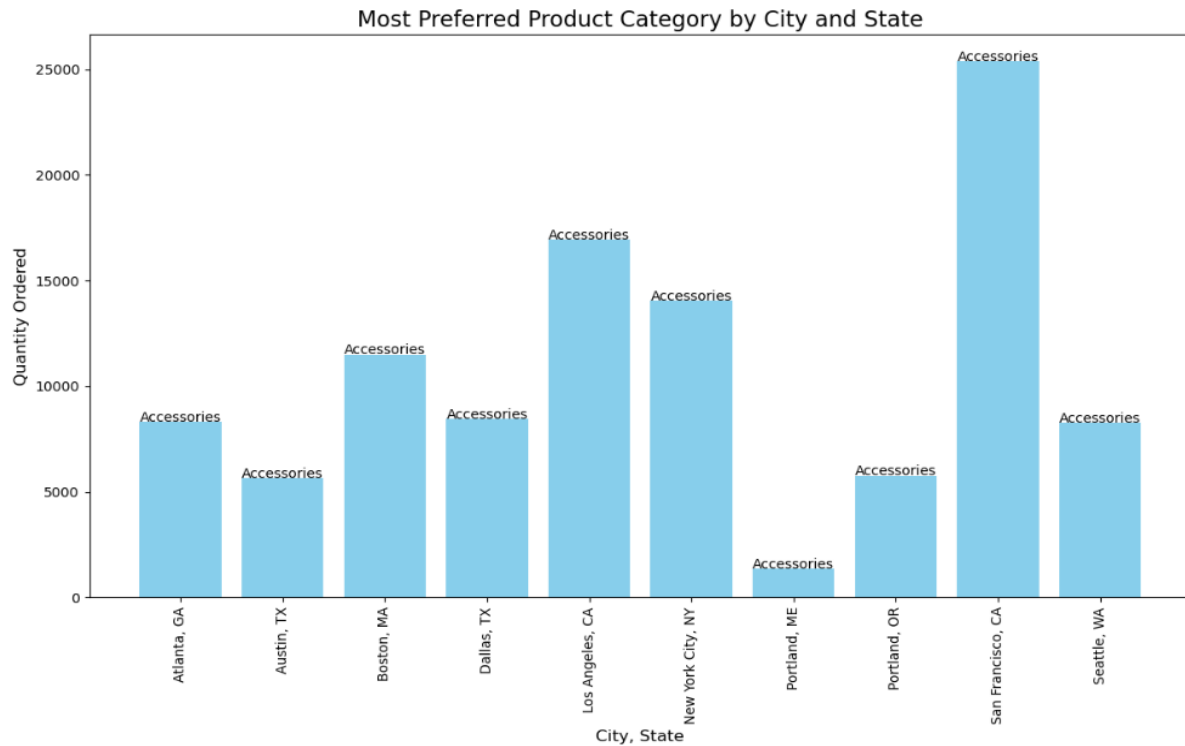- **The customer generating the highest revenue.**

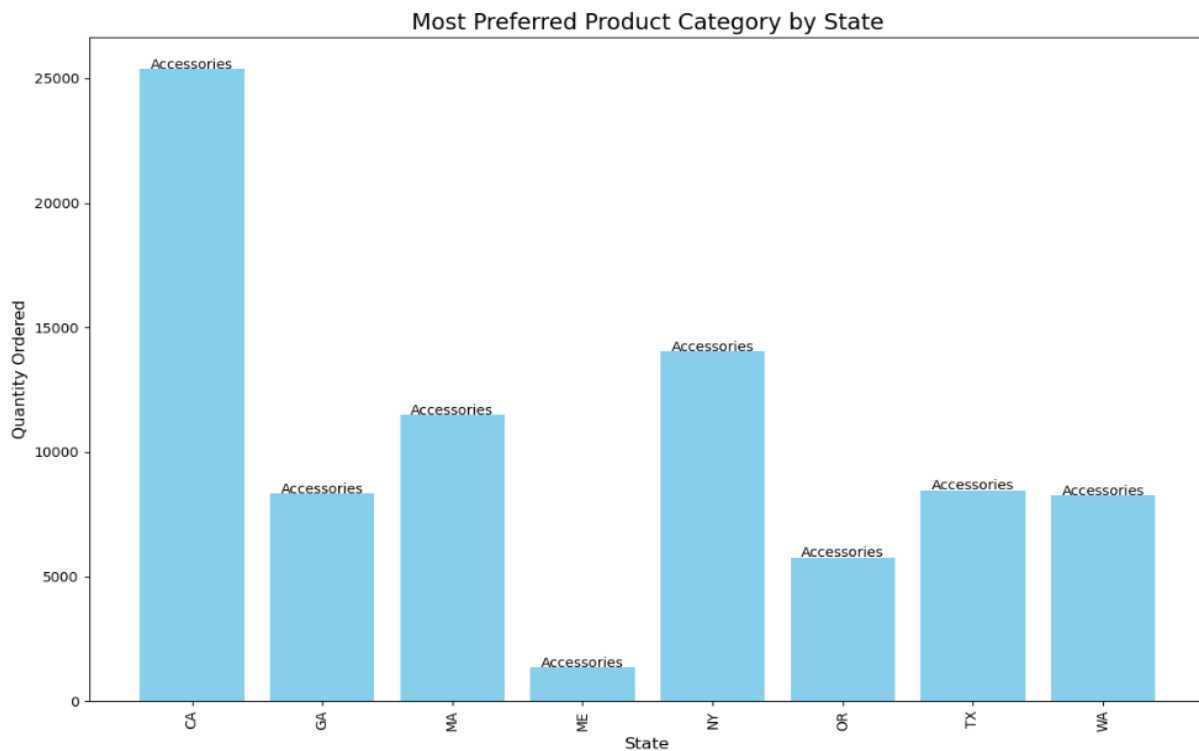As shown in figure (9) and (10) we can find that the customers with highest revenue

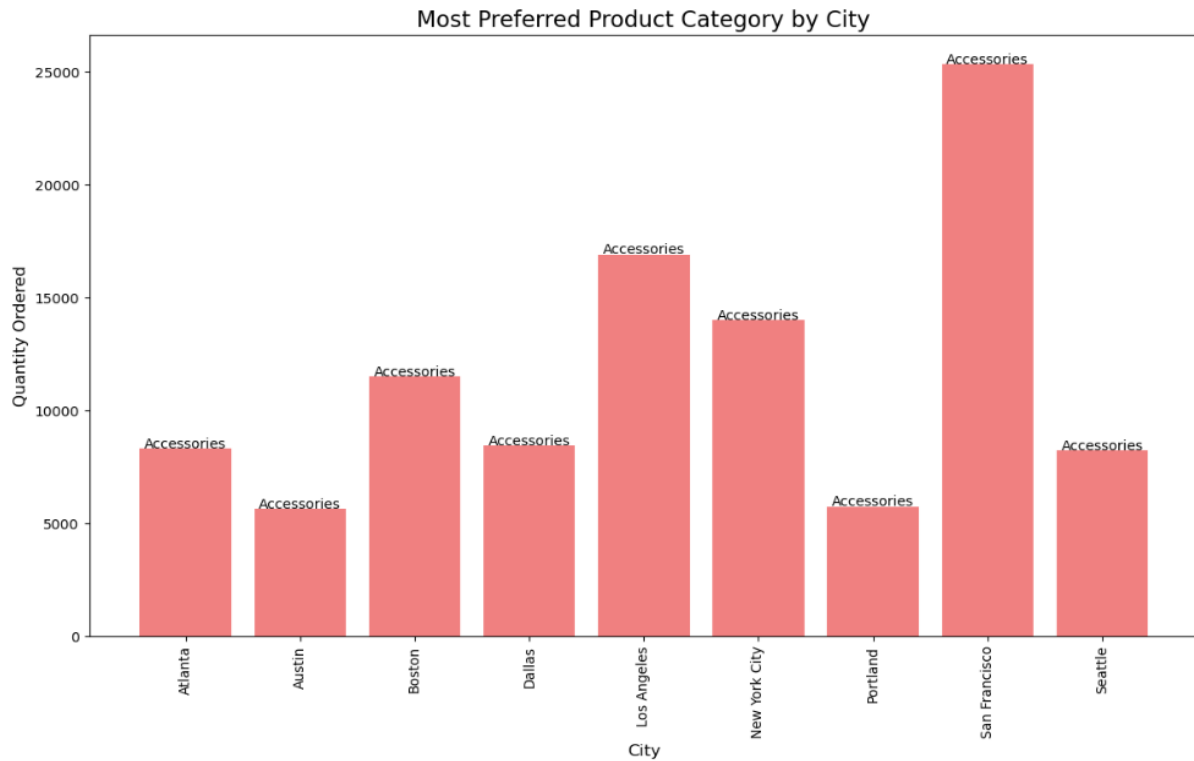Isn't the costumers with that more loyal.

6. Geographical Analysis:

**- For each city and state, identify the most preferred product category.**

As shown in figure (11) the _Accessories_ is the most popular category in all the (city and state)

Most Preferred Product Category by City

As shown in figure (12) and (13) unless the figures are split the _Accessories_ is the most popular category in the all cities and all states

Total Quantity Ordered by Product Category (State)

Category vs City (Heatmap)
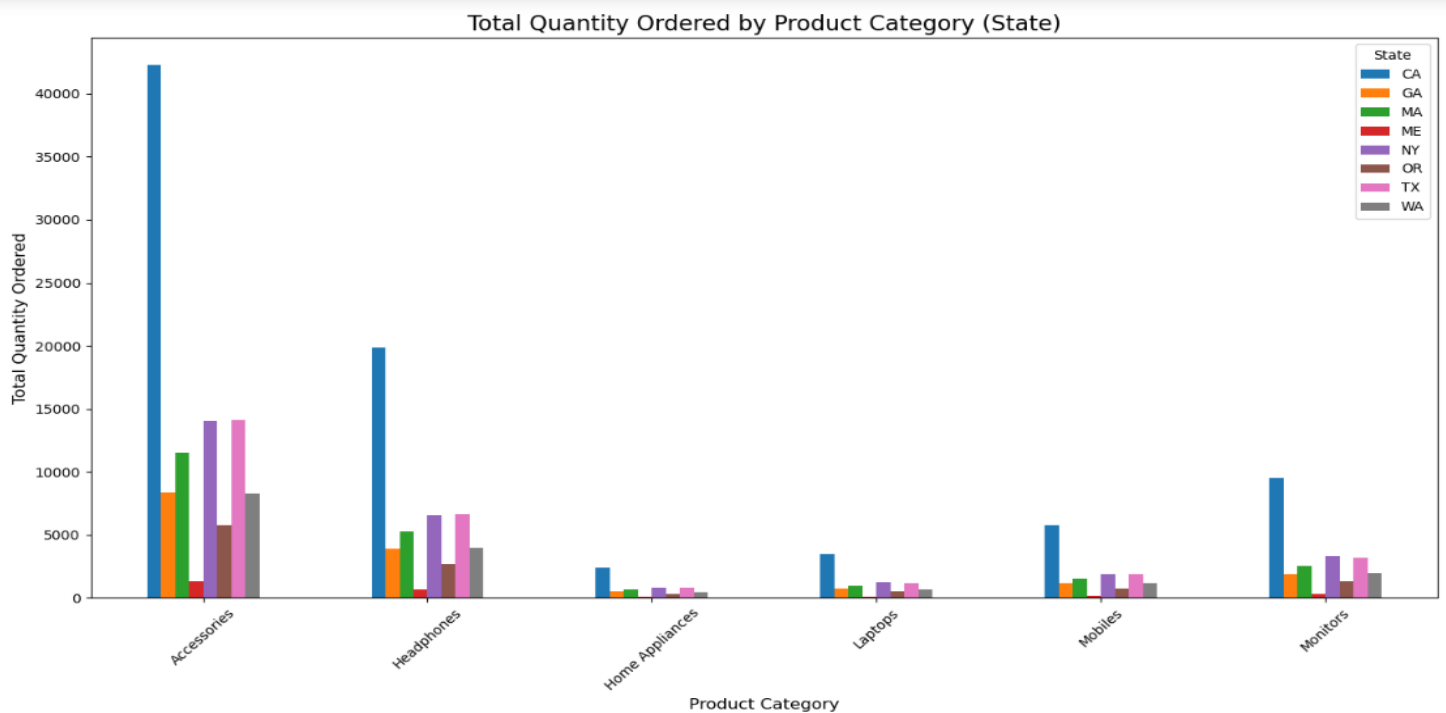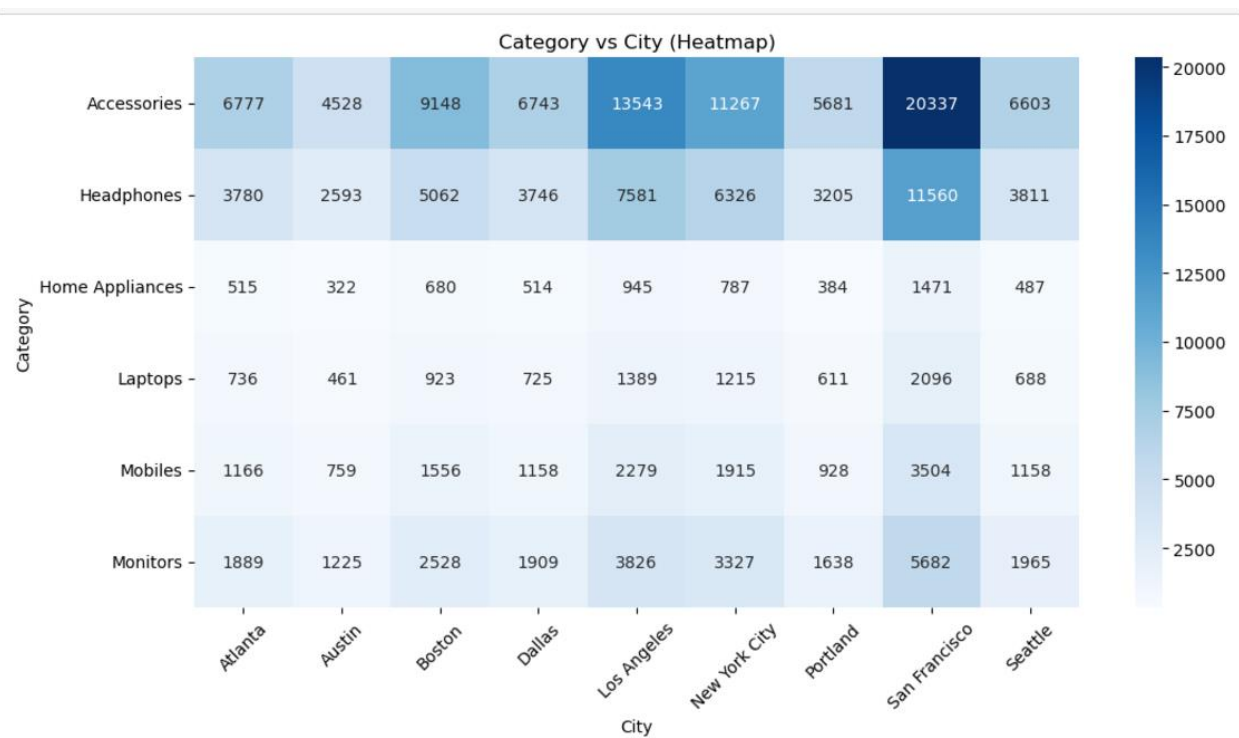
From figure (14) and (15) we can find that _Accessories and Headphones_ is the most popular categories and the staties _CA , NY and TX_ is the states with the most sales

Total Quantity Ordered by Product Category (City)

Category vs State (Heatmap)

Category	CA	GA	MA	ME	NY	OR	TX	WA
Accessories	33880	6777	9148	1095	11267	4586	11271	6603
Headphones	19141	3780	5062	656	6326	2549	6339	3811
Home Appliances	2416	515	680	78	787	306	836	487
Laptops	3485	736	923	116	1215	495	1186	688
Mobiles	5783	1166	1556	173	1915	755	1917	1158
Monitors	9508	1889	2528	333	3327	1305	3134	1965

As shown in figure (16) and (17) the most popular categories are _Accessories and Headphones_ and the cities that have most sales are _San Francisco and Los Angeles and New York City_