

## **\*\*Sales Data Analysis\*\***

This repository contains Python code for analyzing sales data. The code performs various operations such as data cleaning, manipulation, visualization, and analysis on sales data.

### **\*\*File Structure\*\***

sales\_analysis.ipynb: Jupyter Notebook containing the Python code for analyzing sales data.  
all\_data.csv: CSV file containing consolidated sales data after data cleaning and manipulation.

### **\*\*Dependencies\*\***

Python  
pandas  
matplotlib  
numpy

### **\*\*Code Overview\*\***

#### **Data Preparation**

Reading Files: The code reads multiple CSV files containing sales data from a specified directory.

Concatenating Data: It combines all the monthly sales data into a single DataFrame.

Cleaning Data: It handles missing values and removes irrelevant rows.

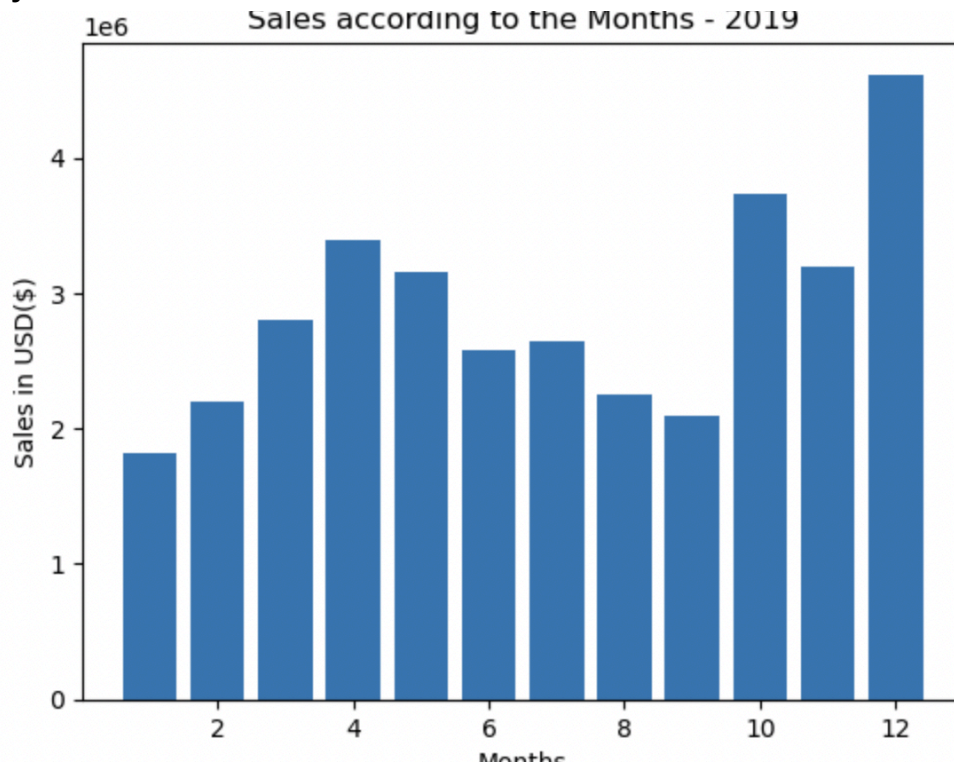
```
[169]: nan_df = all_data[all_data.isna().any(axis=1)]
display(nan_df.head())

all_data = all_data.dropna(how='all')
all_data.head()
```

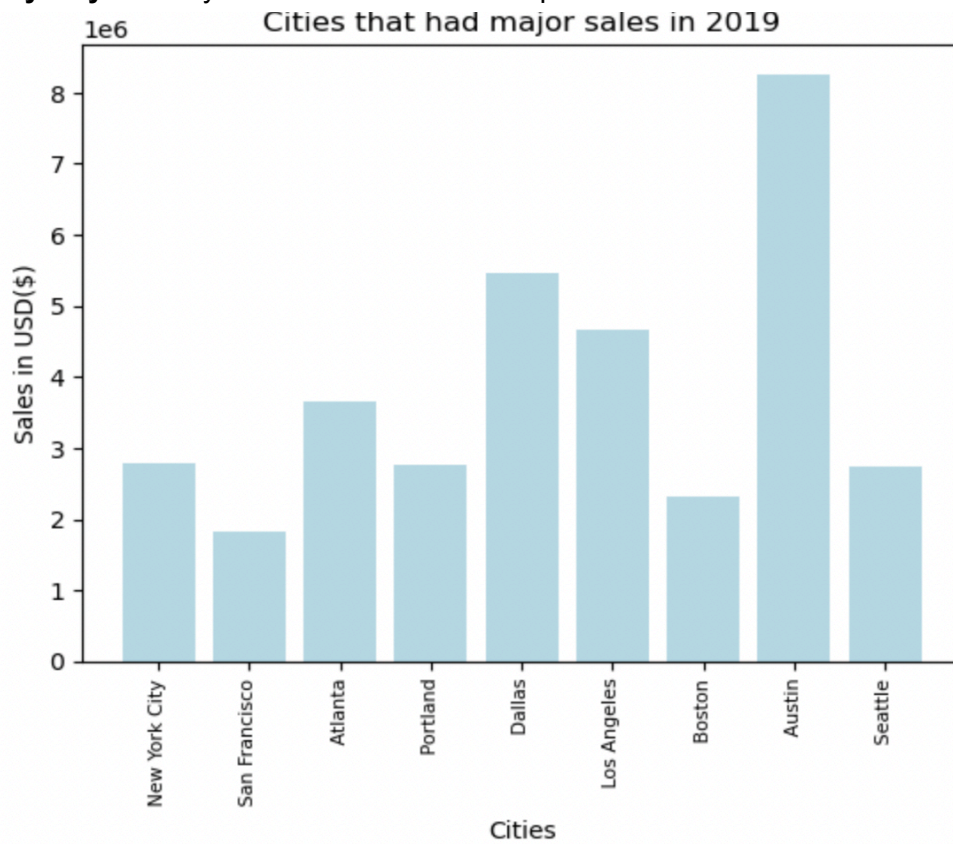
	Order ID	Product	Quantity Ordered	Price Each	Order Date	Purchase Address	Month	Sales	Hour
0	295665	Macbook Pro Laptop	1	1700.00	2019-12-30 00:01:00	136 Church St, New York City, NY 10001	12	1700.00	0
1	295666	LG Washing Machine	1	600.00	2019-12-29 07:03:00	562 2nd St, New York City, NY 10001	12	600.00	7
2	295667	USB-C Charging Cable	1	11.95	2019-12-12 18:21:00	277 Main St, New York City, NY 10001	12	11.95	18
3	295668	27in FHD Monitor	1	149.99	2019-12-22 15:13:00	410 6th St, San Francisco, CA 94016	12	149.99	15
4	295669	USB-C Charging Cable	1	11.95	2019-12-18 12:38:00	43 Hill St, Atlanta, GA 30301	12	11.95	12

## Data Analysis and Visualization

**Monthly Sales:** It calculates and visualizes sales trends over the months.



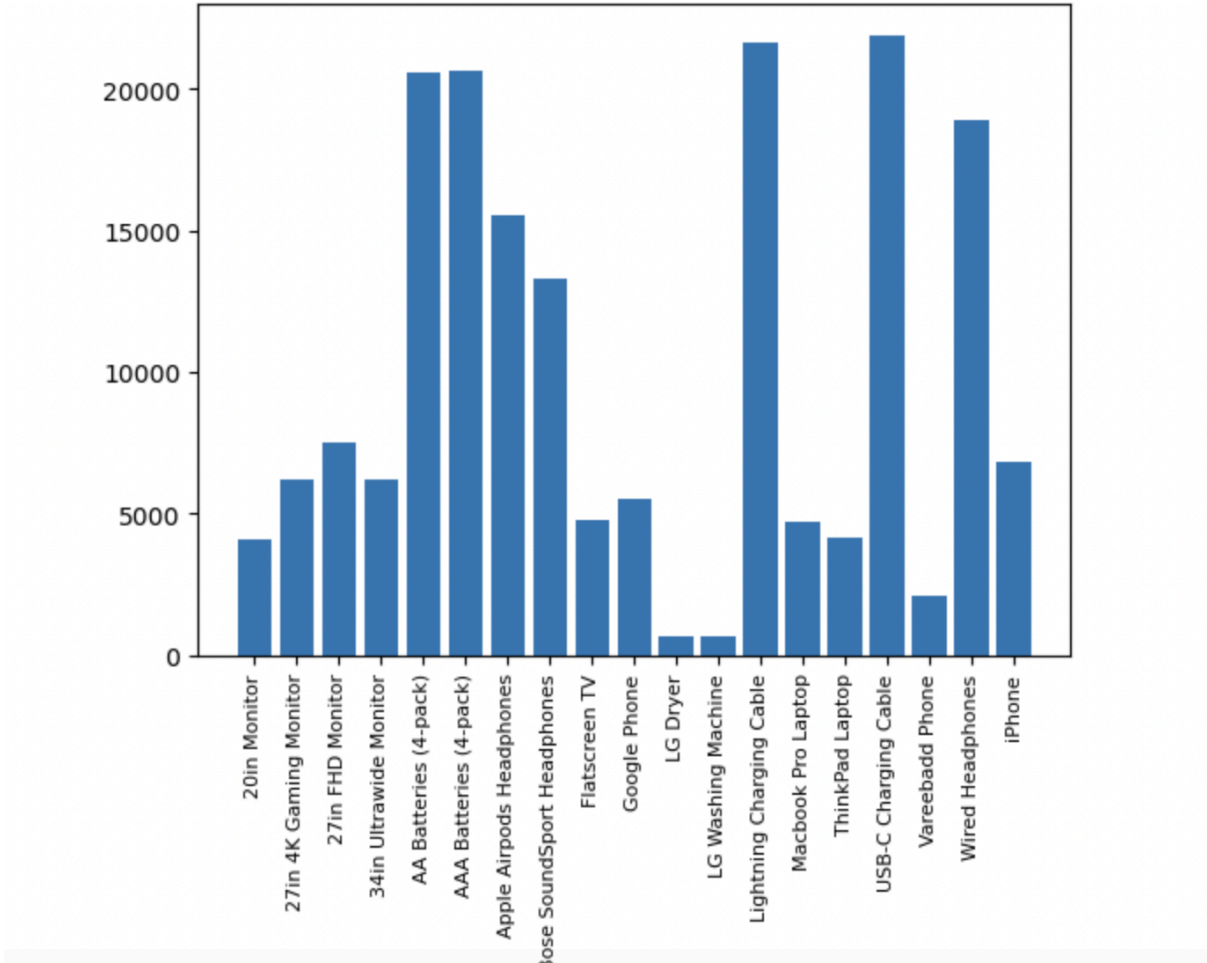
**Sales by City:** It analyzes and visualizes sales performance across different cities.



**Best Time to Advertise:** It determines the best time to advertise products based on order frequency.



**Product Associations:** It identifies the most frequently sold product combinations.



## Results

Various plots and insights are provided based on the analysis, such as monthly sales trends, sales by city, best advertising time, and popular product combinations.

