

Project Report

AFAME TECHNOLOGIES

DATA ANALYSIS ON E-COMMERCE DATASET

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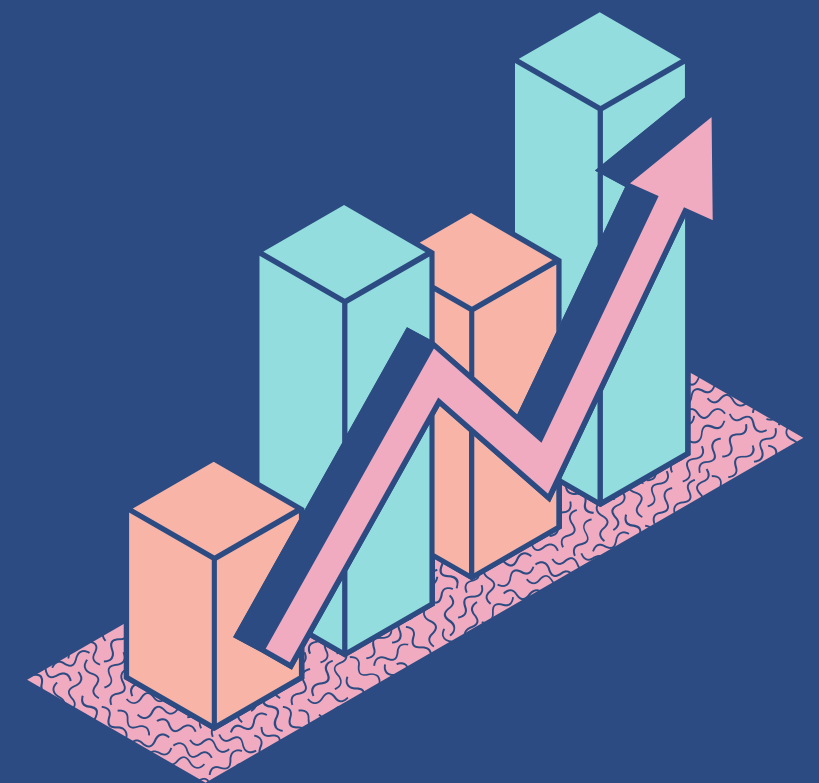
Introduction to Afame Technologies

Afame Technologies stands as a beacon in the digital landscape, offering a comprehensive suite of services tailored to meet the diverse needs of businesses. Specializing in web development, digital marketing, and strategic consulting, Afame Technologies is committed to delivering cutting-edge solutions that drive success in the digital realm.

Afame Technologies envisions a future where businesses of all sizes thrive in the digital ecosystem. Their vision is to be the catalyst for this transformation, empowering our clients to reach new heights of success through technology, innovation, and strategic guidance.

Importance of Data Analysis for Business Growth:

Data analysis is vital for business growth as it provides actionable insights, allowing informed decision-making and strategic planning. By leveraging data effectively, businesses can identify opportunities, optimize operations, and gain a competitive edge in today's dynamic market landscape.



Goals and Objectives

Project Goals:

Utilize sales data analysis to extract valuable insights, including patterns, best-selling items, and revenue indicators, to facilitate data-driven decision-making for business enhancement.

Project Objectives:

1. **Data Exploration:** Extract insights from a sales dataset, focusing on total sales and revenue measures.
2. **Product Analysis:** Identify top-selling items and their impact on revenue.
3. **Trend Identification:** Analyze sales trends over time to uncover patterns and fluctuations.
4. **Visualization:** Present findings through visualizations for clear communication.
5. **Recommendations:** Provide data-driven suggestions for improving sales tactics and strategy optimization.



About the Data

Dataset Link:

https://drive.google.com/drive/folders/1SBScS_ixyyh4VtI3DaCbmgvCflgddyJv

Data Summary:

- Total Entries: 51,290 rows and 24 columns
- Date Columns: 'Order Date' and 'Ship Date' converted to datetime format.
- Missing Values: 'Postal Code' column has 41,296 duplicate values.
- Data Types:
 - Integer: 2 columns
 - Float: 5 columns
 - Datetime: 2 columns
 - Object: 15 columns

This summary provides a snapshot of the dataset after preprocessing, highlighting key statistics and data types essential for further analysis and decision-making.

Data Description

The E-commerce dataset in the US Superstore Dataset catalogues unique orders, detailing order IDs, dates, shipping information, customer demographics, product details, and financial metrics..

Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	City	State	Country	Postal Code	Market	Region	Product ID
32298	CA-2012-124891	7/31/2012	7/31/2012	Same Day	RH-19495	Rick Hansen	Consumer	New York City	New York	United States	10024	US	East	TEC-AC-10003033
26341	IN-2013-77878	2/5/2013	2/7/2013	Second Class	JR-16210	Justin Ritter	Corporate	Wollongong	New South Wales	Australia		APAC	Oceania	FUR-CH-10003950
25330	IN-2013-71249	10/17/2013	10/18/2013	First Class	CR-12730	Craig Reiter	Consumer	Brisbane	Queensland	Australia		APAC	Oceania	TEC-PH-10004664
13524	ES-2013-1579342	1/28/2013	1/30/2013	First Class	KM-16375	Katherine Murray	Home Office	Berlin	Berlin	Germany		EU	Central	TEC-PH-10004583
47221	SG-2013-4320	11/5/2013	11/6/2013	Same Day	RH-9495	Rick Hansen	Consumer	Dakar	Dakar	Senegal		Africa	Africa	TEC-SHA-10000501
22732	IN-2013-42360	6/28/2013	7/1/2013	Second Class	JM-15655	Jim Mitchum	Corporate	Sydney	New South Wales	Australia		APAC	Oceania	TEC-PH-10000030
30570	IN-2011-81826	11/7/2011	11/9/2011	First Class	TS-21340	Toby Swindell	Consumer	Porirua	Wellington	New Zealand		APAC	Oceania	FUR-CH-10004050
31192	IN-2012-86369	4/14/2012	4/18/2012	Standard Class	MB-18085	Mick Brown	Consumer	Hamilton	Waikato	New Zealand		APAC	Oceania	FUR-TA-10002958
40155	CA-2014-135909	10/14/2014	10/21/2014	Standard Class	JW-15220	Jane Waco	Corporate	Sacramento	California	United States	95823	US	West	OFF-BI-10003527
40936	CA-2012-116638	1/28/2012	1/31/2012	Second Class	JH-15985	Joseph Holt	Consumer	Concord	North Carolina	United States	28027	US	South	FUR-TA-10000198
34577	CA-2011-102988	4/5/2011	4/9/2011	Second Class	GM-14695	Greg Maxwell	Corporate	Alexandria	Virginia	United States	22304	US	South	OFF-SU-10002881
28879	ID-2012-28402	4/19/2012	4/22/2012	First Class	AJ-10780	Anthony Jacobs	Corporate	Kabul	Kabul	Afghanistan		APAC	Central Asia	FUR-TA-10000000
45794	SA-2011-1830	12/27/2011	12/29/2011	Second Class	MM-7260	Magdelene Mors	Consumer	Jizan	Jizan	Saudi Arabia		EMEA	EMEA	TEC-CIS-10000017
4132	MX-2012-130015	11/13/2012	11/13/2012	Same Day	VF-21715	Vicky Freymann	Home Office	Toledo	Parana	Brazil		LATAM	South	FUR-CH-10002033
27704	IN-2013-73951	6/6/2013	6/8/2013	Second Class	PF-19120	Peter Fuller	Consumer	Mudanjiang	Heilongjiang	China		APAC	North Asia	OFF-AP-10003500
13779	ES-2014-5099955	7/31/2014	8/3/2014	Second Class	BP-11185	Ben Peterman	Corporate	Paris	Ile-de-France	France		EU	Central	OFF-AP-10000423
36178	CA-2014-143567	11/3/2014	11/6/2014	Second Class	TB-21175	Thomas Boland	Corporate	Henderson	Kentucky	United States	42420	US	South	TEC-AC-10004145
12069	ES-2014-1651774	9/8/2014	9/14/2014	Standard Class	PJ-18835	Patrick Jones	Corporate	Prato	Tuscany	Italy		EU	South	OFF-AP-10004512
22096	IN-2014-11763	1/31/2014	2/1/2014	First Class	JS-15685	Jim Sink	Corporate	Townsville	Queensland	Australia		APAC	Oceania	TEC-CO-10000865
49463	TZ-2014-8190	12/5/2014	12/7/2014	Second Class	RH-9555	Ritsa Hightower	Consumer	Uvinza	Kigoma	Tanzania		Africa	Africa	OFF-KIT-10004058
46630	PL-2012-7820	8/8/2012	8/10/2012	First Class	AB-600	Ann Blume	Corporate	Bytom	Silesia	Poland		EMEA	EMEA	FUR-HON-10000221
31784	CA-2011-154627	10/29/2011	10/31/2011	First Class	SA-20830	Sue Ann Reed	Consumer	Chicago	Illinois	United States	60610	US	Central	TEC-PH-10001363
21586	IN-2011-44803	5/2/2011	5/3/2011	First Class	JK-15325	Jason Klamczynsk	Corporate	Suzhou	Anhui	China		APAC	North Asia	FUR-CH-10000027
13528	ES-2013-2860574	2/27/2013	3/1/2013	Second Class	LB-16795	Laurel Beltran	Home Office	Edinburgh	Scotland	United Kingdom		EU	North	OFF-AP-10003590
1570	US-2014-133193	7/31/2014	8/1/2014	First Class	NP-18325	Naresj Patel	Consumer	Juárez	Chihuahua	Mexico		LATAM	North	TEC-PH-10004182
3484	MX-2014-165309	9/5/2014	9/8/2014	First Class	VD-21670	Valerie Dominguez	Consumer	Soyapango	San Salvador	El Salvador		LATAM	Central	FUR-TA-10002827

Total Sales

The total sales calculated for all entries were equal to:

Total Sales: \$ 12642501.909880001

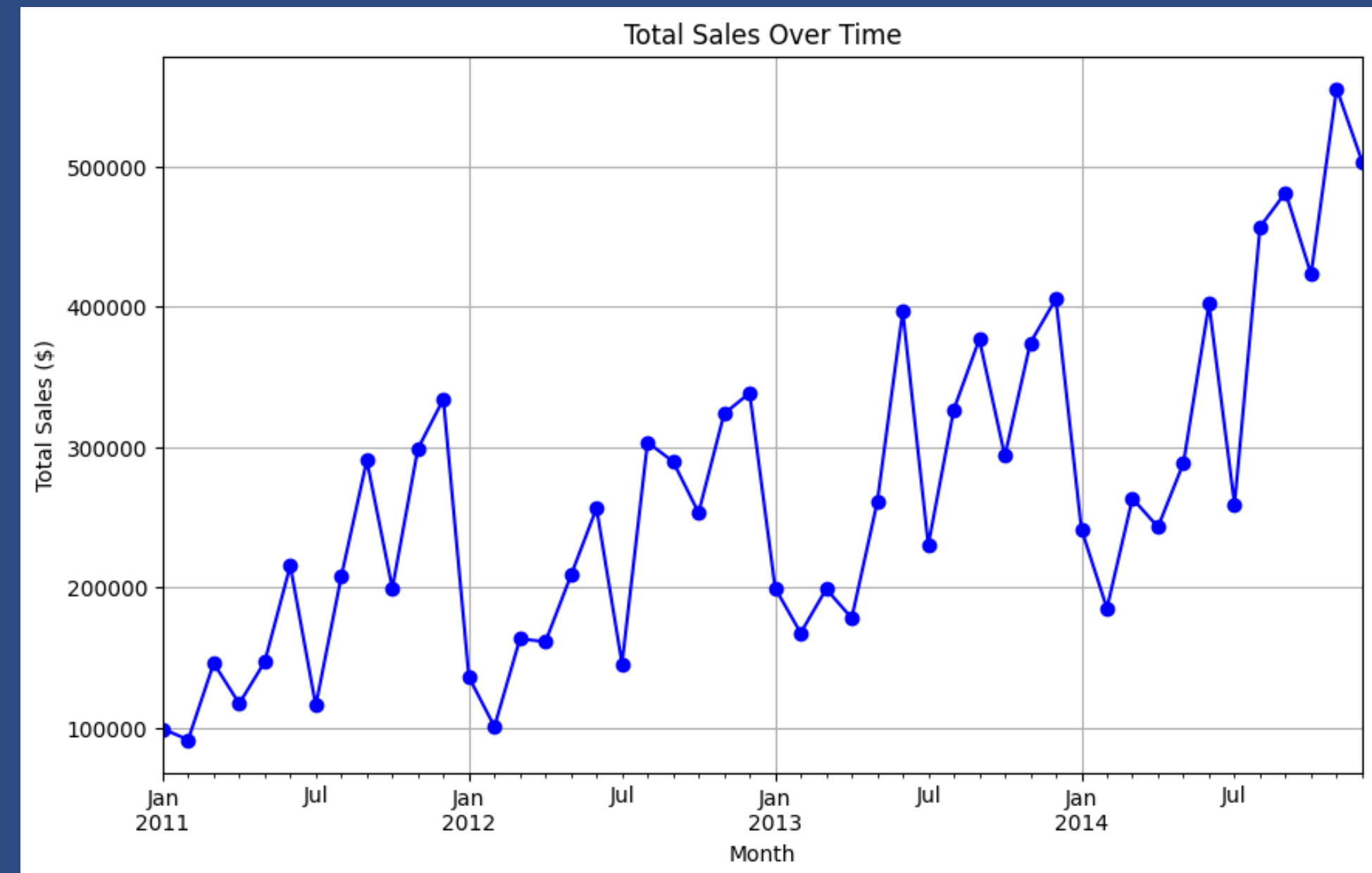
```
# Compute Total Sales
total_sales = df['Sales'].sum()
print("Total Sales: $", total_sales)
```

✓ 0.0s

Total Sales: \$ 12642501.909880001

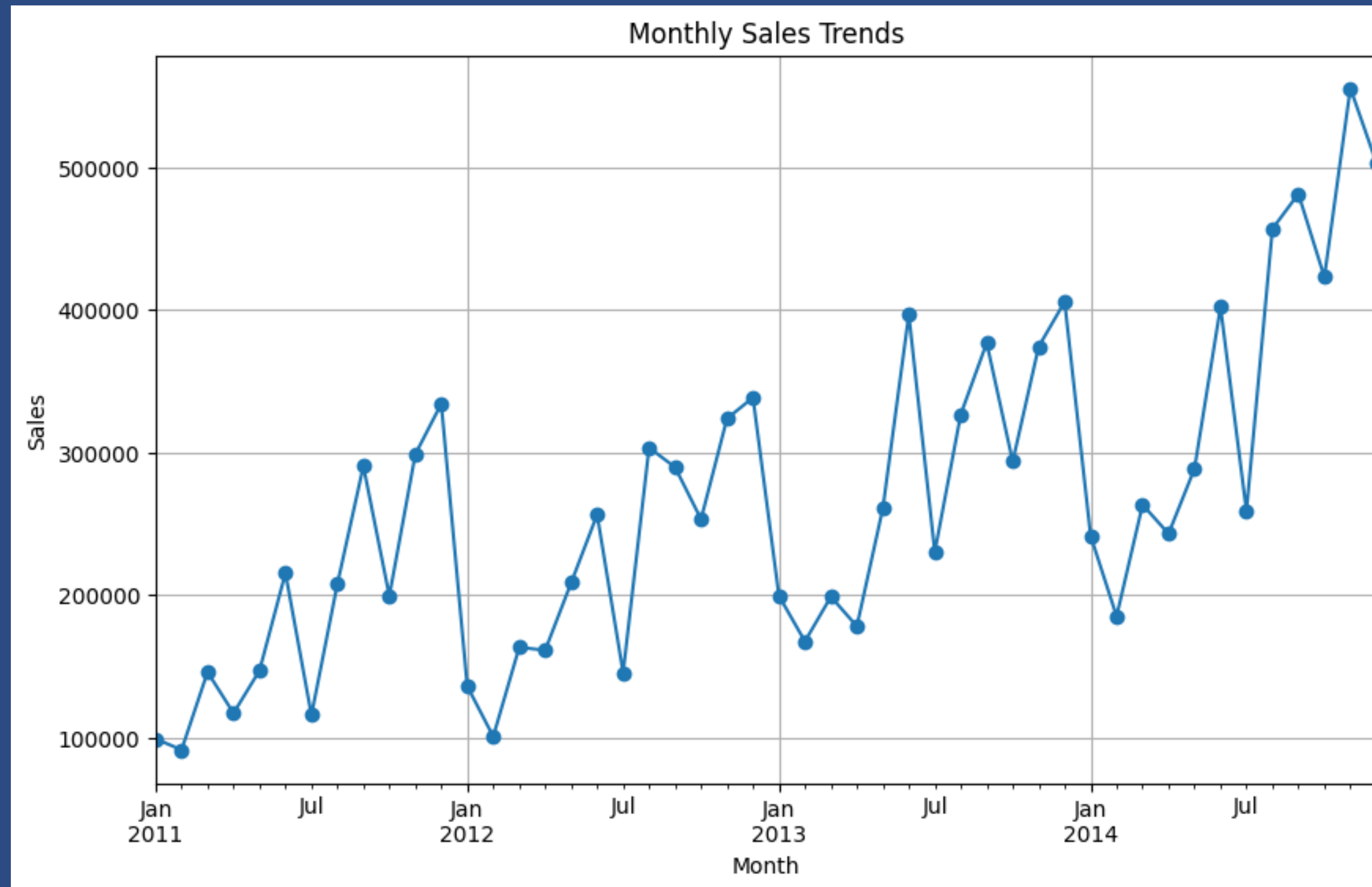
```
# Compute Total Sales Over Time
total_sales_over_time = df.groupby(df['Order Date'].dt.to_period('M'))['Sales'].sum()

# Plot Total Sales Over Time
plt.figure(figsize=(10, 6))
total_sales_over_time.plot(kind='line', marker='o', color='blue')
plt.title('Total Sales Over Time')
plt.xlabel('Month')
plt.ylabel('Total Sales ($)')
plt.grid(True)
plt.show()
```



Analyze Sales Trends over Time

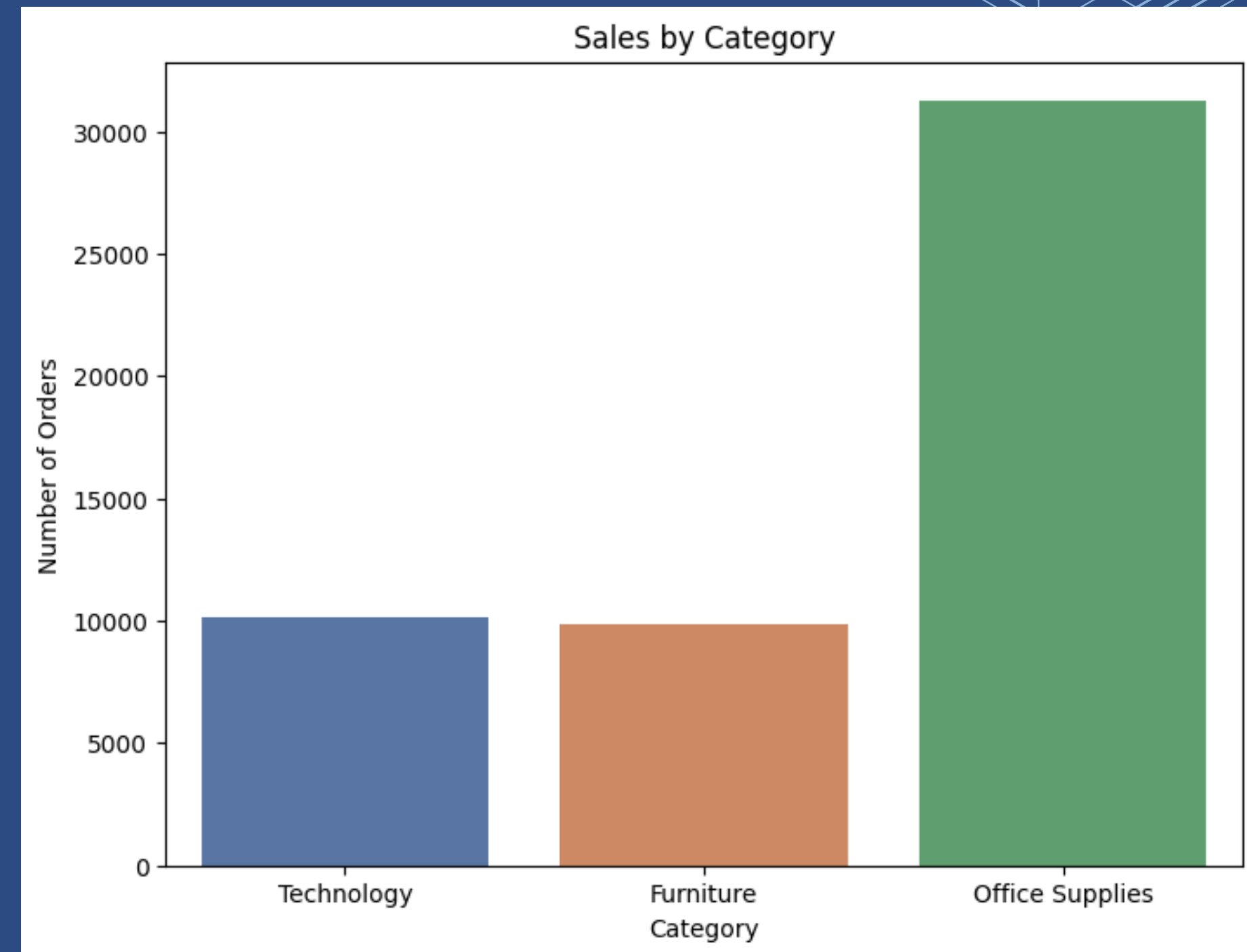
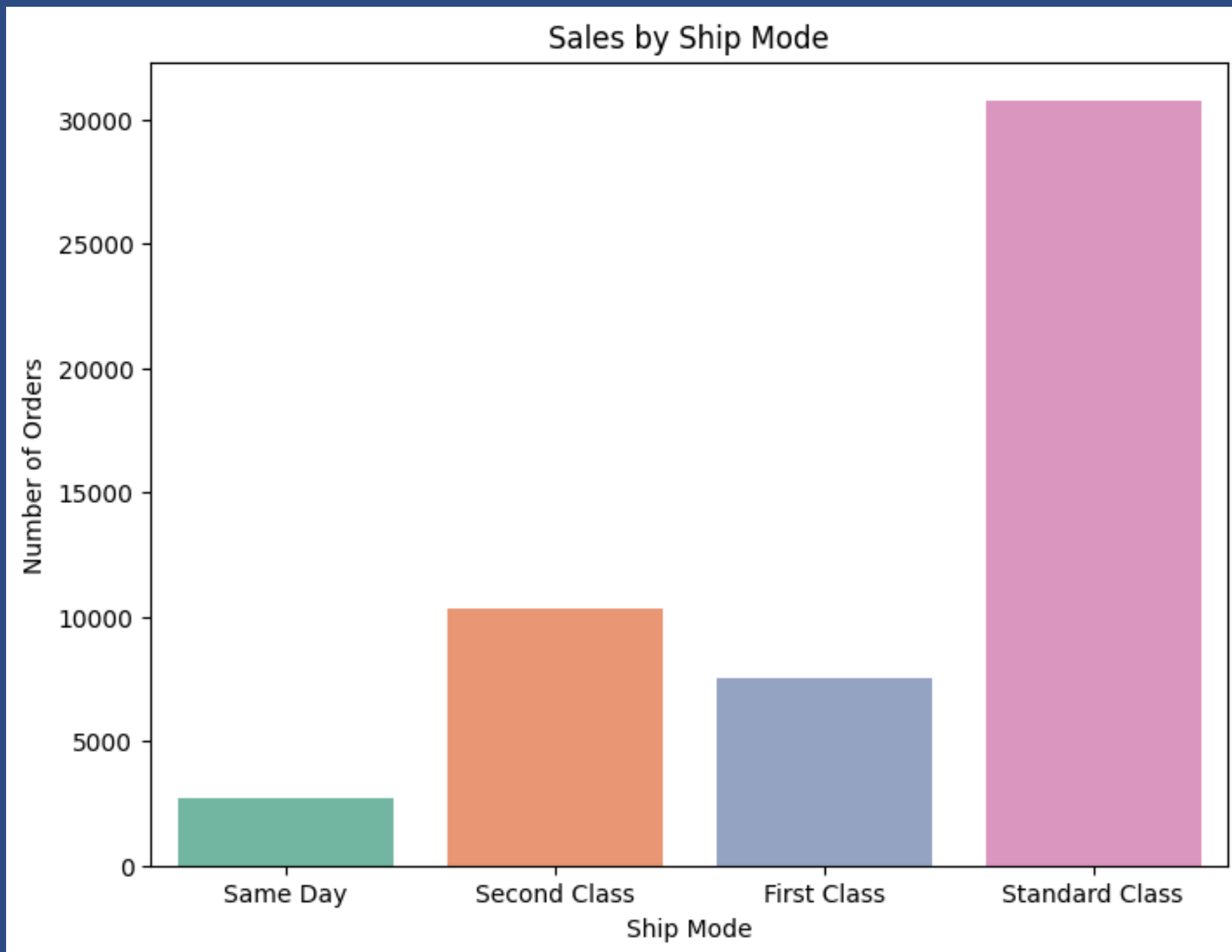
The sales data indicates a positive trend over the past five years. There's a seasonal peak in the fourth quarter, with sales consistently rising throughout the year.



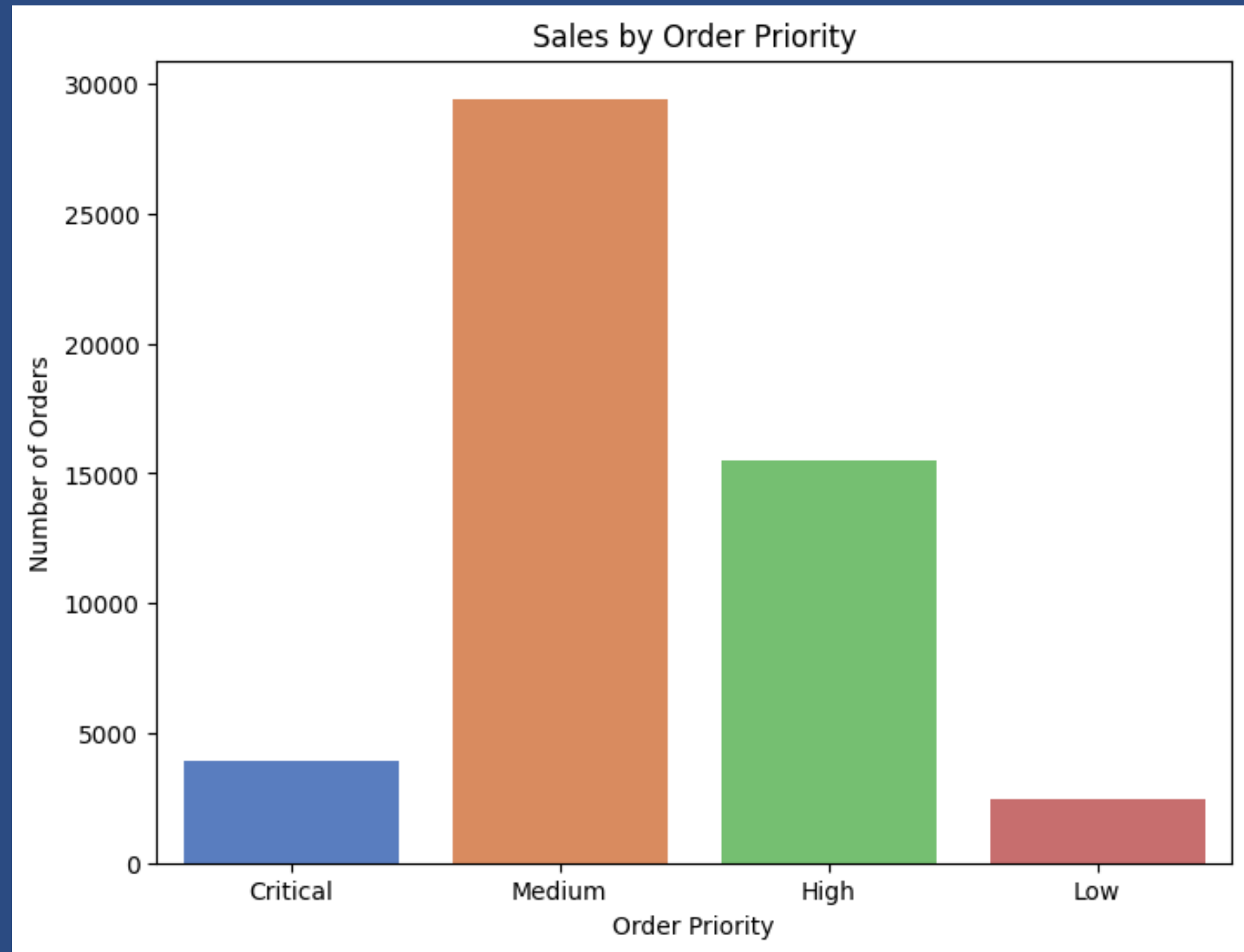
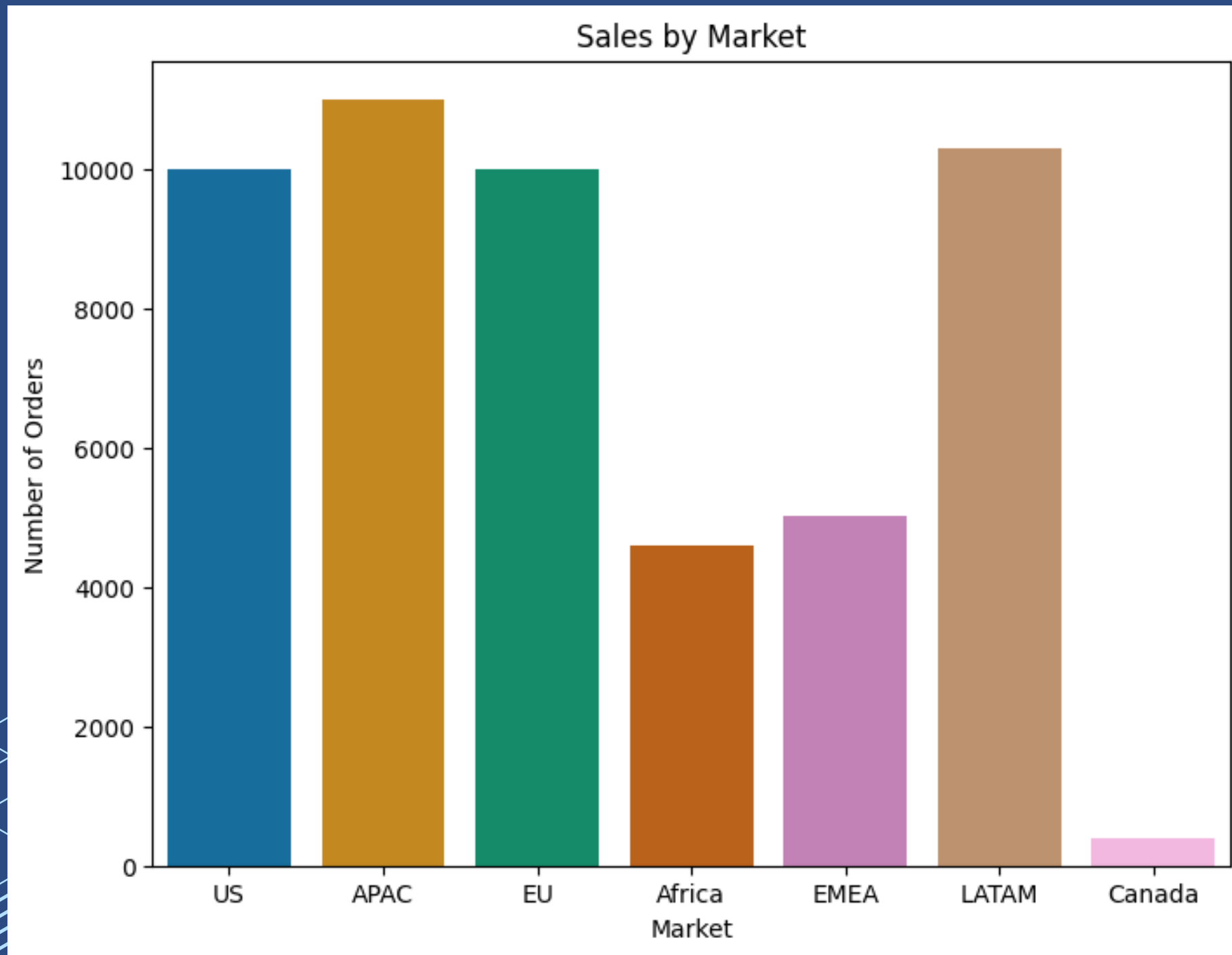
Determine the best-selling products

Product Name	Total Sales
Apple Smart Phone, Full Size	\$86,935.7786
Cisco Smart Phone, Full Size	\$76,441.5306
Motorola Smart Phone, Full Size	\$73,156.3030
Nokia Smart Phone, Full Size	\$71,904.5555
Canon imageCLASS 2200 Advanced Copier	\$61,599.8240
Hon Executive Leather Armchair, Adjustable	\$58,193.4841
Office Star Executive Leather Armchair, Adjustable	\$50,661.6840
Harbour Creations Executive Leather Armchair, Adjustable	\$50,121.5160
Samsung Smart Phone, Cordless	\$48,653.4600
Nokia Smart Phone, with Caller ID	\$47,877.7857

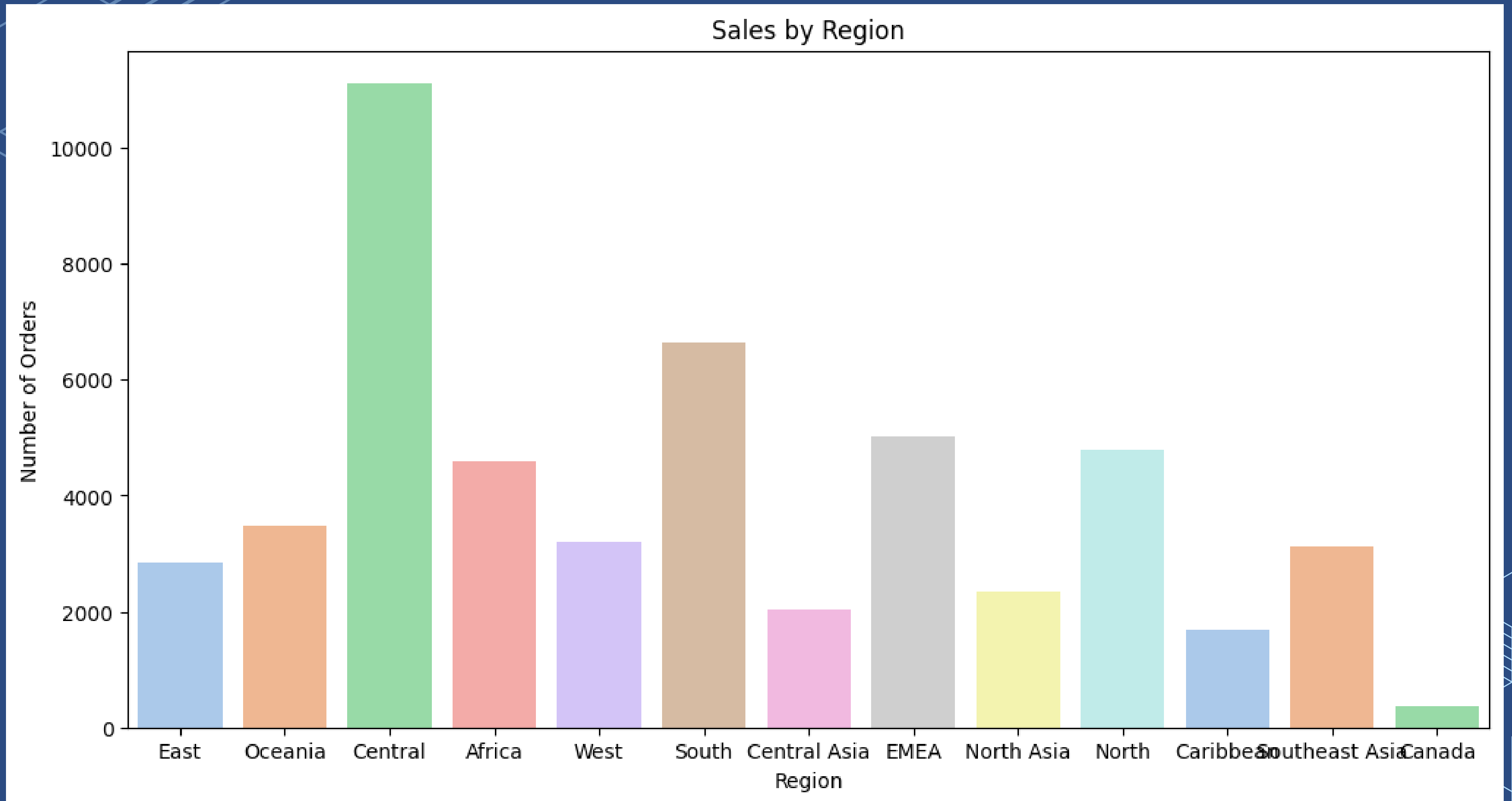
Build Visualizations



Build Visualizations



Build Visualizations



Key Takeaways

- **Total Sales:** The total sales amount for the dataset is approximately \$12,642,501.91, indicating significant revenue generation.
- **Sales Trends Over Time:** Fluctuations in sales over the months suggest potential seasonality or trends. Further analysis can help identify patterns and inform business strategies.
- **Best-Selling Products:** The top-selling products include various smart phones, office furniture, and copiers. Understanding the performance of these products can guide inventory management and marketing efforts.
- **Ship Mode:** Standard Class is the most common shipping mode, followed by Second Class and First Class.
- **Region:** Sales are distributed across different regions, with Central, South, and EMEA regions having relatively higher sales counts.
- **Category:** Office Supplies account for the majority of sales, followed by Technology and Furniture.
- **Market:** Sales are spread across different markets, with APAC, LATAM, and EU being the prominent ones.
- **Order Priority:** Medium and High priority orders are more common compared to Critical and Low priority orders.

Thank
you

