Exploratory Data Analysis (EDA) – Diagnostic Analysis

Monthly Sales Growth Analysis

What is the percentage growth in total monthly sales over time, and how does it vary across different months?

1. Overview

This analysis investigates the monthly progression of total sales, focusing on identifying trends, fluctuations, and growth patterns across time. By calculating the percentage growth rate of sales month-over-month, we gain insights into how well the business is scaling and where seasonal or operational factors may be influencing performance. A dual-axis visualization enhances interpretability by combining total sales (bar chart) with monthly growth rates (line chart) to tell a cohesive story of revenue dynamics.

2. Goal

- Evaluate how total sales evolve across different months.
- Quantify monthly sales performance through growth rates.
- Identify high-growth and low-growth periods to spot seasonal or strategic impacts.
- Provide visual insights that support better decision-making and business forecasting.

3. Business Challenge

- Inconsistent sales performance: Management lacks clarity on why some months underperform while others spike.
- Uncertainty in strategy execution: It's unclear whether recent sales strategies are yielding consistent month-over-month improvements.
- Limited visibility into growth dynamics: Without quantifying growth, it's hard to identify whether revenue growth is sustainable or driven by short-term factors.

4. Methodology

- Clean and aggregate data to ensure accurate insights and avoid distorted growth metrics.

- Perform diagnostic analysis on total monthly sales using historical data.
- Compute and visualize month-over-month growth rates to identify patterns and anomalies.
- Create a dual-axis plot to present both sales volume and growth trajectory in a single, intuitive visualization.
- Translate findings into strategic recommendations—highlighting months with explosive or declining growth for targeted business actions.

Import necessary libraries

In [9]:
```
import pandas as pd
import os
import glob
```

Combine the sales data from all months into a single consolidated CSV file

In [11]:
```
folder_path = r"C:\Monthly_Sales"

# Retrieve all CSV files from the folder using glob
all_files = glob.glob(os.path.join(folder_path, "*.csv"))

# All CSV files combined as one DataFrame
all_data = pd.concat([pd.read_csv(file) for file in all_files], ignore_index=True)

# Merged DataFrame saved into a new CSV
output_file = os.path.join(folder_path, "all_data.csv")
all_data.to_csv(output_file, index=False)

print("All files integrated into:", output_file)
```

```
All files integrated into: C:\Monthly_Sales\all_data.csv
```

Load the updated DataFrame

In [13]:
```
# Skip Blank Rows if present in the dataset

df = pd.read_csv(r'C:\Monthly_Sales\all_data.csv', skip_blank_lines=True)
df.head()
```

Out[13]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address
0	175667	iPhone	1	700.0	04/24/24 19:12	135 Meadow St, Boston, MA 02215
1	175668	AA Batteries (4-pack)	1	5.84	04/20/24 13:45	592 4th St, San Francisco, CA 94016
2	175669	AA Batteries (4-pack)	1	5.84	04/28/24 09:17	632 Park St, Dallas, TX 75001
3	175670	AA Batteries (4-pack)	2	5.84	04/23/24 14:06	131 Pine St, San Francisco, CA 94016
4	175671	Samsung Odyssey Monitor	1	409.99	04/23/24 12:13	836 Forest St, Boston, MA 02215

In [14]:
```
df.shape
```

Out[14]:
```
(8108959, 6)
```

Data Cleaning Process

Thoroughly clean and standardize the data to eliminate errors, ensure consistency, and build a solid foundation for meaningful insights.

Find and remove rows with NaN values

In [17]:
```
df.isna().sum()
```

Out[17]:
```
Order ID            21056
Product Name        21056
Units Purchased     21058
Unit Price          21058
Order Date          21059
Delivery Address    21060
dtype: int64
```

In [18]:
```
# If Nan value is present in Order ID and Unit Purchased, it will be impossible to
# Therefore, drop Nan values in Order ID and Units Purchased.

df.dropna(subset=['Order ID', 'Units Purchased'], inplace=True)
```

In [19]:
```
# Check if Nan value is present

df.isna().sum()
```

Out[19]:
```
Order ID            0
Product Name        0
Units Purchased     0
Unit Price          0
Order Date          1
Delivery Address    2
dtype: int64
```

In [20]:
```
# Further check if any NaN values or blank rows are present

blank_rows_na = df[df.isnull().any(axis=1)]
blank_rows_na
```

Out[20]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address
2195228	Charging Cable	1	14.95	05/24/24 07:04	852 Hickory St, San Francisco, CA 94016	NaN
3001506	150766	iPhone	1	7	NaN	NaN

Find and remove rows with duplicate values

In [22]:
```
# Find duplicate values

df.duplicated()
```

Out[22]:
```
0          False
1          False
2          False
3          False
4          False
           ...
8108954     True
8108955     True
8108956     True
8108957     True
8108958     True
Length: 8087901, dtype: bool
```

In [23]:
```
# Remove duplicated values

df.drop_duplicates(inplace = True)
```

In [24]:
```
# Check again for duplicated values

df.duplicated()
```

Out[24]:
```
0          False
1          False
2          False
3          False
4          False
           ...
172530     False
2195228    False
3001506    False
6370083    False
6403571    False
Length: 171546, dtype: bool
```

Verify and fix incorrect data types in the dataset

In [26]:
```
# check for data types

df.dtypes
```

Out[26]:
```
Order ID            object
Product Name        object
Units Purchased     object
Unit Price          object
Order Date          object
Delivery Address    object
dtype: object
```

Fix incorrect data types

In [28]:
```
df['Order Date'] = pd.to_datetime(df['Order Date'], format='%m/%d/%y %H:%M', errors

df['Units Purchased'] = pd. to_numeric(df['Units Purchased'], errors='coerce')

df['Unit Price'] = pd. to_numeric(df['Unit Price'], errors='coerce')
```

In [29]:
```
# Verify the presence of NaN values remaining in the columns as a result of using e

df.isna().sum()
```

Out[29]:
```
Order ID            0
Product Name        0
Units Purchased     1
Unit Price          2
Order Date          3
Delivery Address    2
dtype: int64
```

In [30]:
```
df = df.dropna()
```

Change the data type to optimize memory usage (Optional)

In [32]:
```
df['Order ID'] = pd.to_numeric(df['Order ID'], downcast='integer')
df['Product Name'] = df['Product Name'].astype('category')
```

```
df['Units Purchased'] = df['Units Purchased']. astype('int8')
df['Unit Price'] = pd.to_numeric(df['Unit Price'], downcast='float')
df['Delivery Address'] = df['Delivery Address'].astype('category')
```

Expand the dataset with supplementary columns

Add month column

In [35]:
```
df['Month'] = df['Order Date'].dt.month
df
```

Out[35]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month
0	175667	iPhone	1	700.00000	2024-04-24 19:12:00	135 Meadow St, Boston, MA 02215	4
1	175668	AA Batteries (4-pack)	1	5.84000	2024-04-20 13:45:00	592 4th St, San Francisco, CA 94016	4
2	175669	AA Batteries (4-pack)	1	5.84000	2024-04-28 09:17:00	632 Park St, Dallas, TX 75001	4
3	175670	AA Batteries (4-pack)	2	5.84000	2024-04-23 14:06:00	131 Pine St, San Francisco, CA 94016	4
4	175671	Samsung Odyssey Monitor	1	409.98999	2024-04-23 12:13:00	836 Forest St, Boston, MA 02215	4
...	...	...	...	...	...	...	...
172528	248378	Google Phone	1	600.00000	2024-09-02 08:53:00	668 Wilson St, Boston, MA 02215	9
172529	248379	Alienware Monitor	1	400.98999	2024-09-04 22:58:00	466 2nd St, Boston, MA 02215	9
172530	248380	AAA Batteries (4-pack)	1	4.99000	2024-09-04 13:09:00	133 Walnut St, Seattle, WA 98101	9
6370083	252436	Apple Airpods Headphones	1	150.00000	2024-10-14 16:44:00	740 Dogwood St, Boston, \rA 02215	10
6403571	233092	USB-C Charging Cable	1	11.95000	2024-08-28 12:39:00	740 Dogwood St, Boston, \rA 02215	8

171543 rows × 7 columns

In [36]:
```
df['Month Name'] = df['Order Date'].dt.strftime('%B')
df
```

Out[36]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	M N
0	175667	iPhone	1	700.00000	2024-04-24 19:12:00	135 Meadow St, Boston, MA 02215	4	
1	175668	AA Batteries (4-pack)	1	5.84000	2024-04-20 13:45:00	592 4th St, San Francisco, CA 94016	4	
2	175669	AA Batteries (4-pack)	1	5.84000	2024-04-28 09:17:00	632 Park St, Dallas, TX 75001	4	
3	175670	AA Batteries (4-pack)	2	5.84000	2024-04-23 14:06:00	131 Pine St, San Francisco, CA 94016	4	
4	175671	Samsung Odyssey Monitor	1	409.98999	2024-04-23 12:13:00	836 Forest St, Boston, MA 02215	4	
...	...	...	...	...	...	...	...	
172528	248378	Google Phone	1	600.00000	2024-09-02 08:53:00	668 Wilson St, Boston, MA 02215	9	Septer
172529	248379	Alienware Monitor	1	400.98999	2024-09-04 22:58:00	466 2nd St, Boston, MA 02215	9	Septer
172530	248380	AAA Batteries (4-pack)	1	4.99000	2024-09-04 13:09:00	133 Walnut St, Seattle, WA 98101	9	Septer
6370083	252436	Apple Airpods Headphones	1	150.00000	2024-10-14 16:44:00	740 Dogwood St, Boston, \rA 02215	10	Oct

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	M N
6403571	233092	USB-C Charging Cable	1	11.95000	2024-08-28 12:39:00	740 Dogwood St, Boston, \rA 02215	8	Au

171543 rows × 8 columns

Add week day column

In [38]:
```
df['Day of Week'] = df['Order Date'].dt.strftime('%a')
df
```

Out[38]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	M N
0	175667	iPhone	1	700.00000	2024-04-24 19:12:00	135 Meadow St, Boston, MA 02215	4	
1	175668	AA Batteries (4-pack)	1	5.84000	2024-04-20 13:45:00	592 4th St, San Francisco, CA 94016	4	
2	175669	AA Batteries (4-pack)	1	5.84000	2024-04-28 09:17:00	632 Park St, Dallas, TX 75001	4	
3	175670	AA Batteries (4-pack)	2	5.84000	2024-04-23 14:06:00	131 Pine St, San Francisco, CA 94016	4	
4	175671	Samsung Odyssey Monitor	1	409.98999	2024-04-23 12:13:00	836 Forest St, Boston, MA 02215	4	
...	...	...	...	...	...	...	...	
172528	248378	Google Phone	1	600.00000	2024-09-02 08:53:00	668 Wilson St, Boston, MA 02215	9	Septer
172529	248379	Alienware Monitor	1	400.98999	2024-09-04 22:58:00	466 2nd St, Boston, MA 02215	9	Septer
172530	248380	AAA Batteries (4-pack)	1	4.99000	2024-09-04 13:09:00	133 Walnut St, Seattle, WA 98101	9	Septer
6370083	252436	Apple Airpods Headphones	1	150.00000	2024-10-14 16:44:00	740 Dogwood St, Boston, \rA 02215	10	Oct

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	M N
6403571	233092	USB-C Charging Cable	1	11.95000	2024-08-28 12:39:00	740 Dogwood St, Boston, \rA 02215	8	Au

171543 rows × 9 columns

Add hour column

In [40]:
```
df['Hour'] = df['Order Date'].dt.hour
df
```

Out[40]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	M N
0	175667	iPhone	1	700.00000	2024-04-24 19:12:00	135 Meadow St, Boston, MA 02215	4	
1	175668	AA Batteries (4-pack)	1	5.84000	2024-04-20 13:45:00	592 4th St, San Francisco, CA 94016	4	
2	175669	AA Batteries (4-pack)	1	5.84000	2024-04-28 09:17:00	632 Park St, Dallas, TX 75001	4	
3	175670	AA Batteries (4-pack)	2	5.84000	2024-04-23 14:06:00	131 Pine St, San Francisco, CA 94016	4	
4	175671	Samsung Odyssey Monitor	1	409.98999	2024-04-23 12:13:00	836 Forest St, Boston, MA 02215	4	
...	...	...	...	...	...	...	...	
172528	248378	Google Phone	1	600.00000	2024-09-02 08:53:00	668 Wilson St, Boston, MA 02215	9	Septer
172529	248379	Alienware Monitor	1	400.98999	2024-09-04 22:58:00	466 2nd St, Boston, MA 02215	9	Septer
172530	248380	AAA Batteries (4-pack)	1	4.99000	2024-09-04 13:09:00	133 Walnut St, Seattle, WA 98101	9	Septer
6370083	252436	Apple Airpods Headphones	1	150.00000	2024-10-14 16:44:00	740 Dogwood St, Boston, \rA 02215	10	Oct

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	M N
6403571	233092	USB-C Charging Cable	1	11.95000	2024-08-28 12:39:00	740 Dogwood St, Boston, \rA 02215	8	Au

171543 rows × 10 columns

Add city column

In [42]:
```
def city(address):
    return address.split(",")[1].strip(" ")

def state_abbrev(address):
    return address.split(",")[2].split(" ")[1]

df['City'] = df['Delivery Address'].apply(lambda x: f"{city(x)}  ({state_abbrev(x)}
df.head()
```

Out[42]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	Month Name	Day of Week
0	175667	iPhone	1	700.00000	2024-04-24 19:12:00	135 Meadow St, Boston, MA 02215	4	April	Wed
1	175668	AA Batteries (4-pack)	1	5.84000	2024-04-20 13:45:00	592 4th St, San Francisco, CA 94016	4	April	Sat
2	175669	AA Batteries (4-pack)	1	5.84000	2024-04-28 09:17:00	632 Park St, Dallas, TX 75001	4	April	Sun
3	175670	AA Batteries (4-pack)	2	5.84000	2024-04-23 14:06:00	131 Pine St, San Francisco, CA 94016	4	April	Tue
4	175671	Samsung Odyssey Monitor	1	409.98999	2024-04-23 12:13:00	836 Forest St, Boston, MA 02215	4	April	Tue

Organize Data by Order Date Chronologically and Reindex

In [44]:
```
df = df.sort_values(by = 'Order Date')
df
```

Out[44]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	Month Name
78282	160155	Alienware Monitor	1	400.989990	2024-01-01 05:04:00	765 Ridge St, Portland, OR 97035	1	January
68761	151041	AAA Batteries (4-pack)	1	4.990000	2024-01-01 05:04:00	964 Lakeview St, Atlanta, GA 30301	1	January
64303	146765	AAA Batteries (4-pack)	1	4.990000	2024-01-01 05:20:00	546 10th St, San Francisco, CA 94016	1	January
63092	145617	Amana Washing Machine	1	600.000000	2024-01-01 05:24:00	961 Meadow St, Portland, OR 97035	1	January
74502	156535	iPhone	1	700.000000	2024-01-01 05:45:00	451 Elm St, Los Angeles, CA 90001	1	January
...	...	...	...	...	...	...	...	...
44457	297748	iPhone	1	700.000000	2025-01-01 02:37:00	258 Forest St, Los Angeles, CA 90001	1	January
30663	284606	Bose SoundSport Headphones	1	99.989998	2025-01-01 02:50:00	211 Johnson St, Boston, MA 02215	1	January
49246	302330	AA Batteries (4-pack)	1	5.840000	2025-01-01 03:03:00	665 6th St, San Francisco, CA 94016	1	January
30770	284711	AA Batteries (4-pack)	1	5.840000	2025-01-01 03:19:00	250 8th St, San Francisco, CA 94016	1	January

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	Month Name
50619	303626	USB-C Charging Cable	3	11.950000	2025-01-01 04:43:00	651 Lakeview St, Dallas, TX 75001	1	January

171543 rows × 11 columns

In [45]:
```
df = df.reset_index(drop=True)
df
```

Out[45]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	Month Nam
0	160155	Alienware Monitor	1	400.989990	2024-01-01 05:04:00	765 Ridge St, Portland, OR 97035	1	Januar
1	151041	AAA Batteries (4-pack)	1	4.990000	2024-01-01 05:04:00	964 Lakeview St, Atlanta, GA 30301	1	Januar
2	146765	AAA Batteries (4-pack)	1	4.990000	2024-01-01 05:20:00	546 10th St, San Francisco, CA 94016	1	Januar
3	145617	Amana Washing Machine	1	600.000000	2024-01-01 05:24:00	961 Meadow St, Portland, OR 97035	1	Januar
4	156535	iPhone	1	700.000000	2024-01-01 05:45:00	451 Elm St, Los Angeles, CA 90001	1	Januar
...	...	...	...	...	...	...	...	.
171538	297748	iPhone	1	700.000000	2025-01-01 02:37:00	258 Forest St, Los Angeles, CA 90001	1	Januar
171539	284606	Bose SoundSport Headphones	1	99.989998	2025-01-01 02:50:00	211 Johnson St, Boston, MA 02215	1	Januar
171540	302330	AA Batteries (4-pack)	1	5.840000	2025-01-01 03:03:00	665 6th St, San Francisco, CA 94016	1	Januar
171541	284711	AA Batteries (4-pack)	1	5.840000	2025-01-01 03:19:00	250 8th St, San Francisco, CA 94016	1	Januar

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	Mont Nam
171542	303626	USB-C Charging Cable	3	11.950000	2025-01-01 04:43:00	651 Lakeview St, Dallas, TX 75001	1	Januar

171543 rows × 11 columns

Add Total Sales column

In [47]:
```
df['Total Sales'] = df['Units Purchased'] * df['Unit Price']
df.head()
```

Out[47]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	Month Name	Day of Week
0	160155	Alienware Monitor	1	400.98999	2024-01-01 05:04:00	765 Ridge St, Portland, OR 97035	1	January	Mon
1	151041	AAA Batteries (4-pack)	1	4.99000	2024-01-01 05:04:00	964 Lakeview St, Atlanta, GA 30301	1	January	Mon
2	146765	AAA Batteries (4-pack)	1	4.99000	2024-01-01 05:20:00	546 10th St, San Francisco, CA 94016	1	January	Mon
3	145617	Amana Washing Machine	1	600.00000	2024-01-01 05:24:00	961 Meadow St, Portland, OR 97035	1	January	Mon
4	156535	iPhone	1	700.00000	2024-01-01 05:45:00	451 Elm St, Los Angeles, CA 90001	1	January	Mon

Format Unit Price and Total Sales to 2 decimal places

In [49]:
```
df['Unit Price'] = df['Unit Price'].apply(lambda x: "%.2f" % x)
```

In [50]:
```
df['Total Sales'] = df['Total Sales'].apply(lambda x: "%.2f" % x)
df.head()
```

Out[50]:

	Order ID	Product Name	Units Purchased	Unit Price	Order Date	Delivery Address	Month	Month Name	Day of Week	Hc
0	160155	Alienware Monitor	1	400.99	2024-01-01 05:04:00	765 Ridge St, Portland, OR 97035	1	January	Mon	
1	151041	AAA Batteries (4-pack)	1	4.99	2024-01-01 05:04:00	964 Lakeview St, Atlanta, GA 30301	1	January	Mon	
2	146765	AAA Batteries (4-pack)	1	4.99	2024-01-01 05:20:00	546 10th St, San Francisco, CA 94016	1	January	Mon	
3	145617	Amana Washing Machine	1	600.00	2024-01-01 05:24:00	961 Meadow St, Portland, OR 97035	1	January	Mon	
4	156535	iPhone	1	700.00	2024-01-01 05:45:00	451 Elm St, Los Angeles, CA 90001	1	January	Mon	

Format Unit Price and Total Sales to numeric

In [52]:
```
df['Unit Price'] = pd.to_numeric(df['Unit Price'])
df['Total Sales'] = pd.to_numeric(df['Total Sales'])
```

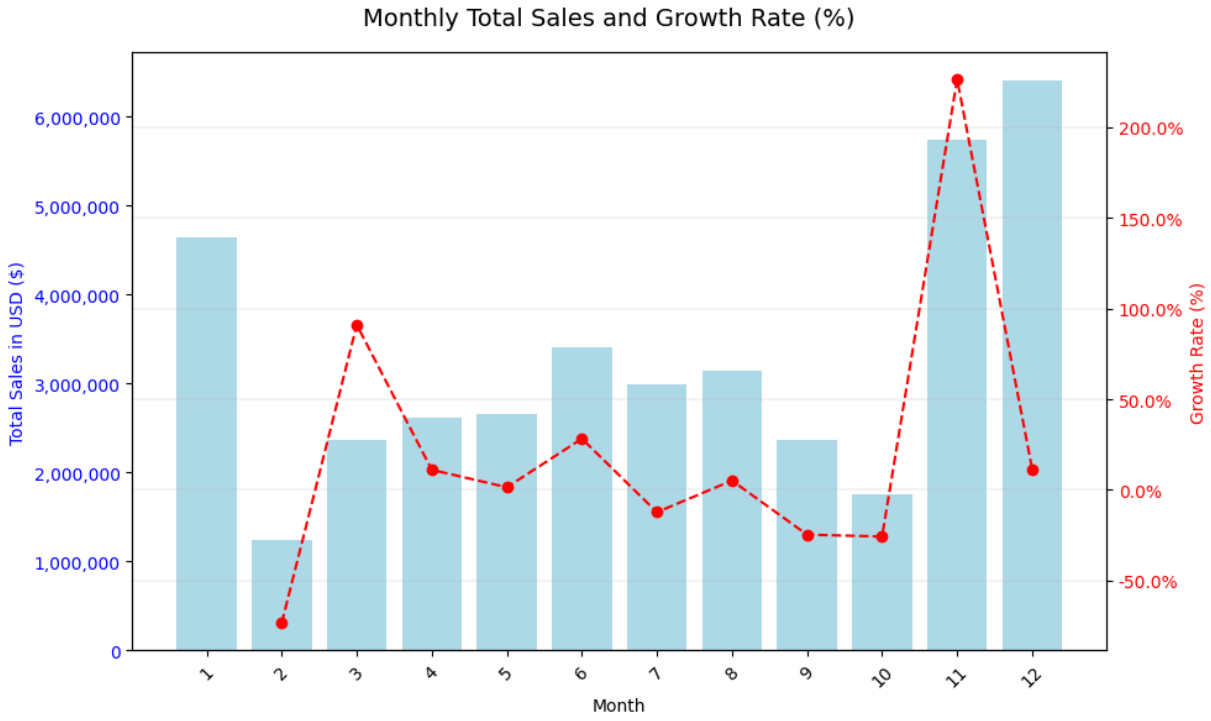
In [53]:
```
# Deep copy to avoid modifying the original DataFrame (df)
df_growth = df.copy(deep=True)

df_msg = df_growth.groupby('Month')['Total Sales'].sum().reset_index()

# Monthly Growth Rate (%)
df_msg['Growth Rate (%)'] = df_msg['Total Sales'].pct_change() * 100

df_msg
```

Out[53]:

	Month	Total Sales	Growth Rate (%)
0	1	4639312.17	NaN
1	2	1235017.71	-73.379293
2	3	2358783.67	90.991890
3	4	2619873.83	11.068847
4	5	2657978.27	1.454438
5	6	3408613.54	28.240835
6	7	2990038.42	-12.279923
7	8	3143681.87	5.138511
8	9	2368652.05	-24.653570
9	10	1760182.98	-25.688411
10	11	5743349.24	226.292738
11	12	6404121.28	11.504995

Plot Monthly Total Sales ($) & Growth Rate (%)

In [89]:
```
# Monthly Sales Growth Plot
import matplotlib.pyplot as plt
import matplotlib.ticker as ticker

fig, ax1 = plt.subplots(figsize=(10, 6))

# Left y-axis: Total Sales as bar chart
ax1.bar(df_msg['Month'].astype(str), df_msg['Total Sales'], color='lightblue', labe
ax1.set_xlabel('Month')
ax1.set_ylabel('Total Sales in USD ($)', color='blue')
ax1.tick_params(axis='y', labelcolor='blue')
ax1.tick_params(axis='x', rotation=45)

# Numeric and not scientific
ax1.yaxis.set_major_formatter(ticker.FuncFormatter(lambda x, _: f'{x:,.0f}'))

# Right y-axis: Growth Rate as line plot
ax2 = ax1.twinx()
ax2.plot(df_msg['Month'].astype(str), df_msg['Growth Rate (%)'], color='red', lines
ax2.set_ylabel('Growth Rate (%)', color='red')
ax2.tick_params(axis='y', labelcolor='red')
ax2.yaxis.set_major_formatter(ticker.FuncFormatter(lambda y, _: f'{y:,.1f}%'))

fig.suptitle('Monthly Total Sales and Growth Rate (%)', fontsize=14)
fig.tight_layout()
plt.grid(True, linewidth=0.2)

plt.show()
```



Key Insights

1. High Volatility in Monthly Sales: The growth rates fluctuate significantly, with both steep

declines (e.g., -73.38% in Month 2, -25.69% in Month 10) and sharp increases (e.g., +226.32% in Month 11, +90.99% in Month 23).

2. Exceptional Growth in Month 11: The highest sales growth occurred in Month 11 (+226.32%), likely due to a seasonal or promotional event. This also marks the peak in total sales ($5.74M).
3. Absolute peak occurred in Month 12 ($6.40M) with sales growth of +11.51%.
4. Sustained Growth Toward Year-End: Despite mid-year dips (Months 7 to 10), Months 11 and 12 show strong recovery and surpass all previous months in both growth and absolute sales.
5. Underperformance Early in the Year: Month 2 experienced a dramatic -73.38% drop from Month 1, suggesting either a data anomaly or external factor disrupting sales continuity.

Strategic Recommendations

1. Investigate Sales Drop Causes: Analyze Months 2, 9, and 10 to determine the reasons behind sharp declines. This can uncover operational inefficiencies, seasonal patterns, or external disruptions that can be mitigated in future planning.
2. Capitalize on Peak Months (11 & 12): Strengthen promotional activities around these high-performing months. Consider expanding festive campaigns or bundling offers to extend the momentum.
3. Stabilize Mid-Year Growth: Develop a mid-year marketing boost strategy (Months 5–9) using loyalty incentives, product refreshes, or geo-targeted ads to maintain momentum.
4. Build Forecast Models: Use this growth trend as input for predictive models to anticipate low-performing months and proactively plan inventory, staffing, and promotional efforts.
5. Apply Data-Driven Planning: Set monthly sales targets using historical growth data. Tailor resource allocation and budgeting based on expected performance to reduce surprises.