Swiggy Sales Analysis

Import Libraries

In [1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
```

Import data

In [2]:
```
df=pd.read_excel("swiggy_data.xlsx")
```

EDA

In [3]:
```
# Check First 5 rows

df.head()
```

Out[3]:

	State	City	Order Date	Restaurant Name	Location	Category	Dish Nan
0	Karnataka	Bengaluru	2025-06-29	Anand Sweets & Savouries	Rajarajeshwari Nagar	Snack	Butt Murukku-200g
1	Karnataka	Bengaluru	2025-04-03	Srinidhi Sagar Deluxe	Kengeri	Recommended	Badam M
2	Karnataka	Bengaluru	2025-01-15	Srinidhi Sagar Deluxe	Kengeri	Recommended	Chow Cho Ba
3	Karnataka	Bengaluru	2025-04-17	Srinidhi Sagar Deluxe	Kengeri	Recommended	Kesari Ba
4	Karnataka	Bengaluru	2025-03-13	Srinidhi Sagar Deluxe	Kengeri	Recommended	Mix Raitl

In [4]:
```
# Check First 5 rows

df.tail()
```

Out[4]:

	State	City	Order Date	Restaurant Name	Location	Category	Dish Name	Price (INR)	Rating
197425	Sikkim	Gangtok	2025-01-25	Mama's Kitchen	Gangtok	Momos	Soya cheese chilli momo ...	112.0	4.4
197426	Sikkim	Gangtok	2025-07-02	Mama's Kitchen	Gangtok	Momos	Kurkure momo fried ...	140.0	4.4
197427	Sikkim	Gangtok	2025-03-25	Mama's Kitchen	Gangtok	Momos	Chilli cheese momo	126.0	4.4
197428	Sikkim	Gangtok	2025-03-26	Mama's Kitchen	Gangtok	Momos	Veg Momos (8 Pc)	85.0	4.4
197429	Sikkim	Gangtok	2025-03-27	Mama's Kitchen	Gangtok	Momos	Soya Momo	100.0	4.4

In [53]:
```
# Check overall info of data like data types, non-null count

df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 197430 entries, 0 to 197429
Data columns (total 12 columns):
 #   Column           Non-Null Count   Dtype         
---  ------           --------------   -----         
 0   State            197430 non-null  object        
 1   City             197430 non-null  object        
 2   Order Date       197430 non-null  datetime64[ns]
 3   Restaurant Name  197430 non-null  object        
 4   Location         197430 non-null  object        
 5   Category         197430 non-null  object        
 6   Dish Name        197430 non-null  object        
 7   Price (INR)      197430 non-null  float64       
 8   Rating           197430 non-null  float64       
 9   Rating Count     197430 non-null  int64         
 10  YearMonth        197430 non-null  object        
 11  DayNames         197430 non-null  object        
dtypes: datetime64[ns](1), float64(2), int64(1), object(8)
memory usage: 18.1+ MB
```

In [6]:
```
# Check stastical Data

df.describe()
```

Out[6]:

	Price (INR)	Rating	Rating Count
count	197430.000000	197430.000000	197430.000000
mean	268.512920	4.341582	28.321805
std	219.338363	0.422585	87.542593
min	0.950000	1.500000	0.000000
25%	139.000000	4.300000	0.000000
50%	229.000000	4.400000	2.000000
75%	329.000000	4.500000	15.000000
max	8000.000000	5.000000	999.000000

In [7]:
```
#Check No of rows and columns

print("No of Rows and columns :",df.shape)
```

```
No of Rows and columns : (197430, 10)
```

In [100…
```
# Check columns names in data

df.columns
```

Out[100…
```
Index(['State', 'City', 'Order Date', 'Restaurant Name', 'Location',
       'Category', 'Dish Name', 'Price (INR)', 'Rating', 'Rating Count',
       'YearMonth', 'DayNames', 'Food Category', 'Order_Date', 'Quater',
       'Quarter', 'Weekly_trend', 'Week'],
      dtype='object')
```

In [9]:
```
# Check data types of data

df.dtypes
```

Out[9]:
```
State                     object
City                      object
Order Date         datetime64[ns]
Restaurant Name           object
Location                  object
Category                  object
Dish Name                 object
Price (INR)              float64
Rating                   float64
Rating Count               int64
dtype: object
```

In [10]:
```
# Check is there any null values present in columns

df.isnull().sum()
```

Out[10]:
```
State              0
City               0
Order Date         0
Restaurant Name    0
Location           0
Category           0
Dish Name          0
Price (INR)        0
Rating             0
Rating Count       0
dtype: int64
```

Data Cleaning

In [102…
```
#Check if there is unique names are there and not repeated

df['State'].unique()
```

Out[102…
```
array(['Karnataka', 'Maharashtra', 'Tamil Nadu', 'Delhi', 'Telangana',
       'West Bengal', 'Gujarat', 'Rajasthan', 'Uttar Pradesh', 'Punjab',
       'Madhya Pradesh', 'Bihar', 'Odisha', 'Haryana', 'Kerala',
       'Jharkhand', 'Assam', 'Chhattisgarh', 'Uttarakhand',
       'Himachal Pradesh', 'Goa', 'Jammu and Kashmir', 'Tripura',
       'Manipur', 'Meghalaya', 'Nagaland', 'Mizoram', 'Sikkim'],
      dtype=object)
```

In [12]:
```
df['Category'].unique()
```

Out[12]:
```
array(['Snack', 'Recommended', 'North Indian Gravy', ..., 'Chicken Momo',
       'Chicken Rice', 'make your own combo'], dtype=object)
```

KPI's

- Total Sales
- Average Orader Value
- Total Orders
- Average Rating
- Rating Count

In [13]:
```
# Total Sales
Total_Sales=df['Price (INR)'].sum()
```

In [14]:
```
# Average Ratings
Avg_Rating=df['Rating'].mean()
```

In [15]:
```
# Average Order Value
Avg_order_val=df['Price (INR)'].mean()
```

In [16]:
```
# Rating Count
Rating_count=df['Rating Count'].sum()
```

In [17]:
```
# Total Orders
Total_orders=len(df)
```

In [18]:
```
# DISPLAYS KPI's

print('Total Sales         :',round(Total_Sales,2))
print('Average Ratings     :',round(Avg_Rating,2))
print('Average Order Value :',round(Avg_order_val,2))
print('Rating Count        :',Rating_count)
print('Total Orders        :',Total_orders)
```

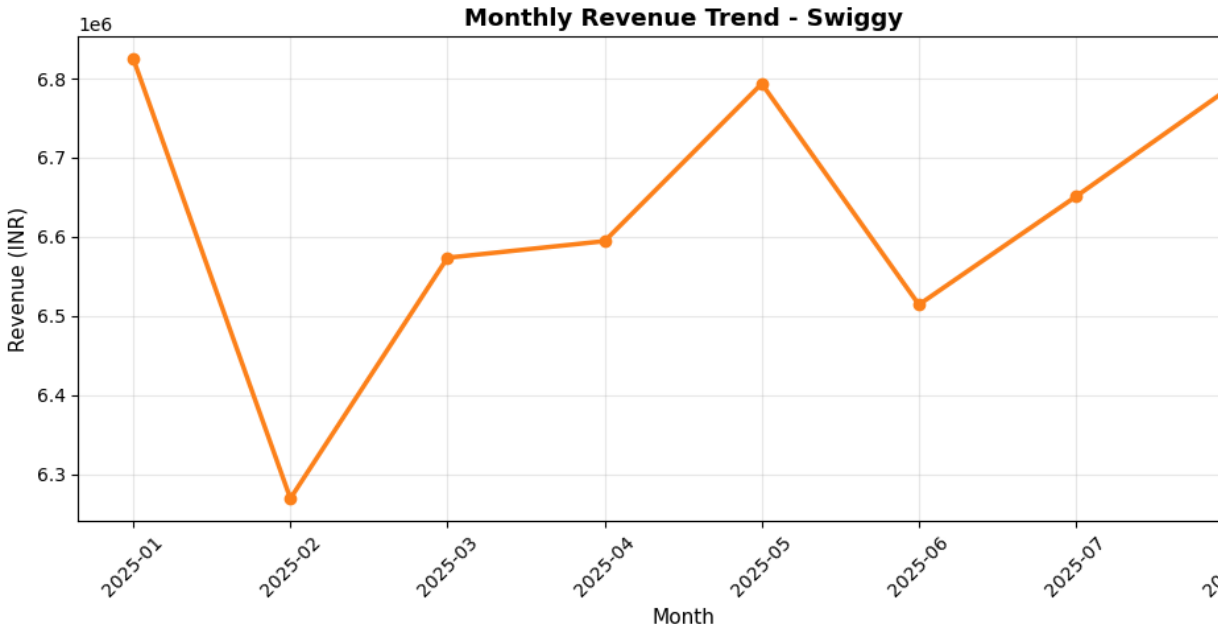
```
Total Sales         : 53012505.77
Average Ratings     : 4.34
Average Order Value : 268.51
Rating Count        : 5591574
Total Orders        : 197430
```

Charts Requirenment

Monthly Revenue Trend

In [115…
```
# Step 1: Convert 'Order Date' column into datetime format
# This allows us to extract month, year, week, etc. from the date
```

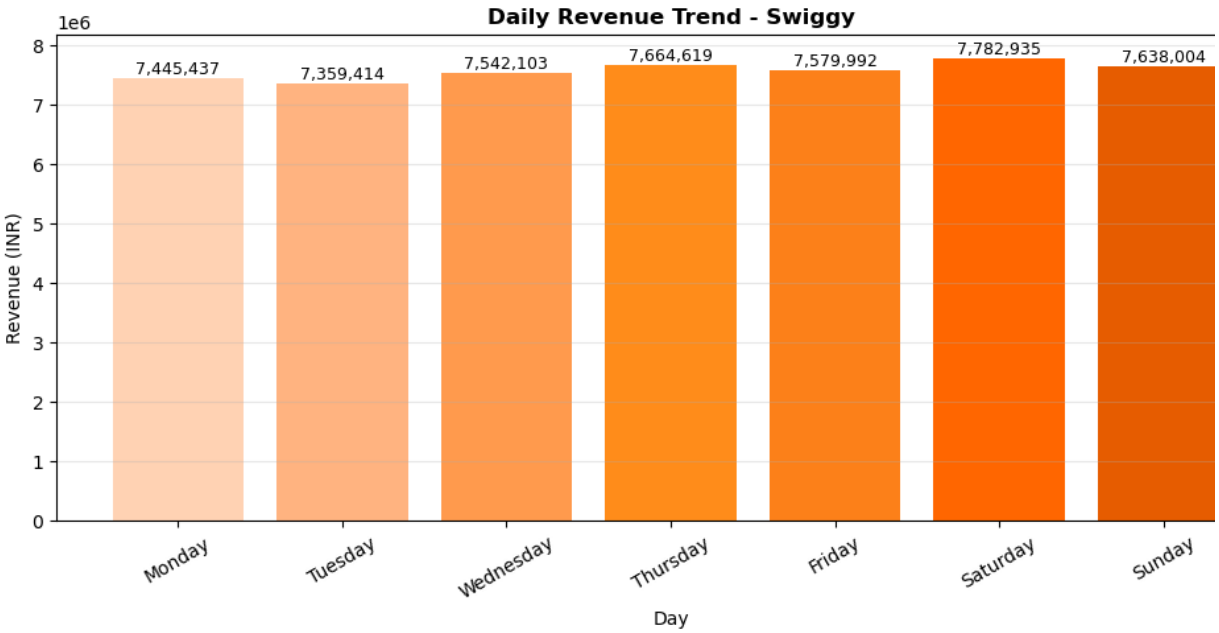
```python
df['Order Date'] = pd.to_datetime(df['Order Date'])

# Step 2: Create a new column 'YearMonth' from Order Date
# to_period("M") groups dates into monthly periods (example: 2024-01, 2024-02)
df['YearMonth'] = df['Order Date'].dt.to_period("M").astype(str)

# Step 3: Group data by YearMonth and calculate total revenue for each month
monthly_revenue = (
    df.groupby('YearMonth')['Price (INR)']
    .sum()                 # Add all sales amounts for each month
    .reset_index()        # Convert result into a DataFrame
)

# Step 4: Create a figure for plotting
plt.figure(figsize=(10,5))

# Step 5: Plot Monthly Revenue Trend as a line chart
plt.plot(
    monthly_revenue["YearMonth"],     # X-axis → Months (2024-01, 2024-02, ...)
    monthly_revenue['Price (INR)'],   # Y-axis → Total Revenue per month
    color='#FC8019',                  # Swiggy orange color
    marker='o',                       # Show data points with circles
    linewidth=2.5                    # Thickness of the line
)

# Step 6: Improve chart readability
plt.xticks(rotation=45)              # Rotate month labels
plt.xlabel("Month", fontsize=11)     # X-axis label
plt.ylabel("Revenue (INR)", fontsize=11)  # Y-axis label
plt.title("Monthly Revenue Trend - Swiggy", fontsize=13, fontweight='bold')

# Step 7: Add light grid for easy reading
plt.grid(alpha=0.3)

# Step 8: Adjust layout to avoid overlapping text
plt.tight_layout()

# Step 9: Display the chart
plt.show()
```



Daily Revenue Trend

In [106…

```
import pandas as pd
import matplotlib.pyplot as plt

# Step 1: Convert Order Date column to datetime and extract day names (Monday, T
df['DayNames'] = pd.to_datetime(df['Order Date']).dt.day_name()

# Step 2: Group data by DayNames and calculate total revenue for each day
daily_revenue = (
    df.groupby('DayNames')['Price (INR)']
    .sum()   # Sum of revenue for each day
    # Reorder days in correct weekly order instead of alphabetical order
    .reindex(["Monday","Tuesday","Wednesday","Thursday","Friday","Saturday","Sun
)

# Step 3: Define Swiggy-style color gradient for bars
colors = ['#FFD2B3','#FFB380','#FF9A4D','#FF8C1A','#FC8019','#FF6600','#E65C00']

# Step 4: Create bar chart
plt.figure(figsize=(10,5))
bars = plt.bar(daily_revenue.index, daily_revenue.values, color=colors)

# Step 5: Add chart labels and title
plt.title("Daily Revenue Trend - Swiggy", fontweight='bold')
plt.xlabel("Day")
plt.ylabel("Revenue (INR)")
plt.xticks(rotation=30)

# Step 6: Add grid only on Y-axis for better readability
plt.grid(axis='y', alpha=0.3)

# Step 7: Display revenue values on top of each bar
for bar in bars:
    yval = bar.get_height()   # Get height (revenue) of each bar
    plt.text(
        bar.get_x() + bar.get_width()/2,  # X position
        yval,                             # Y position
        f'{int(yval):,}',                 # Format number with commas
        ha='center',
        va='bottom',
        fontsize=9
    )

# Step 8: Adjust layout so labels don't overlap
plt.tight_layout()

# Step 9: Show the chart
plt.show()
```



Total Sales by Food Type (Veg-Nonveg)

In [109…

```
# Step 1: Create a list of keywords that indicate Non-Veg food items
nonveg_keywords = ['chicken','egg','fish','biryani','prawn','mutton','kabab','ke

# Step 2: Create a new column "Food Category" based on Dish Name
# Logic:
# If Dish Name contains any word from nonveg_keywords → label as "Non-Veg"
# Otherwise → label as "Veg"
df['Food Category'] = np.where(
    df['Dish Name'].str.lower().str.contains('|'.join(nonveg_keywords), na=False
    "Non-Veg",
    "Veg"
)
```

In [108…

```
# Group data by Food Category (Veg / Non-Veg) and calculate total revenue
food_revenue = (
    df.groupby('Food Category')['Price (INR)']
      .sum()                # Sum revenue for each category
      .reset_index()      # Convert grouped result into a DataFrame
)

# Create a donut pie chart using Plotly Express (px)
fig = px.pie(
    food_revenue,                      # Data source
    values="Price (INR)",              # Slice size based on revenue
    names="Food Category",             # Labels: Veg / Non-Veg
    title="🍽️ Revenue Contribution: Veg vs Non-Veg (Swiggy)",
    hole=0.4,                          # Makes it a donut chart
    color="Food Category",             # Color slices by category

    # Assign custom colors for each food category
    color_discrete_map={
        "Veg": "#2ECC71",               # Green for Veg
        "Non-Veg": "#FC8019"            # Swiggy orange for Non-Veg
    }
)

# Customize text labels, slice separation and hover information
fig.update_traces(
```

```
    textinfo="percent+label",          # Show percentage and category name on cha

    pull=[0.05, 0],                    # Slightly pull out the first slice (Veg)

    # Custom hover text when mouse is placed on a slice
    hovertemplate=
    "<b>%{label}</b><br>"              # Bold category name
    "Revenue: ₹%{value:,.0f}<br>"      # Show revenue with comma formatting
    "Share: %{percent}"                # Show percentage share
)

# Improve chart layout and appearance
fig.update_layout(
    height=500,                        # Chart height
    font=dict(size=13),                # Text size
    title_font_size=16,                # Title font size
    showlegend=True,                   # Display legend
    legend_title="Food Type",          # Legend heading
    margin=dict(t=70, b=40, l=40, r=40),  # Chart margins
    template="plotly_white"            # White clean background
)

# Display the chart
fig.show()
```

Total Sales by State (Map Visualization)

In [110…

```
# Group data by State and calculate total revenue for each state
state_revenue = (
    df.groupby("State", as_index=False)['Price (INR)']  # Group rows by State an
```

```
    .sum()                                                  # Calculate total revenue
    .sort_values("Price (INR)", ascending=False)            # Sort states by revenue
)

# Create a horizontal bar chart using Plotly Express (px)
fig = px.bar(
    state_revenue,              # DataFrame used for plotting
    x="Price (INR)",            # Revenue values will be on X-axis
    y="State",                  # State names will be on Y-axis
    orientation="h",            # 'h' means horizontal bar chart
    title="🗺️ Revenue by State (INR) - Swiggy",

    # Apply Swiggy brand color to bars
    color_discrete_sequence=["#FC8019"]
)

# Customize bar labels and hover information
fig.update_traces(
    # Show revenue value on each bar
    # %{x:,.0f} → x value with comma formatting and no decimal
    texttemplate="₹%{x:,.0f}",
    textposition="outside",     # Place text outside the bars

    # Hover text when mouse is placed on a bar
    # <b> makes text bold (HTML tag)
    hovertemplate="<b>%{y}</b><br>Revenue: ₹%{x:,.0f}<extra></extra>"
)

# Improve chart layout and readability
fig.update_layout(
    height=600,                     # Chart height
    xaxis_title="Revenue (INR)",    # X-axis label (Plotly way, not plt.xlabel)
    yaxis_title="State",            # Y-axis label
    yaxis=dict(autorange="reversed"),  # Highest revenue state appears on top
    font=dict(size=12),             # Font size for chart text
    title_font_size=16,             # Title font size
    template="plotly_white",        # Clean white background theme
    margin=dict(t=60, b=40, l=80, r=40)  # Margins around chart
)

# Display the interactive chart
fig.show()
```

Quterly performance Summary

In [111…

```
# Convert the 'Order Date' column into datetime format
# This allows us to extract time-related information like year, month, quarter,
df["Order_Date"] = pd.to_datetime(df["Order Date"])


# Extract Quarter from the Order_Date column
# to_period("Q") converts each date into a quarter format like: 2024Q1, 2024Q2
# astype(str) converts it into string so it looks clean in the table
df["Quarter"] = df["Order_Date"].dt.to_period("Q").astype(str)


# Create a quarterly summary table using groupby and aggregation
Quarterly_summary = (

    # Group the dataset by Quarter
    df.groupby("Quarter", as_index=False)

    # Calculate important business metrics for each quarter
    .agg(
        Total_Sales=("Price (INR)", "sum"),     # Total revenue generated in eac
        Avg_Rating=("Rating", "mean"),          # Average customer rating in eac
```

```
        Total_Orders=("Order Date", "count")    # Total number of orders placed
    )

    # Sort the quarters in chronological order (Q1, Q2, Q3, Q4)
    .sort_values("Quarter")
)

# Display the final quarterly summary table
Quarterly_summary
```

Out[111…

	Quarter	Total_Sales	Avg_Rating	Total_Orders
0	2025Q1	19667821.77	4.342643	73096
1	2025Q2	19902256.59	4.340011	74163
2	2025Q3	13442427.41	4.342359	50171

Top 5 Cities by Sales

In [112…

```
# Group data by City and calculate total revenue for each city
top_5_cities = (
    df.groupby("City")["Price (INR)"]   # Group rows based on City and select Pr
    .sum()                              # Calculate total revenue for each city
    .nlargest(5)                        # Select only the top 5 cities with high
    .sort_values()                      # Sort values for better display in hori
    .reset_index()                      # Convert result into a proper DataFrame
)

# Create a horizontal bar chart using Plotly Express
fig = px.bar(
    top_5_cities,               # DataFrame used for plotting
    x="Price (INR)",            # Revenue values will appear on X-axis
    y="City",                   # City names will appear on Y-axis
    orientation='h',            # 'h' means horizontal bar chart
    title="🏙️ Top 5 Cities by Revenue (INR) - Swiggy",

    # Apply Swiggy brand color to all bars
    color_discrete_sequence=["#FC8019"]
)

# Customize the bar labels and hover tooltip
fig.update_traces(
    texttemplate="₹%{x:,.0f}",   # Show revenue value on each bar (comma format,
    textposition="outside",      # Display text outside the bars

    # Custom hover text when mouse is placed on a bar
    hovertemplate="<b>%{y}</b><br>Revenue: ₹%{x:,.0f}<extra></extra>"
)

# Improve chart layout and readability
fig.update_layout(
    height=500,                     # Height of the chart
    xaxis_title="Revenue (INR)",    # Label for X-axis (Plotly way)
    yaxis_title="City",             # Label for Y-axis
    font=dict(size=12),             # Font size for chart text
    title_font_size=16,             # Title font size
    template="plotly_white",        # Clean white background theme
    margin=dict(t=60, b=40, l=80, r=40)  # Spacing around chart
)
```

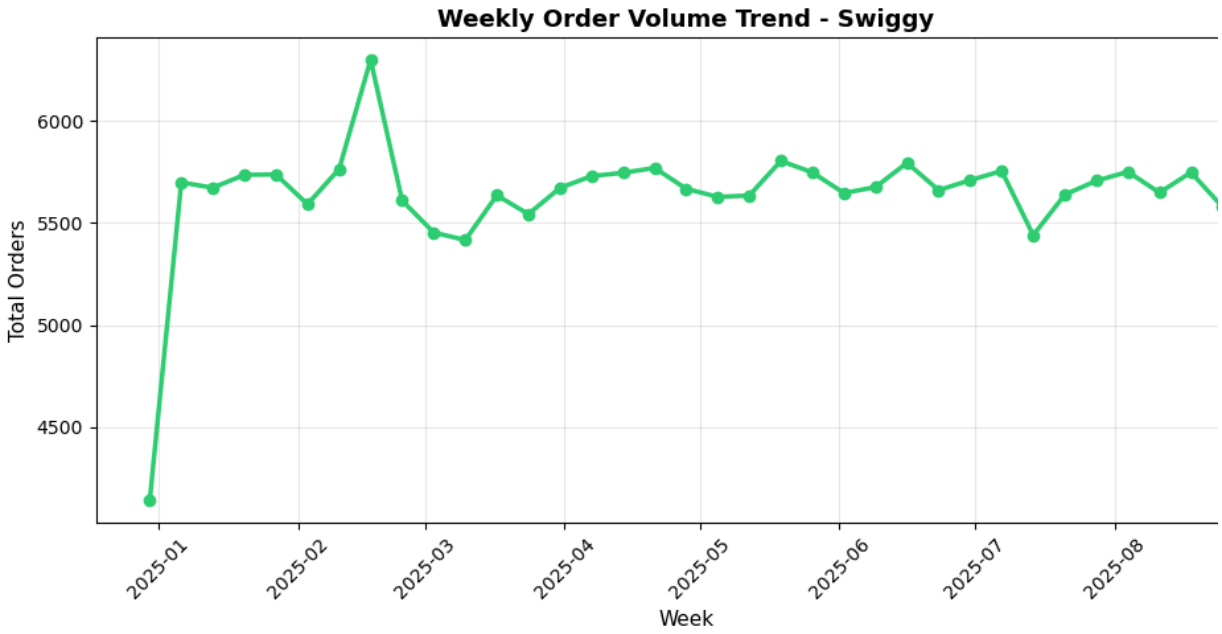
```
# Display the interactive chart
fig.show()
```

Weekly trend analysis

In [113…

```
# Group data by Week and calculate total number of orders in each week
weekly_orders = (
    df.groupby('Week')['Order Date']          # Group rows based on Week and sel
    .count()                                  # Count number of orders in each w
    .reset_index(name='Total_Orders')         # Convert result into DataFrame ar
    .sort_values('Week')                      # Sort weeks in chronological orde
)

# Create a new figure for plotting
plt.figure(figsize=(10,5))

# Plot a line chart for weekly order trend
plt.plot(
    weekly_orders['Week'],        # X-axis: Week
    weekly_orders['Total_Orders'],# Y-axis: Total orders per week
    color='#2ECC71',              # Green color (represents order volume)
    marker='o',                   # Add circular marker on each data point
    linewidth=2.5                 # Thickness of the line
)

# Add labels to axes
plt.xlabel("Week", fontsize=11)         # Label for X-axis
plt.ylabel("Total Orders", fontsize=11) # Label for Y-axis

# Add title to the chart
```

```
plt.title("Weekly Order Volume Trend - Swiggy", fontsize=13, fontweight='bold')

# Rotate X-axis labels for better readability
plt.xticks(rotation=45)

# Add light grid for easier comparison
plt.grid(alpha=0.3)

# Adjust layout so labels and title do not overlap
plt.tight_layout()

# Display the chart
plt.show()
```



Conclusion

The Swiggy Sales Analysis project provided insights into revenue trends, customer preferences, a regional performance. The study revealed higher revenue contribution from Non-Veg items, incr order volume on weekends, and strong performance from top cities and states. Time-based anal highlighted steady growth and seasonal patterns, supporting data-driven business decision maki