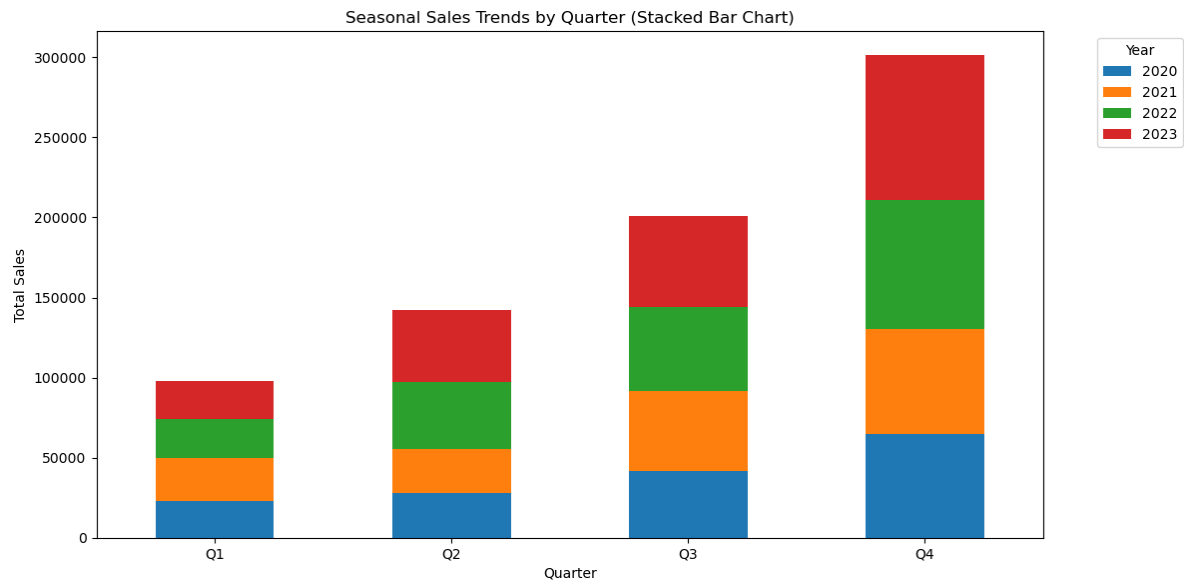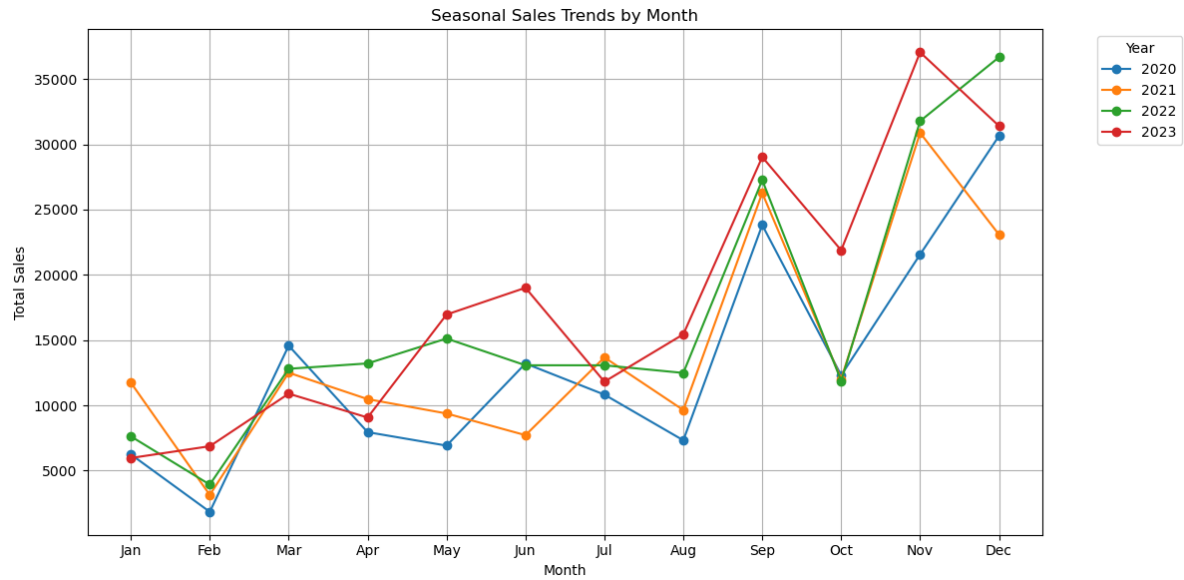# Project 8: Predictive Sales Analytics
Objective: Use historical sales data to forecast future sales and trends
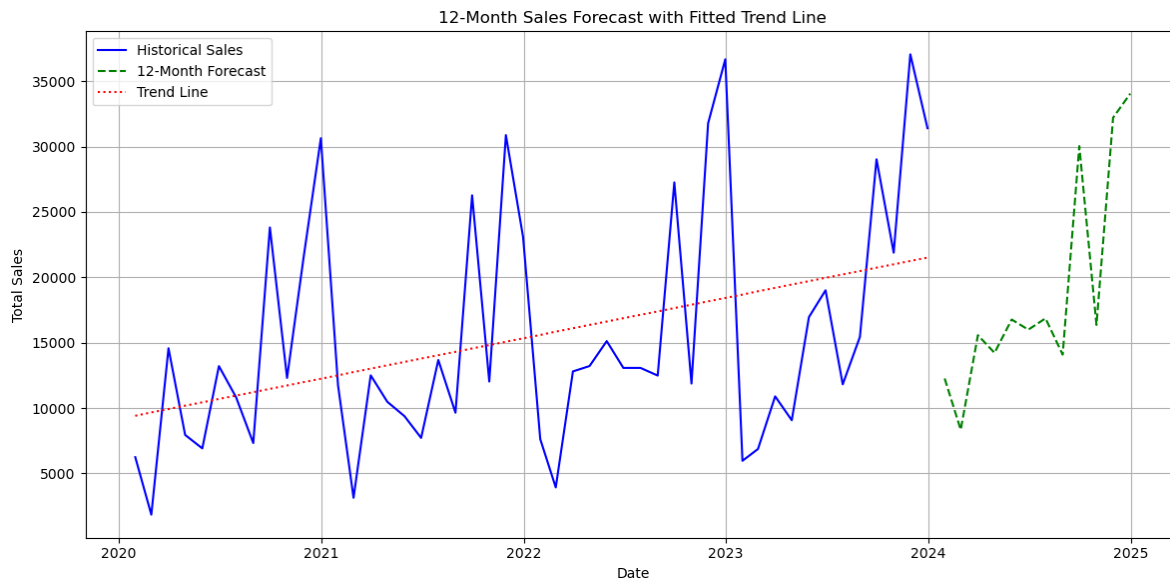
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1. Identify seasonal trends by analyzing sales data from previous years and group them by month.

Seasonal Sales Trends by Month

Seasonal Sales Trends by Quarter (Stacked Bar Chart)

2. Generate a rolling 12-month sales forecast based on historical sales.

3. Predict which product Sub-categories are likely to see increased Total sales in the upcoming (12) months based on past trends

```
Order Date Range: min    2020-01-06
max    2023-12-30
Name: order_date, dtype: datetime64[ns]
```

Predicted Sales by Sub-Category for Next 12 Months

Predicted Sales for Sub-Category: Bookcases (Next 12 Months using ARIMA)

Predicted Sales for Sub-Category: Chairs (Next 12 Months using ARIMA)

Predicted Sales for Sub-Category: Furnishings (Next 12 Months using ARIMA)

Predicted Sales for Sub-Category: Tables (Next 12 Months using ARIMA)
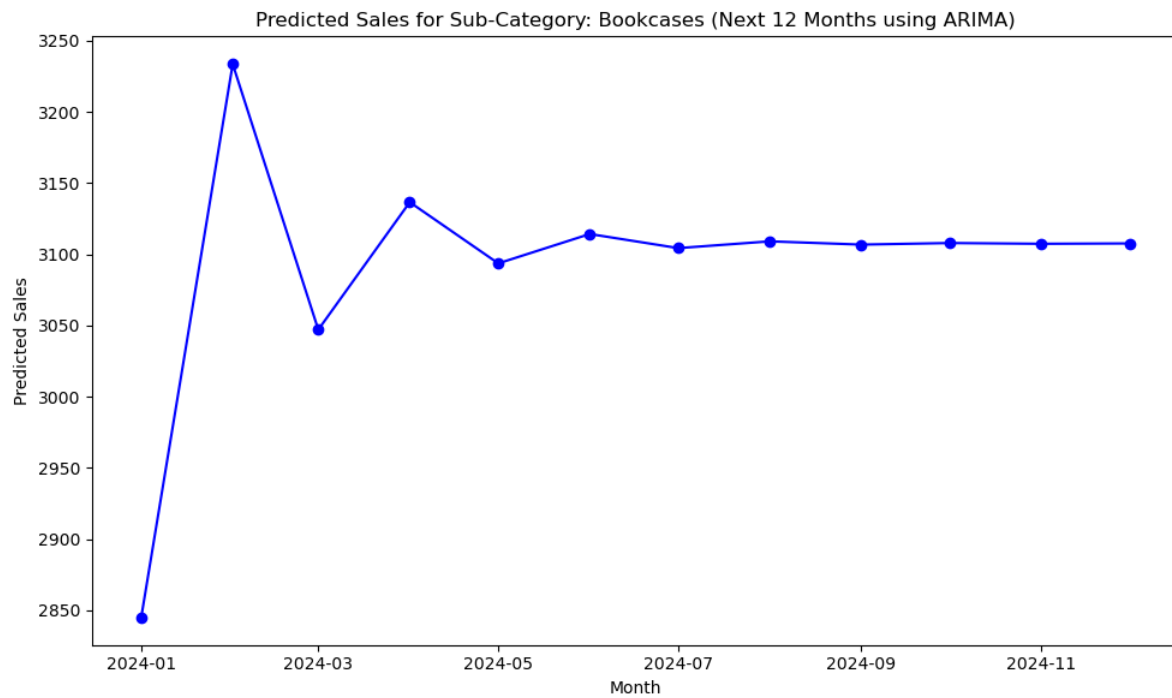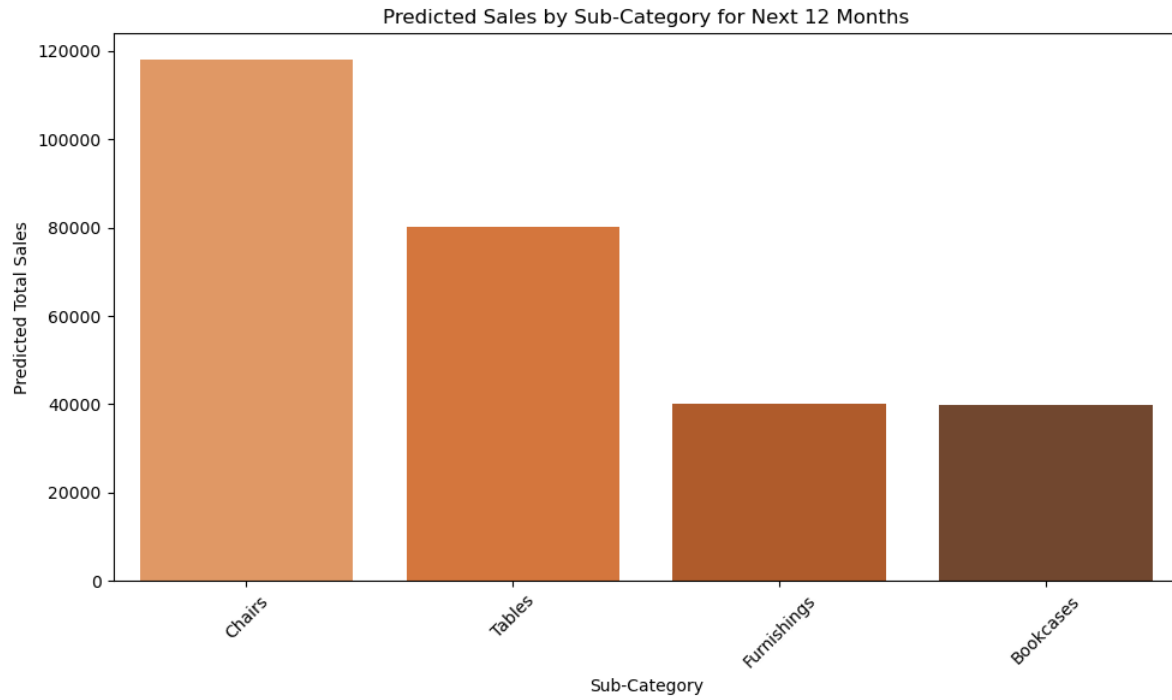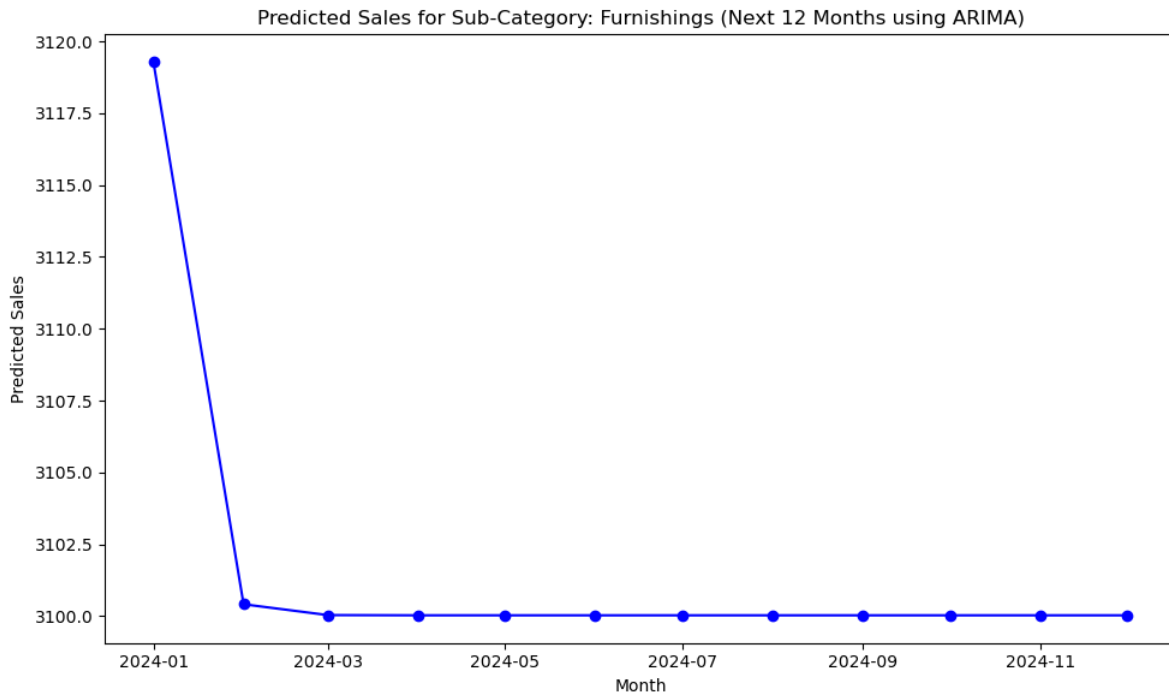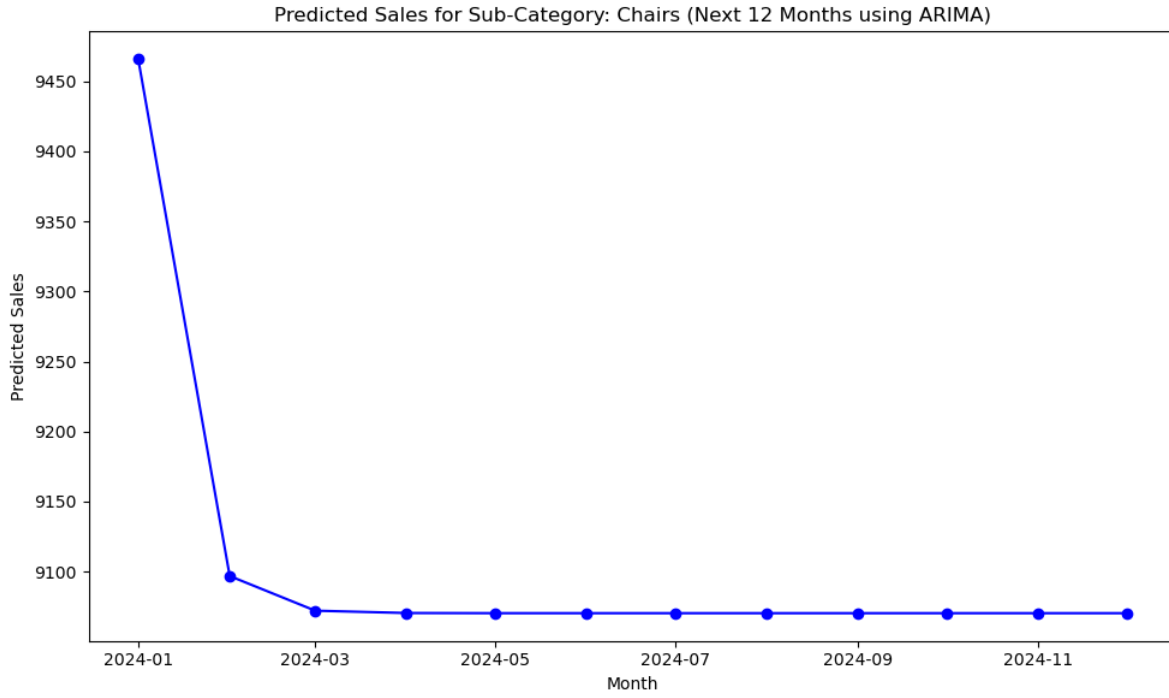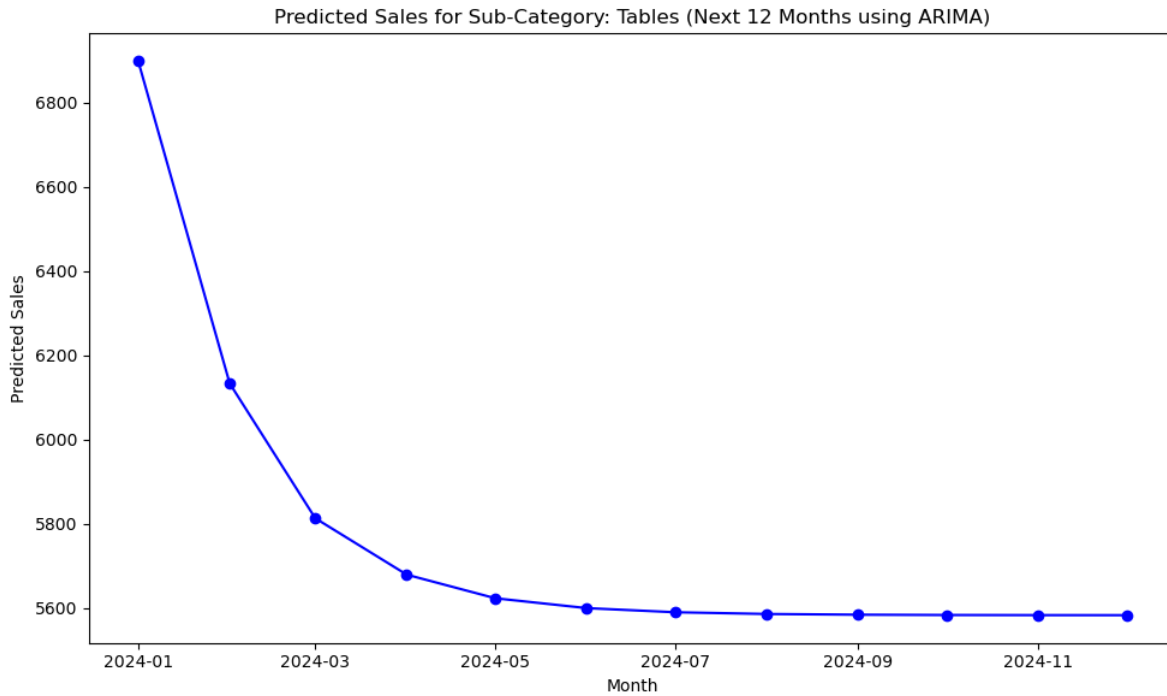
4. Create a forecasting report that breaks down future sales expectations by region and market segment.

```
     region market_segment   total_predicted_sales
0   Central        Consumer            20733.433211
1   Central       Corporate            18367.194708
2   Central     Home Office             7022.046170
3      East        Consumer            28920.370618
4      East       Corporate            16837.570975
5      East     Home Office            10156.706736
6     South        Consumer            24705.433149
7     South       Corporate             9291.561874
8     South     Home Office             9971.778517
9      West        Consumer            31064.896617
10     West       Corporate            36546.637734
11     West     Home Office            19195.211547
```
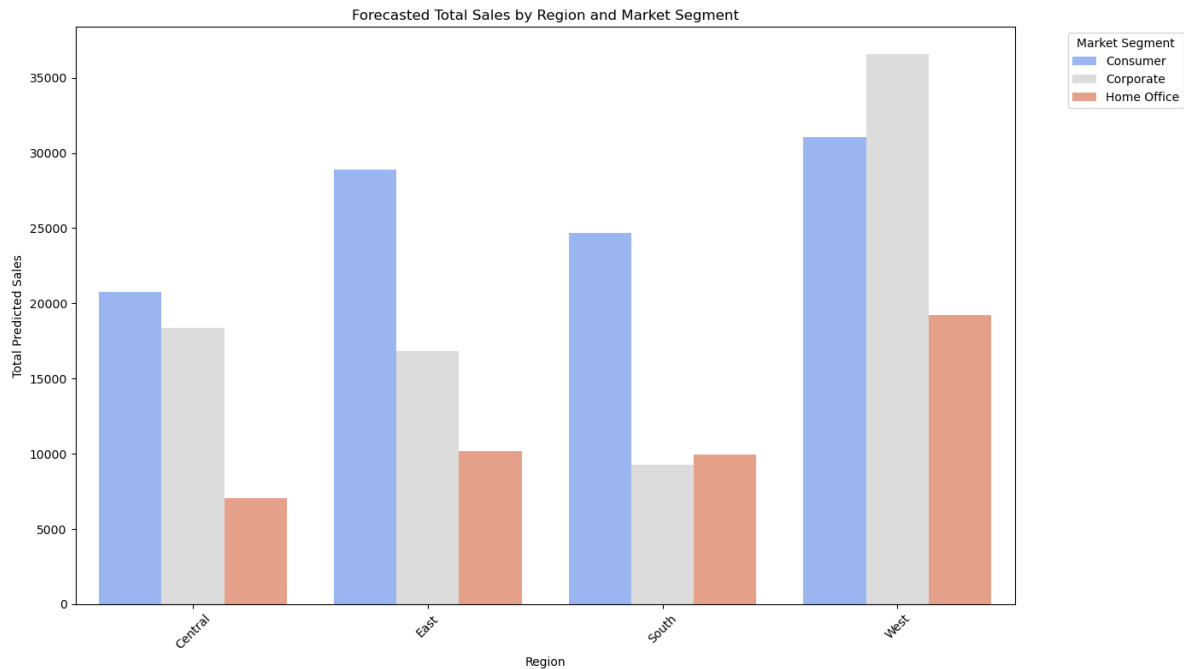
Forecasted Total Sales by Region and Market Segment

5. Suggest potential growth strategies for underperforming categories based on past data analysis

```
Underperforming Categories:
  sub_category  total_sales
0    Bookcases  114879.9963
2  Furnishings   91705.1640

Growth Strategies:
- For 'Bookcases': Consider targeted marketing campaigns, bundling with high-performing categ
- For 'Furnishings': Consider targeted marketing campaigns, bundling with high-performing cat
```