E-Commerce Project Using Python

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About Project

This project analyzes E-commerce sales data (Sample Superstore Dataset) using Python. The aim is to explore sales, profit, and customer trends to derive actionable business insights.
A set of 13 problem statements were solved.
Tools & Libraries used: Python Pandas, Plotly.
The analysis helps in identifying:

- Best-selling products & profitable categories
- Growth opportunities across regions
- Data-driven strategies to improve revenue.

Monthly Sales Analysis

Monthly sales analysis

[57]:
```
sales_by_month = data.groupby('Order Month')['Sales'].sum().reset_index()
fig = px.line(sales_by_month,
              x='Order Month',
              y='Sales',
              title='Monthly Sales Analysis')
fig.show()
```

Sales by Category

Sales by Category

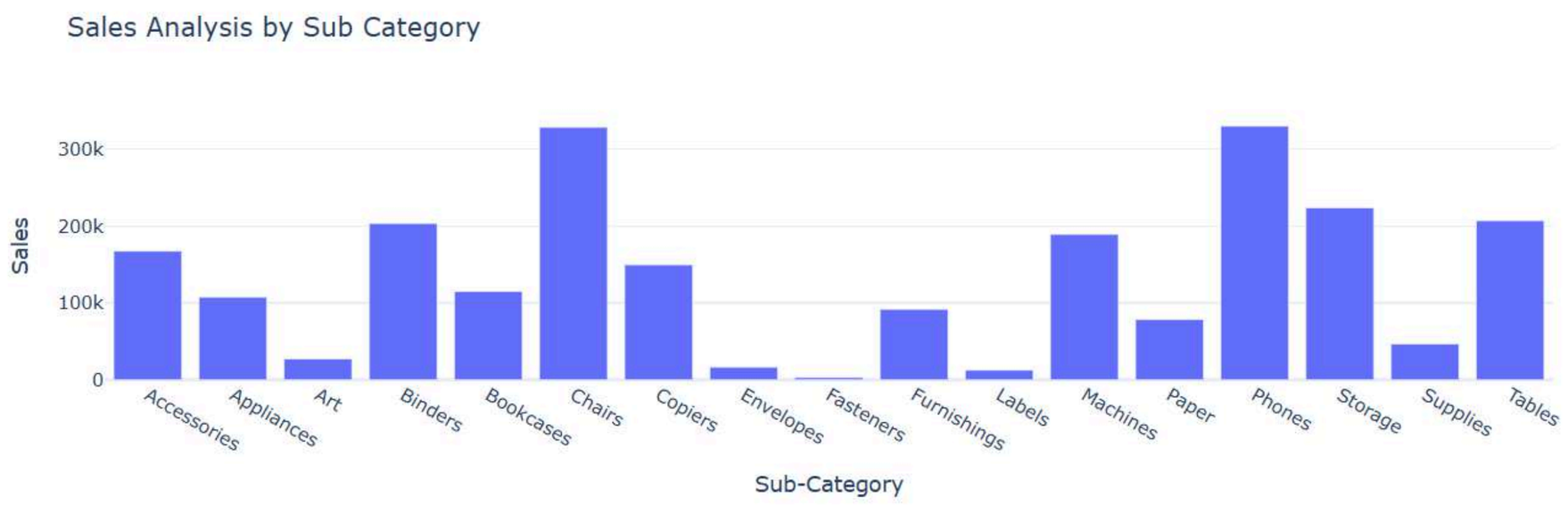
[14]:
```
sales_by_category = data.groupby('Category')['Sales'].sum().reset_index()
```

[16]:
```
fig2 = px.pie(sales_by_category,
              names='Category',
              values='Sales',
              title='Category wise sales',
              hole=0.4,
              color_discrete_sequence=px.colors.qualitative.Pastel)

fig2.update_traces(textposition='inside', textinfo='percent+label')
```

Sales by Sub-Category

Sales by sub category

```
sales_by_subcategory = data.groupby('Sub-Category')['Sales'].sum().reset_index()
fig3 = px.bar(sales_by_subcategory,
              x = 'Sub-Category',
              y = 'Sales',
              title = 'Sales Analysis by Sub Category'
             )
fig3.show()
```



Monthly Profit Analysis

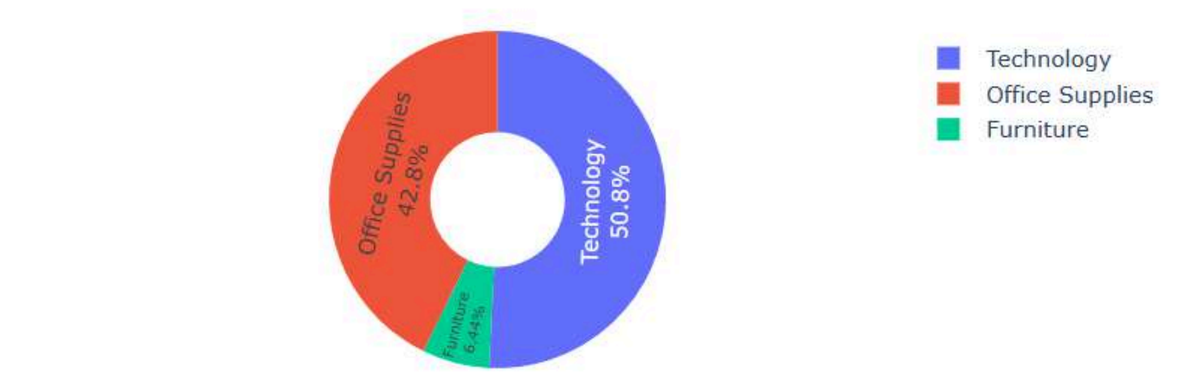
Monthly profit analysis

```
profit_by_month = data.groupby('Order Month')['Profit'].sum().reset_index()
fig4 = px.line(profit_by_month,
               x='Order Month',
               y='Profit',
               title='Monthly Profit Analysis'
              )
fig4.show()
```

Profit by Category

Profit by category

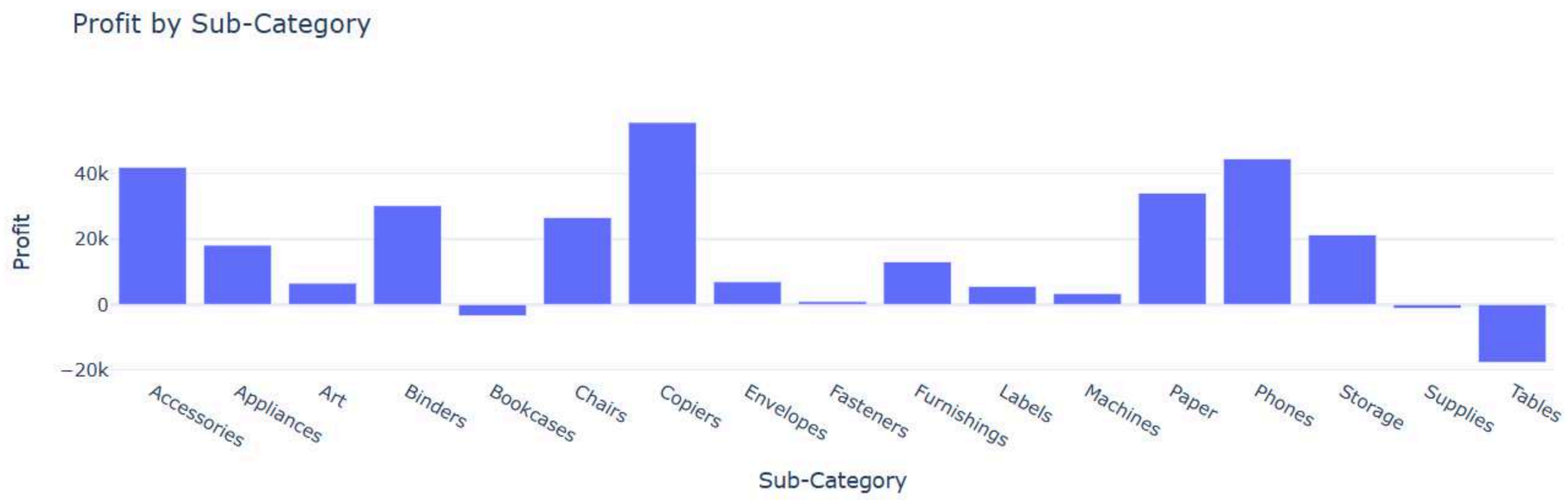
```
profit_by_cat = data.groupby('Category')['Profit'].sum().reset_index()
fig5 = px.pie(profit_by_cat,
              names='Category',
              values='Profit',
              title='Profit by Category',
              hole = 0.4
             )
fig5.update_traces(textposition='inside', textinfo='percent+label')
fig5.show()
```



Profit by Sub-Category

Profit by Sub-Category

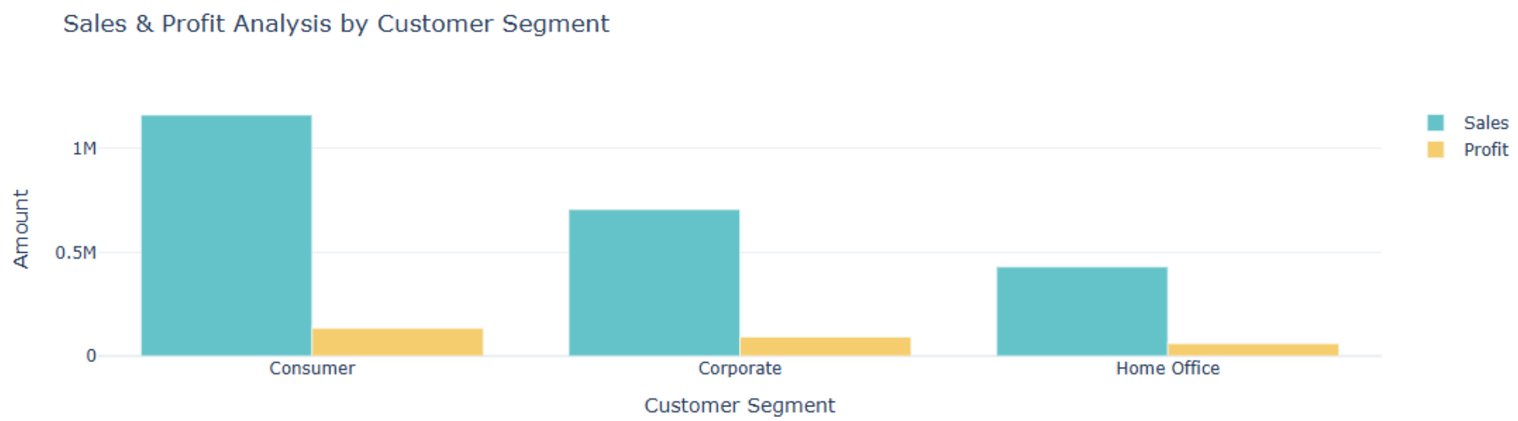
```
profit_by_subcat = data.groupby('Sub-Category')['Profit'].sum().reset_index()
fig6 = px.bar(profit_by_subcat,
              x='Sub-Category',
              y='Profit',
              title='Profit by Sub-Category'
             )
fig6.show()
```



Sales & Profit by Customer Segment

Sales & Profit By Customer Segment

```
sales_profit_by_seg = data.groupby('Segment').agg({'Sales': 'sum', 'Profit': 'sum'}).reset_index()

color_palette = colors.qualitative.Pastel

fig = go.Figure()
fig.add_trace(go.Bar(x=sales_profit_by_seg['Segment'],
                     y=sales_profit_by_seg['Sales'],
                     name='Sales',
                     marker_color=color_palette[0]))

fig.add_trace(go.Bar(x=sales_profit_by_seg['Segment'],
                     y=sales_profit_by_seg['Profit'],
                     name='Profit',
                     marker_color=color_palette[1]))

fig.update_layout(title='Sales & Profit Analysis by Customer Segment',
                  xaxis_title='Customer Segment',
                  yaxis_title='Amount')

fig.show()
```



Sales to Profit Ratio Analysis

Sales to Profit Ratio Analysis

```
]: sales_profit_seg = data.groupby('Segment').agg({'Sales': 'sum', 'Profit': 'sum'}).reset_index()
   sales_profit_seg['Sales_to_Profit_Ratio'] = sales_profit_seg['Sales'] / sales_profit_seg['Profit']
   print(sales_profit_seg[['Segment', 'Sales_to_Profit_Ratio']])
```

```
        Segment  Sales_to_Profit_Ratio
0      Consumer               8.659471
1     Corporate               7.677245
2  Home Office                7.125416
```

Thankyou!