

Business Case Study

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In [42]: import pandas as pd
import plotly.express as px
import plotly.io as pio
import plotly.colors as colors
import datetime as datetime
import plotly.graph_objects as go

pio.templates.default = "plotly_white"

In [21]: data=pd.read_csv(r"C:\Users\alamm\Downloads\Python Day 28 Data set.csv",encoding='latin-1')

In [22]: data.head()
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	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	Country	City	...	Postal Code	Region	Product ID	Category	Sub-Category	Product Name	Sales	Quantity	Discount	Profit
0	1	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson	...	42420	South	FUR-BO-10001798	Furniture	Bookcases	Bush Somerset Collection Bookcase	261.9600	2	0.00	41.9136
1	2	CA-2016-152156	11/8/2016	11/11/2016	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson	...	42420	South	FUR-CH-10000454	Furniture	Chairs	Hon Deluxe Fabric Upholstered Stacking Chairs,...	731.9400	3	0.00	219.5820
2	3	CA-2016-139688	6/12/2016	6/16/2016	Second Class	DV-13045	Darrin Van Huff	Corporate	United States	Los Angeles	...	90036	West	OFF-LA-10000240	Office Supplies	Labels	Self-Adhesive Address Labels for Typewriters b...	14.6200	2	0.00	6.8714
3	4	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale	...	33311	South	FUR-TA-10000577	Furniture	Tables	Bretford CR4500 Series Slim Rectangular Table	957.5775	5	0.45	-383.0310
4	5	US-2015-108966	10/11/2015	10/18/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale	...	33311	South	OFF-ST-10000760	Office Supplies	Storage	Eldon Fold 'N Roll Cart System	22.3680	2	0.20	2.5164

5 rows × 21 columns

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In [23]: data.describe()
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Out[23]:
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	Row ID	Postal Code	Sales	Quantity	Discount	Profit
count	9994.000000	9994.000000	9994.000000	9994.000000	9994.000000	9994.000000
mean	4997.500000	55190.379428	229.858001	3.789574	0.156203	28.656896
std	2885.163629	32063.693350	623.245101	2.225110	0.206452	234.260108
min	1.000000	1040.000000	0.444000	1.000000	0.000000	-6599.978000
25%	2499.250000	23223.000000	17.280000	2.000000	0.000000	1.728750
50%	4997.500000	56430.500000	54.490000	3.000000	0.200000	8.666500
75%	7495.750000	90008.000000	209.940000	5.000000	0.200000	29.364000
max	9994.000000	99301.000000	22638.480000	14.000000	0.800000	8399.976000

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In [24]: data['Order Date']=pd.to_datetime(data['Order Date'])
data['Ship Date']=pd.to_datetime(data['Ship Date'])

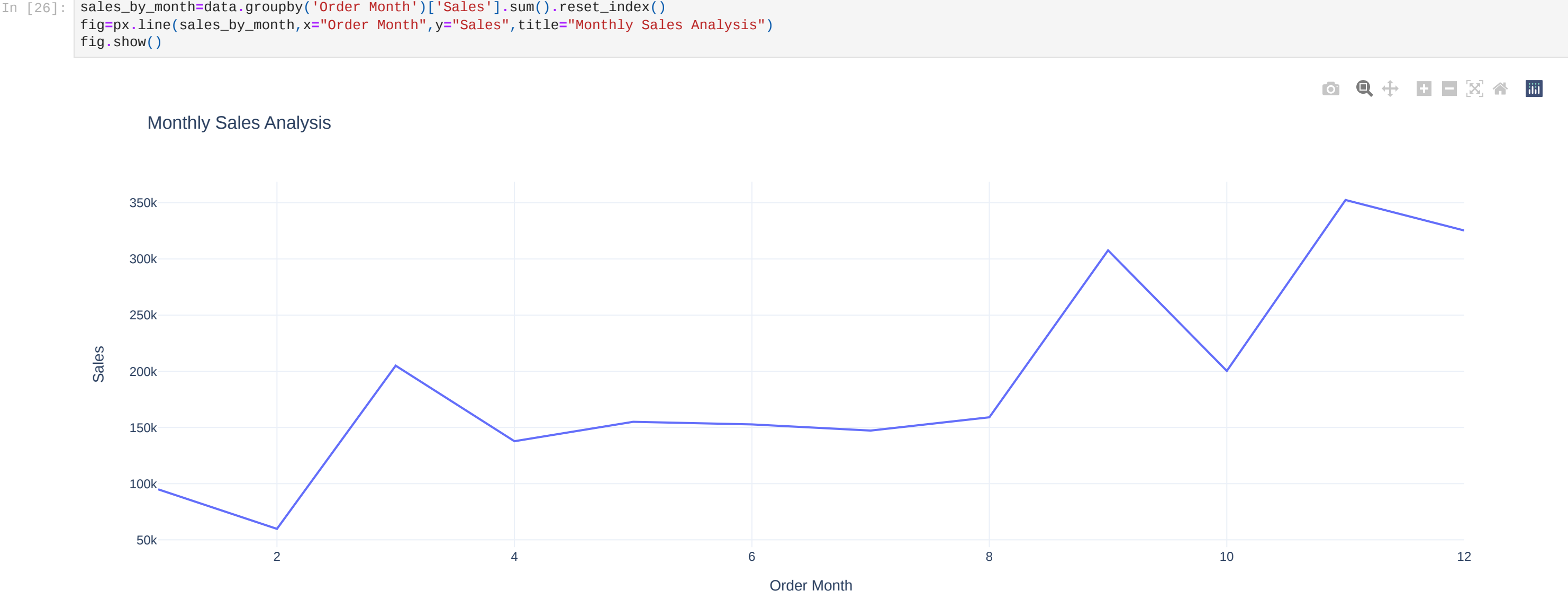
data['Order Month']=data['Order Date'].dt.month
data['Order Year']=data['Order Date'].dt.year
data['Order Day of week']=data['Order Date'].dt.dayofweek

In [25]: data.head()
```

```
Out[25]:
```

	Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment	Country	City	...	Category	Sub-Category	Product Name	Sales	Quantity	Discount	Profit	Order Month	Order Year	Order Day of week
0	1	CA-2016-152156	2016-11-08	2016-11-11	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson	...	Furniture	Bookcases	Bush Somerset Collection Bookcase	261.9600	2	0.00	41.9136	11	2016	1
1	2	CA-2016-152156	2016-11-08	2016-11-11	Second Class	CG-12520	Claire Gute	Consumer	United States	Henderson	...	Furniture	Chairs	Hon Deluxe Fabric Upholstered Stacking Chairs,...	731.9400	3	0.00	219.5820	11	2016	1
2	3	CA-2016-139688	2016-06-12	2016-06-16	Second Class	DV-13045	Darrin Van Huff	Corporate	United States	Los Angeles	...	Office Supplies	Labels	Self-Adhesive Address Labels for Typewriters b...	14.6200	2	0.00	6.8714	6	2016	6
3	4	US-2015-108966	2015-10-11	2015-10-18	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale	...	Furniture	Tables	Bretford CR4500 Series Slim Rectangular Table	957.5775	5	0.45	-383.0310	10	2015	6
4	5	US-2015-108966	2015-10-11	2015-10-18	Standard Class	SO-20335	Sean O'Donnell	Consumer	United States	Fort Lauderdale	...	Office Supplies	Storage	Eldon Fold 'N Roll Cart System	22.3680	2	0.20	2.5164	10	2015	6

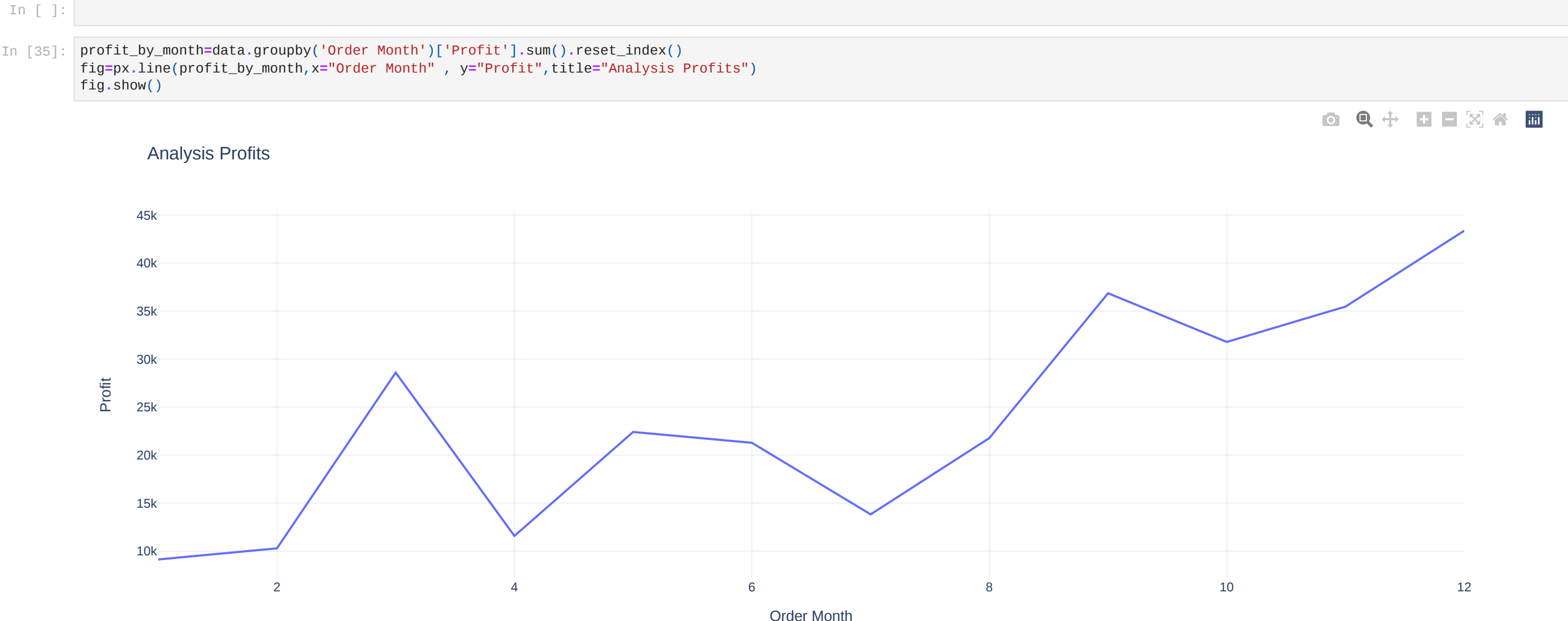
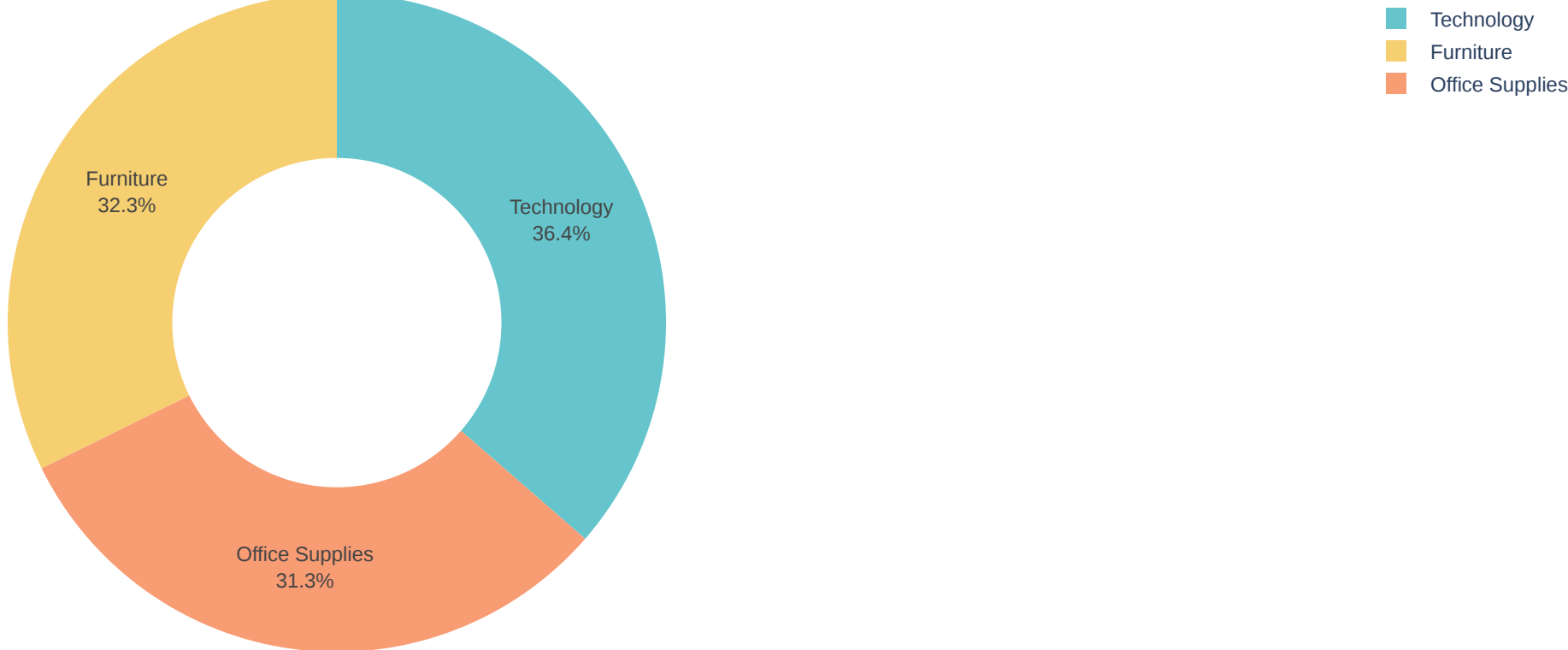
5 rows × 24 columns



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In [ ]:
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In [32]: sales_by_category=data.groupby("Category")['Sales'].sum().reset_index()
fig=px.pie(sales_by_category,values="Sales",names="Category",hole=0.5,color_discrete_sequence=px.colors.qualitative.Pastel)
fig.update_traces(textposition='inside',textinfo='percent+label')
fig.update_layout(title_text='Sales Analysis by Category',title_font=dict(size=24))
fig.show()
```

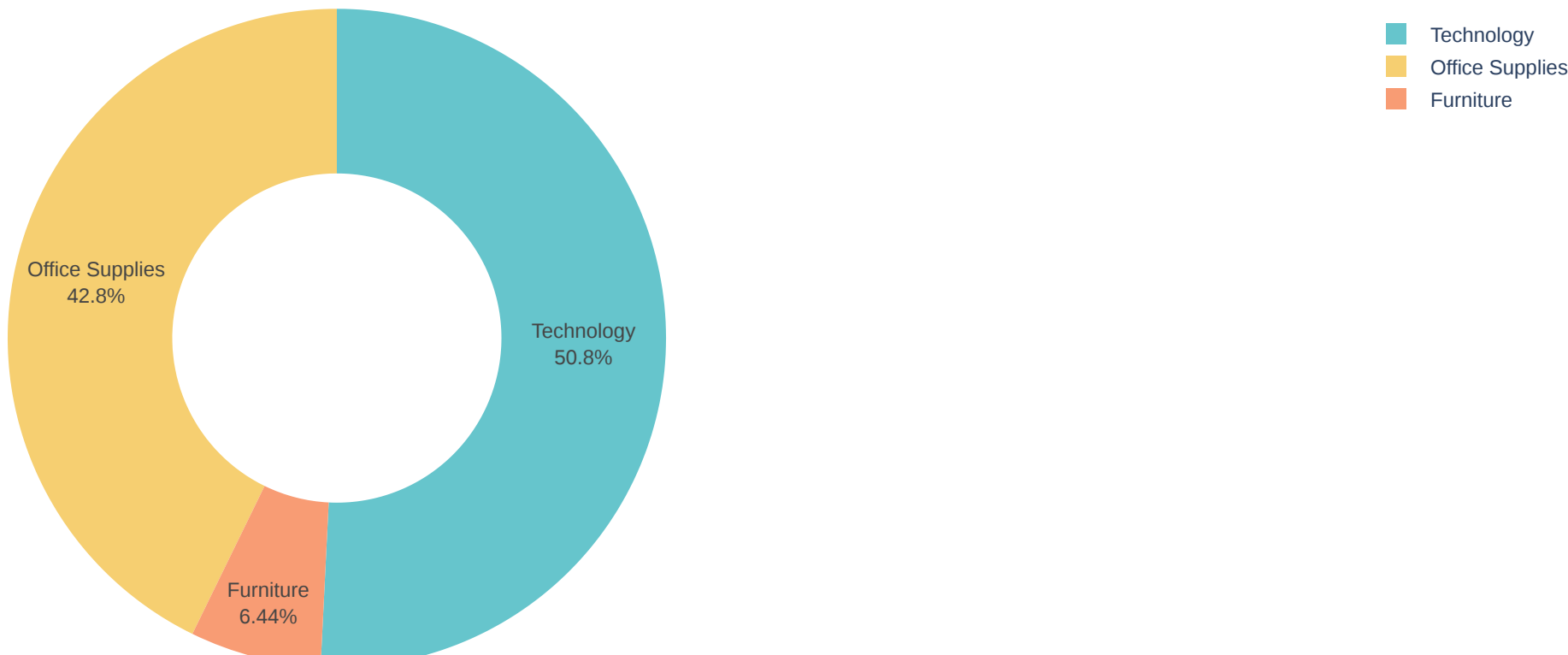
Sales Analysis by Category



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In [ ]:
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In [41]: profit_by_category=data.groupby('Category')['Profit'].sum().reset_index()
fig=px.pie(profit_by_category,values="Profit",names="Category",hole=0.5,color_discrete_sequence=px.colors.qualitative.Pastel)
fig.update_traces(textposition='inside',textinfo='percent+label')
fig.update_layout(title_text='Profit Analysis by Category',title_font=dict(size=24))
fig.show()
```

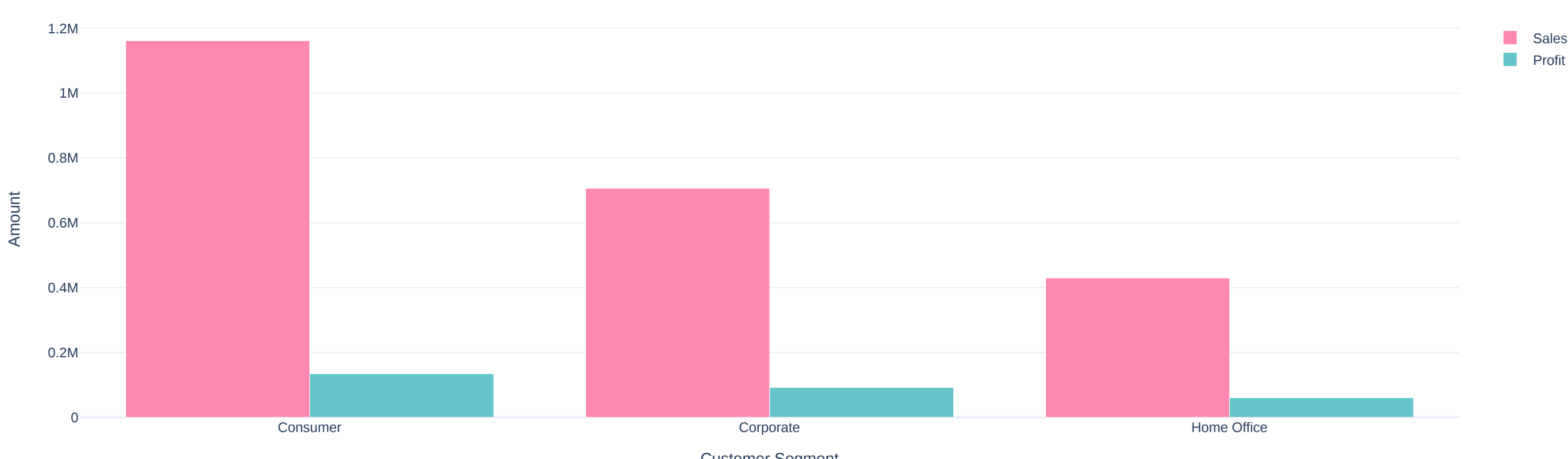
Profit Analysis by Category



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In [ ]:
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In [44]: sales_profit_by_segment=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_segment['Segment'],
                    y=sales_profit_by_segment['Sales'],
                    name="Sales",
                    marker_color=color_palette[6])))
fig.add_trace(go.Bar(x=sales_profit_by_segment['Segment'],
                    y=sales_profit_by_segment['Profit'],
                    name="Profit",
                    marker_color=color_palette[0])))
fig.update_layout(title="Sales and Profit Analysis By Customer Segment",
                  xaxis_title="Customer Segment",yaxis_title="Amount")
fig.show()
```

Sales and Profit Analysis By Customer Segment



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In [ ]:
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In [ ]:
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