

 Marwadi University <small>Marwadi Chandarana Group</small>	 NAAC A+	Marwadi University Faculty of Engineering & Technology Department of Information and Communication Technology
Subject: Programming With Python (01CT1309)	Aim: Practical based on Data Visualization with Plotly	
Experiment No: 24	Date:	Enrollment No: 92510133011

Aim: Practical based on Data Visualization with Plotly

IDE:

Installation

```
pip install plotly pandas
```

Creating a Sample Dataset

```
import pandas as pd
```

```
import plotly.express as px
```

Creating a Sample Dataset

```
# Sample data
```

```
data = {
```

```
    'Product': ['A', 'B', 'C', 'D', 'E'],
```

```
    'Sales': [100, 200, 150, 300, 250],
```

```
    'Profit': [30, 70, 50, 120, 90]
```

```
}
```

```
df = pd.DataFrame(data)
```

Creating Basic Visualizations

Bar Chart

```
# Bar chart for Sales
```

A bar chart is great for comparing quantities across categories.

```
fig = px.bar(df, x='Product', y='Sales', title='Sales by Product')
```

```
fig.show()
```

Output:



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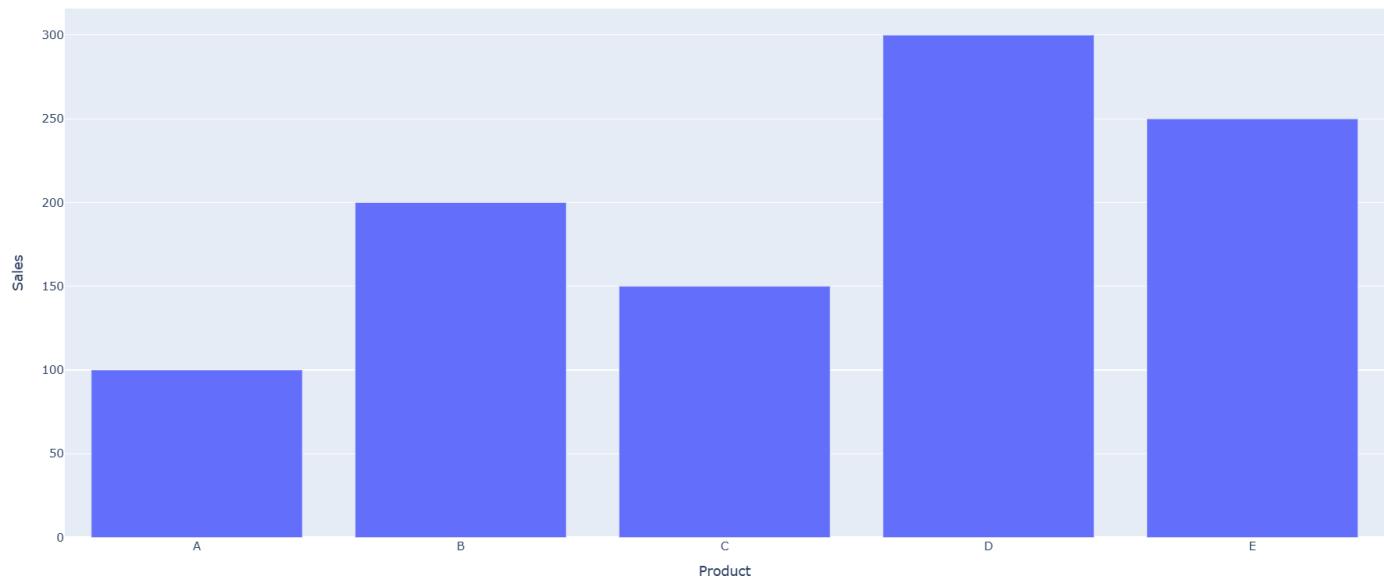
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Sales by Product



Line Chart

A line chart can help visualize trends over time or categories.

Line chart for Profit

```
fig = px.line(df, x='Product', y='Profit', title='Profit by Product')
```

```
fig.show()
```

Output:



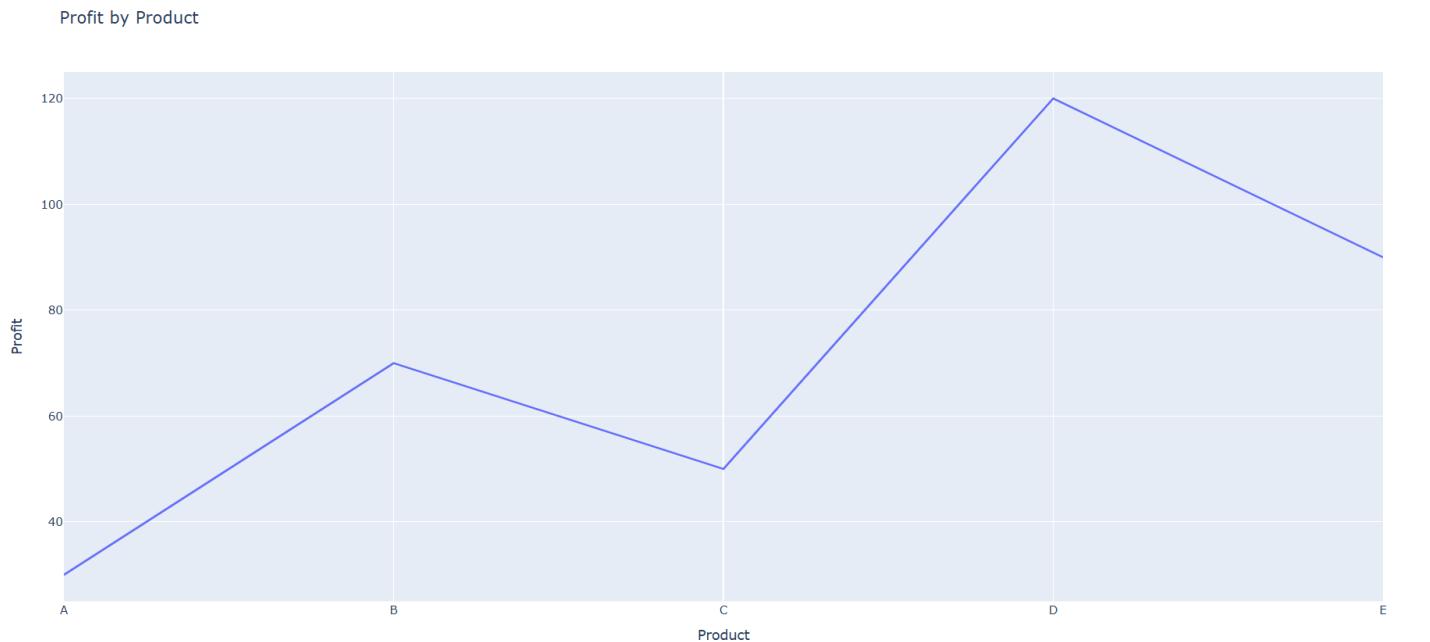
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Scatter Plot

A scatter plot is useful for examining the relationship between two numerical variables.

Scatter plot for Sales vs. Profit

```
fig = px.scatter(df, x='Sales', y='Profit', color='Product', title='Sales vs. Profit')
```

```
fig.show()
```

Output:



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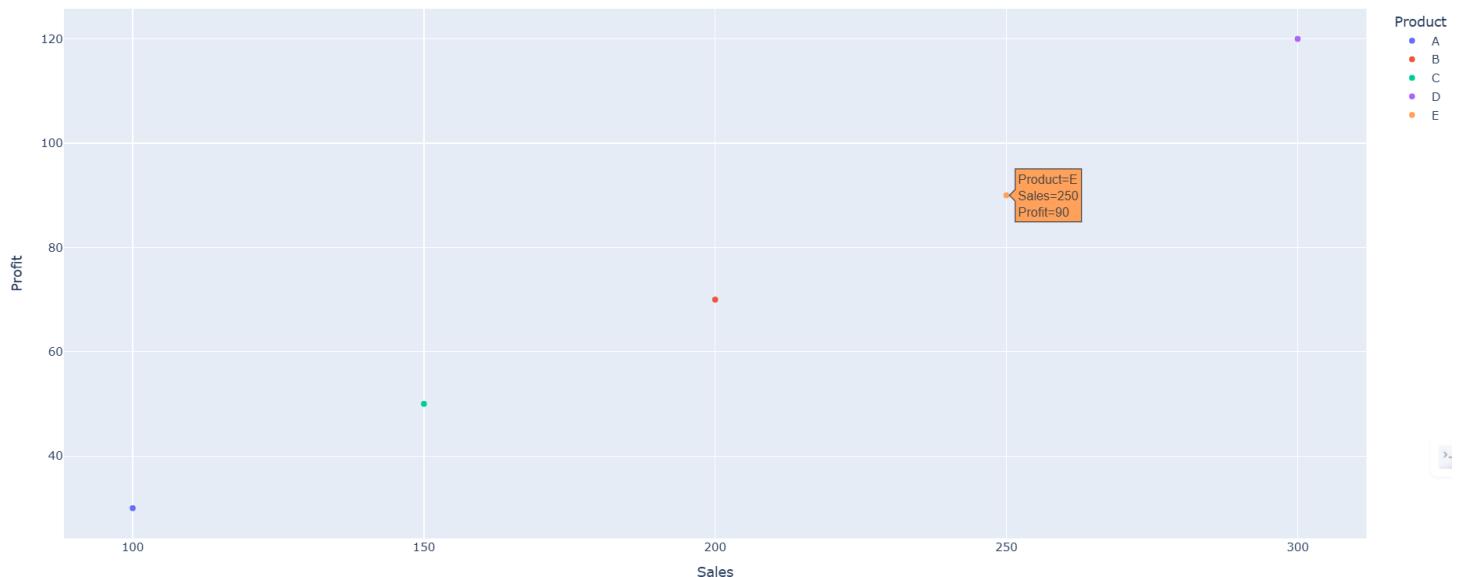
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Sales vs. Profit



Customizing Visualizations

Plotly allows for extensive customization. Let's enhance our bar chart with more features.

Enhanced Bar chart

```
fig = px.bar(df, x='Product', y='Sales',
              title='Sales by Product',
              color='Profit', # Color by Profit
              text='Sales') # Show sales value on bars
```

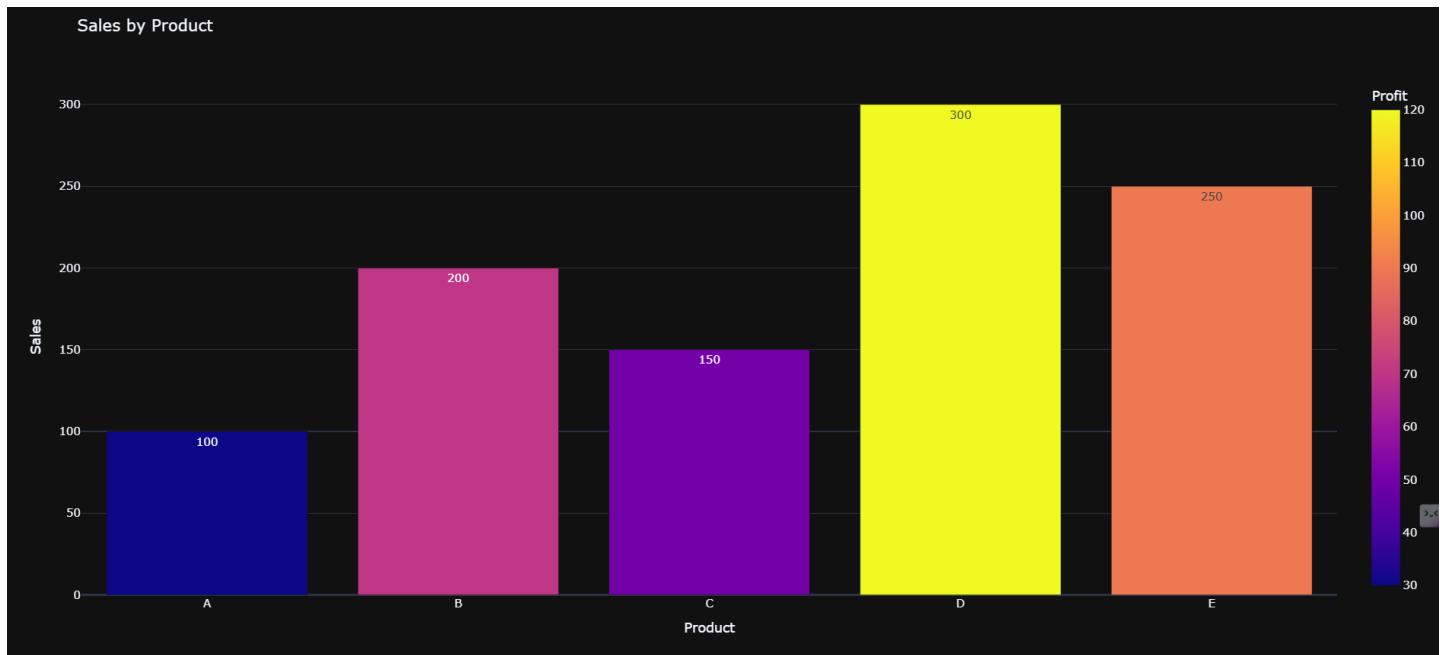
Customize layout

```
fig.update_layout(xaxis_title='Product',
                  yaxis_title='Sales',
                  legend_title='Profit',
                  template='plotly_dark') # Change template
```

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fig.show()

Output:



Exporting Visualizations

Plotly figures as static images or HTML files.

```
# Save the figure as an HTML file
```

```
fig.write_html('sales_by_product.html')
```

 sales_by_product 09-11-2024 11:02 HTML Source File 4,461 KB

```
# Save the figure as a PNG file (you may need to install kaleido)
```

```
fig.write_image('sales_by_product.png')
```

Github link:

<https://github.com/trupalijasani05/trupali-jasani>