
 Marwadi University <small>Marwadi Chandarana Group</small> 	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: 92400133181

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()
```

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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()
```

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()
```

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()
```

Exporting Visualizations

Plotly figures as static images or HTML files.



Save the figure as an HTML file

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

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

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

Code:

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```

1  import pandas as pd
2  import plotly.express as px
3  # Sample data
4  data = {
5      'Product': ['A', 'B', 'C', 'D', 'E'],
6      'Sales': [100, 200, 150, 300, 250],
7      'Profit': [30, 70, 50, 120, 90]
8  }
9  df = pd.DataFrame(data)
10 # Bar chart for Sales
11 fig = px.bar(df, x='Product', y='Sales', title='Sales by Product')
12 fig.show()
13
14 fig = px.scatter(df, x='Sales', y='Profit', color='Product', title='Sales vs. Profit')
15 fig.show()
16
17 # Enhanced Bar chart
18 fig = px.bar(df, x='Product', y='Sales',
19             title='Sales by Product',
20             color='Profit', # Color by Profit
21             text='Sales') # Show sales value on bars
22
23 # Customize layout
24 fig.update_layout(xaxis_title='Product',
25                 yaxis_title='Sales',
26                 legend_title='Profit',
27                 template='plotly_dark') # Change template
28 fig.show()
29
30 # Save the figure as an HTML file
31 fig.write_html('sales_by_product.html')
32
33 # Save the figure as a PNG file (you may need to install kaleido)
34 fig.write_image('sales_by_product.png')
35
36

```

Output:

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Name

Date Modified

Reverse of a number PWP Lab 6.7

8/9/2025 12:09 ...

Reversing of signal PWP Lab 12.py

9/16/2025 11:4...

sales_by_product.html

11/22/2025 3:1...

sales_by_product.png

11/22/2025 3:1...

Scaling of signals PWP Lab 12.py

9/16/2025 11:4...

Help

Variable Explorer

Debugger

Profiler

Plots

Files

Console 1/A

```
In [2]: %runfile C:/Users/devah/Documents/PWP/untitled0.py --wdir
```

```
In [3]:
```

Reverse of a number PWP Lab 6.7

Reversing of signal PWP Lab 12.py

sales_by_product.html

sales_by_product.png

Help

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Console 1/A

```
% Save the figure as a PNG file (you may need to install matplotlib)
```

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

```
In [2]: %runfile C:/Users/devah/Documents/PWP/untitled0.py --wdir
```

```
In [3]:
```

Reverse of a number PWP Lab 6.7

Reversing of signal PWP Lab 12.py

sales_by_product.html

sales_by_product.png

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Console 1/A

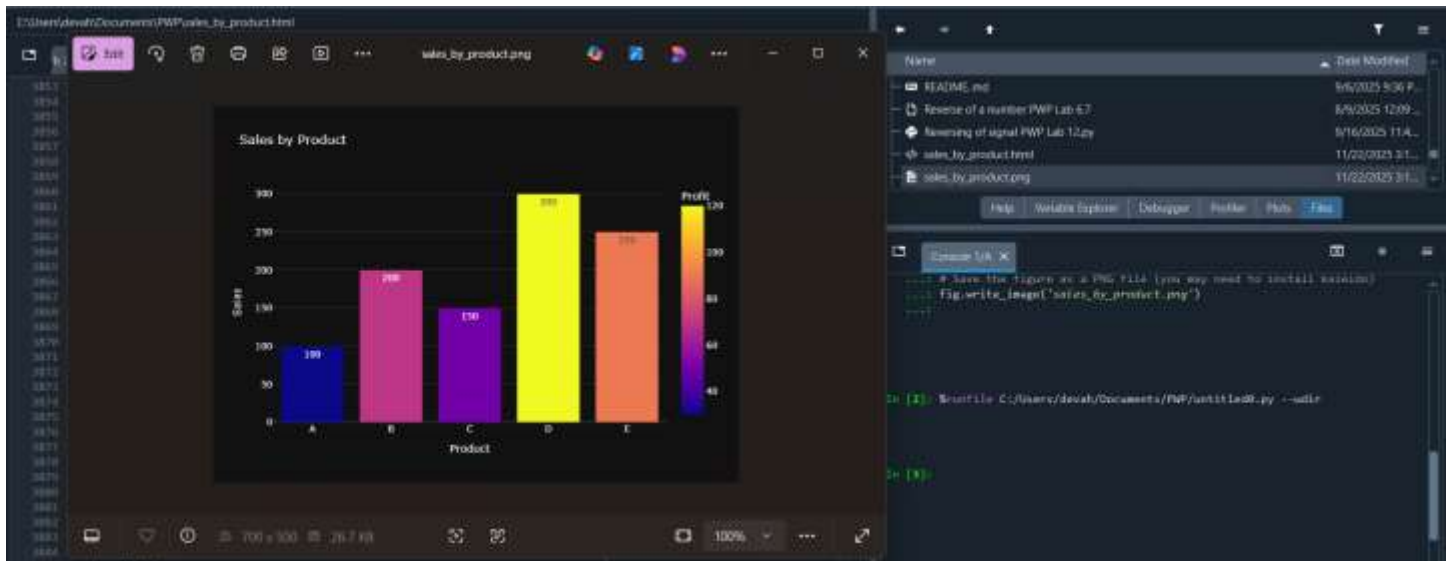
```
% Save the figure as a PNG file (you may need to install matplotlib)
```

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

```
In [2]: %runfile C:/Users/devah/Documents/PWP/untitled0.py --wdir
```

```
In [3]:
```

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GitHub:

<https://github.com/mallaadisrinivasu132035-code/python.git>