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5 PYTHON LIBRARIES FOR DATA VISUALISATION

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Matplotlib is a classic data visualization library that provides a flexible and straightforward way to create static, interactive, and animated plots in Python.

```python
import matplotlib.pyplot as plt

# Sample data
x = [1, 2, 3, 4, 5]
y = [10, 12, 8, 15, 7]

# Creating a basic line plot
plt.plot(x, y)
plt.xlabel('X-axis Label')
plt.ylabel('Y-axis Label')
plt.title('Simple Line Plot')
plt.show()
```

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Seaborn builds on top of **Matplotlib** and offers a high-level **interface** for creating attractive **statistical** graphics. It's particularly **useful** for visualizing complex datasets.

```
import seaborn as sns

# Sample data
data = sns.load_dataset('iris')

# Creating a scatter plot
sns.scatterplot(x='sepal_length', y='sepal_width', hue='species',
data=data)
plt.xlabel('Sepal Length')
plt.ylabel('Sepal Width')
plt.title('Scatter Plot of Iris Dataset')
plt.show()
```

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Plotly is a powerful library for creating interactive **visualizations**. It supports a wide range of **chart types** and is ideal for creating web-based plots with dynamic interactions.

```python
import plotly.graph_objects as go

# Sample data
x = [1, 2, 3, 4, 5]
y = [10, 15, 13, 17, 20]

# Creating a bar plot
fig = go.Figure(data=[go.Bar(x=x, y=y)])
fig.update_layout(title='Bar Plot with Plotly', xaxis_title='X-axis Label', yaxis_title='Y-axis Label')
fig.show()
```

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Pandas, primarily a data **manipulation** library, also offers simple and **quick** data **visualization** capabilities. It's great for **creating** basic plots directly from data frames.

```python
import pandas as pd

# Sample data
data = {'Name': ['Alice', 'Bob', 'Charlie', 'David', 'Eva'],
        'Age': [25, 30, 22, 28, 35]}

# Creating a bar plot
df = pd.DataFrame(data)
df.plot(x='Name', y='Age', kind='bar', rot=0, legend=False)
plt.xlabel('Name')
plt.ylabel('Age')
plt.title('Bar Plot with Pandas')
plt.show()
```

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Plotnine is a Python implementation of the R package ggplot2. It follows the Grammar of Graphics principles, allowing users to create elegant and expressive visualizations.

```python
from plotnine import ggplot, aes, geom_point

# Sample data
data = {'x': [1, 2, 3, 4, 5], 'y': [10, 8, 12, 15, 7]}

# Creating a scatter plot
plot = ggplot(pd.DataFrame(data), aes(x='x', y='y')) + geom_point()
plot.draw()
```

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