Training Report Day-25

4 July 2024

Matplotlib

Matplotlib is a comprehensive library for creating static, animated, and interactive visualizations in Python. It is widely used for generating plots, graphs, and other visual representations of data, making it a key tool for data analysis and presentation.

keyboard_arrow_down

Key Features of Matplotlib

1. **Variety of Plots**: Matplotlib supports a wide range of plots and charts, including:
    - Line plots
    - Scatter plots
    - Bar charts
    - Histograms
    - Pie charts
    - Box plots
    - Error bars
    - Contour plots
    - 3D plots (using the mplot3d toolkit)
2. **Customization**: Extensive customization options for plots, such as:
    - Titles, labels, and legends
    - Colors, markers, and line styles
    - Axis scales, limits, and ticks
    - Grids and subplots
    - Annotations and text
3. **Integration**: Compatible with other popular Python libraries, such as NumPy, Pandas, and SciPy, allowing for seamless integration into data analysis workflows.
4. **Interactive Plots**: Capabilities for creating interactive plots that can be embedded in graphical user interfaces (GUIs) or web applications.

5. **Publication Quality**: Tools for creating high-quality plots suitable for publication, with support for various output formats (PNG, PDF, SVG, etc.).
6. **Gallery and Documentation**: Extensive gallery of examples and thorough documentation to help users create complex and customized visualizations.

```
import matplotlib.pyplot as plt
import numpy as np
xpoints=np.array([0,6])
ypoints=np.array([0,250])
plt.plot(xpoints,ypoints)
plt.show()
ypoints=np.array([3,8,1,10])
plt.plot(ypoints,marker='*')
plt.show()
ypoints=np.array([3,8,1,10])
plt.plot(ypoints,marker='*',linestyle='dotted')
plt.show()
x=np.array([4,5,7,9,12])
y=np.array([1,3,5,7,9])
plt.plot(x)
plt.plot(y)
plt.show()
plt.subplot(2,2,1)
plt.plot(x,y,'g--')

plt.subplot(2,2,2)
plt.plot(x,y,'y*-')

plt.subplot(2,2,3)
plt.plot(x,y,'g--')

plt.subplot(2,2,4)
plt.plot(x,y,'y*-')
```