

Python Programming

Unit 06 – Lecture 05: Matplotlib Fundamentals (pyplot, labels, grid)

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Repository: <https://github.com/tali7c/Python-Programming>

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Learning Outcomes

- Create basic plots using Matplotlib pyplot

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- Add titles, labels, legends, and grids

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- Create basic plots using Matplotlib pyplot
- Add titles, labels, legends, and grids
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- Add titles, labels, legends, and grids
- Customize markers, line style, and colors
- Save plots to image files

Matplotlib and pyplot

- Matplotlib is a plotting library for Python

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- Matplotlib is a plotting library for Python
- `matplotlib.pyplot` provides a simple plotting API

Basic Line Plot

```
import matplotlib.pyplot as plt
```

```
x = [1, 2, 3, 4]
```

```
y = [2, 4, 6, 8]
```

```
plt.plot(x, y)
```

```
plt.show()
```

Labels, Title, Grid, Legend

```
plt.plot(x, y, label="y = 2x")  
plt.title("Line Plot")  
plt.xlabel("x")  
plt.ylabel("y")  
plt.grid(True)  
plt.legend()
```

Saving a Plot

```
plt.savefig("images/line_plot.png", dpi=150)
```

Demo: Customized Line Plot

- File: `demo/matplotlib_line_plot_demo.py`

Demo: Customized Line Plot

- File: `demo/matplotlib_line_plot_demo.py`
- Saves a plot image to `images/`

Checkpoint 1

Question: What does `plt.grid(True)` do?

Checkpoint 2

Question: Why do we add labels and titles to plots?

Think-Pair-Share

Discuss:

- What makes a plot misleading? Give 2 examples.

Key Takeaways

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- Save plots using `savefig`

Exit Question

Write the function name used to save a plot to a file.