Python Mabplotlib Basic Scatter and Line Plots

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1 Line and Scatter Plots

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1.1 Plot Random Walk and White Noise Jointly

Given x and y coordinates, plot out two lines. see matplotlib.pyplot.plot. Here we will plot out the extremes of AR(1), white noise (no persistence), and random walk (fully persistent shocks).

```
# Import Packages
import numpy as np
import matplotlib.pyplot as plt

# Generate X and Y
np.random.seed(123)
ar_fl_y1_rand = np.random.normal(0, 2, 100)
ar_fl_y2_rand = np.cumsum(np.random.normal(0, 1, 100))
ar_it_x_grid = np.arange(1,len(ar_fl_y1_rand)+1)

# Start Figure
fig, ax = plt.subplots()

# Graph
ax.plot(ar_it_x_grid, ar_fl_y1_rand,
                    color='blue', linestyle='dashed',
                    label='sd=2, 0 persistence')
```

```
## [<matplotlib.lines.Line2D object at 0x0000026F5936BDF0>]
```

```
ax.plot(ar_it_x_grid, ar_fl_y2_rand,
                    color='red', linestyle='solid',
                    label='sd=1, random walk')

# Labeling
```

```
## [<matplotlib.lines.Line2D object at 0x0000026F59C90EE0>]
```

```
ax.legend(loc='upper left')
```

```
## <matplotlib.legend.Legend object at 0x0000026F56E80A30>
```

```
plt.ylabel('Random Standard Normal Draws')
```

```
## Text(0, 0.5, 'Random Standard Normal Draws')
```

```
plt.xlabel('Time Periods')
```

```
## Text(0.5, 0, 'Time Periods')
```

```
plt.title('White Noise')
```

```
## Text(0.5, 1.0, 'White Noise')
```

```
plt.grid()
plt.show()
```