

matplotlib_exercises_ANSWERS

August 5, 2019

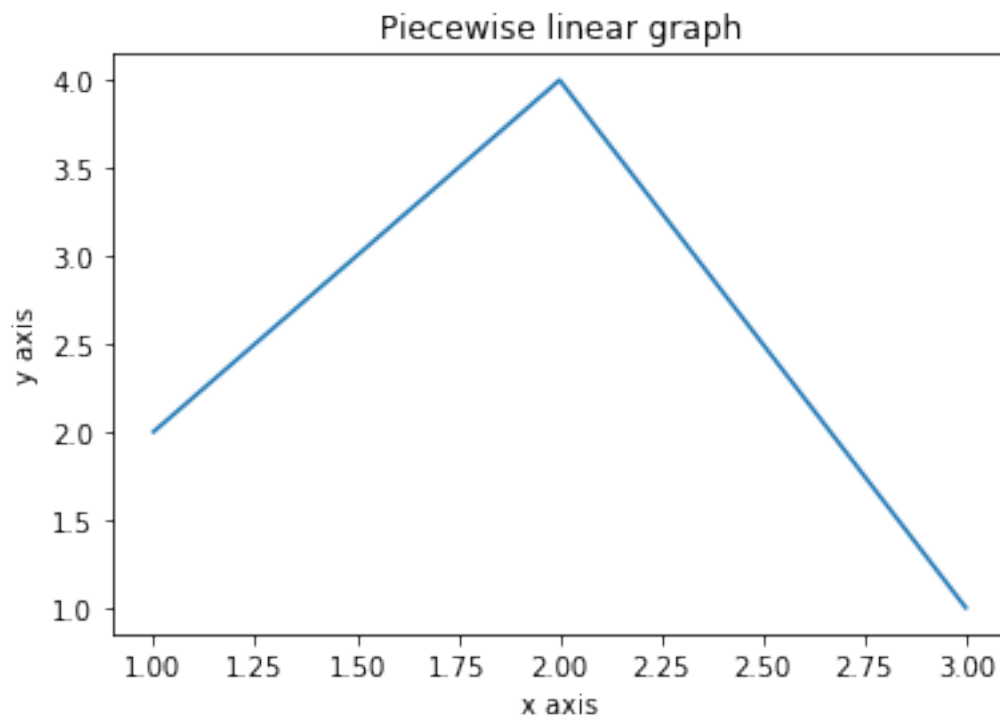
1 Matplotlib exercises

```
[1]: import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
```

1. Recreate the following figure:

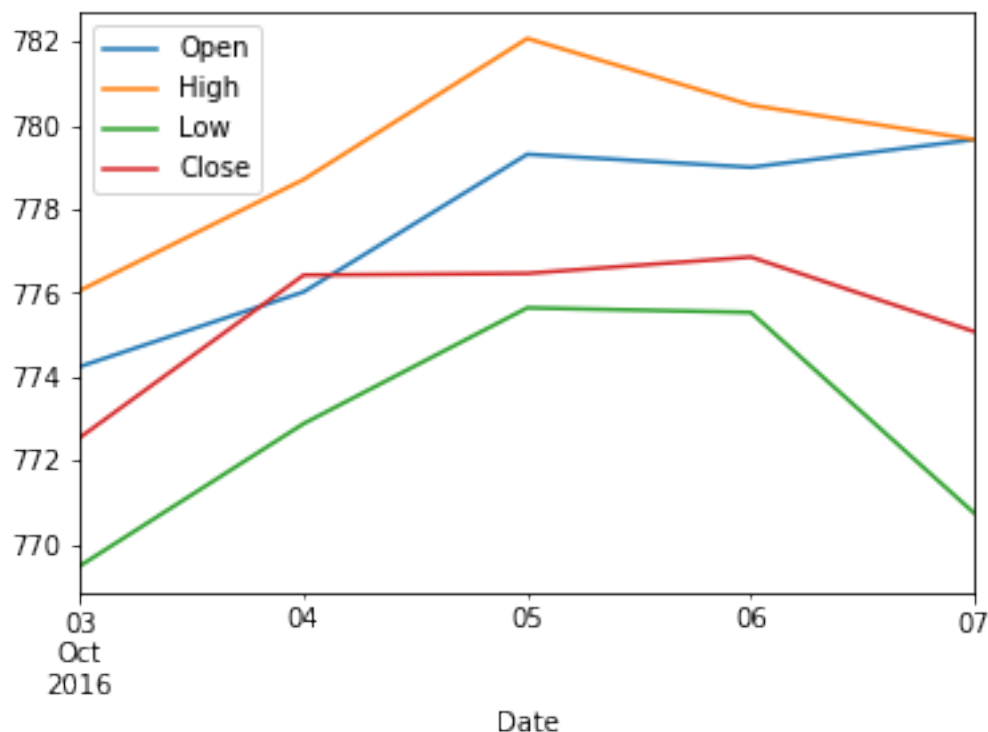
```
[2]: x = [1,2,3]
y = [2,4,1]

plt.plot(x, y)
plt.xlabel('x axis')
plt.ylabel('y axis')
plt.title('Piecewise linear graph')
plt.show()
```



2. Using the data in ./data/fdata.csv, recreate the following plot:

```
[3]: import pandas as pd
df = pd.read_csv('data/fdata.csv', sep=',', parse_dates=True, index_col=0)
df.plot()
plt.show()
```



3. Create a plot with two or more lines, with legends, different widths and colours.

```
[4]: x1 = [10,20,30]
y1 = [20,40,10]

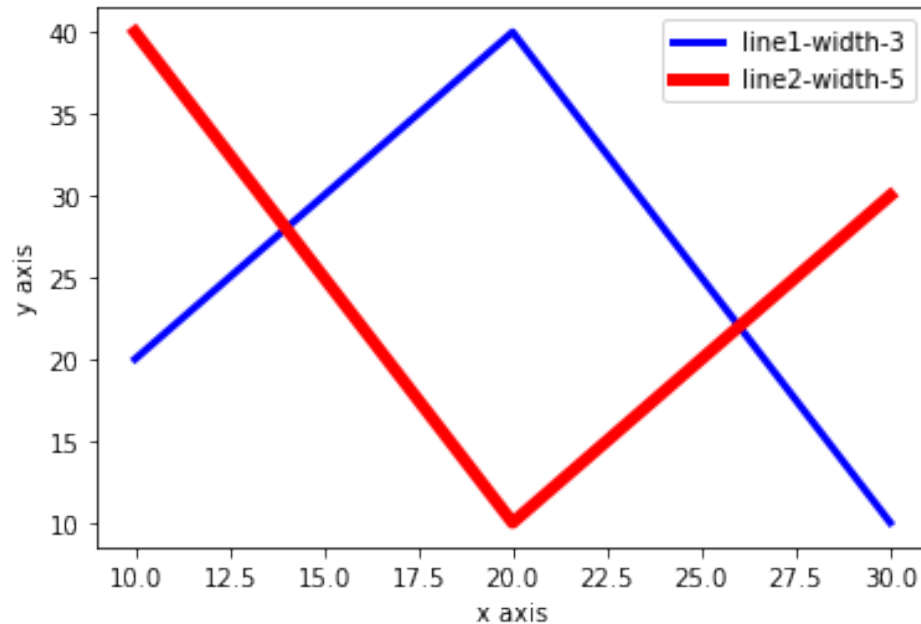
x2 = [10,20,30]
y2 = [40,10,30]

plt.xlabel('x axis')
plt.ylabel('y axis')
plt.title('Two or more lines with different widths and colors with suitable_
→legends ')

plt.plot(x1,y1, color='blue', linewidth = 3, label = 'line1-width-3')
plt.plot(x2,y2, color='red', linewidth = 5, label = 'line2-width-5')
plt.legend()
```

```
plt.show()
```

Two or more lines with different widths and colors with suitable legends



4. Create a plot to display the data in ./data/trader.csv. Turn on the grid lines in the plot.

```
[5]: df = pd.read_csv('data/trader.csv', sep=',', parse_dates=True)

x = df.Date.values
y = df.Close.values

fig = plt.figure()

graph = fig.add_subplot(111)

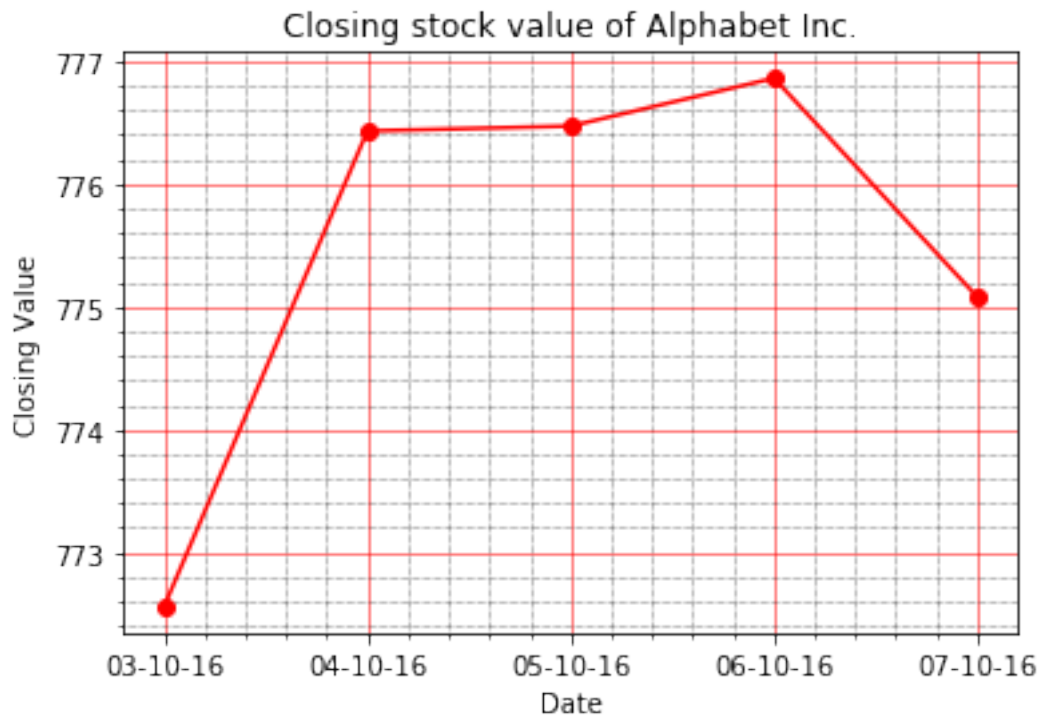
graph.plot(x,y,'r-o')

graph.set_xticks(x)
graph.set_xticklabels(x)

plt.xlabel('Date')
plt.ylabel('Closing Value')
plt.title('Closing stock value of Alphabet Inc.')
# Turn on the minor TICKS, which are required for the minor GRID
plt.minorticks_on()

plt.grid(which='major', linestyle='-', linewidth='0.5', color='red')
plt.grid(which='minor', linestyle=':', linewidth='0.5', color='black')
```

```
plt.show()
```

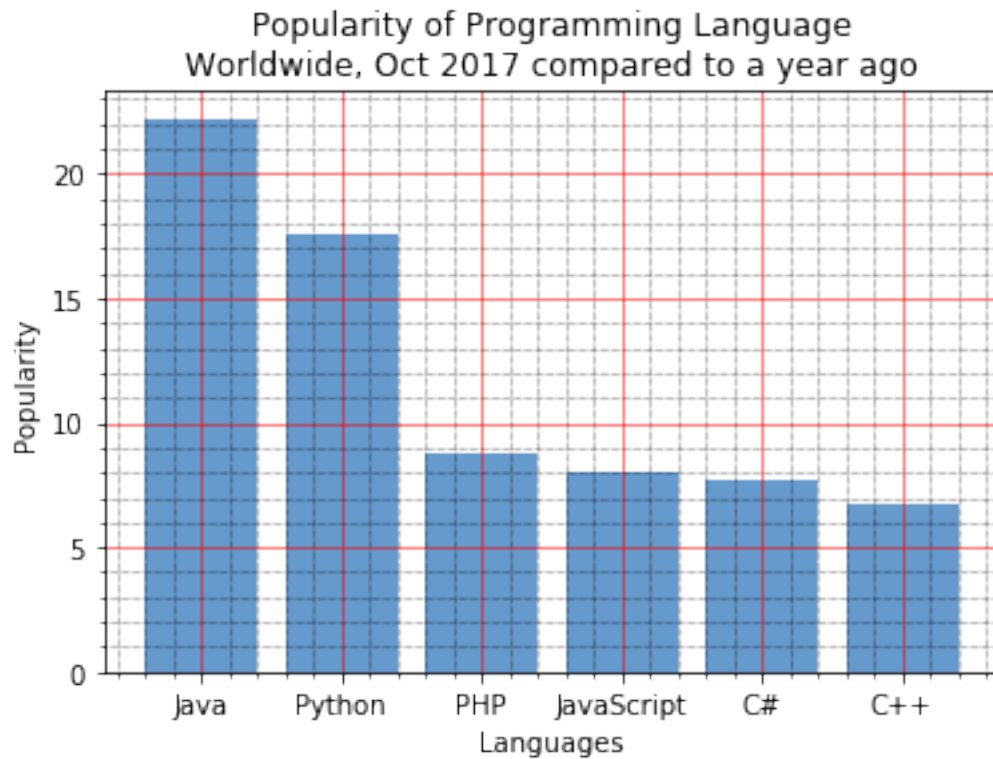


5. Make a bar chart for the following data on popularity of programming languages: Programming languages: Java, Python, PHP, JavaScript, C#, C++ Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7

```
[6]: x = ['Java', 'Python', 'PHP', 'JavaScript', 'C#', 'C++']
popularity = [22.2, 17.6, 8.8, 8, 7.7, 6.7]
x_pos = [i for i, _ in enumerate(x)]

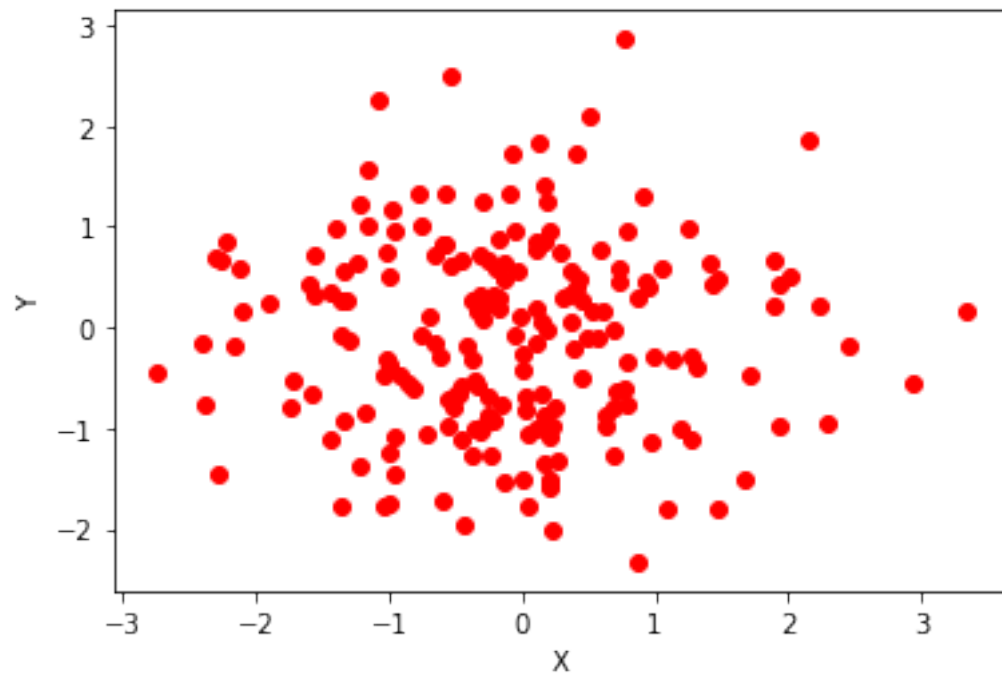
plt.bar(x_pos, popularity, color=(0.4, 0.6, 0.8, 1.0))

plt.xlabel("Languages")
plt.ylabel("Popularity")
plt.title("Popularity of Programming Language\n" + "Worldwide, Oct 2017_\n"
        "\t→compared to a year ago")
plt.xticks(x_pos, x)
# Turn on the grid
plt.minorticks_on()
plt.grid(which='major', linestyle='-', linewidth='0.5', color='red')
# Customize the minor grid
plt.grid(which='minor', linestyle=':', linewidth='0.5', color='black')
plt.show()
```



6. Create a scatter plot for two variables X and Y, whose values are sampled from a random distribution.

```
[7]: X = np.random.randn(200)
      Y = np.random.randn(200)
      plt.scatter(X,Y, color='r')
      plt.xlabel("X")
      plt.ylabel("Y")
      plt.show()
```



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