annotations

February 6, 2025

1 Scatterplot with Annotations

In this example we show how to label each point in a scatterplot.

[1]:
```
import matplotlib.pyplot as plt
```

[2]:
```
# Sample data
x_vals = [1.0345873, 2.098332, 3.09823, 4.103457, 5.12094804, 6.2435]
y_vals = [2.203934,  3.87572,  5.234,   7.209942, 11.99082,   13.12349]
```

Move our data into a Pandas DataFrame.

[3]:
```
import pandas as pd

df = pd.DataFrame()
df['X'] = x_vals
df['Y'] = y_vals

df
```

[3]:

	X	Y
0	1.034587	2.203934
1	2.098332	3.875720
2	3.098230	5.234000
3	4.103457	7.209942
4	5.120948	11.990820
5	6.243500	13.123490

We can use df.iterrows to iterate over all rows in the DataFrame.

[4]:
```
for i, (x, y) in df.iterrows():
    print(f"Point {i}: {x}, {y}")
```

```
Point 0: 1.0345873, 2.203934
Point 1: 2.098332, 3.87572
Point 2: 3.09823, 5.234
Point 3: 4.103457, 7.209942
Point 4: 5.12094804, 11.99082
Point 5: 6.2435, 13.12349
```

[5]:
```
# Scatter plot
plt.scatter(x_vals, y_vals)

# Annotating each point with its x and y value
# (and specifying that we want one decimal place only)
for _, (x, y) in df.iterrows():
    plt.text(x, y, f"({x:.1f}, {y:.1f})")

# Labels
plt.title("Scatterplot with Annotations")
plt.xlabel("X-axis")
plt.ylabel("Y-axis")

plt.show()
```