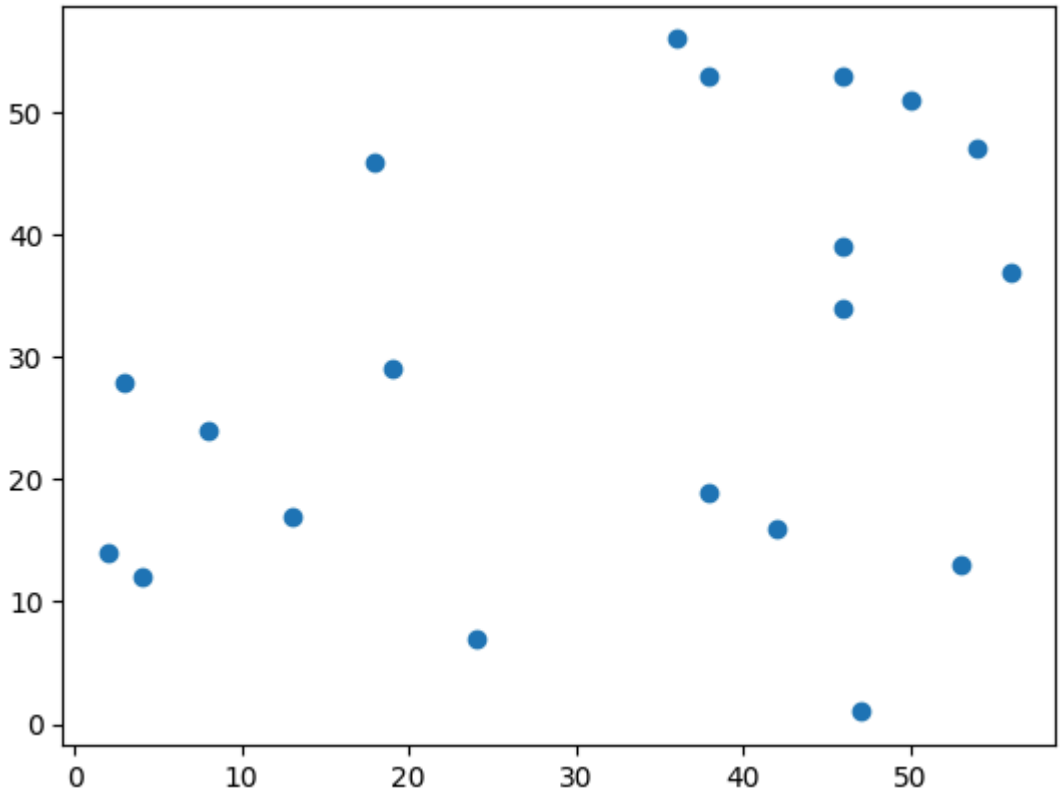
In [ ]:
```
import numpy as np
import pandas as pd
from matplotlib import pyplot as plt
from sklearn.cluster import AgglomerativeClustering
from scipy.cluster.hierarchy import dendrogram, linkage
```

In [ ]:
```
# data
np.random.seed(30)
x = np.random.randint(1,60,20)
y =np.random.randint(1,60,20)
data = list(zip(x,y))
print(data)
plt.scatter(x,y)
```

```
[(38, 19), (38, 53), (46, 53), (46, 39), (53, 13), (13, 17), (24, 7), (3, 28), (54,
47), (18, 46), (47, 1), (4, 12), (42, 16), (8, 24), (56, 37), (2, 14), (50, 51), (4
6, 34), (36, 56), (19, 29)]
```

Out[ ]: <matplotlib.collections.PathCollection at 0x25fe2c22f10>



In [ ]:
```
agg = AgglomerativeClustering(n_clusters=4,compute_full_tree=True).fit(data)
```

In [ ]:
```
agg.labels_
```

Out[ ]:
```
array([2, 0, 0, 0, 2, 1, 2, 1, 0, 3, 2, 1, 2, 1, 0, 1, 0, 0, 0, 1],
      dtype=int64)
```

In [ ]:
```
agg.n_connected_components_
```

Out[ ]: 1

In [ ]:
```
agg.n_leaves_
```

Out[ ]: 20

In [ ]:
```
linkage_data = linkage(data, method='ward', metric='euclidean')
dendrogram(linkage_data)

plt.show()
```