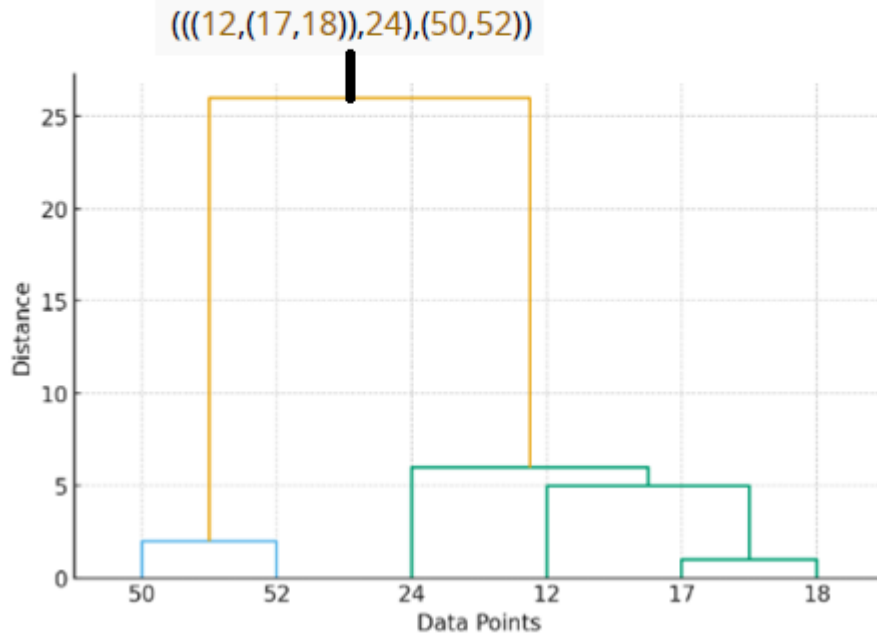


Agglomerative Hierarchical Clustering (Single-Link)



Source code for the above dendrogram images

```
import matplotlib.pyplot as plt

from scipy.cluster.hierarchy import linkage, dendrogram

# Data points
data = [12, 17, 18, 24, 50, 52]

# Perform hierarchical clustering with single-link (minimum distance)
Z = linkage([x for x in data], method='single', metric='euclidean')

# Plot dendrogram
```

```
plt.figure(figsize=(8, 5))

dendrogram(Z, labels=data, distance_sort='ascending')

plt.title("Agglomerative Hierarchical Clustering (Single-Link)")

plt.xlabel("Data Points")

plt.ylabel("Distance")

plt.show()
```

Here's the **dendrogram** for the dataset `{12, 17, 18, 24, 50, 52}` using **agglomerative hierarchical clustering (single-link / min distance)**.

You can clearly see:

- `{17,18}` join at distance 1.
- `{50,52}` join at distance 2.
- `{12}` merges with `{17,18}` at 5.
- Then `{24}` joins them at 6.
- Finally, the left cluster merges with `{50,52}` at 26.