Flavor Roots

Hierarchical Clustering

Prompts

- Perform a hierarchical clustering with a dendrogram. Scale the data first

Strategy

- Prepare the data
- Perform hierarchical clustering
- Plot dendrogram

Code & Results

1. Prepare the data

This code scales the features.

```
from sklearn.preprocessing import StandardScaler

# --- Scale the data ---
scaler = StandardScaler()
data_scaled = scaler.fit_transform(data)
```

2. Train the Model

This code performs hierarchical clustering using Ward's method.

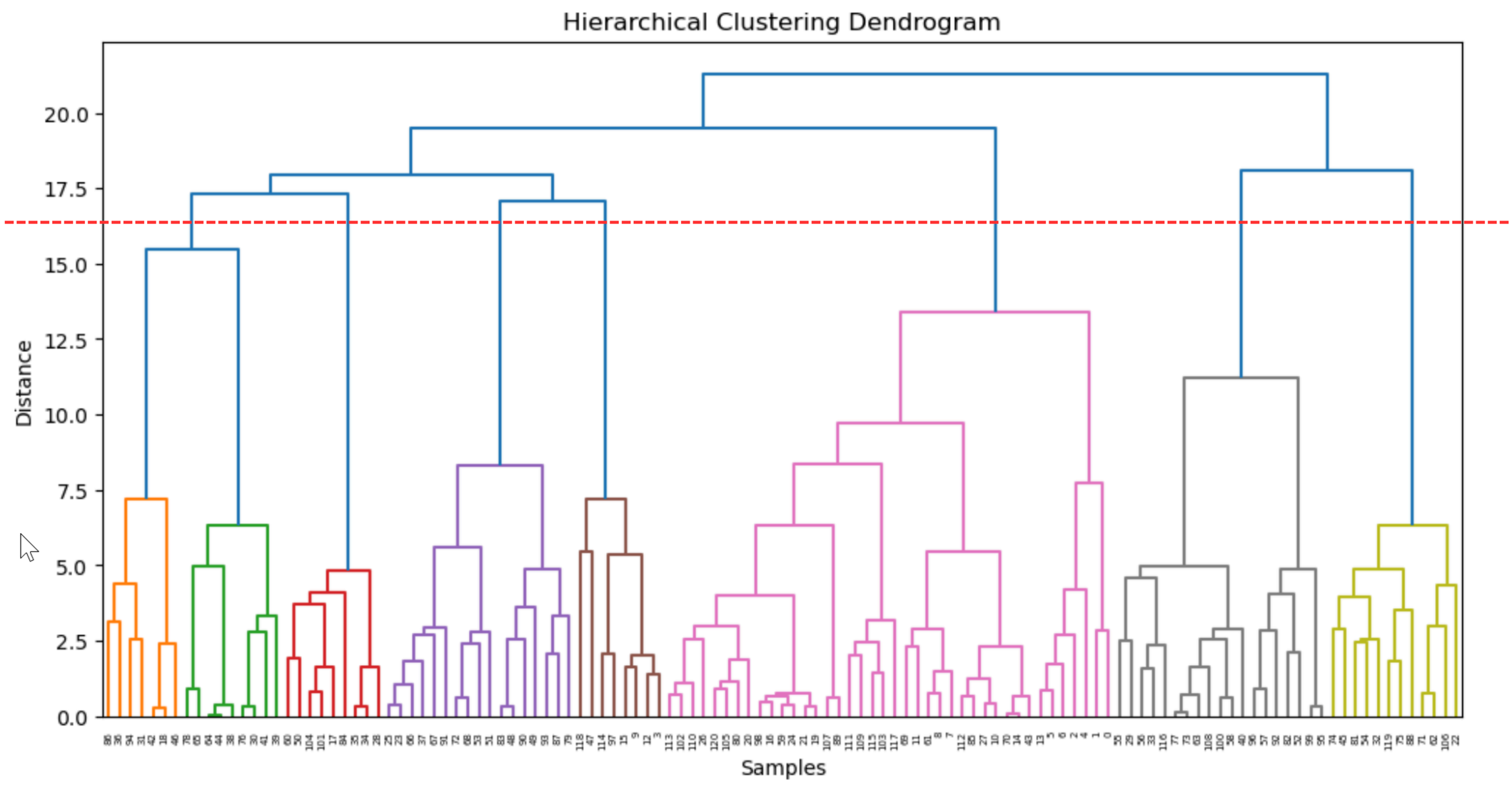
```
import matplotlib.pyplot as plt
import seaborn as sns
import pandas as pd
from scipy.cluster.hierarchy import linkage, dendrogram

# --- Perform hierarchical clustering ---
linked = linkage(data_scaled, method='ward')  # 'ward' minimizes variance
```

This code plots a dendrogram.

```
# --- Plot dendrogram ---
plt.figure(figsize=(12, 6))
dendrogram(linked,
           labels=data.index,  # keeps row indices as labels
           orientation='top',
           distance_sort='descending',
           show_leaf_counts=True)

plt.title("Hierarchical Clustering Dendrogram")
plt.xlabel("Samples")
plt.ylabel("Distance")
plt.show()
```



Made by: @katerynakononova
Website: https://katerynakononova.github.io/meowlearning/
Book: https://www.amazon.com/dp/B0CW9SFYXF