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KDD LAB 09

Aim :To implement Hierarchical Clustering Using Python

In [1]:

```
from sklearn import datasets
from sklearn.cluster import AgglomerativeClustering
from scipy.cluster.hierarchy import dendrogram , linkage
import matplotlib.pyplot as plt
```

In [2]:

```
## load dataset
iris  = datasets.load_iris()
```

In [3]:

```
## seprate features and target var
x_feature = iris.data
y_label  = iris.target
```

In [4]:

```
## MODEL Implementation
model = AgglomerativeClustering(linkage = 'ward' , n_clusters = 3)
```

In [5]:

```
model.fit(x_feature)
predicted_labels = model.labels_
```

In [6]:

```
predicted_labels
```

Out[6]:

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

In [8]:

```
## VISUALIZING DENDROGRAMS
linkage_matrix  = linkage(x_feature, "ward")
plot = plt.figure(figsize =  (14,7))
dendrogram(linkage_matrix , color_threshold=0)
plt.title("Hirarchical Clustering")
plt.xlabel("sample")
plt.ylabel("distance")
plt.show()
```