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import pandas as pd

data = {
    'Vehicle': ['Car_A', 'Car_B', 'Car_C', 'Car_D', 'Car_E', 'Car_F', 'Car_G', 'Car_H'],
    'Weight': [1200, 1500, 1800, 1100, 1600, 1700, 1000, 1300],
    'Horsepower': [90, 120, 150, 80, 130, 140, 70, 100],
    'TopSpeed': [160, 180, 200, 150, 190, 195, 140, 170],
    'Mileage': [20, 18, 15, 22, 17, 16, 25, 19]
}

df = pd.DataFrame(data)
X = df.iloc[:,1:]

```

```

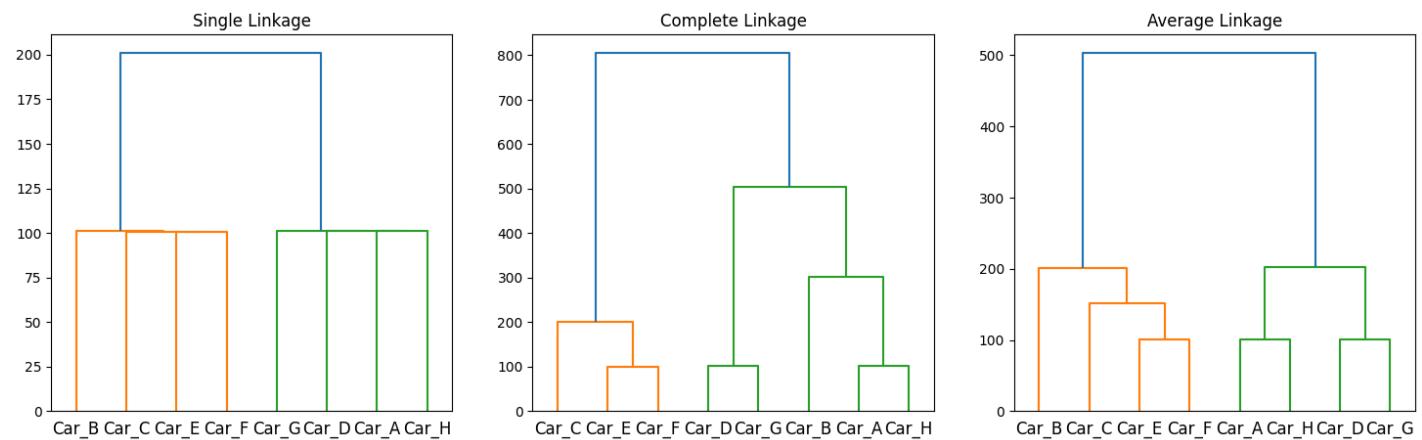
from scipy.cluster.hierarchy import linkage, dendrogram
import matplotlib.pyplot as plt

```

```

methods = ['single','complete','average']
plt.figure(figsize=(18,5))
for i, m in enumerate(methods):
    plt.subplot(1,3,i+1)
    dendrogram(linkage(X, method=m), labels=df['Vehicle'].values)
    plt.title(f'{m.capitalize()} Linkage')
plt.show()

```



```

from sklearn.cluster import BisectingKMeans
import seaborn as sns

model = BisectingKMeans(n_clusters=3, random_state=42)
labels = model.fit_predict(X)
df['Divisive_Cluster'] = labels
sns.pairplot(df, hue='Divisive_Cluster', vars=['Weight', 'Horsepower', 'TopSpeed', 'Mileage'])
plt.show()

```

