```python
import pandas as pd
import numpy as np
from sklearn.neighbors import NearestNeighbors
from sklearn.preprocessing import StandardScaler

```

```python
# Load dataset
df = pd.read_csv("/content/car_price_dataset.csv")

# Select relevant numerical features (excluding 'Price')
X = df.select_dtypes(include=[np.number]).drop(columns=['Price'])

# Scale features for better distance computation
scaler = StandardScaler()
X_scaled = scaler.fit_transform(X)

print("Data Preprocessing Complete!")
print("Shape of Processed Data:", X_scaled.shape)

```

```
Data Preprocessing Complete!
Shape of Processed Data: (10000, 5)
```

```python
# Define Nearest Neighbors model
nn_model = NearestNeighbors(n_neighbors=5, metric='euclidean')  # Find 5 nearest neighbors
nn_model.fit(X_scaled)

print("Nearest Neighbors Model Trained Successfully!")

```

```
Nearest Neighbors Model Trained Successfully!
```

```python
# Select a random car from the dataset (or specify an index manually)
car_index = 10  # Change this index to test different cars
query_car = X_scaled[car_index].reshape(1, -1)

# Find the 5 nearest neighbors
distances, indices = nn_model.kneighbors(query_car)

# Display recommended similar cars
print(f"\nCar Selected (Index {car_index}):")
print(df.iloc[car_index])

print("\nTop 5 Recommended Cars:")
for idx in indices[0]:
    print(df.iloc[idx])

```

```
Car Selected (Index 10):
Brand                 BMW
Model            5 Series
Year                 2013
Engine_Size           1.3
Fuel_Type          Hybrid
Transmission    Automatic
Mileage            296824
Doors                   2
Owner_Count             3
Price                5863
Name: 10, dtype: object

Top 5 Recommended Cars:
Brand                 BMW
Model            5 Series
Year                 2013
Engine_Size           1.3
Fuel_Type          Hybrid
Transmission    Automatic
Mileage            296824
Doors                   2
Owner_Count             3
Price                5863
Name: 10, dtype: object
Brand              Toyota
Model                RAV4
```

```
Year               2012
Engine_Size         1.4
Fuel_Type       Electric
Transmission      Manual
Mileage           287514
Doors                  2
Owner_Count            3
Price               5349
Name: 4713, dtype: object
Brand           Hyundai
Model            Tucson
Year               2012
Engine_Size         1.0
Fuel_Type        Petrol
Transmission     Manual
Mileage          271967
Doors                 2
Owner_Count           3
Price              3260
Name: 5238, dtype: object
Brand           Hyundai
Model            Sonata
Year               2011
Engine_Size         1.0
Fuel_Type        Petrol
Transmission     Manual
Mileage          279545
Doors                 2
Owner_Count           3
```

```
# Custom car features (Example: [Year, Engine_Size, Mileage, Doors, Owner_Count])
custom_car = np.array([[2020, 2.0, 30000, 4, 1]])

# Scale the input
custom_car_scaled = scaler.transform(custom_car)

# Find the 5 nearest cars
distances, indices = nn_model.kneighbors(custom_car_scaled)

# Display recommendations
print("\nTop 5 Recommended Cars for Custom Input:")
for idx in indices[0]:
    print(df.iloc[idx])

```

```
Top 5 Recommended Cars for Custom Input:
Brand                   Ford
Model                  Focus
Year                    2020
Engine_Size              1.8
Fuel_Type             Hybrid
Transmission    Semi-Automatic
Mileage                31221
Doors                      4
Owner_Count                1
Price                  12275
Name: 1281, dtype: object
Brand                   Audi
Model                     Q5
Year                    2021
Engine_Size              2.3
Fuel_Type             Petrol
Transmission    Semi-Automatic
Mileage                38439
Doors                      4
Owner_Count                1
Price                  11931
Name: 7712, dtype: object
Brand                   Audi
Model                     A3
Year                    2020
Engine_Size              1.7
Fuel_Type             Hybrid
Transmission    Semi-Automatic
Mileage                54068
Doors                      4
Owner_Count                1
Price                  11718
Name: 406, dtype: object
Brand             Ford
Model           Fiesta
```

```
Year              2019
Engine_Size        2.2
Fuel_Type       Petrol
Transmission    Manual
Mileage          56754
Doors                4
Owner_Count          1
Price            10864
Name: 4691, dtype: object
Brand                Mercedes
Model                 C-Class
Year                     2017
Engine_Size               2.3
Fuel_Type             Electric
Transmission    Semi-Automatic
Mileage                40455
Doors                      4
Owner_Count                1
Price                  12690
```

```
Start coding or generate with AI.
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Start coding or generate with AI.
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Start coding or generate with AI.
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Start coding or generate with AI.
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