In [1]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

In [3]:
```
cars = pd.read_csv("final_cars.csv")
```

In [4]:
```
y = cars['price']
X = cars.drop(columns=['price'])
```

In [5]:
```
X  = pd.get_dummies(X)
```

In [6]:
```
from sklearn.model_selection import train_test_split
```

In [7]:
```
X_train, X_test, y_train, y_test = train_test_split(X,y, test_size=0.2, random_state=99)
```

RandomForestRegressor

In [8]:
```
from sklearn.ensemble import RandomForestRegressor
```

In [9]:
```
model = RandomForestRegressor()
model.fit(X_train, y_train)
print(f'Train score : {model.score(X_train,y_train)}')
```

```
Train score : 0.9849010806400676
```

In [10]:
```
from sklearn.metrics import mean_squared_error, r2_score, mean_absolute_error
```

In [11]:
```

```

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```
import sklearn.metrics
y_pred = model.predict(X_test)
r2score = r2_score(y_test,y_pred)
print(f'Test Score  : {r2score:0.2f}')
```

```
Test Score  : 0.94
```

In [12]:

```
mse = mean_squared_error(y_test,y_pred)
print("MSE  : ",mse)
print("RMSE : ", np.sqrt(mse))
```

```
MSE  :  5565511.519415649
RMSE :  2359.1336374643233
```

In [13]:

```
for f,v in zip (X_train.columns, model.feature_importances_):
      print(f"{f:30} {v:0.2f}")
```

```
curb-weight                    0.31
engine-size                    0.56
highway-mpg                    0.08
make_alfa-romero               0.00
make_audi                      0.00
make_bmw                       0.02
make_chevrolet                 0.00
make_dodge                     0.00
make_honda                     0.00
make_isuzu                     0.00
make_jaguar                    0.00
make_mazda                     0.00
make_mercedes-benz             0.00
make_mercury                   0.00
make_mitsubishi                0.00
make_nissan                    0.00
make_peugot                    0.00
make_plymouth                  0.00
make_porsche                   0.00
make_renault                   0.00
make_saab                      0.00
make_subaru                    0.00
make_toyota                    0.00
make_volkswagen                0.00
make_volvo                     0.00
```

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```
fuel-type_diesel              0.00
fuel-type_gas                 0.00
num-of-doors_four             0.00
num-of-doors_two              0.00
body-style_convertible        0.00
body-style_hardtop            0.00
body-style_hatchback          0.00
body-style_sedan              0.00
body-style_wagon              0.00
drive-wheels_4wd              0.00
drive-wheels_fwd              0.00
drive-wheels_rwd              0.00
```

In [14]:

```
plt.gcf().set_size_inches(20,10)
sns.lineplot( y = y_test, x = X_test.index, label="Actual")
sns.lineplot( y = y_pred, x = X_test.index, label="Predicted")
```

Out[14]:

```
<AxesSubplot:ylabel='price'>
```

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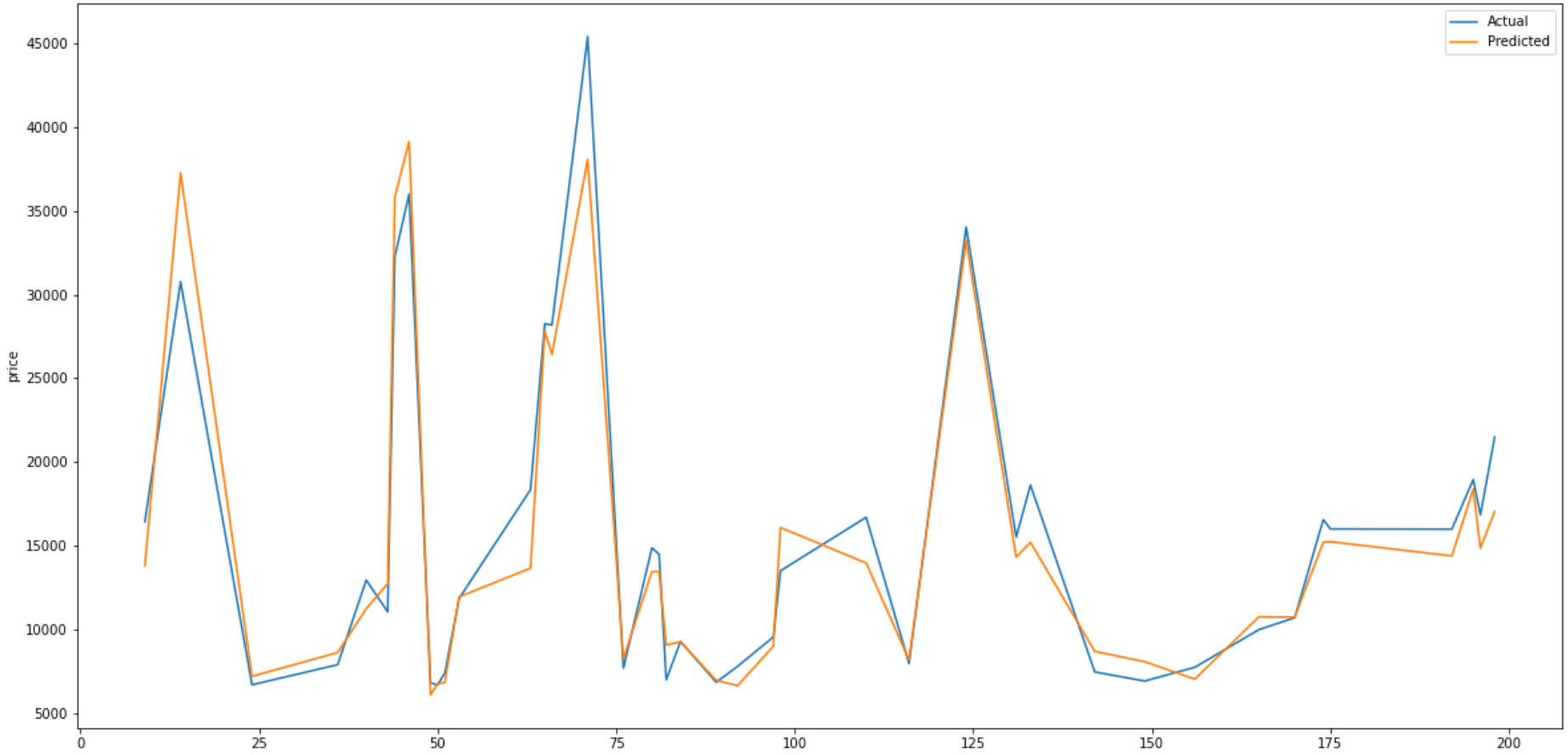

In [15]:
```
from sklearn.linear_model import SGDRegressor
```

In [16]:
```
X_train, X_test, y_train, y_test = train_test_split(X,y, test_size=0.2, random_state=99)
```

In [17]:
```
from sklearn.preprocessing import StandardScaler
scaler = StandardScaler()
```

In [18]:
```
scaler.fit(X_train)
```

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```
X_train = scaler.transform(X_train)
X_test = scaler.transform(X_test)
```

In [19]:
```
model = SGDRegressor(random_state=100)
model.fit(X_train, y_train)
print(f'Train score : {model.score(X_train,y_train):f}')
```

```
Train score : 0.927059
```

In [20]:
```
y_pred = model.predict(X_test)
r2score = r2_score(y_test,y_pred)
print(f'Test Score  : {r2score:0.2f}')
```

```
Test Score  : 0.93
```

In [21]:
```
mse = mean_squared_error(y_test,y_pred)
print("MSE  : ",mse)
print("RMSE : ", np.sqrt(mse))
```

```
MSE  :  6142786.368307506
RMSE :  2478.464518266805
```

In [ ]:
```

```

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