Decision Tree Regression

Importing the libraries

```python
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
```

Importing the dataset

```python
dataset = pd.read_csv('Data.csv')
X = dataset.iloc[:, :-1].values
y = dataset.iloc[:, -1].values
```

Splitting the dataset into the Training set and Test set

```python
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.2, random_state = 0)
```

```python
print(X_train)
```

```
[[  11.22    43.13 1017.24    80.9 ]
 [  13.67    54.3  1015.92    75.42]
 [  32.84    77.95 1014.68    45.8 ]
 ...
 [  16.81    38.52 1018.26    75.21]
 [  12.8     41.16 1022.43    86.19]
 [  32.32    67.9  1006.08    37.93]]
```

```python
print(y_train)
```

```
[473.93 467.87 431.97 ... 459.01 462.72 428.12]
```

```python
print(X_test)
```

```
[[  28.66    77.95 1009.56    69.07]
 [  17.48    49.39 1021.51    84.53]
 [  14.86    43.14 1019.21    99.14]
 ...
 [  12.24    44.92 1023.74    88.21]
 [  27.28    47.93 1003.46    59.22]
 [  17.28    39.99 1007.09    74.25]]
```

```python
print(y_test)
```

```
[431.23 460.01 461.14 ... 473.26 438.   463.28]
```

Training the Decision Tree Regression model on the Training set

```
from sklearn.tree import DecisionTreeRegressor
regressor = DecisionTreeRegressor(random_state = 0)
regressor.fit(X_train, y_train)
```

```
    ▾      DecisionTreeRegressor           ⓘ ⍰

DecisionTreeRegressor(random_state=0)
```

Predicting the Test set results

```
y_pred = regressor.predict(X_test)
np.set_printoptions(precision=2)
print(np.concatenate((y_pred.reshape(len(y_pred),1), y_test.reshape(len(y_test),1)),1))
```

```
[[431.28 431.23]
 [459.59 460.01]
 [460.06 461.14]
 ...
 [471.46 473.26]
 [437.76 438.  ]
 [462.74 463.28]]
```

Evaluating the Model Performance

```
from sklearn.metrics import r2_score, mean_squared_error, mean_absolute_error

print("R2 Score:", r2_score(y_test, y_pred))
```

```
R2 Score: 0.922905874177941
```