

In [1]:

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

In [7]:

```
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)
```

In [9]:

```
from sklearn.preprocessing import StandardScaler
sc_X = StandardScaler()
sc_y = StandardScaler()
X_train = sc_X.fit_transform(X_train)
y_train = sc_y.fit_transform(np.array(y_train).reshape(-1, 1))
X_test = sc_X.fit_transform(X_test)
y_test_org = y_test
y_test = sc_y.fit_transform(np.array(y_test).reshape(-1, 1))
```

In [10]:

```
from sklearn.linear_model import LinearRegression
regressor = LinearRegression()
regressor.fit(X_train, y_train)
```

Out[10]:

LinearRegression()

In [17]:

```
y_pred = regressor.predict(X_test)
y_pred
```

Out[17]:

```
array([[ 1.14533859],
       [-0.96399331],
       [ 0.46290768],
       [-0.34360158],
       [-0.77787579],
       [ 0.21475098],
       [-0.90195414],
       [-0.46767992],
       [ 1.82776949],
       [-0.34360158],
       [-0.90195414],
       [-0.2815624 ],
       [ 1.33145611]])
```

In [13]:

```
y_pred_inv = sc_y.inverse_transform(y_pred)
print(pd.DataFrame(np.column_stack((y_test_org, y_pred_inv))))
```

	0	1
0	1528.0	1745.143005
1	399.0	111.462971
2	1875.0	1216.599464
3	93.0	591.957099
4	146.0	255.611209
5	1615.0	1024.401813
6	381.0	159.512384
7	213.0	495.858273
8	2481.0	2273.686545
9	157.0	591.957099
10	118.0	159.512384
11	955.0	640.006511
12	1194.0	1889.291243

In [16]:

```
# Metrics
from sklearn.metrics import mean_squared_error, r2_score, mean_absolute_error, explained_variance_score
print("Mean absolute error: %.2f" % mean_absolute_error(y_test, y_pred))
print("Mean squared error: %.2f" % mean_squared_error(y_test, y_pred))
print("Root Mean squared error: %.2f" % np.sqrt(mean_squared_error(y_test, y_pred)))
print('Variance score: %.2f' % explained_variance_score(y_test, y_pred))
print('R^2 Square value', r2_score(y_test, y_pred))
```

Mean absolute error: 0.45
Mean squared error: 0.27
Root Mean squared error: 0.52
Variance score: 0.73
R^2 Square value 0.7283041528587626

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