In [2]:
```python
import numpy as np
import seaborn as sns
import pandas as pd
```

In [3]:
```python
df = pd.read_csv(r'E:\GetFreeCourses.Co-Udemy-Complete Tensorflow 2 and Keras Deep Learning Bootcamp\DATA\fake_
```

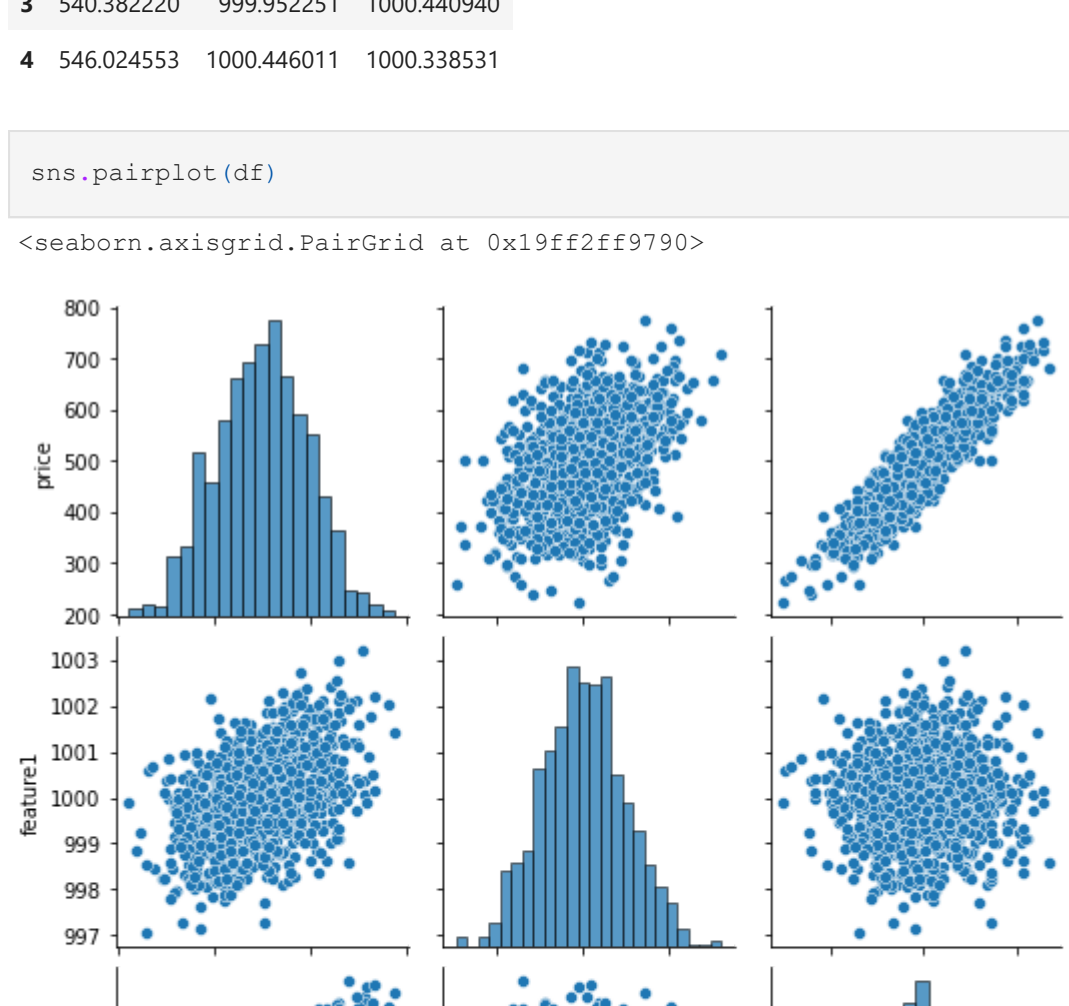
In [4]:
```python
df.head()
```

Out[4]:

	price	feature1	feature2
0	461.527929	999.787558	999.766096
1	548.130011	998.861615	1001.042403
2	410.297162	1000.070267	998.844015
3	540.382220	999.952251	1000.440940
4	546.024553	1000.446011	1000.338531

In [5]:
```python
sns.pairplot(df)
```

Out[5]:
```
<seaborn.axisgrid.PairGrid at 0x19ff2ff9790>
```



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

In [7]:
```python
X = df[['feature1','feature2']].values
```

In [8]:
```python
y = df['price'].values
```

In [9]:
```python
X
```

Out[9]:
```
array([[ 999.78755752,  999.7660962 ],
       [ 998.86161491, 1001.04240315],
       [1000.07026691,  998.84401463],
       ...,
       [1001.45164617,  998.84760554],
       [1000.77102275,  998.56285086],
       [ 999.2322436 , 1001.45140713]])
```

In [10]:
```python
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.3, random_state=42)
```

In [11]:
```python
X_train.shape
```

Out[11]:
```
(700, 2)
```

In [12]:
```python
X_test.shape
```

Out[12]:
```
(300, 2)
```

In [13]:
```python
from sklearn.preprocessing import MinMaxScaler
```

In [68]:
```python
#help(MinMaxScaler)
```

In [15]:
```python
scaler = MinMaxScaler()
```

In [16]:
```python
scaler.fit(X_train)
```

Out[16]:
```
MinMaxScaler()
```

In [17]:
```python
X_train = scaler.transform(X_train)
```

In [18]:
```python
X_test = scaler.transform(X_test)
```

In [23]:
```python
#X_train.max()
```

In [24]:
```python
from tensorflow.keras.models import Sequential
from tensorflow.keras.layers import Dense
```

In [67]:
```python
#help(Sequential)
```

In [ ]:
```python
#model = Sequential([Dense(4,activation='relu'),Dense(2,activation='relu'),Dense(1)])
```

In [27]:
```python
model = Sequential()

model.add(Dense(4,activation='relu'))
model.add(Dense(4,activation='relu'))
model.add(Dense(4,activation='relu'))

model.add(Dense(1))

model.compile(optimizer ='rmsprop',loss='mse')
```

In [28]:
```python
model.fit(x=X_train,y=y_train,epochs=250)
```

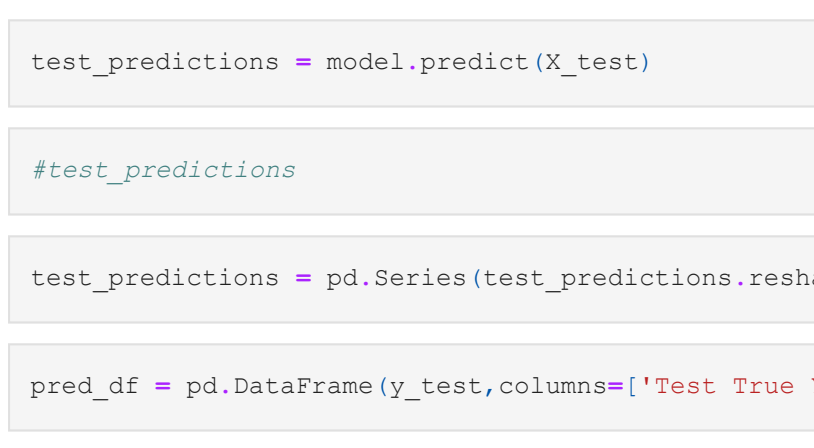
```
Epoch 1/250
22/22 [==============================] - 1s 2ms/step - loss: 256814.1719
Epoch 2/250
22/22 [==============================] - 0s 1ms/step - loss: 256678.6562
Epoch 3/250
22/22 [==============================] - 0s 2ms/step - loss: 256558.2812
Epoch 4/250
22/22 [==============================] - 0s 2ms/step - loss: 256427.1719
Epoch 5/250
22/22 [==============================] - 0s 2ms/step - loss: 256269.3750
Epoch 6/250
22/22 [==============================] - 0s 2ms/step - loss: 256100.4844
Epoch 7/250
22/22 [==============================] - 0s 2ms/step - loss: 255899.3125
Epoch 8/250
22/22 [==============================] - 0s 1ms/step - loss: 255673.3438
Epoch 9/250
22/22 [==============================] - 0s 2ms/step - loss: 255426.3750
Epoch 10/250
22/22 [==============================] - 0s 2ms/step - loss: 255152.2969
Epoch 11/250
22/22 [==============================] - 0s 2ms/step - loss: 254844.3594
Epoch 12/250
22/22 [==============================] - 0s 2ms/step - loss: 254497.7812
Epoch 13/250
22/22 [==============================] - 0s 1ms/step - loss: 254109.8438
Epoch 14/250
22/22 [==============================] - 0s 1ms/step - loss: 253676.7031
Epoch 15/250
22/22 [==============================] - 0s 2ms/step - loss: 253201.0938
Epoch 16/250
22/22 [==============================] - 0s 2ms/step - loss: 252684.0000
Epoch 17/250
22/22 [==============================] - 0s 1ms/step - loss: 252118.5781
Epoch 18/250
22/22 [==============================] - 0s 1ms/step - loss: 251502.0625
Epoch 19/250
22/22 [==============================] - 0s 1ms/step - loss: 250816.2812
Epoch 20/250
22/22 [==============================] - 0s 2ms/step - loss: 250038.2656
Epoch 21/250
22/22 [==============================] - 0s 2ms/step - loss: 249151.9844
Epoch 22/250
22/22 [==============================] - 0s 1ms/step - loss: 248133.8125
Epoch 23/250
22/22 [==============================] - 0s 1ms/step - loss: 246997.5781
Epoch 24/250
22/22 [==============================] - 0s 2ms/step - loss: 245755.4688
Epoch 25/250
22/22 [==============================] - 0s 2ms/step - loss: 244404.6406
Epoch 26/250
22/22 [==============================] - 0s 1ms/step - loss: 242951.0469
Epoch 27/250
22/22 [==============================] - 0s 2ms/step - loss: 241383.3594
Epoch 28/250
22/22 [==============================] - 0s 1ms/step - loss: 239693.1250
Epoch 29/250
22/22 [==============================] - 0s 2ms/step - loss: 237891.8906
Epoch 30/250
22/22 [==============================] - 0s 2ms/step - loss: 235961.4219
Epoch 31/250
22/22 [==============================] - 0s 2ms/step - loss: 233900.7344
Epoch 32/250
22/22 [==============================] - 0s 1ms/step - loss: 231702.4062
Epoch 33/250
22/22 [==============================] - 0s 1ms/step - loss: 229344.2969
Epoch 34/250
22/22 [==============================] - 0s 1ms/step - loss: 226818.1562
Epoch 35/250
22/22 [==============================] - 0s 1ms/step - loss: 224123.4688
Epoch 36/250
22/22 [==============================] - 0s 1ms/step - loss: 221255.5469
Epoch 37/250
22/22 [==============================] - 0s 2ms/step - loss: 218193.2969
Epoch 38/250
22/22 [==============================] - 0s 1ms/step - loss: 214971.1250
Epoch 39/250
22/22 [==============================] - 0s 2ms/step - loss: 211543.1094
Epoch 40/250
22/22 [==============================] - 0s 2ms/step - loss: 207931.5156
Epoch 41/250
22/22 [==============================] - 0s 1ms/step - loss: 204116.4062
Epoch 42/250
22/22 [==============================] - 0s 1ms/step - loss: 200133.3906
Epoch 43/250
22/22 [==============================] - 0s 2ms/step - loss: 195916.0000
Epoch 44/250
22/22 [==============================] - 0s 1ms/step - loss: 191504.3125
Epoch 45/250
22/22 [==============================] - 0s 1ms/step - loss: 186898.8125
Epoch 46/250
22/22 [==============================] - 0s 1ms/step - loss: 182101.8906
Epoch 47/250
22/22 [==============================] - 0s 2ms/step - loss: 177070.9531
Epoch 48/250
22/22 [==============================] - 0s 1ms/step - loss: 171844.4688
Epoch 49/250
22/22 [==============================] - 0s 1ms/step - loss: 166431.0000
Epoch 50/250
22/22 [==============================] - 0s 1ms/step - loss: 160845.1719
Epoch 51/250
22/22 [==============================] - 0s 1ms/step - loss: 155082.3750
Epoch 52/250
22/22 [==============================] - 0s 1ms/step - loss: 149119.4219
Epoch 53/250
22/22 [==============================] - 0s 1ms/step - loss: 143027.9531
Epoch 54/250
22/22 [==============================] - 0s 1ms/step - loss: 136752.1562
Epoch 55/250
22/22 [==============================] - 0s 1ms/step - loss: 130291.7344
Epoch 56/250
22/22 [==============================] - 0s 1ms/step - loss: 123716.2422
Epoch 57/250
22/22 [==============================] - 0s 1ms/step - loss: 117031.6328
Epoch 58/250
22/22 [==============================] - 0s 1ms/step - loss: 110207.2578
Epoch 59/250
22/22 [==============================] - 0s 1ms/step - loss: 103386.6875
Epoch 60/250
22/22 [==============================] - 0s 1ms/step - loss: 96446.0000
Epoch 61/250
22/22 [==============================] - 0s 2ms/step - loss: 89509.4375
Epoch 62/250
22/22 [==============================] - 0s 1ms/step - loss: 82570.9766
Epoch 63/250
22/22 [==============================] - 0s 1ms/step - loss: 75621.9219
Epoch 64/250
22/22 [==============================] - 0s 1ms/step - loss: 68711.9297
Epoch 65/250
22/22 [==============================] - 0s 1ms/step - loss: 61900.8242
Epoch 66/250
22/22 [==============================] - 0s 1ms/step - loss: 55263.2383
Epoch 67/250
22/22 [==============================] - 0s 1ms/step - loss: 48763.3047
Epoch 68/250
22/22 [==============================] - 0s 1ms/step - loss: 42502.6523
Epoch 69/250
22/22 [==============================] - 0s 1ms/step - loss: 36476.1875
Epoch 70/250
22/22 [==============================] - 0s 1ms/step - loss: 30809.3438
Epoch 71/250
22/22 [==============================] - 0s 1ms/step - loss: 25451.5566
Epoch 72/250
22/22 [==============================] - 0s 1ms/step - loss: 20561.2695
Epoch 73/250
22/22 [==============================] - 0s 2ms/step - loss: 16180.4785
Epoch 74/250
22/22 [==============================] - 0s 1ms/step - loss: 12309.2861
Epoch 75/250
22/22 [==============================] - 0s 1ms/step - loss: 9041.7607
Epoch 76/250
22/22 [==============================] - 0s 2ms/step - loss: 6433.3364
Epoch 77/250
22/22 [==============================] - 0s 1ms/step - loss: 4538.7104
Epoch 78/250
22/22 [==============================] - 0s 1ms/step - loss: 3375.1282
Epoch 79/250
22/22 [==============================] - 0s 1ms/step - loss: 2831.0381
Epoch 80/250
22/22 [==============================] - 0s 1ms/step - loss: 2673.5122
Epoch 81/250
22/22 [==============================] - 0s 1ms/step - loss: 2623.5071
Epoch 82/250
22/22 [==============================] - 0s 2ms/step - loss: 2586.2520
Epoch 83/250
22/22 [==============================] - 0s 1ms/step - loss: 2537.0596
Epoch 84/250
22/22 [==============================] - 0s 1ms/step - loss: 2485.8323
Epoch 85/250
22/22 [==============================] - 0s 1ms/step - loss: 2452.8220
Epoch 86/250
22/22 [==============================] - 0s 1ms/step - loss: 2403.4636
Epoch 87/250
22/22 [==============================] - 0s 1ms/step - loss: 2360.9983
Epoch 88/250
22/22 [==============================] - 0s 1ms/step - loss: 2318.7983
Epoch 89/250
22/22 [==============================] - 0s 1ms/step - loss: 2278.1970
Epoch 90/250
22/22 [==============================] - 0s 1ms/step - loss: 2233.6545
Epoch 91/250
22/22 [==============================] - 0s 1ms/step - loss: 2195.2734
Epoch 92/250
22/22 [==============================] - 0s 1ms/step - loss: 2150.6541
Epoch 93/250
22/22 [==============================] - 0s 2ms/step - loss: 2117.9651
Epoch 94/250
22/22 [==============================] - 0s 2ms/step - loss: 2074.5361
Epoch 95/250
22/22 [==============================] - 0s 1ms/step - loss: 2034.4830
Epoch 96/250
22/22 [==============================] - 0s 1ms/step - loss: 1997.4563
Epoch 97/250
22/22 [==============================] - 0s 1ms/step - loss: 1957.6106
Epoch 98/250
22/22 [==============================] - 0s 1ms/step - loss: 1914.3264
Epoch 99/250
22/22 [==============================] - 0s 1ms/step - loss: 1868.2043
Epoch 100/250
22/22 [==============================] - 0s 1ms/step - loss: 1839.9818
Epoch 101/250
22/22 [==============================] - 0s 1ms/step - loss: 1797.8153
Epoch 102/250
22/22 [==============================] - 0s 1ms/step - loss: 1756.1039
Epoch 103/250
22/22 [==============================] - 0s 1ms/step - loss: 1719.8286
Epoch 104/250
22/22 [==============================] - 0s 1ms/step - loss: 1682.3364
Epoch 105/250
22/22 [==============================] - 0s 1ms/step - loss: 1648.2103
Epoch 106/250
22/22 [==============================] - 0s 1ms/step - loss: 1609.5062
Epoch 107/250
22/22 [==============================] - 0s 1ms/step - loss: 1573.7230
Epoch 108/250
22/22 [==============================] - 0s 1ms/step - loss: 1532.5475
Epoch 109/250
22/22 [==============================] - 0s 1ms/step - loss: 1490.8043
Epoch 110/250
22/22 [==============================] - 0s 1ms/step - loss: 1451.5515
Epoch 111/250
22/22 [==============================] - 0s 1ms/step - loss: 1412.6420
Epoch 112/250
22/22 [==============================] - 0s 2ms/step - loss: 1372.9642
Epoch 113/250
22/22 [==============================] - 0s 1ms/step - loss: 1342.9055
Epoch 114/250
22/22 [==============================] - 0s 1ms/step - loss: 1309.8688
Epoch 115/250
22/22 [==============================] - 0s 1ms/step - loss: 1275.6306
Epoch 116/250
22/22 [==============================] - 0s 1ms/step - loss: 1241.5745
Epoch 117/250
22/22 [==============================] - 0s 1ms/step - loss: 1209.3884
Epoch 118/250
22/22 [==============================] - 0s 1ms/step - loss: 1176.7661
Epoch 119/250
22/22 [==============================] - 0s 1ms/step - loss: 1147.4449
Epoch 120/250
22/22 [==============================] - 0s 1ms/step - loss: 1112.5718
Epoch 121/250
22/22 [==============================] - 0s 1ms/step - loss: 1076.2112
Epoch 122/250
22/22 [==============================] - 0s 1ms/step - loss: 1038.8436
Epoch 123/250
22/22 [==============================] - 0s 2ms/step - loss: 1004.8826
Epoch 124/250
22/22 [==============================] - 0s 1ms/step - loss: 969.0313
Epoch 125/250
22/22 [==============================] - 0s 2ms/step - loss: 937.0820
Epoch 126/250
22/22 [==============================] - 0s 2ms/step - loss: 903.4976
Epoch 127/250
22/22 [==============================] - 0s 2ms/step - loss: 868.4288
Epoch 128/250
22/22 [==============================] - 0s 1ms/step - loss: 841.8362
Epoch 129/250
22/22 [==============================] - 0s 1ms/step - loss: 814.8221
Epoch 130/250
22/22 [==============================] - 0s 1ms/step - loss: 783.5906
Epoch 131/250
22/22 [==============================] - 0s 1ms/step - loss: 755.7463
Epoch 132/250
22/22 [==============================] - 0s 1ms/step - loss: 723.9938
Epoch 133/250
22/22 [==============================] - 0s 2ms/step - loss: 693.0048
Epoch 134/250
22/22 [==============================] - 0s 1ms/step - loss: 662.1155
Epoch 135/250
22/22 [==============================] - 0s 1ms/step - loss: 632.8600
Epoch 136/250
22/22 [==============================] - 0s 1ms/step - loss: 605.7910
Epoch 137/250
22/22 [==============================] - 0s 1ms/step - loss: 579.1312
Epoch 138/250
22/22 [==============================] - 0s 1ms/step - loss: 553.9451
Epoch 139/250
22/22 [==============================] - 0s 1ms/step - loss: 529.4528
Epoch 140/250
22/22 [==============================] - 0s 1ms/step - loss: 504.9959
Epoch 141/250
22/22 [==============================] - 0s 1ms/step - loss: 481.6268
Epoch 142/250
22/22 [==============================] - 0s 1ms/step - loss: 458.8199
Epoch 143/250
22/22 [==============================] - 0s 1ms/step - loss: 434.9874
Epoch 144/250
22/22 [==============================] - 0s 1ms/step - loss: 412.0852
Epoch 145/250
22/22 [==============================] - 0s 1ms/step - loss: 389.8872
Epoch 146/250
22/22 [==============================] - 0s 1ms/step - loss: 366.6073
Epoch 147/250
22/22 [==============================] - 0s 1ms/step - loss: 347.0807
Epoch 148/250
22/22 [==============================] - 0s 1ms/step - loss: 326.2033
Epoch 149/250
22/22 [==============================] - 0s 1ms/step - loss: 307.2954
Epoch 150/250
22/22 [==============================] - 0s 1ms/step - loss: 288.0919
Epoch 151/250
22/22 [==============================] - 0s 1ms/step - loss: 268.9538
Epoch 152/250
22/22 [==============================] - 0s 1ms/step - loss: 249.7050
Epoch 153/250
22/22 [==============================] - 0s 1ms/step - loss: 229.7477
Epoch 154/250
22/22 [==============================] - 0s 1ms/step - loss: 210.3900
Epoch 155/250
22/22 [==============================] - 0s 1ms/step - loss: 195.2534
Epoch 156/250
22/22 [==============================] - 0s 1ms/step - loss: 180.3289
Epoch 157/250
22/22 [==============================] - 0s 1ms/step - loss: 167.6282
Epoch 158/250
22/22 [==============================] - 0s 2ms/step - loss: 154.3887
Epoch 159/250
22/22 [==============================] - 0s 2ms/step - loss: 142.3638
Epoch 160/250
22/22 [==============================] - 0s 1ms/step - loss: 130.5557
Epoch 161/250
22/22 [==============================] - 0s 2ms/step - loss: 120.8572
Epoch 162/250
22/22 [==============================] - 0s 1ms/step - loss: 110.2723
Epoch 163/250
22/22 [==============================] - 0s 1ms/step - loss: 101.7520
Epoch 164/250
22/22 [==============================] - 0s 1ms/step - loss: 91.8504
Epoch 165/250
22/22 [==============================] - 0s 1ms/step - loss: 84.8970
Epoch 166/250
22/22 [==============================] - 0s 1ms/step - loss: 76.0775
Epoch 167/250
22/22 [==============================] - 0s 1ms/step - loss: 70.5110
Epoch 168/250
22/22 [==============================] - 0s 1ms/step - loss: 64.6942
Epoch 169/250
22/22 [==============================] - 0s 1ms/step - loss: 60.0767
Epoch 170/250
22/22 [==============================] - 0s 1ms/step - loss: 55.1384
Epoch 171/250
22/22 [==============================] - 0s 2ms/step - loss: 50.7417
Epoch 172/250
22/22 [==============================] - 0s 1ms/step - loss: 47.0767
Epoch 173/250
22/22 [==============================] - 0s 1ms/step - loss: 43.5958
Epoch 174/250
22/22 [==============================] - 0s 1ms/step - loss: 40.0431
Epoch 175/250
22/22 [==============================] - 0s 1ms/step - loss: 38.5036
Epoch 176/250
22/22 [==============================] - 0s 1ms/step - loss: 35.9911
Epoch 177/250
22/22 [==============================] - 0s 1ms/step - loss: 34.0014
Epoch 178/250
22/22 [==============================] - 0s 1ms/step - loss: 32.2879
Epoch 179/250
22/22 [==============================] - 0s 1ms/step - loss: 30.5519
Epoch 180/250
22/22 [==============================] - 0s 1ms/step - loss: 29.8151
Epoch 181/250
22/22 [==============================] - 0s 1ms/step - loss: 28.5208
Epoch 182/250
22/22 [==============================] - 0s 1ms/step - loss: 27.4028
Epoch 183/250
22/22 [==============================] - 0s 1ms/step - loss: 26.9002
Epoch 184/250
22/22 [==============================] - 0s 1ms/step - loss: 26.5567
Epoch 185/250
22/22 [==============================] - 0s 1ms/step - loss: 26.3955
Epoch 186/250
22/22 [==============================] - 0s 1ms/step - loss: 26.1435
Epoch 187/250
22/22 [==============================] - 0s 1ms/step - loss: 25.9591
Epoch 188/250
22/22 [==============================] - 0s 1ms/step - loss: 24.8967
Epoch 189/250
22/22 [==============================] - 0s 1ms/step - loss: 25.4470
Epoch 190/250
22/22 [==============================] - 0s 2ms/step - loss: 25.0363
Epoch 191/250
22/22 [==============================] - 0s 2ms/step - loss: 24.8582
Epoch 192/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4016
Epoch 193/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5401
Epoch 194/250
22/22 [==============================] - 0s 1ms/step - loss: 24.6340
Epoch 195/250
22/22 [==============================] - 0s 1ms/step - loss: 24.6326
Epoch 196/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5619
Epoch 197/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5834
Epoch 198/250
22/22 [==============================] - 0s 1ms/step - loss: 24.7075
Epoch 199/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4861
Epoch 200/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4177
Epoch 201/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4208
Epoch 202/250
22/22 [==============================] - 0s 1ms/step - loss: 24.1335
Epoch 203/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4461
Epoch 204/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3607
Epoch 205/250
22/22 [==============================] - 0s 1ms/step - loss: 24.6004
Epoch 206/250
22/22 [==============================] - 0s 1ms/step - loss: 24.2120
Epoch 207/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5519
Epoch 208/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3636
Epoch 209/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4303
Epoch 210/250
22/22 [==============================] - 0s 1ms/step - loss: 24.2310
Epoch 211/250
22/22 [==============================] - 0s 1ms/step - loss: 24.0844
Epoch 212/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3671
Epoch 213/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4934
Epoch 214/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5052
Epoch 215/250
22/22 [==============================] - 0s 1ms/step - loss: 24.6655
Epoch 216/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4065
Epoch 217/250
22/22 [==============================] - 0s 1ms/step - loss: 24.1919
Epoch 218/250
22/22 [==============================] - 0s 1ms/step - loss: 24.1729
Epoch 219/250
22/22 [==============================] - 0s 1ms/step - loss: 24.7976
Epoch 220/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5815
Epoch 221/250
22/22 [==============================] - 0s 1ms/step - loss: 24.1206
Epoch 222/250
22/22 [==============================] - 0s 1ms/step - loss: 23.8858
Epoch 223/250
22/22 [==============================] - 0s 2ms/step - loss: 24.4869
Epoch 224/250
22/22 [==============================] - 0s 2ms/step - loss: 24.4180
Epoch 225/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3327
Epoch 226/250
22/22 [==============================] - 0s 1ms/step - loss: 24.1078
Epoch 227/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4768
Epoch 228/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3912
Epoch 229/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4856
Epoch 230/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4986
Epoch 231/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3160
Epoch 232/250
22/22 [==============================] - 0s 1ms/step - loss: 23.8615
Epoch 233/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3319
Epoch 234/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5104
Epoch 235/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3945
Epoch 236/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3326
Epoch 237/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5038
Epoch 238/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3167
Epoch 239/250
22/22 [==============================] - 0s 1ms/step - loss: 24.2855
Epoch 240/250
22/22 [==============================] - 0s 1ms/step - loss: 24.4978
Epoch 241/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3613
Epoch 242/250
22/22 [==============================] - 0s 1ms/step - loss: 24.5040
Epoch 243/250
22/22 [==============================] - 0s 1ms/step - loss: 23.9846
Epoch 244/250
22/22 [==============================] - 0s 1ms/step - loss: 24.2253
Epoch 245/250
22/22 [==============================] - 0s 1ms/step - loss: 23.9717
Epoch 246/250
22/22 [==============================] - 0s 1ms/step - loss: 24.6623
Epoch 247/250
22/22 [==============================] - 0s 1ms/step - loss: 24.3652
Epoch 248/250
22/22 [==============================] - 0s 1ms/step - loss: 24.2938
Epoch 249/250
22/22 [==============================] - 0s 1ms/step - loss: 24.7640
Epoch 250/250
22/22 [==============================] - 0s 1ms/step - loss: 24.0250
```

Out[28]:
```
<keras.callbacks.History at 0x19ffe089460>
```

In [30]:
```python
loss_df=pd.DataFrame(model.history.history)
```

In [31]:
```python
loss_df.plot()
```

Out[31]:
```
<AxesSubplot:>
```



In [33]:
```python
model.evaluate(X_test,y_test,verbose=0)
```

Out[33]:
```
27.026432037353516
```

In [34]:
```python
model.evaluate(X_train,y_train,verbose=0)
```

Out[34]:
```
24.696182250976562
```

In [35]:
```python
test_predictions = model.predict(X_test)
```

In [37]:
```python
#test_predictions
```

In [39]:
```python
test_predictions = pd.Series(test_predictions.reshape(300,))
```

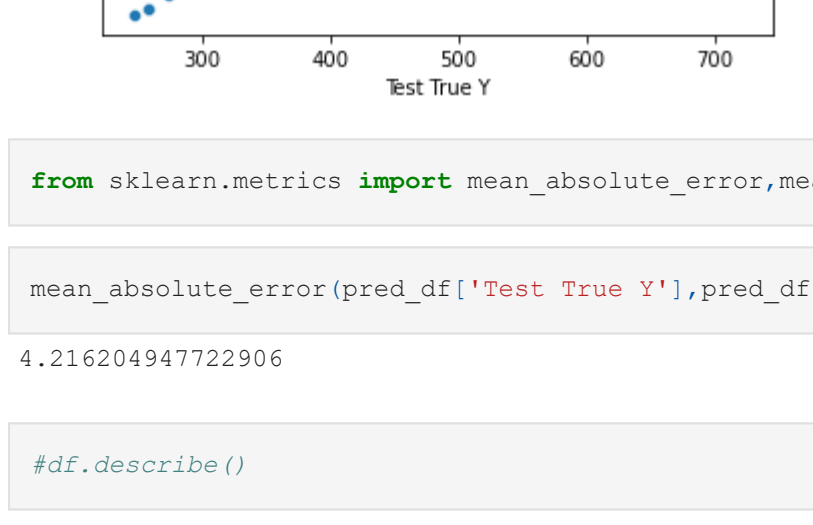
In [40]:
```python
pred_df = pd.DataFrame(y_test,columns=['Test True Y'])
```

In [44]:
```python
pred_df = pd.concat([pred_df,test_predictions],axis=1)
```

In [50]:
```python
pred_df.columns = ['Test True Y','Model Predictions']
```

In [51]:
```python
sns.scatterplot(x='Test True Y',y='Model Predictions',data=pred_df)
```

Out[51]:
```
<AxesSubplot:xlabel='Test True Y', ylabel='Model Predictions'>
```



In [52]:
```python
from sklearn.metrics import mean_absolute_error,mean_squared_error
```

In [53]:
```python
mean_absolute_error(pred_df['Test True Y'],pred_df['Model Predictions'])
```

Out[53]:
```
4.216204947722906
```

In [55]:
```python
#df.describe()
```

In [57]:
```python
mean_squared_error(pred_df['Test True Y'],pred_df['Model Predictions'])**0.5
```

Out[57]:
```
5.198697074715151
```

In [58]:
```python
new_gem = [[998,1000]]
```

In [61]:
```python
new_gem = scaler.transform(new_gem)
```

In [62]:
```python
model.predict(new_gem)
```

Out[62]:
```
array([[420.77475]], dtype=float32)
```

In [63]:
```python
from tensorflow.keras.models import load_model
```

In [64]:
```python
model.save('my_gem_model.h5')
```

In [65]:
```python
later_model = load_model('my_gem_model.h5')
```

In [66]:
```python
later_model.predict(new_gem)
```

Out[66]:
```
array([[420.77475]], dtype=float32)
```

In [ ]: