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Simple Linear Regression using Normal Eqaution method. Here I am trying to predict y from x from Test samples.

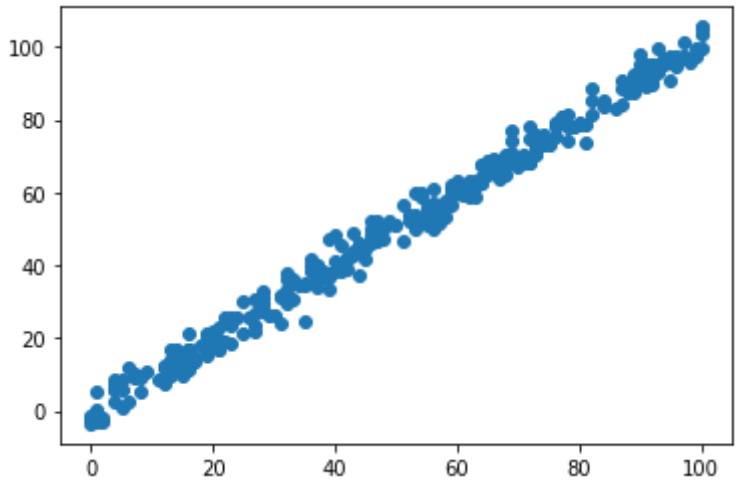
```
import numpy as np
from sklearn import datasets,metrics
from sklearn.preprocessing import StandardScaler
import pandas as pd
import matplotlib.pyplot as plt

data=pd.read_csv('Test.csv')
data.head()
```

| | x | y |
|---|---|---|
| **0** | 77 | 79.775152 |
| **1** | 21 | 23.177279 |
| **2** | 22 | 25.609262 |
| **3** | 20 | 17.857388 |
| **4** | 36 | 41.849864 |

```
x=np.array(data['x'])
y=np.array(data['y'])

from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,random_state=32)
plt.scatter(x,y)
plt.show()
```




```
x_new=np.c_[np.ones((len(x_train),1)),x_train]
```

```
#print(x_new)
m_c=np.linalg.inv(x_new.T.dot(x_new)).dot(x_new.T).dot(y_train)
m=m_c[1:]
c=m_c[0:1]
#print(m,c)


x_new_test=np.c_[np.ones((len(x_test),1)),x_test]
y_pred=x_new_test.dot(m_c)


plt.plot(x_test,y_pred,color='blue')
plt.scatter(x,y,color='red')
plt.xlabel("x")
plt.ylabel("y")
plt.title("linear regression with one variable")
plt.show()
```