Bangladesh University of Business and Technology

Course code: CSE-465
Course Title: Machine Learning

Submitted By

Name : Md. Sabbirul Islam Sun
Id : 19201103109
Intake : 43
Section: 01

Submitted To

Jubayer Al Mahmud
Assistant Professor, Department of CSE
Bangladesh University of Business and Technology

Submission Date:12-04-2023

Logistic Regression

import

```
import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt
```

read csv

```
dataset=pd.read_csv('data.csv')
dataset
```

```
    item_code  price
0           4    420
1           5    440
2           6    480
3           7    500
4           8    520
5           9    540
6          10    560
7          11    580
8          12    600
9          13    620
10         14    640
11         15    660
12         15    700
```

head()

```
dataset.head(4)
```

```
   item_code  price
0          4    420
1          5    440
2          6    480
3          7    500
```

Shape

```
dataset.shape
```

```
(13, 2)
```

isNull()

```
dataset.isnull().any()
```

Linear Regression

import

```
import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
import matplotlib.pyplot as plt
```

read csv

```
dataset=pd.read_csv('data.csv')
dataset
```

```
    item_code  price
0           4    420
1           5    440
2           6    480
3           7    500
4           8    520
5           9    540
6          10    560
7          11    580
8          12    600
9          13    620
10         14    640
11         15    660
12         15    700
```

head()

```
dataset.head(4)
```

```
   item_code  price
0          4    420
1          5    440
2          6    480
3          7    500
```

Shape

```
dataset.shape
```

```
(13, 2)
```

isNull()

```
dataset.isnull().any()
```

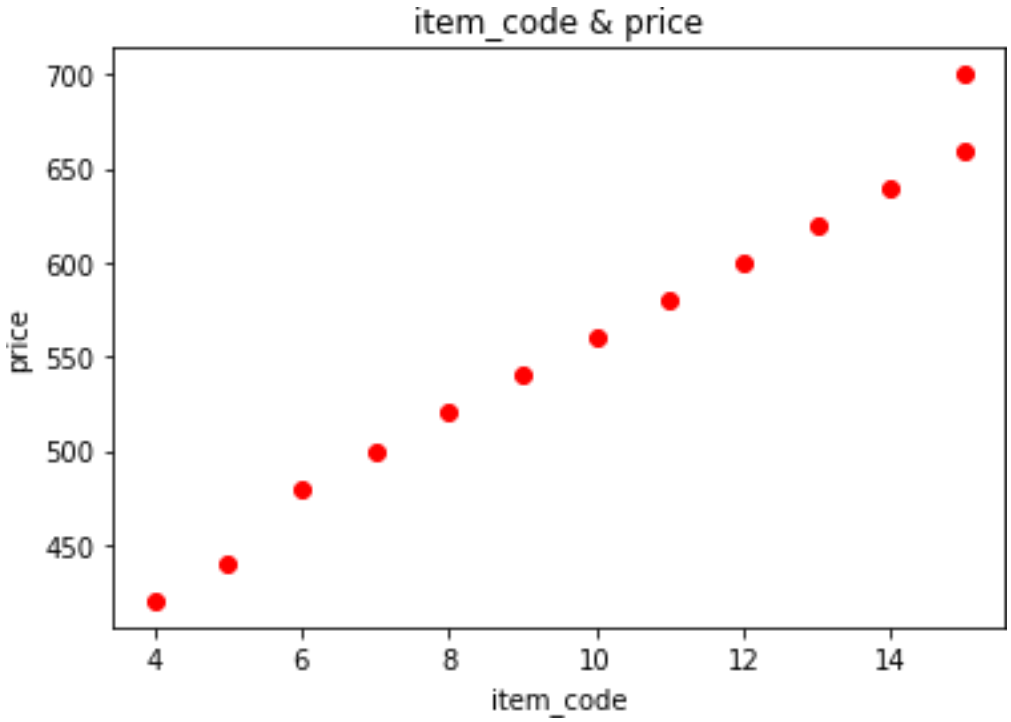
```
item_code     False
price         False
dtype: bool
```

variables

```
x=dataset[['item_code']]
y=dataset[['price']]
```

plotting

```
plt.scatter(x,y,marker='o',color='red')
plt.title('item_code & price')
plt.xlabel('item_code')
plt.ylabel('price')
plt.show()
```



data split

```
xtrain,xtest,ytrain,ytest=train_test_split(x,y,test_size=.30,random_st
ate=1)
xtrain
```

```
    item_code
1           5
6          10
0           4
7          11
12         15
9          13
8          12
11         15
5           9
```

linear regression

```
reg=LinearRegression()
reg.fit(xtrain,ytrain)
reg.predict(xtest)
ytest
```

```
    price
2     480
3     500
4     520
10    640
```

plot linear regression

```
plt.scatter(x,y,marker='o',color='red')
plt.title('item_code & price')
plt.xlabel('item_code')
plt.ylabel('price')
plt.plot(xtest,reg.predict(xtest),color='blue')
```

predict

```
reg.predict([[45]])
```

Coef_ and Intercept_

```
reg.coef_
```

```
array([[23.38103757]])
```

```
reg.intercept_
```

```
array([324.68694097])
```

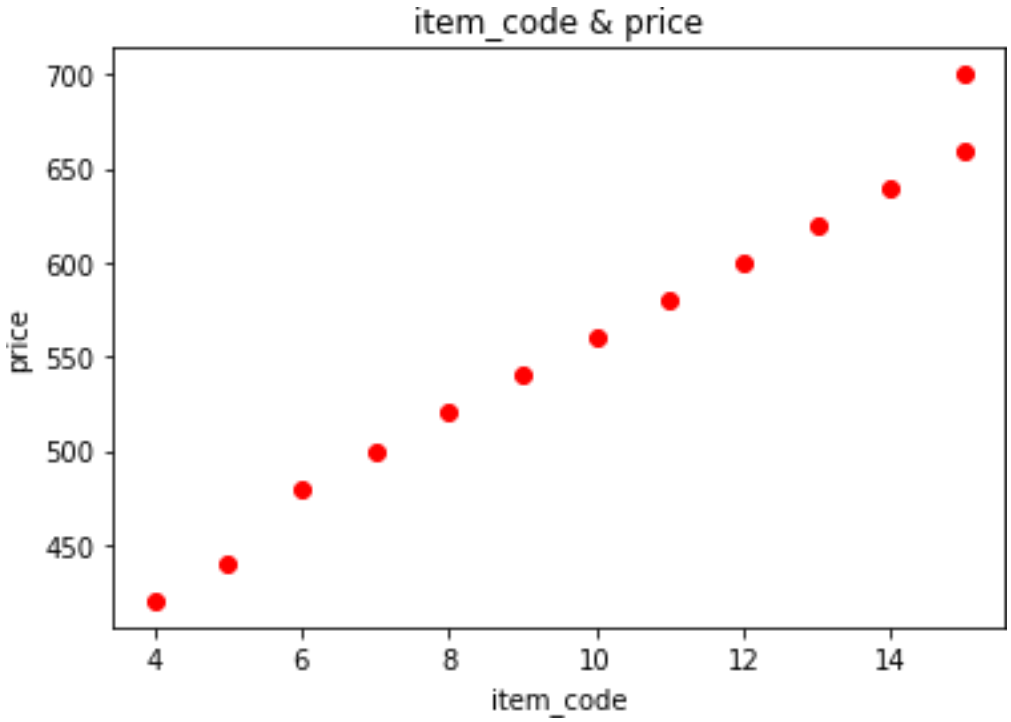
```
item_code     False
price         False
dtype: bool
```

variables

```
x=dataset[['item_code']]
y=dataset[['price']]
```

plotting

```
plt.scatter(x,y,marker='o',color='red')
plt.title('item_code & price')
plt.xlabel('item_code')
plt.ylabel('price')
plt.show()
```



data split

```
xtrain,xtest,ytrain,ytest=train_test_split(x,y,test_size=.30,random_st
ate=1)
xtrain
```

```
    item_code
1           5
6          10
0           4
7          11
12         15
```

```
9          13
8          12
11         15
5           9
```

linear regression

```
reg=LinearRegression()
reg.fit(xtrain,ytrain)
reg.predict(xtest)
ytest
```

```
    price
2     480
3     500
4     520
10    640
```

plot linear regression

```
plt.scatter(x,y,marker='o',color='red')
plt.title('item_code & price')
plt.xlabel('item_code')
plt.ylabel('price')
plt.plot(xtest,reg.predict(xtest),color='blue')
```

predict

```
reg.predict([[45]])
```

Coef_ and Intercept_

```
reg.coef_
```

```
array([[23.38103757]])
```

```
reg.intercept_
```

```
array([324.68694097])
```