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

dataset=pd.read_csv(r"C:\Users\admin\Downloads\Investment.csv")

X=dataset.iloc[:, :-1]
Y=dataset.iloc[:, 4]

X=pd.get_dummies(X, dtype=int)

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)

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

Y_pred=regressor.predict(X_test)

m=regressor.coef_
print(m)

c=regressor.intercept_
print(c)

X=np.append(arr=np.full((50,1),42467).astype(int),values=X,axis=1)

import statsmodels.api as sm
X_opt = X[:, [0,1,2,3,4,5]]
#ordinaryLeastsquares
regressor_OLS= sm.OLS(endog=Y,exog=X_opt).fit()
regressor_OLS.summary()

import statsmodels.api as sm
X_opt = X[:, [0,1,2,3,5]]
#ordinaryLeastsquares
regressor_OLS= sm.OLS(endog=Y,exog=X_opt).fit()
regressor_OLS.summary()

import statsmodels.api as sm
X_opt = X[:, [0,1,2,3]]
#ordinaryLeastsquares
regressor_OLS= sm.OLS(endog=Y,exog=X_opt).fit()
regressor_OLS.summary()

import statsmodels.api as sm
X_opt = X[:, [0,1,3]]
#ordinaryLeastsquares
regressor_OLS= sm.OLS(endog=Y,exog=X_opt).fit()
regressor_OLS.summary()

import statsmodels.api as sm
X_opt = X[:, [0,1]]
#ordinaryLeastsquares

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```
regressor_OLS= sm.OLS(endog=Y,exog=X_opt).fit()  
regressor_OLS.summary()
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bias = regressor.score(X_train,Y_train)  
bias
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variance = regressor.score(X_test,Y_test)  
variance
```