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import numpy as np #Array

import matplotlib.pyplot as plt

import pandas as pd
dataset=pd.read_csv(r"C:/Users/sss/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)

#== we build mlr model

m = regressor.coef_
print(m)

c = regressor.intercept_
print(c)

#X = np.append(arr = np.ones((50,1)).astype(int), values = X, axis = 1)
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()

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import statsmodels.api as sm
X_opt = X[:,[0,1]]
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bias = regressor.score(X_train, y_train)
bias
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variance = regressor.score(X_test, y_test)
variance
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