

Assignment -4 :

Download the dataset by clicking this link <https://visualize.data.gov.in/?inst=d35d7fcb-5b89-4c08-b96f-dd4916453421> Take X-axis as a year in the dataset and Y-axis take any one variable (Annual Min or Annual Max or Jan-Feb) Find the polyfit of the Y-axis and X-axis; use polyfit option in python packages and get the value of polyfit. Your polyfit data points are an expected data value and compare with the actual data value Y-axis process "mean square error" algorithm using python packages.(Show data in graphical representation)

```
# -*- coding: utf-8 -*-
```

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''''
```

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Note : I have worked for Annual -Max and Annual Min

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''''
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```
from sklearn.metrics import mean_squared_error #to calculate mean square algorithm
```

```
import pandas as pd
```

```
import csv
```

```
import numpy as np
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```
import matplotlib.pyplot as plt
```

```
data= pd.read_csv('C:/Users/Public/acc/dataset.csv')
```

```
print(data.info())
```

```
# Creating a dataset
```

```
X = np.arange(1901,2018,1)
```

```
print("X values in the dataset are:\n", X)
```

```
Y = np.array((data['ANNUAL - MIN']))#np.arange(data['ANNUAL-MIN'])
```

```
print("Y values Annual MIN in the dataset are:\n", Y)
```

```
# Calculation of Mean Squared Error (MSE)
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```
MSE = mean_squared_error(X,Y)
```

```
print("Mean Square Error dataset are:\n", MSE)
```

```

plt.scatter(X, Y)
plt.xlabel("X-values -Year (1901-2017)")
plt.ylabel("Y-values - Annual -Min")
plt.plot(X, Y)
coef = np.polyfit(X,Y,2)
print("Coefficient values:\n", coef)# Last argument is degree of polynomial
poly1d_fn = np.poly1d(coef)
plt.plot(X,Y, 'yo', X, poly1d_fn(X))
plt.show()

```

```

# below for predicting the polyfit for annaual - max
Z = np.array((data['ANNUAL - MAX']))#np.arange(data['ANNUAL-MIN'])
print("Z value -Annual Max in the dataset are:\n", Z)
# Calculation of Mean Squared Error (MSE)
MSE = mean_squared_error(X,Z)
print("Mean Square Error dataset are:\n", MSE)
plt.scatter(X, Z)
plt.xlabel("X-values -Year (1901-2017)")
plt.ylabel("Y-values - Annual -Max")
plt.plot(X, Z)
coeff = np.polyfit(X,Z,2)
print("Coefficient values:\n", coeff)# Last argument is degree of polynomial
poly1d_fn = np.poly1d(coeff)
plt.plot(X,Z, 'yo', X, poly1d_fn(X))
plt.show()

```







