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# -*- coding: utf-8 -*-
"""Kmeans.ipynb

Automatically generated by Colaboratory.

Original file is located at
https://colab.research.google.com/drive/132w\_By3xEifKsFpHwF8vtHYWTbguWNUb
"""

import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from sklearn.cluster import KMeans

data = pd.read_csv('driverdata.csv')

data

x = data.iloc[:, [2, 3]].values

data.shape

data.info()

data.isnull().sum()

from sklearn.preprocessing import StandardScaler

sc = StandardScaler()

x = sc.fit_transform(x)

kmeans = KMeans(n_clusters = 3)
kmeans.fit(x)

y_kmeans = kmeans.fit_predict(x)

plt.scatter(x[y_kmeans == 0, 0], x[y_kmeans == 0, 1] , s = 20 , c = "red" , label = 'Cluster 1')
plt.scatter(x[y_kmeans == 1, 0], x[y_kmeans == 1, 1] , s = 20 , c = "blue" , label = 'Cluster 2')
plt.scatter(x[y_kmeans == 2, 0], x[y_kmeans == 2, 1] , s = 20 , c = "green" , label = 'Cluster 3')
plt.scatter(kmeans.cluster_centers_[0, 0], kmeans.cluster_centers_[0, 1] , s = 25, marker = 'x' , c = "black", label = 'Centroid')
plt.title("Cluster of Driver")
plt.xlabel("Score1")
plt.ylabel("Score2")
plt.legend()
plt.show()

data.hist()

plt.scatter(data['Score1'], data['Score2'], color = 'red')

```