**11.Develop a program to implement K Means clustering model for the given value of K, where K is number of clusters**

import pandas as pd  
import statsmodels.api as sm  
import matplotlib.pyplot as plt  
import seaborn as sns  
sns.set()  
from sklearn.cluster import KMeans

data = pd.read\_csv('Countryclusters.csv')  
data

Country Latitude Longitude Language  
0 USA 44.97 -103.77 English  
1 Canada 62.40 -96.80 English  
2 France 46.75 2.40 French  
3 UK 54.01 -2.53 English  
4 Germany 51.15 10.40 German  
5 Austalia -25.45 133.11 English

x = data.iloc[:,1:3] # 1t for rows and second for columns  
x

Latitude Longitude  
0 44.97 -103.77  
1 62.40 -96.80  
2 46.75 2.40  
3 54.01 -2.53  
4 51.15 10.40  
5 -25.45 133.11

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

KMeans(n\_clusters=3)

identified\_clusters = kmeans.fit\_predict(x)  
identified\_clusters

array([1, 1, 2, 2, 2, 0])

data\_with\_clusters = data.copy()  
data\_with\_clusters['Clusters'] = identified\_clusters   
plt.scatter(data\_with\_clusters['Longitude'],data\_with\_clusters['Latitude'],c=data\_with\_clusters['Clusters'],cmap='rainbow')

