Q1. What data structure(s) could you store this data in? What are the benefits of storing in each of the data structures you can think of?

1. For the convenience and quicker data analytics i am using Data Frame concept of Pandas Library. Benefits are it is easy to understand data flow and manipulate dataset in our local environment without effecting actual Data Location.

import pandas as pd

DataFrame = pd.read\_csv("C:/Users/elcot/Downloads/world\_population.csv")

Q2. Write a program/function to find the country/region with the highest and lowest population in a given year. Take the year as input from the user or from the command line.

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import pandas as pd

DataFrame = pd.read\_csv("C:/Users/elcot/Downloads/world\_population.csv")

UserInputYear = input("Enter the Year to find Countries with Min and Max Population")

min(DataFrame[UserInputYear] )

max(DataFrame[UserInputYear] )

Q3. Write a program/function to find the country/region with the highest and lowest population growth percentage from 1960 to 2020.

Formula: 100 \* (2020 population - 1960 population) / 1960 population



DataFrame["Growth%"] = ((DataFrame["2020"] - DataFrame ["1960"])/ DataFrame ["1960"])\*100

DataFrame ["Country Name"].loc[DataFrame ["Growth%"].idxmin()]

DataFrame ["Country Name"].loc[DataFrame ["Growth%"].idxmin()]

Q4. Modify the above program/function to take the starting and ending years as inputs from the user or from the command line.

1. UserInputStartYear = input("Enter starting of the year");

UserInputEndYear = input("Enter Ending of the Year");

DataFrame ["Country Name"].loc[(((DataFrame [b]- DataFrame [UserInputStartingYear])/ DataFrame [UserInputStartingYear])\*100).idxmin()];

DataFrame ["Country Name"].loc[(((DataFrame [b]- DataFrame [UserInputStartingYear])/ DataFrame [UserInputStartingYear])\*100).idxmin()];

Q5. Write a program/function to caclulate a country’s population a few years from now. Take country name and number of years as inputs from user or from command line. Use the average growth rate in the last x years as the growth rate for the period. Let x be a constant defined in the program/function or in a property fileQ1. What data structure(s) could you store this data in? What are the benefits of storing in each of the data structures you can think of?

1. UserInputCountryName = input("Enter the country name : ")

UserInputFutureYear = input("Enter the future year to guess population count")

print("Taking 10 years of data to estimate average growth")

ChosenCountry = DataFrame.loc[(DataFrame["Country Name"] == UserInputCountryName)]

AvgGrowthPerYear = (((ChosenCountry["2020"]-ChosenCountry["2010"])/ChosenCountry["2010"])\*10)