

CISC1006: Probability and Statistics
Technology Assignment 1: From Data to Information
Search, Present and Analyze Data
(Percentage, Percentage Change and Annual Growth Rate)

Due: Feb. 24, 2021

Student Number_____

Name_____

Question 1

Give calculation steps with formula using the data in the file “MetaData China US”

(a) GDP per capita of US is _____more than that of China in 2016 in absolute term.

(b) GDP per capita of US is _____ more than that of China in 2016 in relative term (in percentage change).

(c) GDP growth rate of China is _____more than that of US in 2017 in absolute term.

(d) GDP growth rate of China is _____more than that of US in 2017 in relative term (in percentage change).

- (e) State whether the following statement is true or false, and explain why. If the statement is false, Find the true total growth rate over the three-year period using the given yearly growth rate.

“If the GDP in US grow by 2.57% in 2014, 2.86 % in 2015 and 1.49 % in 2016, then a total growth of 6.92 % over the three-year period. (by adding the three growth rate $2.57\% + 2.86\% + 1.49\% = 6.92\%$).”

- (f) What is the (average) annual growth rate of energy use per capita in China between 1993 and 2014. (correct to 2 decimal places)

- (g) What is the (average) annual growth rate of energy use per capita in **US** between 1993 and 2014. (correct to 2 decimal places)

Question 2:

Given the data file “CISC1006 Tourist Arrivals in Macao by Residence 1998-2020”,

- (1) Present the data in a **Bar Chart** in total with its components over time **in absolute term**. (insert the chart here)

(2) Present the data in a **Bar Chart** in total with its components over time **in relative term** (in percentage). (insert chart here)

(3) Describe the **changes in the values** (correct to whole number percentage, e.g. 12%)

- (a) The total tourist arrivals in Macao grow very fast at an average annual growth rate of _____ from 1998 to 2019.
- (b) Tourist arrivals from Mainland China has the highest average annual growth rate of _____, compared to the tourist from HK, Taiwan and other countries with annual growth rate of _____, _____, _____ respectively from 1998 to 2019.
- (c) The tourist arrivals from mainland China have an average annual grow rate of _____ after the individual travel scheme in 2003 (from 2003 to 2019)

(b) Which are the years with the lowest growth rate? Could you give the reasons briefly?

Question 3: (Optional)

(a) Find the data for Macao's Gross domestic product (GDP) at current basic prices, by production approach from 1998 to 2019. Present the data in chart. Which production section contribute most to Macao's GDP? Upload your excel with the chart on UMMoodle.

(b) Find the original data in "Metadata China US" from World Bank, and download it in excel format;

Upload the original downloaded data on UMMoodle.