



Module 2: Quantitative Reasoning Techniques

Module 2 Tutorial: Application of Basic Quantitative Reasoning to Real-World Data

In this tutorial activity, students will learn the application of basic Quantitative Reasoning Techniques to real-world data for decision-making.

Intended Learning Outcomes

Number	Description
ILO-1	Digital Competencies & Problem Solving: Select digital tools and techniques based on their strengths and limitations and use them on given data for problem solving and decision making.
ILO-2	Digital Competencies & Problem Solving: Collect and organize relevant data for analysis.
ILO-3	Digital Competencies & Problem Solving: Apply quantitative reasoning to analyze data to guide problem solving and decision making.

Lesson Overview

In the two weeks of module 2 activities, the students will learn the step-by-step Quantitative Reasoning methods involved in performing data analysis. Upon completion of the lesson, students will be able to apply quantitative reasoning techniques to analyze data to support decision-making.

Activity 1: Data Collection

Each group will perform the data collection by following the instructions given below.

Instructions:

- Each group to **select any one dataset** from the given,
- To perform the next activities, first you need to study and understand the data you have received. What information/details are collected, the parameters used to collect those details, and meaning of numerical data collected – understand the data collected in each column.

Activity 2: Data Plotting and Analysis

Each group to perform data plotting and analysis based on the dataset selected. Follow the instructions given below.

Total Air Passenger Arrivals by Country data

Data Plotting and Data Analysis

Instructions: If you have selected Total Air Passenger Arrivals by Country data, answer the following questions:

- A bar/column chart presenting the number of passenger arrived from South East Asia during the period



from 2010 January to 2018 January.

- b. A line chart presenting the number of passengers arrived from South East Asia in the month of December during the period from 2010 to 2018.
- c. A column chart presenting the number of passenger arrived by the regions during the period from 1986 January to 2018 December.
- d. A bar chart presenting the number of passenger arrived from Malaysia and China during the period from 1986 to 2018.
- e. What was the total number of passengers arrived from South East Asia during the period from 2010 January to 2018 January?
- f. What was the total number of passengers arrived from South East Asia in the month of December during the period from 2010 to 2018?
- g. What was the highest number of passengers arrived during the period from 1986 to 2018 in the month of December? From which region and country?
- h. What was the average number of passengers arrived from Malaysia and China during the period from 1986 to 2018?

Graduate Employment Survey Data

Data Plotting and Data Analysis

Instructions: If you have selected Graduate Employment Survey data, answer the following questions:

- a. A bar chart presenting the employment rate of graduates based on Universities during the period from 2013 to 2021.
- b. A bar chart presenting the gross monthly salary drawn by the different schools graduates in NTU during the period from 2013 to 2021.
- c. A line chart presenting the gross monthly salary drawn by the graduates of NTU and NUS based on the different degrees/majors during the period from 2020 to 2021.
- d. A pie chart presenting the basic monthly salary drawn by the Business graduates of NTU, NUS and SMU during the period from 2019 to 2021.
- e. What was the total employment rate of NTU graduates in one year?
- f. What was the lowest salary drawn by the NTU graduates during the period from 2013 to 2021?
- g. What was the highest basic salary drawn by the NTU graduates during the period from 2015 to 2021? From which school and degree?
- h. What is the average basic salary drawn by NTU graduates during the period from 2015 to 2021?

Each group need to write your answers to all the activities in a word document/power point slides/Microsoft Excel named as “TutorialNumber_GroupNumber_WeekNumber” and upload it in Discussion page of your tutorial site.

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