

MA220 – Univariate Statistical Analysis

Assignment

Raw Data Analysis

INSTRUCTIONS:

- **Answer ALL questions** in a Word format file.
- **Clearly label both questions and their sub-questions; failure to do so will result in NO marks being awarded.**
- State your assumption(s) and ensure that all calculation questions **must clearly demonstrate appropriate working.**
- Save as this format “**Your name_Student number_assignment**”:
 - For example: my name is Peter Ho and my student number is 1234567.
 - I should save my working as “**Peter_1234567_assignment**”.
- Submit your Word file on via CANVAS no later than the due date.
- Suggestion: Save your work regularly (every 10 minutes perhaps).

Case Study (45 marks):

Refer the data given from the text book (Peck, R., Short, T., & Olsen, C. (2018). *Introduction to statistics & data analysis*. (6th ed.). Cengage Learning.) Chapter 3, question 3.6 (Scoring for cafeterias), page 86.

Requirements:

1. Two variables are summarized in the figure, grade and overall score. Is overall score a numerical or categorical variable? Is grade (indicated by the different colors in the figure) a numerical or categorical variable? Justify your answers. (4 marks)

2. Using the **overall score data**,
 - a. determine the median. (5 marks)
 - b. determine the range. (3 marks)
 - c. determine the sample mean. (4 marks)
 - d. determine the sample standard deviation. (8 marks)
 - e. interpret the result of part d. (2 marks)
 - f. based on the result of your sample mean and sample standard deviation, determine the potential lowest and highest scores for another dataset (4 marks)

3. Using the **grade data**, summary the data into different grading segments as follow,

Grade	Frequency (%)
Top of the Class	
Passing	
Barely Passing	30%
Failing	

- a. calculate and complete the above table. (6 marks)
- b. **use Microsoft Excel**, to construct a pie chart to summarize the above table, ensuring appropriate labelling. (Note: Copy and paste your pie chart into the the Word file) (5 marks)
- c. evaluate your results for the audience. (4 marks)