

BBS300 Empirical Research Methods for Business
TMA, 2021
Assignment 2 (Final Assessment)

This Assignment covers material from Sessions 1-11 and is worth 50% of your total mark of BBS300. Your solutions should be appropriately presented, and it is vital that you double-check your spelling and grammar and thoroughly proofread your Assignment before submitting it. **Instructions for assignment submission are presented in the "Assignment 1" link and must be strictly adhered to. No marks will be awarded to assignments that are submitted after the due date and time. All analyses must be carried out using SPSS, and no marks will be awarded for assignment questions where SPSS output supporting your answer is not provided in your file submitted for the Assignment. You must adhere to the following:**

1. You should not search Google for answers. Any answer with terminology or concepts that we did not cover in this unit will be considered a sign of cheating that requires further investigation, specifically answers relevant to the practical questions.
2. Do not consult websites that sell the services of answering assignment questions. Murdoch University has the right to contact those websites and request the names of students who used the service.
3. This is an individual assignment. You should not work with other students, nor should you consult their answers.
4. Citation is NOT required unless otherwise is mentioned in the questions.
5. Do not leave the Assignment to the last minute. Submit your answers earlier. Any excuse relevant to technicalities will NOT be accepted unless we are notified at least 12 hours before the submission.
6. You must take screenshots of your SPSS outputs while showing the date and time of your computer. This will guarantee that you only use your SPSS work.
7. Questions and inquiries relevant to the Assignment will be answered within the first 24 hours. After that, no questions are allowed.
8. You must submit your answers in a PDF file. This will guarantee a smaller file size. You are not required to use the coversheet. Just type your name and ID on the top of your file.
9. Your answers MUST NOT exceed 15 pages. Any answer after page 15 will NOT be marked.
10. You MUST answer all questions.

Questions

QUESTION 1 - (30 marks)

Consider the 'Diamond' dataset. It is provided as Microsoft Excel Workbook. Data are for 308 round-cut diamonds, taken from a newspaper ad. The codes are as follows:

1. IDNO - an identification number for each data point.
2. WEIGHT - weight of the diamond, in carats.
3. COLOR - degree of colour purity in the diamond: "D" represents top colour purity grade; Lesser grades are "E", "F", and so on, through the alphabet. Note that these grades are ranked and should be coded according to their order.
4. CLARITY - diamond clarity (presence or absence of minute flaws): "IF" means "internally flawless" - the top grade; "VVS1" and "VVS2" for "very very slightly imperfect"; and, "VS1" and "VS2" for "very slightly imperfect". Note that these grades are ranked and should be coded according to their order.
5. RATER - the diamond was evaluated by one of three independent rating agencies: "GIA" - Gemmological Institute of America (based in New York); "IGI" - International Gemmological Institute (Antwerp); "HRD" - Hoge Raad Voor Diamant (Antwerp).
6. PRICE - in Singapore dollars.

Operationalise the data and enter it into an SPSS file (you need to submit your SPSS dataset into the specified submission link on the LMS), then statistically solve the following business problems:

- 1.1. In the diamond market, it is always argued that diamond price is associated with diamond weight. Provide statistical evidence to prove or disprove that argument.
- 1.2. Another argument in the diamond market is that diamond price is predicted by diamond weight. Provide statistical evidence to prove or disprove that argument.
- 1.3. A third argument is that diamond weight is not the sole predictor of diamond price. It should be controlled by diamond colour and clarity. Provide statistical evidence to prove or disprove that argument.

For all answers above, be sure to include **relevant** SPSS output (graphs, tables) to support your solutions (screenshots must include the time and date of your work).

You should interpret, discuss and report your answers. You should proceed if any of the assumptions is violated. However, you must report it.

QUESTION 2- (20 marks)

Consider the SPSS "Work-Volunteers" dataset, for which the codes are provided in label fields, then solve the following problems:

- 2.1. The Scale of Volunteers Experience comprises 13 questions numbered in your data file from Q1 to Q13. However, they were not developed based on a proven theory. You need to confirm whether those questions are interrelated so that they can form a scale. Again, be sure to include **relevant** SPSS output (graphs, tables) to support your answers.
- 2.2. We are interested in exploring the differences in the scores of Total Volunteering Experience according to the respondents' Total Volunteering Services Groups; and the respondents' age groups 46-55 and 56-65.
- 2.3. Somebody has already tested the normality of the variable Factor 1 according to the length of service groups. It was found Factor 1 for each length of service groups was normally distributed. Accordingly, we would like to explore whether there are differences in the Factor 1 scores between the length of service groups.
- 2.4. Somebody has already tested the normality of the variable Factor 2 according to the length of service groups. It was found Factor 2 for each length of service groups was NOT normally distributed. Accordingly, we would like to explore the following:
 - 2.4.1. whether there is a difference in the Factor 2 scores between the length of service groups.
 - 2.4.2. Whether there is a difference between the (5 or less) group and the (11-15) group.

End of questions

