ACU
PETER FABER
BUSINESS SCHOOL

ASSESSMENT 3 GUIDE

STAT600

Data analysis and interpretation

SEMESTER TWO, 2021

Assessment number (3)

Case Study (Individual)

(50%)

Why this assessment?

- This assessment i.e., case study, helps students understand a real-world problem presented by a researcher. Developing their understanding of leading-edge trends related to statistical analysis, students will analyse a dataset provided by the researcher to provide a solution and recommendations for the problem. This assessment will help students learn formally and informally the techniques to infer meaningful information for decision making.
- This assessment help students investigate and analyse a real-world problem and communicate a well worked out solution based on the data analysis.

What are the types of employability skills that I will acquire upon completion of this assessment?

Skill Type	
Developed critical and analytical thinking	☒
Developed ability to solve complex problems	☐
Developed ability to work effectively with others	☐
Developed confidence to learn independently	☒
Developed written communication skills	☒
Developed spoken communication skills	☐
Developed knowledge in the field of study	☒
Developed work-related knowledge and skills	☐
Developed effective research skills	☒

Assessment Overview:

A researcher will give you a presentation about a project that he has undertaken to address a real-world problem. In addition, the researcher will inform you of the nature and scope of the real-world problem, the variables of interest

and how they collected data to answer the research question. With the dataset, you are provided with the list of analyses you may need to undertake for meaningful data inference. Based on the results, you will develop two recommendations about the problem's solution for the researcher.

You are provided with a real-world dataset that requires you to apply your statistical concepts, knowledge and skills to support your written arguments, including considering ethical perspectives in decision making. You investigate, analyse, infer and communicate the outcomes to demonstrate your learning, knowledge and exposure to what you know about statistical analysis.

Due date:	**10/11/2021 8am**
Weighting:	50%
Length and/or format:	The 2000-words report consists of the basic descriptives analysis, testing hypotheses and conducting analysis, making inferences from the results, writing a report with arguments, and presenting the recommendations.
Learning outcomes assessed	LO2, LO3, LO4
Graduate attributes assessed	GA2, GA4, GA5, GA6
How to submit:	Through Turnitin created by the lecturer
Return of assignment:	After the final results are published by the University
Assessment criteria:	Rubric: see the end of the document

Context

As a successful completion of your certification (second assessment), a senior researcher presents a research problem about smart retail technologies and their impact on customer experiences. The researcher will also inform you about how he has collected data to find the problem's solution. He requires you to analyse the data collected from the customers, make inferences based on results and recommend him the next plan.

Scenario: The researcher gives a presentation (an exact time and date will be advised by the lecturer)

Your task: The researcher wants you to conduct analysis and develop a comprehensive report which should entail the descriptives (mean, standard deviation and relevant charts to understand the descriptives). You will also test five hypotheses using mean difference (t-test or ANOVA), and regression analysis. Finally, based on the results, you will explain the results conventionally and professionally and develop 2-3 recommendations for the researcher.

Instructions

First, you will listen to the researcher carefully about the problem and data collection method to find the solution.

Second, you will also focus on the data set (available on LEO) and understand the nature of variables and measures.

Third, you are expected to run a basic descriptive analysis on at least four demographic variables: age, gender, education, and any other demographic variable.

Fourth, you will select five hypotheses from the list given below (i.e., at least two hypotheses for mean differences

and three hypotheses for regression).

Mean difference/ANOVA test (test only two hypotheses and and report their results):

H1: Male and female have significantly different mean scores for perceived newness of smart retail technology

H2; Male and female have significantly different mean scores for perceived newness of smart retail technology

H3: Male and female have significantly different mean scores for perceived advantage of smart retail technology

H4: Male and female have significantly different mean score for perceived compatiblity with smart retail technology

H5; Male and female have significantly different mean score for brand loyalty for the retail store

Regression analysis (test only three hypotheses and and report their results):

H1: Customer perceptions of novelty of smart retail technology predict the interaction with smart retail technology.

H2: Customer perceptions of newness of smart retail technology predict the perceived advantage of smart retail technology

H3: Customer perceptions of novelty of smart retail technology predict perceived compatiblity with smart retail technology

H4: Customer perceptions of novelty of smart retail technology predict perceived value of smart retail technology

H5: Customer perceptions of novelty of smart retail technology predict brand loyalty for the retail store.

H6: Customer perceptions of novelty of smart retail technology predict shopping value.

Fifth, you will create a mean score of selected items of all measures you are using for testing your chosen hypotheses.

Sixth, you will conduct two mean difference tests and three regression analysis tests using simple regression to infer the results.

Finally, discuss the results and provide 2-3 recommendations.

Structure

A general structure is provided below.

1. Introduction (what is this report all about?) (100 words)
2. Problem statement or research question (100 words)
3. Descriptive analysis (mean, standard deviation and relevant charts to understand the descriptives) (300 words)
4. Aggregate mean score of measures (100 words)
5. T test/ANOVA (for two hypotheses from the list mentioned above) (200 words)
6. Correlations (coefficient of correlation) (present Table) (200 words)
7. Regression analysis (three analysis and their results using a table and conventional reporting statements) (400 words)
8. General discussion about results (400 words)
9. Recommendations (2-3) (400 words)

- **Use the following software to perform the analysis**: Microsoft excel

Note: A comprehensive Zoom session (Q&A) with the demonstration of analysis will be organised and recorded to support the students. The researcher will present this session.

How do I submit?

Submit your assessment **that is word document** to the Turnitin box

Checklist for students to submit along with their assignment

My submitted case study analysis report is within the specified word limit	☐
I have included references using specified referencing style	☐
I have correctly cited all my sources and references	☐
I have formatted my report as per the specifications	☐
I have checked my Turnitin report to ensure the similarity report is acceptable and explainable	☐
I will be able to supply the process output if required by my lecturer to prove this is my own work (e.g. screen dump of my search and retrieval of journal articles, etc.)	☐
I have completed proofreading and checked for spelling and grammar of my report	☐
I have submitted my report before the due date/time	☐

Note

This is a task for any instance of follow-on assignment (assessment 2 and 3). This must be submitted as the first page of the follow-on assignment (assessment 2 and 3) to ensure you acted on the feedback provided to you in the previous assignment. (this is not counted as part of the assessment word count)

How did you act on the feedback?

Feedback is an important component of learning. Please consider the feedback you received in your last assignment and provide a response on how you acted on, or intend to act upon, that feedback, and how it has informed the current assignment task. Submit this sheet along with your assignment.

EXAMPLE QUESTIONS	ACTION PLAN AND FEEDBACK RECOMMENDATION (WHAT I LEARNT FROM THE FEEDBACK ON FEEDBACK)
Based on previous assignment feedback, briefly described how you acted on the feedback to improve your work in this assignment?	(e.g. based on my previous feedback, I made sure that I supported my discussion, position, ideas, concepts with peer reviewed journal references in this assignment)
Briefly describe what is your expectation around the type of feedback that enhances your learning.	(e.g. I want to know where I made a mistake and how I can correct them and not make the same mistake again i.e. I want specific feedback that will help me to improve my learning and performance in the next assignment)
Did you have any difficulty understanding or acting on previous feedback? Please be as specific as possible so that you can gain further feedback/clarify anything you do not understand in the feedback	(e.g. feedback provided in my previous assignment was very generic I did not know how to improve my work. So, I would like the teacher to explain more on xxxx aspects of the feedback or I would like an opportunity to have a dialogue to understand the feedback)

Some Helpful Websites and Resources

The following links provide information about statistical analysis using Excel.

1. https://www.youtube.com/watch?v=_ihkYREwbds
2. https://www.youtube.com/watch?v=3F_V5alJubk
3. https://www.youtube.com/watch?v=pfYhwy3wN14
4. https://www.youtube.com/watch?v=4lAvbp-yVs8
5. https://www.youtube.com/watch?v=R0GjjPvswlQ

The following link provides information about statical concepts

1. https://www.youtube.com/watch?v=LMSyiAJm99g
2. https://www.youtube.com/watch?v=zPG4NjIkCjc

3. The following links provide information about the concept of ethics and Common Good

https://www.thensmc.com/sites/default/files/public-files/NSMC_social_marketing_ethics.pdf

https://www.britannica.com/topic/common-good

4. The following link provides information about academic and other types of support

to students

- Academic Skills offers a variety of services, including workshops (on topics such as assignment writing, time management, reading strategies, referencing), drop-in sessions, group appointments and individual consultations. It has a 24-hour online booking system for individual or group consultations.
- Campus Ministry offers pastoral care, spiritual leadership and opportunities for you to be involved with community projects.
- The Counselling Service is a free, voluntary, confidential and non-judgmental service open to all students and staffed by qualified social workers or registered psychologists.

ONLINE RESOURCES AND TECHNOLOGY REQUIREMENTS

The LEO page for this unit contains further readings, video links, presentation files and exercises.

Who can help me?

Academic skills Unit (ASU)

Lecturer

Name: Dr Philip Cheng
Email: philip.cheng@acu.edu.au

I'm having problems

SC: Application for Special Consideration Complete this form if you wish to be exempted from the academic penalty because your study has been affected by unforeseen circumstances.

EX: Application for extension of time for submission of an Assessment Task Complete this form if you wish to apply for an extension of time for submission of this Assessment Task.

Referencing

All referencing should be in ACU Harvard style; however, if you are coming from another faculty, you may choose to use your usual referencing style. If this is the case, you must indicate at the top of your reference list what referencing style you are using (e.g. APA, MLA, Chicago, etc.).

Please ensure your assignment makes use of in-text citations and a reference list. Missing citations or references is equivalent to plagiarism.

Criteria

The full criteria are compiled in a rubric, which can be found on the following page/s.

Rubric for assessment Task 3 (50%)

Learning outcomes	Criteria	Assessment 3 Standards				
		Below Expectations	Meets Expectations		Exceeds Expectations	
		Level 1 (e.g., F)	Level 2 (e.g., P)	Level 3 (e.g., C)	Level 4 (e.g., D)	Level 5 (e.g., HD)
(GA2) **LO3** Weight = 10 marks TL = 4 Learning stage = A	Critical examination of the real-world problem using statistical tools taking into account the common good for society	Insufficient, irrelevant or inaccurate critical examination of the real-world problem using statistical tools taking into account the common good for society	Only basic critical examination of the real-world problem using statistical tools taking into account the common good for society	Some credible critical examination of the real-world problem using statistical tools taking into account the common good for society	Distinct critical examination of the real-world problem using statistical tools taking into account the common good for society	Comprehensive and highly insightful critical examination of the real-world problem using statistical tools taking into account the common good for society
(GA5) **LO2** Weight = 15 marks TL = 4 Learning stage = A	Apply and analyse values, knowledge, skills and attitudes appropriate to make statistical inferences with appropriate statistical techniques.	Insufficient, irrelevant or inaccurate application and analysis of values, knowledge, skills and attitudes appropriate to make statistical inferences with appropriate statistical techniques.	Only basic level of application and analysis of values, knowledge, skills and attitudes appropriate to make statistical inferences with appropriate statistical techniques.	Some credible level of application and analysis of values, knowledge, skills and attitudes appropriate to make statistical inferences with appropriate statistical techniques.	Some distinct level of application and analysis of values, knowledge, skills and attitudes appropriate to make statistical inferences with appropriate statistical techniques.	Comprehensive and highly insightful level of application and analysis of values, knowledge, skills and attitudes appropriate to make statistical inferences with appropriate statistical techniques.
(GA4) **LO2** Weight = 15 marks TL = 4 Learning stage = A	Critical analysis of inferential statistics (methods and techniques) commonly used to analyse financial and/or non-financial data.	Insufficient, irrelevant or inaccurate critical analysis of inferential statistics (methods and techniques) commonly used to analyse financial and/or non-financial data.	Only basic critical analysis of inferential statistics (methods and techniques) commonly used to analyse financial and/or non-financial data.	Some credible critical analysis of inferential statistics (methods and techniques) commonly used to analyse financial and/or non-financial data.	Some distinct critical analysis of inferential statistics (methods and techniques) commonly used to analyse financial and/or non-financial data.	Comprehensive and highly insightful critical analysis of inferential statistics (methods and techniques) commonly used to analyse financial and/or non-financial data.

(GA6) **LO4** Weight = 10 marks TL = 5 Learning stage = A	Evaluate the nature and limitations of statistical inferences and consequences for problem-solving and decision making.	Insufficient, irrelevant or inaccurate evaluation of the nature and limitations of statistical inferences and consequences for problem-solving and decision making.	Only basic evaluation of the nature and limitations of statistical inferences and consequences for problem-solving and decision making.	Some credible evaluation of the nature and limitations of statistical inferences and consequences for problem-solving and decision making.	Distinct evaluation of the nature and limitations of statistical inferences and consequences for problem-solving and decision making.	Comprehensive evaluation of the nature and limitations of statistical inferences and consequences for problem-solving and decision making.