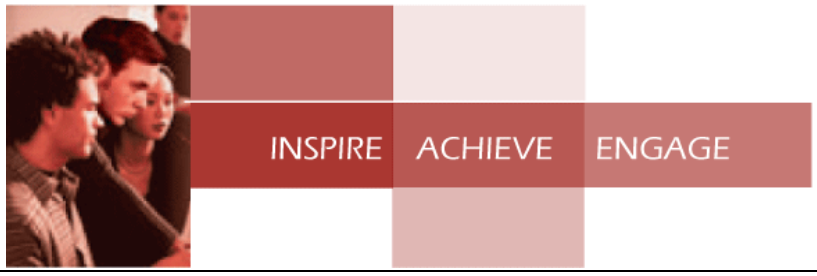
HOLMES INSTITUTE **FACULTY OF HIGHER EDUCATION**	

Assessment Details and Submission Guidelines	
Trimester	T2 2021
Unit Code	HI6007
Unit Title	Statistics for Business Decisions
Assessment Type	Assessment 2
Assessment Title	Group Assignment
Purpose of the assessment (with ULO Mapping)	Students are required to show understanding of the principles and techniques of business research and statistical analysis taught in the course.
Weight	40% of the total assessments
Total Marks	40
Word limit	N/A
Due Date	Week 12 (8th of Oct 2021)
Submission Guidelines	• Students must form groups (Min of 3 and Max of 4 members). Solo group (1 member) groups are subject to 10% penalty • All work must be submitted on Blackboard by the due date along with a completed Assignment Cover Page. • The assignment must be in **MS Word format only**, single spacing, 12-pt Arial font and 2 cm margins on all four sides of your page with appropriate section headings and page numbers. • Reference sources **must be cited** in the text of the report and listed appropriately at the end in a reference list using Harvard referencing style.

Assignment Specifications

Purpose:

This assignment aims at assessing students' understanding of different qualitative and quantitative research methodologies and techniques. Other purposes are:

1. Explain how statistical techniques can solve business problems
2. Identify and evaluate valid statistical techniques in a given scenario to solve business problems
3. Explain and justify the results of a statistical analysis in the context of critical reasoning for a business problem solving
4. Apply statistical knowledge to summarize data graphically and statistically, either manually or via a computer package
5. Justify and interpret statistical/analytical scenarios that best fit business solution

Assignment Structure should be as the following:

This is an applied assignment. Students have to show that they understand the principles and techniques taught in this course. Therefore, students are expected to show all the workings, and all problems must be completed in the format taught in class, the lecture notes or prescribed text book. Any problems not done in the prescribed format will not be marked, regardless of the ultimate correctness of the answer.

(Note: The questions and the necessary data are provided under "Assignment and Due date" in the Blackboard.)

Instructions:

- **Your assignment must be submitted in WORD format only. Otherwise, your submission will not be graded.**
- **The assignment should be supported with the excel file which includes the data set and outputs. Inability to meet this requirement will leads to 10% reduction of total marks.**
- When answering questions, wherever required, you should copy/cut and paste the Excel output (e.g., plots, regression output etc.) into your word doc so as to show your working/output. **Otherwise, you will not receive the allocated marks.**
- You are required to keep an electronic copy of your submitted assignment to re-submit, in case the original submission is failed and/or you are asked to resubmit.
- Please check your Holmes email prior to reporting your assignment mark regularly for possible communications due to failure in your submission.

Important Notice:

All assignments submitted undergo plagiarism checking; if found to have cheated, all involving submissions would subject to penalties.

Group Assignment Questions

Part A

The final marks obtained by students in HI6007: Statistics for Business Decisions unit with on campus teaching (before Covid 19 pandemic) and online teaching (after Covid 19 pandemic) are given in the student grade comparison excel file. Derive a suitable chart (based on the type of the data) and interpret the results.

(5 marks)

Part B

Discuss the method of sampling and method of data collection you would choose to collect data for the following statistical analyses and justify your selection.

Note: Answers without proper justification would leads to lower grades.

1. The association of bankers of Australia would like to investigate the Australian banks strategic plan for financial year 2021/2021 to overcome the slump of banks revenue due to Covid 19 pandemic.
2. The management of Holmes institute would like to examine the difficulties faced by students during Covid 19 pandemic.
3. World health organization would like to assess the relationship between Covid 19 mortality and age.
4. Victorian Premier would like to know the no of employees sacked during the Covid 19 pandemic.
5. Queensland police would like to know the peoples experience of driving in newly opened highway between metro and regional Queensland.

(10 marks)

Part C

Covid 19 pandemic has made a colossal impact on most industries around the world. The impact of it on Airline, International Education and Tourism is significantly higher than the other sectors. ***Kathy Hotel and Tourism*** is one such business located in rural Victoria with over 1000 employees. Due to the current situation they had to make 200 employees redundant.

As part of the redundancy plan, CEO of the ***Kathy Hotel and Tourism,*** promised to offer redundancy packages which are based on three factors: age of the employee, duration of employment with the company and their last year's annual salary. To evaluate this salary package, Finance Division of the company collected a sample of 100 employees and for each, the following variables were recorded.

- No of weeks of redundancy pay (weeks of pay)
- Age of employee (Age)
- No of years with the company (Service)
- Annual salary, in thousands of dollars (Salary)

You are required to gather 50 observations from the given data set (data for part C), following the steps below.

a. Write down student ID of all the members in your group. Ex: EPS3006, NXP5005 DY30120, ABN 8009
b. Add the last digit of student IDs until it become a single digit. Ex: 6+5+0+9 = 20, 2+0 =2
c. If it is 1 - select observations from 1- 50
   If it is 2 – select observations from -10 -59
   If it is 3 – select observations from 15 -64
   If it is 4 – select observations from 20-69
   If it is 5 - select observations from 25-74
   If it is 6 - select observations from 30-79
   If it is 7 - select observations from 35-84
   If it is 8 - select observations from 40--89
   If it is 9 - select observations from 45—94
   If it is 0 - select observations from 50—99
   Note: You will be graded zero for Part C of the assignment unless you satisfied the above sample selection criteria.

1. Perform descriptive statistical analysis and prepare a table with following descriptive measures for all the variables in your data set.
   Mean, median, mode, variance, standard deviation, skewness, kurtosis, coefficient of variation.
   (2 marks)
2. Briefly comment on the descriptive statistics in the part (1) and explain the nature of the distribution (whether the variables are normally distributed or not) of those variables. **Use graphical representations where necessary.** **(4 marks)**

3. Derive suitable graph to represent the relationship between dependent variable and each independent variable in your data set. **(3 marks)**
   (Ex: relationship between weeks of pay and age, Weeks of pay and years etc)
4. Based on the data set you extracted, perform a regression analysis and correlation analysis, and answer the questions given below.
   a. Derive the regression equation and based on that, estimate the expected redundancy pay for 40years old Ho Jin, worked in ***Kathy Hotel and Tourism*** for 14 years with the last annual salary of $45,000. **(3 marks)**

   b. Interpret the meaning of all the coefficients in the regression equation. **(2 marks)**
   c. Interpret the calculated coefficient of determination. **(2 marks)**
   d. At 5% significance level, test the overall model significance. **(2 marks)**
   e. At 5% significance level, assess the significance of independent variables in the model. **(3 marks)**
   f. Based on the correlation coefficients in the correlation output, assess the correlation between explanatory variables and check the possibility of multicollinearity. **(2 marks)**
   g. Based on your experience, propose minimum of 2 explanatory variables other than the variables given in the case study and justify your selection **(2 marks)**

Marking criteria

Marking criteria	Weighting
Part A: Understanding suitable chart type based on the nature of the data, presentation of data and interpretation	**5 marks**
Part B: Discussing the method of sampling and method of data collection for given scenario.	**10 marks**
Part C Selecting data based on the given selection criteria. **Inability to meet this will resulting reduction of 5 marks from the final grade**	
Performing descriptive statistical analysis and review of the calculated values	**6 marks**
Deriving suitable graphs to represent the relationship between dependent variable and each independent variable in your data set.	**3 marks**
Use of regression equation for forecasting	**3 marks**
Interpreting slope, intercepts, and coefficient of determination of the regression model	**4 marks**
Assessing the overall model significance and the significance of independent variables in the model.	**5 marks**
Examining the correlation between explanatory variables and check the possibility of multicollinearity.	**2 marks**
Proposing new variables to the model	**2 marks**
TOTAL Weight	**40 Marks**
Assessment Feedback to the Student:	

Marking Rubric

	Excellent	Very Good	Good	Satisfactory	Unsatisfactory
Part A: Understanding suitable chart type based on the nature of the data, presentation of data and interpretation	Demonstration of outstanding knowledge on representation of data, based on the type and scales of measurements.	Demonstration of very good knowledge on representation of data, based on the type and scales of measurements.	Demonstration of good knowledge on representation of data based on the type and scales of measurements.	Demonstration of basic knowledge on representation of data based on the type and scales of measurements.	Demonstration of poor knowledge on representation of data based on the type and scales of measurements.
Part B: Discussing the method of sampling and method of data collection for given scenario.	Demonstration of outstanding knowledge on data collection methods and methods of sampling	Demonstration of very good knowledge on data collection methods and methods of sampling .	Demonstration of good knowledge on data collection methods and methods of sampling	Demonstration of basic knowledge on data collection methods and methods of sampling	Demonstration of poor knowledge on data collection methods and methods of sampling
Part C **Performing descriptive statistical analysis and review of the calculated values**	Demonstration of outstanding knowledge on descriptive measures	Demonstration of very good knowledge on descriptive measures	Demonstration of good knowledge on descriptive measures	Demonstration of basic knowledge on descriptive measures	Demonstration of poor knowledge on descriptive measures

Deriving suitable graph to represent the relationship between variables	Demonstration of outstanding knowledge on presentation of data using suitable chart types.	Demonstration of very good knowledge on presentation of data using presentation of data using suitable chart types.	Demonstration of good knowledge on presentation of data using suitable chart types.	Demonstration of basic knowledge on presentation of data using suitable chart types.	Demonstration of poor knowledge on presentation of data using suitable chart types.
Deriving multiple regression equation and use of the regression model for forecasting.	Demonstration of outstanding knowledge on regression model estimation and interpretation	Demonstration of very good knowledge on regression model estimation and interpretation	Demonstration of good knowledge on regression model estimation and interpretation	Demonstration of basic knowledge on regression model estimation and interpretation	Demonstration of poor knowledge on regression model estimation and interpretation
Interpreting slope, intercepts, and coefficient of determination of the regression model	Demonstration of outstanding knowledge on interpretation of regression model	Demonstration of very good knowledge on interpretation of regression model	Demonstration of good knowledge on interpretation of regression model	Demonstration of basic knowledge on interpretation of regression model	Demonstration of poor knowledge on interpretation of regression model
Assessing the overall model significance and the significance of independent variables in the model.	Demonstration of outstanding knowledge on use of statistical tests for significance assessment in regression analysis	Demonstration of very good knowledge on use of statistical tests for significance assessment in regression analysis	Demonstration of good knowledge on use of statistical tests for significance assessment in regression analysis	Demonstration of basic knowledge on use of statistical tests for significance assessment in regression analysis	Demonstration of poor knowledge on use of statistical tests for significance assessment in regression analysis
Examining the correlation between explanatory variables and check the possibility of multicollinearity.	Demonstration of outstanding knowledge on correlation coefficient calculation, interpretation and assessing multicollinearity.	Demonstration of very good knowledge on correlation coefficient calculation, interpretation and	Demonstration of good knowledge on correlation coefficient calculation, interpretation and	Demonstration of basic knowledge on correlation coefficient calculation, interpretation and	Demonstration of poor knowledge on correlation coefficient calculation, interpretation and assessing multicollinearity.

		assessing multicollinearity.	assessing multicollinearity.	assessing multicollinearity.	
Proposing new variables to the model	Demonstration of outstanding knowledge on identification of explanatory variables based on rational justification	Demonstration of very good knowledge on identification of explanatory variables based on rational justification	Demonstration of good knowledge on identification of explanatory variables based on rational justification	Demonstration of basic knowledge on identification of explanatory variables based on rational justification	Demonstration of poor knowledge on identification of explanatory variables based on rational justification

Academic Integrity

Holmes Institute is committed to ensuring and upholding Academic Integrity, as Academic Integrity is integral to maintaining academic quality and the reputation of Holmes' graduates. Accordingly, all assessment tasks need to comply with academic integrity guidelines. Table 1 identifies the six categories of Academic Integrity breaches. If you have any questions about Academic Integrity issues related to your assessment tasks, please consult your lecturer or tutor for relevant referencing guidelines and support resources. Many of these resources can also be found through the Study Sills link on Blackboard.

Academic Integrity breaches are a serious offence punishable by penalties that may range from deduction of marks, failure of the assessment task or unit involved, suspension of course enrolment, or cancellation of course enrolment.

Table 1: Six categories of Academic Integrity breaches

Plagiarism	Reproducing the work of someone else without attribution. When a student submits their own work on multiple occasions this is known as **self-plagiarism**.
Collusion	Working with one or more other individuals to complete an assignment, in a way that is not authorised.
Copying	Reproducing and submitting the work of another student, with or without their knowledge. If a student fails to take reasonable precautions to prevent their own original work from being copied, this may also be considered an offence.
Impersonation	Falsely presenting oneself, or engaging someone else to present as oneself, in an in-person examination.
Contract cheating	Contracting a third party to complete an assessment task, generally in exchange for money or other manner of payment.
Data fabrication and falsification	Manipulating or inventing data with the intent of supporting false conclusions, including manipulating images.

Source: INQAAHE, 2020

Assessment Design – Adapted Harvard Referencing

Holmes will be implementing as a pilot program a revised Harvard approach to referencing. The following guidelines apply:

1. Reference sources in assignments are limited to sources which provide full text access to the source's content for lecturers and markers.
2. The Reference list should be located on a separate page at the end of the essay and titled: **References**.
3. It should include the details of all the in-text citations, **arranged alphabetically A-Z by author surname**. In addition, it **MUST** include a hyperlink to the **full text** of the cited reference source.
   For example;
   P Hawking, B McCarthy, A Stein (2004), Second Wave ERP Education, *Journal of Information Systems Education*, Fall, http://jise.org/Volume15/n3/JISEv15n3p327.pdf
4. All assignments will require additional in-text reference details which will consist of the surname of the author/authors or name of the authoring body, year of publication, page number of content, paragraph where the content can be found.
   For example;
   "The company decided to implement a enterprise wide data warehouse business intelligence strategies (Hawking et al, 2004, p3(4))."

Non-Adherence to Referencing Guidelines

Where students do not follow the above guidelines:

1. Students who submit assignments which do not comply with the guidelines will be asked to resubmit their assignments.
2. Late penalties will apply, as per the Student Handbook each day, after the student/s have been notified of the resubmission requirements.
3. Students who comply with guidelines and the citations are "fake" will be reported for academic misconduct.