

BSTA001 - BUSINESS STATISTICS GROUP ASSIGNMENT

This assignment is designed to assist you to achieve the following learning outcomes:

- a. develops a capability to apply standard statistical tools in various business decision contexts within a professionally responsible framework
- b. locates, select and analyse relevant data, quantitative analytical techniques and resources to support business decision-making
- c. effectively interprets and communicate results of quantitative analyses for business decision-making
- d. effectively uses a computer-based data analysis package to critically analyse data
- e. communicates business information in writing through informal reports and teamwork

□ Assignment value: 25%

□ Group of 3-5 students. ***The group members must be from the same tutorial. Your tutor will put you in groups in tutorials. In the event that you cannot find any group, let your Lecturer / tutor know asap. You are NOT allowed to complete this assignment by yourself or in groups of less than 3 members.***

□ Submission:

Submission	Due date	What to submit	How to submit
Soft copy	Midnight 11:59 PM Sunday, 11/12/22	<ol style="list-style-type: none"> 1. Submit cover page with group number, contribution percentages and signatures in your report and submit as one document (word file or a PDF) 2. The business reports 3. Excel file showing all calculation 	CANVAS

Your team have been accepted as interns in Landcom. Landcom manage the strategic and complex residential projects. Your first job is to conduct an analysis based on the recent sales price of the three

suburbs of New South Wales for the year 2018, 2019 and 2020 from <https://www.realestate.com.au/sold/>. Your team needs to perform a comprehensive statistical analysis on the suburban, which will be suggested by your tutors.

TASK 1: LOCATE AND SELECT DATA

Q1. Collect and Compute the appropriate descriptive statistics of the “sold house price”, “Sold house land size” and “sold house number of rooms” for the year 2018 ,2019 and 2020 of the suburban selected by your tutor. The descriptive statistics measures include central tendency (mean), variability (standard deviation), Mode, Quartiles, Range, Interquartile range and Show the infographics (e.g., pie chart, bar chart, etc.) of 2018, 2019 and 2020 data for the following variables:

- (a) Sold house price
- (b) Sold house land size
- (c) Sold house number of rooms

The sample size should be at least 30 for each year (2018,2019,2020) for each suburb. So, for one suburb, the total at least the number of houses recorded should be 90 for three years period.

TASK 2: DATA DESCRIPTION AND ANALYSIS

Q2. Based on the descriptive statistics from Q1, briefly comment on central tendency and variability of three suburban for the 2018 ,2019 and 2020.

Combine data from all group members in an Excel spreadsheet and use this collated sample to answer the following questions.

Q3. Choose one suburb and perform the following task from 2019 data: The historical data indicates that the high house price (more than average price; You should have the average house price of each suburb from question 1) are more likely to associated with land size as compare to low house price (Below average house price). What is the probability of high house price given that the house land size is extended (more than average land size for the suburb)? What is the probability of low house price given that the land size is non-extended (Land size below average)? **Analyze your collated sample and examine whether it is indeed the case.** Show the steps in your analysis (including justification for choice of techniques used and all calculations) and report your findings clearly and **use probability matrix.**

	High house price	Low House price	Total
Extended Land size			
Non-extended land size			
Total			Grand total

Q4. Choose one suburb and perform the following task from 2018 data It is a common perception that the land size and the number of rooms available influence the house price. (i) **Explore the relationship between land size and the house price**, (ii) **Explore the relationship between available number of rooms and the house price**. Use simple linear regression model to analyze question (i) and (ii) and report your findings (including all output from Excel (p-values of independent variables, multiple R, R-squared, physical meaning of co-efficient) and interpretation of results. (iii) Use the multiple linear regression model and interpret the result of p-values of independent variables, multiple R, Adjusted R-squared, physical meaning of co-efficient and significance of “*f*” statistics.

Q5. Choose one suburb and perform the following task from 2019 data: Analyze the frequencies of **two** variables (House price level and land size) with multiple categories to determine whether the two variables are **independent**. Conduct Chi-Square Hypothesis test at 0.05 level to ensure that, whether house price level and land size are independent. Use the following table for Chi – square test:

Land size	House price level		Total
	High house price	Low house price	
Extended land size			
Non-Extended land size			
Grand total			

Q6. What is the average house price of each selected suburb for 2020 (**Use the house price average from question 1 and construct a 95% confidence interval for the average house price for each selected suburb of New South Wales for the year 2020**)? **Note: The population standard deviation of house prices in New South Wales is \$20,000.**

Q7. A recent study has claimed that the average house price in New South Wales is \$872,934. Use your collected data to test this claim for each selected suburb for the year 2020 (Note: Use the sample statistics from question 1). **Note: The population standard deviation of house prices in New South Wales is \$20,000.** Is there any evidence to suggest that the average house price has changed at a 5% level of significance? Report your findings with clear conclusions and all supporting calculations.



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**ASSIGNMENT COVER PAGE
Semester 3, 2022**

Group Number:

Student ID	Student name	% contribution to group effort

Declaration

I confirm that the material contained in this assignment is my own work and has not been submitted in any other subject or course. I am aware of plagiarism and its penalties, and have acknowledged all material and sources used in the preparation of this assignment.

Date:

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Signature:

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Please Note : The cover page must be included with the group report. Group assignment will not be marked without cover page.