**Crown Institute of Higher Education**

**BUS104 Business for Statistics**

Group assignment

(35%)

**Due:** Week 12, Friday, 23.55 pm

**Guidelines**

* This assignment must be completed in a group of 2 - 3 students. You need to demonstrate evidence that all members of your group have contributed to the completion of the assignment.
* Present the report as a MS word document.
* Your assignment must meet academic standards of presentation, critical discussion and argument.
* Proof-read your work before it is submitted.
* The assignment must be submitted before or on the due date using the link on the unit’s Moodle site.

**Assignment task**

This assignment requires you to perform various statistical (both descriptive and inferential statistical) analyses using the advertising and sales information provided in the table below. In order to complete this assignment, you need to calculate descriptive statistics, correlation analysis, and inferential statistical analysis using an Ordinary Least Square (OLS) regression method. You should use MS Excel to conduct necessary statistical analysis.

 **Sales and advertising expense report**

|  |  |  |
| --- | --- | --- |
| **Month** | **Advertising $000**  | **Sales ($00)** |
| 1 | 3 | 50 |
| 2 | 5 | 250 |
| 3 | 7 | 700 |
| 4 | 6 | 450 |
| 5 | 6.5 | 600 |
| 6 | 8 | 1000 |
| 7 | 3.5 | 75 |
| 8 | 4 | 150 |
| 9 | 6.5 | 200 |
| 10 | 7 | 750 |
| 11 | 4.5 | 200 |
| 12 | 9 | 1100 |
| 13 | 5 | 500 |
| 14 | 7.5 | 800 |
| 15 | 8.5 | 900 |

The expected ***outcome*** of this assignment is a two-to-three-page write-up of the process you followed and findings from your analysis following APA guidelines.

**Following the steps to complete the assessment**

**Step 1.** Descriptive Statistics

The goal of this form of analysis is to create quantitative summaries of the dataset. This form of analysis also includes creating visual representations of your data as box plots, bar graphs, pie charts, histograms, and scatterplots. Visual tools help the researcher identify anomalies, outliers, and trends in data.

**Step 2.** Correlation (to see data is correlated, particularly if there are any causal relationships).

Correlations identify relationships between your measurements and suggest possible causal relationships. These inform further studies or analyses of your data.

**Step 3.** Inferential statistics (you need to define variables, set hypotheses, conduct an Ordinary Least Square (OLS) regression analysis and interpret the results including using statistical significance (i.e. p-value of t-stat)). Inferential statistics are used to test hypotheses about the data using inferential tests. These identify how categorical variables affect scales or response variables.

**Step 4.** Write a report (no more than 1000 words) explaining the process you have followed, the analyses you have conducted and the conclusions drawn from your analysis using the findings of your various analyses.

Output summaries of each statistical analysis must be attached as an appendix and referred to in the discussion. Note: you need to define and discuss the variables and the statistical method in the report.

The APA (American Psychological Association) provides a style guide for academic writing in social sciences. You should follow these guidelines. In this assignment, you must write a report of your findings that resembles the “Results” section of an empirical paper and follow these guidelines. There are guidelines and examples on the unit’s Moodle site. The lecture slides on statistical analysis also provides examples of how to report results of a correlation or inferential test.