BUS501 - Business Analytics and Statistics
Research Report
Melbourne Campus Instructions

<u>This is an individual assessment</u>

This assignment is based on fictional data - do not contact the company listed below.

You are creating a business report for the CEO of Honeybee Fruit. It must be professional in presentation and contain insightful content for them to make business decisions.

Both data sets are from a small health food shop in Brunswick. The business is divided into a number of areas including retail, wholesale a box delivery system (not included in the data), a fruit shop and it has stalls at the Queen Victoria Market.

The data is inclusive of a whole year of trading. This is the second year of business and the business is still in a start-up phase. The reported high Cost of Goods (COGS) is reportedly consistent with the Organic fruit industry.

The main challenges in the business are revenue (i.e. lead generation/new business), Cost of Goods (COGS margins) and average sales.

The business has a 6 person team, 1 delivery van, a retail outlet and a cold store warehouse.

Task instructions:

Use the statistical analyses you have learned to answer all of the questions below

This first dataset is labelled “Fruit shop data product mix”:

- The variables include:
  - Product class
  - Product name
  - Product category
  - Total sales
  - Cost of Goods (COGs)
  - Net profit
  - Location in the shop – front, left, outside front, rear, right
  - Profit total

The second data set is labelled “Fruit shop data sales summary”:

- The variables include:
    - Month (January, February, March, April, May, June, July, August, September, November, December)
    - Season (Spring, summer, autumn, winter)
    - Gross sales
    - Net sales
    - Cash total payments
    - Credit total payments
    - Total orders
    - Average sale
    - Staff cost
    - Profit total

Task instructions:
Using what you have learned in the lectures and the tutorials answer the main research questions below. Then consider the dataset and answer any other research questions you can identify that are meaningful to the CEO.

Answer these main research questions:

1. What are the best and worst selling products in terms of sales?
2. Is there a difference in payments methods? (Cash vs Credit)
3. Are the differences in sales performance based on where the product is located in the shop? How does this effect both profits and revenue?
4. Is there a difference in sales and gross profits between different months of the year?
5. Are their differences in sales performance between different seasons? (Summer, spring, autumn, winter)

There are other research questions you should consider and report on at least one.
Do not worry if you are using a lot of the same analysis to report on the research questions.

There are right and wrong answers when it comes to statistical analysis. You must know and demonstrate your knowledge of this. *Hint:* Do not confuse t-tests with ANOVA.

Report structure:

- **Cover page/Title Page –** Name, student number, tutor information, word count
- **Table of contents** (could also include a list of figures / graphs / tables)
- **Introduction (2 marks) –** Introduce the business and its problems.
    - Describe the company, what does it do, what is the company profile. Paraphrase this information and add to it as it is an imaginary company.
- **Problem definition and business intelligence required (3 marks):**
    - List each of the research questions and list what analytics methods you have chosen to answer each question and why. Use references to academic

definitions of the statistics, such as textbooks and journal articles.

- For example, if you used an ANOVA – list the research question, explain why an ANOVA was most appropriate by defining what an ANOVA is and does (use references to statistical textbooks and websites).

- **Results of the selected analytics methods and technical analysis (25 marks):**
  - Use each research question as a heading
  - Present the relevant descriptive statistics through data visualization/ graphical displays (Tables, graphs, pie charts etc.).
  - Present the main analysis results and explain them.
  - Higher marks for including extra research questions not defined in this document and creating nice tables/displays opposed to copy and pasting directly from SPSS output.
- **Discussion of the results and recommendations (5 marks):**
  - Based on the analyses what conclusions about the business can be summarized/drawn and what recommendations can be offered to the CEO.
- **References** – list of references in either Harvard or APA formatting
- **Appendix** – Include copies of the output from SPSS exactly as it is

Report formatting (5 marks):

Font size 12 Times New roman, double spacing, word count 1,500-2,000. *Note.* The word count does not include headings, tables, graphs/figures or the reference list.

See below for the marking criteria sheet

	Levels of Achievement				
Criteria	**High Distinction**	**Distinction**	**Credit**	**Pass**	**Fail**
Criteria 1: Introduction (2 marks)	**85 to 100 %** Demonstrates comprehensive and insightful knowledge of the business with an in-depth introduction to the business and the problems. The introduction covers who the company is and what it does.	**75 to 84 %** Demonstrates mostly comprehensive and insightful knowledge of the business. Most elements of the business are covered such as, what the business does.	**65 to 74 %** Demonstrates some knowledge of the business with the problems mostly outlined. Some elements of what the company profile is.	**50 to 64 %** Basic knowledge of the business demonstrated with the assignment information given but no extra information included.	**0 to 49 %** Little or no knowledge of the business with the website not referred to or consulted. Does not introduce the business or fails to explain the business and its problems.
Criteria 2: Problem definition and business intelligence required (3 marks)	**85 to 100 %** Each problem and the business intelligence/statistics required are described and explained with references where appropriate to literature.	**75 to 84 %** Each problem and the business intelligence/statistics required are mostly explained with some references where appropriate to literature.	**65 to 74 %** Demonstrates some knowledge of the problems and the business intelligence/statistics required. With minimal references to literature.	**50 to 64 %** Basic knowledge of the business questions and the statistics used are outlined with some explanation as to why these were used.	**0 to 49 %** Little information concerning the report questions and the statistics used to answer them. The analyses are outlined but no explanations given.
Criteria 3: Results of the selected analytics methods and technical analysis (25 marks)	Demonstrates comprehensive and insightful knowledge of the use of business analytic tools to answer the report questions and others identified by the student in the data set. The selected methods are first presented with the use of descriptive statistics and data visualisation. Then the main analysis is presented. Use of statistical terminology is extensive	Demonstrates mostly comprehensive and insightful knowledge of the use of business analytic tools to answer the report questions and others identified in the data set. The selected methods are first presented with the use of descriptive statistics and data visualisation. Use of statistical terminology is extensive and largely correct. The level of	Demonstrates some knowledge of the use of business analytic tools to answer the report questions. Use of statistical terminology mostly correct. The selected methods are first presented with the use of descriptive statistics and data visualisation, some elements missing. The level of interpretation of the statistics meets	Basic knowledge of the use of business analytic tools to answer the report questions. The selected methods are first presented with the use of descriptive statistics and data visualisation, several elements missing. Use of statistical terminology fairly correct. The level of interpretation of the	Little or no knowledge of the use of business analytic tools to answer the report questions. Use of statistical terminology inconsistent and not correct. The level of interpretation of the statistics fails in terms of presentation and interpretation.

	and correct. The level of interpretation of the statistics meets professional standards of the discipline with no errors in interpretation and/or presentation.	interpretation of the statistics mostly meets professional standards of the discipline with little errors in interpretation and/or presentation.	standards but some errors in interpretation or presentation.	statistics meets standards but some errors in interpretation or presentation.	
Criteria 4: Discussion of the results and recommendations (7 marks)	The recommendations are highly appropriate, integrated with the results, and supported by results/literature. The entire report is presented as a consistent whole.	The recommendations are appropriate, integrated with the results, and supported.	The recommendations are fairly appropriate and fairly supported. With some instances missing.	The recommendations are appropriate, however lacking some instances and needing more. Or inappropriate suggestions are made.	The recommendations are lacking and are not supported. Inappropriate suggestions are made or there are no suggestions at all.
Criteria 5: Report formatting (3 marks)	The meaning is consistently clear. Use of discipline terminology is confident and assured. The level of presentation meets professional standards of the discipline, and there is a high level of attention to detail regarding the results tables and graphics (not just cut and paste from SPSS output. Little/no errors in grammar, syntax and spelling. Referencing and citations are appropriate and integrated.	The meaning is clear. Use of discipline terminology is extensive and largely correct. The level of presentation meets professional standards of the discipline, and there is attention to detail. SPSS output has not been copied and pasted into the results. The grammar, syntax and spelling are near perfect. Referencing and citations are appropriate.	Overall meaning is clear though there are minor instances of awkward/ambiguous expression. Use of discipline terminology is adequate. The level of presentation mostly meets professional standards of the discipline, with some lapses in detail in e.g. SPSS output not used, grammar, syntax and spelling good. Referencing and/or citation errors.	The intended meaning can be discerned but lacks clarity and/or examples of awkward/ambiguous expression. Limited discipline terminology with minor inaccuracies. Some use of SPSS output in the report. Some professionalism but significant lapses in grammar syntax and spelling. Referencing and/or citation errors.	Use of language fails to make meaning clear; many errors of grammar, syntax and spelling, range of mistakes indicating lack of editing and proofreading. Limited or incorrect use of discipline terminology. Poor referencing and citation errors.