BUS5PB Principles of Business Analytics
Term 6 2022

Assignment 1: Self-Service Analytics Solution
Due: *Sunday 27th November , 2022,*
11.59 pm (AEST)

Release Date: 8 November 2022
Due Date: Sunday 27th November , 2022, 11.59 pm (AEST)
Assignment Type: **Individual**
Weight: **30%**
Submission Format: A written report (electronic form) and electronic submissions of analytics solution files on the LMS site.

Learning Objective

The first assignment aims to assess analytical thinking as well as technical skills in the use of self-service analytics software packages to develop an analytics solution. You are required to understand the business context, apply the analytics software packages to explore the given dataset to unveil the business insights, and make analytics recommendations. You are also tasked to develop an analytics report to convey your findings.

The Context

In the past two decades, the pharmaceutical, personal care, and nutritional industries have converged to address growing demands in the beauty, health, and wellness market. This convergence has resulted in the formation of the new industry segments – *Nutraceuticals*, *Cosmeceuticals* and *Nutricosmetics*.
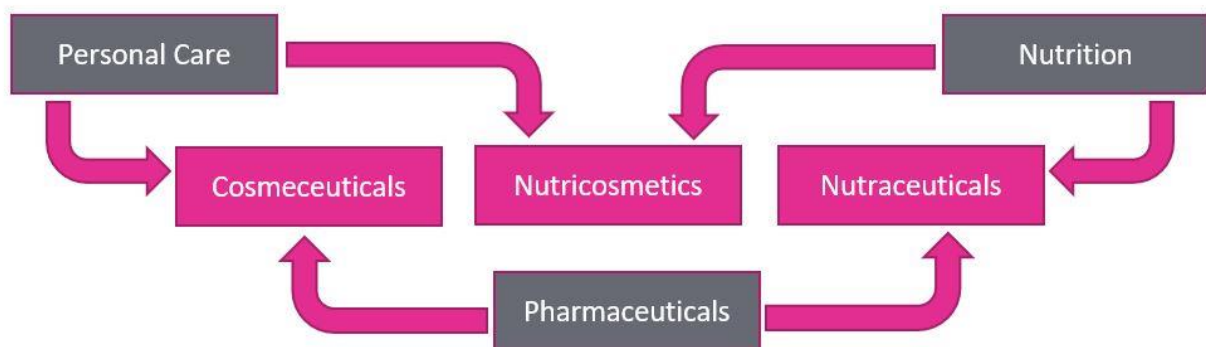

Figure 1: Emergence of new industry segments

- **Cosmeceuticals:** topical cosmetic products that have medicinal or drug-like benefits (creams and fortified syrups).
- **Nutricosmetics:** supplementation of nutrients that are formulated for beauty care (both oral and topical).
- **Nutraceuticals:** products derived from food sources that provide extra health benefits, in addition to the basic nutritional value found in food (dietary supplements and functional food).

These three new segments are mainly driven by an increasing awareness and need for preventive healthcare, natural therapies, and anti-aging products. The annual global growth rate of all three segments is approximately 4%–8%. A noticeable geographical dominance is observed in different segments – China and Japan are key Nutricosmetic markets accounting for 90% of global sales, while the USA dominates the Nutraceutical category at approximately 45%.

You have recently joined a start-up analytics consultancy firm as an **Insights Specialist**. The first task is to analyse the emergence of these industry segments in Australia. An end-user survey has been already conducted and the data is available for your perusal. Your line-manager has not laid out any specific expectations; however, he has re-iterated the need to 'understand these industry segments, consumers, the potential markets and opportunities'.

The Survey

Are you a regular consumer of beauty, health and wellness products?
(Data was only collected from regular consumers of beauty, health and wellness products.)

Question	Corresponding column in data file
Which state do you live in?	State
Select your annual income from the following three options. (<50,000; 50,000 – 70,000; 70,000 – 90,000; > 100,000)	Income ($)
Select your age band from the following options (<30; 30-40; 40-50; 50-60; 60-70; >70)	Age Band
Select your gender. (F for female; M for male)	Gender
How would you like us to contact you? Please select only one. (Social Media; Email; Post)	Channel
In which type of products are you most interested? (Nutraceuticals; Nutricosmetics; Cosmeceuticals)	Product Type
How much would you be willing to spend monthly on this type of product? (<$50; $50-$100; >$100)	Monthly ($)
In which form are you most comfortable to consume this type of product? (pills; beverage; food)	Form
How confident are you of the results from using the products? (1-5; 1: least confident and 5: most confident)	Confidence Rating
How confident are you to recommend to a friend? (1-10; 1: least confident and 10: most confident)	Recommendation Score

The dataset **BUS5PB_Assignment1_datafile.xlsx** contains the data collected from 360 participants. There are eleven (11) columns in total as the data file starts with an ID column as an identifier for each row.

Your Tasks

Task 1:

Conduct a critical review of the survey and its outcomes. Suggest improvements to the survey in terms of data coverage and data metrics. You may refer to external sources of information to justify your evaluation.

Task 2:

Develop two analytics solutions to analyse the dataset using data visualisation software packages.

- You need to select **either one of IBM Cognos or SAP Lumira** as the first software to build the first visualization dashboard
- It's **mandatory** to select **Power BI** as the second software package to build the second visualization dashboard

It is recommended to explore insights among data to pinpoint characteristics of each segment – for example, age or gender distribution for product type.

Task 3:

Based on the insights obtained from the analytics solutions and any external sources of information, **recommend effective marketing strategies (market opportunities, targeted customers, channels for campaigns, etc.)** for a potential client intending to enter these new industry segments in Australia. You need to decide on the number of recommendations with a brief justification for your choice. Recommendations should refer to visualisations (a combination of diagrams and charts) from your analytics solutions and external references.

(Note: You are free to make reasonable assumptions and justifications given the educational nature of this case study.)

Report Guidelines

1. The report should consist of a 'table of contents', an 'introduction', logically organised sections or topics, a 'conclusion' and a 'list of references'.
2. Choose a fitting sequence of sections or topics for the body of the report. Three sections for the three tasks are essential, you may add other sections deemed relevant.
3. You must include diagrams, tables and charts from the analytics solutions to effectively present your recommendations. (Consider using Alt + Print Screen or Snipping to capture screenshots).
4. Page limit: **At least five (5) pages** for the main report writing but **not more than ten (10) pages**.
5. Reports should be written in Microsoft Word (font size 11) and submitted as a **Word file**. (The **PDF file** is acceptable.)
6. Final submission will comprise **three separate files**, two analytics solution files and the written report as a Word file. **Do not compress** these files into a zipped archive, submit as three separate files.
   - <Student_ID>_Assignment1_Report.doc
   - <Student_ID>_Assignment1_Solution.lumx or <Student_ID>_Assignment1_Solution.cdd
   - <Student_ID>_Assignment1_Solution.pbix

Marking Rubric

A grade will be awarded to each of the tasks and then an overall mark determined for the entire assessment. The rubric below gives you an idea of what you must achieve to earn a certain 'grade'.

As a general rule, to meet a 'C', you must first satisfy the requirements of a 'D'. And for an 'A', you must first satisfy the requirements of a 'B', which must of course first meet the requirements of a 'C' and so on.

The marking rubric for this assignment is given below.

Criterion	Pass (D)	Credit (C)	Distinction (B)	High Distinction (A)
Critical evaluation of the survey (8 marks)	Reasonable evaluation with consideration for few criteria.	Good evaluation with consideration for several criteria.	Excellent evaluation with consideration for many criteria.	Extensive evaluation with consideration for all criteria.
Analytics solution 1 (6 marks)	Limited effort to structure and present information and insights. Limited knowledge of the software package.	Fair effort to structure and present information and insights. Fair knowledge of the software package.	Excellent effort to structure and present information and insights. Excellent knowledge of the software package.	Exceptional effort to structure and present information and insights. Comprehensive knowledge of the software package.
Analytics solution 2 (6 marks)	Limited effort to structure and present information and insights. Limited knowledge of the software package.	Fair effort to structure and present information and insights. Fair knowledge of the software package.	Excellent effort to structure and present information and insights. Excellent knowledge of the software package.	Exceptional effort to structure and present information and insights. Comprehensive knowledge of the software package.
Recommendations (10 marks)	Recommendations reflect a fair grasp of the problem domain, data, insights and expectations.	Recommendations reflect a good grasp of the problem domain, data, insights and expectations.	Recommendations reflect an excellent grasp of the problem domain, data, insights and expectations.	Recommendations reflect an inclusive grasp of the problem domain, data, insights and expectations.

Other important Information

- Standard plagiarism and collusion policy, and extension and special consideration policy of this university apply to this assignment.
- A cover sheet is NOT required. By submitting your work online, the declaration on the university's assignment cover sheet is implied and agreed to by you.