Assessment Task 2 Research Project

Code: ICT706

Title: Data Analytics

ICT 706 Data Analytics Assessment Task 2: Research Project

Goal:	To undertake a data analytics approach to solve a set of business problems that require the use of appropriately selected data processing and mining approaches.
Product:	Case Study Report
Format:	**Report Question** 1500 word report. **Note:** This is an individual assessment. The assessment will report the set of business problems, data required, and data mining tools selected to solve the selected problems. You are required to create the dataset required to solve the business problem. You are required to write a report for a business case study. The case study requires you to investigate solutions for key business problems. You have to assume that you are performing a data scientist role in a commercial technology innovation organisation. You are required to use classification techniques to provide decision support and recommendations to the executives in the organisation. . This is an individual assessment and needs to be submitted electronically through SafeAssign.
Criteria	• Identify the salient points associated with a digital disruption event in a company of your choosing. • Provide recommendations and an implementation plan to help the company cope with the event

Generic skill assessed	Skill assessment level
Communication	Graduate
Problem solving	Graduate
Applying technologies	Graduate

Task No.	Assessment Tasks	Individual or Group	Weighting %	What is the duration / length?	When should I submit?	Where should I submit it?	Hurdle Task
1	Case Study Report	Individual	30%	2000 words	Week 12	BlackBoard	No

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Case Study

You are working as a Data Scientist in an ecommerce company. The company is a market leader with range of product segments. The main product segments are latest gadgets, books, toys, household items and clothes.

However, the company's performance especially its profitability is decreasing due to increased competition and changing customer expectations. The company has well qualified board of directors who believe in the power of data analytics in solving business problems and thus make important business decisions. Due to your data analytics skills and data science capability, the company executives have given you a special task in analysing the company's sales data for each product segment and each geographic region. The executives have requested you the following:

1. Develop the dataset for at least one product segment with at least 1000 records and with attributes such as
   - product name,
   - product price,
   - shipping type (free or customer paid)
   - monthly sales ($)
   - geographic region
   - No. Of customers who bought the product,
   - Customer type (New or existing)

   You are also allowed to add any more attributes to describe product segment

   Note: You must develop your own unique and original dataset - copying a dataset from another student or from the internet will result in reduced or zero marks.
2. Research any specific data mining or classification technique and propose a suitable technique or model to determine any association or relationships among the attributes.
3. Develop a predictive model to predict monthly sales for a given geographic region. You can use any of the methods such as Naive Bayes, decision trees or linear regression. You are also welcome to do a comparative analysis of all the methods you come across in your research and use the comparative analysis to justify your approach and research findings.
4. Based on your analysis, present recommendations to the board for the following business problems:
   - What is the most likely geographic region to target new customers to increase sales and profit?
   - Which products should be prioritised for increase in sales?
   - What will be impact on product sales if free shipping is provided to all products?
   - Any new innovative ideas to improve company's profitability supported by your data analytics.

Proposed Report Structure

The report should be structured using the following headings (2000 words)
   1. Executive Summary
   2. Table of Contents
   3. List of Abbreviations and assumptions made
   4. Introduction – What is the problem?
   5. Research Methodology
   6. Analytical Findings
   7. Recommendations to the company
   8. An implementation plan based on the recommendations you have provided
   9. Conclusions
   10. List of References
   11. Appendix (E.g. Python code)

Note:
   - You must submit your sample data as a CSV file.
   - If you use Python code to analyse their data and draw graphs, then you must include all that code in the Appendix.

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Assessment 1 ICT706 weighting 25%

Assessment Criteria:

To write a report outlining the changes that have occurred in a business due to digital innovation using a work cantered analysis approach.

Criteria	Comments	Possible Mark	Mark awarded
Executive Summary: (1 page)		1	
1. **Background**. You must be brief and to the point (about 1 page). Use your own words – you mustn't just reproduce the case here.		2	
2. **Introduction** – Articulate the problem space.		2	
3. **Assessment of the various data analytical methods** Based on your analysis of various analytics approaches, justify your approach and especially discuss how your findings can bring innovative solutions to the business problems. Your assessment must be supported by concepts and other material from the literature (text, readings, evidence etc.).		4	
4. Good use of Python to develop a predictive model of monthly sales		4	
5. **Recommendations**. Provide recommendations on how your approach can answer the business problems. You must convince company executives to adopt your recommendations (i.e. 'sell' them to management). You should support your recommendations by plotting graphs and using effective diagrams.		5	
6. **Recommendation Implementation Plan.** Your plan for implementing the recommendation (this could include staff training, advertisement campaign design etc.). Again, you must convince management to adopt your implementation plan (i.e. 'sell' it to them).		5	
7. Conclusions		3	
8. **References**. At the end of your report, you must provide a list of all cited references (using correct Harvard referencing style) (at least 5).		2	
9. Presentation. Grammar, punctuation, expression and presentation must be of a high standard.		2	
TOTAL		**30**	

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