MIS784 – Marketing Analytics – Trimester 2 2025
Assessment Task 1 – Transaction Analysis – Individual

DUE DATE:	Friday, 8 August 2025, by 8:00pm (Melbourne time)
PERCENTAGE OF FINAL GRADE:	30%
Submission:	You will submit to unit site: - one Word file, with your analysis queries, and - one Word file, with your written report

Description

The assignment requires that you analyse a data set, interpret, and draw recommendations from your analysis, and then convey your insights in a written report. The assignment must be completed individually and must be submitted electronically in CloudDeakin by the due date. When submitting electronically, **you must check** that you have submitted the work correctly by following the instructions provided in CloudDeakin. Hard copies or assignments submitted via email will NOT be accepted.

The assignment uses a data set which can be downloaded from CloudDeakin. The assignment focuses on materials presented up to and including Week 4. Following is an introduction to this scenario and detailed guidelines.

Context/Scenario:

This trimester, although we are working with real customer and transaction data, the identity of the client organization cannot be disclosed due to privacy requirements. In this unit, we will refer to the client organization as "SmartStream".

SmartStream is a fast-growing digital retailer that specializes in smart home technology, offering products such as smart thermostats, security cameras, smoke detectors, and connected lighting solutions. These products are primarily distributed through SmartStream's online platform, supported by a mix of customer subscriptions, promotional campaigns, and third-party product partnerships.

SmartStream's primary mission is to deliver innovative, high-quality smart home solutions that enhance user comfort, convenience, and security. The organization places a strong emphasis on understanding customer behavior, optimizing personalized offers, and improving the customer experience through data-driven marketing.

To stay ahead in a competitive smart technology market and improve both customer satisfaction and sales performance, SmartStream has hired you as a marketing data analyst.

The executive team has prepared a set of key business questions. Please answer the following questions raised by your shareholders and provide a report to assist them in understanding your analysis and providing suggestions. You are required to submit your analysis file, along with a report that explains the outcomes of your analysis and two recommendations. Given that your audience may not have training in marketing analytics, your report must present the results in plain, straightforward language.

Please select the most appropriate variables from the dataset to answer the following questions. Note that the dataset includes more variables than necessary for the current task. Focus only on the relevant fields that best support your analysis. A template has been provided for your use.

1. **Which products are the most popular and most favored among SmartStream customers in 2024?**

   For each product, show:

   - The number of unique customers who purchased it
   - The total number of transactions
   - The average transaction rating

2. **Who are SmartStream's most valuable customers based on their shopping behavior? Using the transaction history, calculate each customer's RFM (Recency, Frequency, Monetary) scores:**

   - **Recency**: How recently the customer made their last purchase.
   - **Frequency**: How often the customer has made purchases.
   - **Monetary**: How much the customer has spent in total.

3. **Segment customers into five groups for each of the three key metrics: Recency, Frequency, and Monetary value based on their transaction history.** Combine these rankings into a single RFM code for each customer. Display each customer's ID, Recency, Frequency, and Monetary scores. Combine the individual quintiles for Recency, Frequency, and Monetary value into a single RFM code. Sort the results so that customers with higher combined RFM codes (indicating better performance) appear first.

4. **Based on the current dataset, propose one original analytical question and provide your answer.** Your question should aim to uncover meaningful insights that can support or extend your final recommendations.

5. **Write an analytical report for SmartStream that will assist them in making better business decisions.**
    - Summarize your findings from the above analyses.
    - Provide insights into the shopping habits of the customers.
    - Suggest actionable recommendations based on your analysis.

Your report should help SmartStream understand customer behaviour, manage their offerings effectively, and implement strategies to boost engagement and sales.

Data description

The provided data is contained in two data files named: Customer.csv and Transaction.csv. These files include various types of information crucial for analysing customer behaviour and sales performance. Please note you may only need to use one table for this assignment.

The Customer.csv file includes information about the customers, such as their personal details and interaction history with SmartStream. The Transaction.csv file contains information about the amount, the products, and the timing of each transaction. The variable Customer_ID is linking customer and contract information. Please carefully select the relevant variables for analysis, as it is not necessary to utilize all variables in Assignment 1.

Contained in the two files are two basic data types:

1. **Customer**: This includes information about the customers, such as their personal details, preferences, and interaction history.

2. **Transaction**: This includes information about the amount, the products, and the timing of each sale.

Customer.csv variables:

- **Customer_ID**: Unique identifier for each customer.
- **Chatbot_Usage_Count**: Number of times the customer interacted with an online chatbot.
- **Last_Chatbot_Interaction**: Date of the most recent chatbot session (for recency analysis).
- **Email_Opened_Count**: Number of marketing emails opened by the customer.
- **Clicked_Ad_Campaigns**: Number of ad campaigns clicked by the customer.
- **Participated_in_Survey**: Boolean value indicating if the customer participated in a marketing survey.

- **Preferred_Channel**: The customer's preferred marketing communication channel (e.g., Email, SMS, Chatbot, Social Media).
- **Loyalty_Program_Status**: Customer's loyalty tier: None, Bronze, Silver, or Gold.
- **Marketing_Responsiveness**: Customer's inferred responsiveness to marketing efforts: Low, Moderate, or High.
- **Referral_Likelihood**: Likelihood of the customer referring SmartStream to others: Unlikely, Neutral, Likely, or Very Likely.
- **Gender**: Customer's gender (e.g., M, F).
- **Tenure_Months**: Duration (in months) the customer has been active with SmartStream.

Transaction.csv Variables:

- **Customer_ID**: Identifier linking the transaction to the customer.
- **Transaction_ID**: Unique identifier for each transaction.
- **Transaction_Date**: Date when the transaction was completed.
- **Product_SKU**: Unique identifier for each product (Stock Keeping Unit).
- **Product_Description**: Text description of the product purchased.
- **Product_Category**: The product's assigned category.
- **Quantity**: Number of units purchased in the transaction.
- **Avg_Price**: Average price per unit of the product during the transaction.
- **Delivery_Charges**: Shipping cost applied to the transaction. Separate with the product average price.
- **Coupon_Status**: Status of coupon use in the transaction: Used or Not Used.
- **Coupon_Code**: The applied coupon code, if any.
- **Discount_pct**: Percentage discount applied through a coupon (if used).
- **Payment_Method**: Payment method used for the transaction (e.g., PayPal, Credit Card, Cash, etc.).
- **Shipping_Provider**: Delivery company or service used (e.g., StarTrack Express, CouriersPlease).
- **Transaction_Rating**: Synthetic score (1–5) reflecting customer satisfaction with the transaction.

The dataset you will be working with in this assignment is compiled from real interactions on SmartStream's website. It is specifically curated by MIS784 team at Deakin Business School to be used for educational purposes in the Marketing Analytics unit.

Assignment instructions

The assignment consists of two parts.

Part 1: Data Analysis

Your data analysis must be performed on the provided data files: Customer.csv and Transaction.csv.

When conducting the analysis, you need to apply techniques from marketing analytics, including RFM analysis and sales data examination. The analysis section you submit should be clearly labelled and grouped around each question. Poorly presented, unorganised analysis or excessive output will be penalised.

Part 2: Report

Having analysed the data, you are required to provide a formal analytical report. Given that your audience may not have training in marketing analytics, your report must present the results in plain, straightforward language. The audience will only be familiar with broad, generally understood terms (e.g., Average, Correlation, Causality). They will need you to explain more technical terms, such as RFM, Segmentation, Basket Analysis, etc.

In Section 1 of the report, provide a brief interpretation of your findings & insights gained from the data analysis.

In Section 2 of the report, provide TWO (2) recommendations that could help SmartStream enhance customer engagement and boost sales. Your recommendations should be based on the analysis conducted in this assignment and any additional relevant analysis that enhances the impact of your recommendations. Ensure that both recommendations are directly informed by your data analysis. Avoid including any commentary not supported by your data analysis. Highest marks will be awarded to students who draft distinct recommendations, and whose recommendations take into account a broad range of data-supported considerations.

When exploring data, we often produce more results than we eventually use in the final report, but by investigating the data from different angles, we can develop a much deeper understanding of the data. This will be valuable when drafting your written report.

You are allowed approximately 1,000 words (950 to 1,050 words) for your report.

A **template** is provided for your convenience. Carefully consider the following points:

- Your report is to be written as a stand-alone document.

- Keep the English simple and the explanations clear. Avoid the use of technical statistical jargon. Your task is to convert your analysis into plain, simple, easy to understand language.
- Follow the format of the template when writing your report. Delete the report template instructions (in purple) when drafting your report.
- Include a succinct introduction at the start of your report, and a conclusion that clearly summarises your findings.
- Marks will be deducted for the inclusion of irrelevant material, poor presentation, poor organisation, poor formatting, and reports that exceed the word limit.

When you have completed drafting your report, it is a useful exercise to leave it for a day, and then return to it and re-read it as if you knew nothing about the analysis. Does it flow easily? Does it make sense? Can someone without prior knowledge follow your written conclusions? Often when re-reading, you become aware that you can edit the report to make it more direct and clearer.

Learning Outcomes

This task allows you to demonstrate your achievement towards the Unit Learning Outcomes (ULOs) which have been aligned to the Deakin Graduate Learning Outcomes (GLOs). Deakin GLOs describe the knowledge and capabilities graduates acquire and can demonstrate on completion of their course. This assessment task is an important tool in determining your achievement of the ULOs. If you do not demonstrate achievement of the ULOs you will not be successful in this unit. You are advised to familiarise yourself with these ULOs and GLOs as they will inform you on what you are expected to demonstrate for successful completion of this unit.

The learning outcomes that are aligned to this assessment task are:

Unit Learning Outcomes (ULO)	Graduate Learning Outcomes (GLO)

ULO1: Explain marketing analytics concepts and methodologies.	**GLO1:** Discipline-specific knowledge and capabilities
ULO2: Analyse real-world marketing problems and propose appropriate marketing analytic solutions.	**GLO1:** Discipline-specific knowledge and capabilities **GLO5:** Problem solving
ULO3: Deploy marketing analytic solutions using a contemporary analysis tool.	**GLO1:** Discipline-specific knowledge and capabilities **GLO3:** Digital literacy
ULO4: Prepare written reports that effectively communicate your solution to marketing problems.	**GLO2:** Communication

Submission

You must submit your assignment in the Assignment Dropbox in the unit CloudDeakin site on or before the due date.

Your submission will comprise of two files:

1. A Microsoft Word document containing your analysis queries, and
2. A Microsoft Word document containing your report (Part 2).

When uploading your assignment, your submission files should be named:

Word file 1: MIS784_A1_YOURStudentID_Query.doc (or .docx), and

Word file 2: MIS784_A1_YOURStudentID_Report.doc (or .docx).

Submitting a hard copy of this assignment is not required. You must keep a backup copy of every assignment you submit until the marked assignment has been returned to you. In the unlikely event that one of your assignments is misplaced you will need to submit your backup copy.

Any work you submit may be checked by electronic or other means for the purposes of detecting collusion and/or plagiarism and for authenticating work.

When you submit an assignment through your CloudDeakin unit site, you will receive an email to your Deakin email address confirming that it has been submitted. You should check that you can see your assignment in the Submissions view of the Assignment Dropbox folder after upload and check for, and keep, the email receipt for the submission.

Use of Generative Artificial Intelligence (genAI) in this assessment

Deakin welcomes the opportunity to engage with emerging technologies in education and seeks to build your capability in the **ethical** and **responsible** use of current and emergent technology. Deakin also upholds a commitment to academic integrity and to ensuring high-quality educational outcomes that prepare you for an AI-driven future.

Using genAI as an assistant is appropriate in this assessment task.

To support your learning in this assessment task, it is recommended that you limit genAI use to assist with specific tasks such as ***editing your work to identify grammatical and spelling errors, getting feedback on your work to improve clarity, refining multimedia content and analysing data.*** You must modify any AI-generated content you use. Your final submission should be your own work and show how you have used your own critical thinking skills and what you have learnt in this unit.

It is important that you take responsibility for your final submission, including:

- **Evaluating the accuracy and quality** of any genAI generated material.
- **Acknowledging how you used genAI** tools in this assessment to ensure you are making informed decisions about your learning, demonstrating learning you have gained in the unit, and acting with integrity.

Please use the **Acknowledgement statements** to guide how you acknowledge the use of genAI in this assessment.

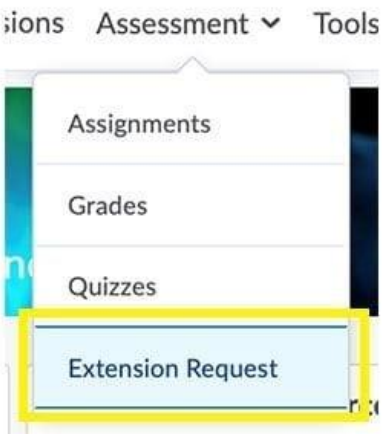
Marking and feedback

The marking rubric indicates the assessment criteria for this task. It is available in the CloudDeakin unit site in the Assessment folder, under Assessment Resources. Criteria act as a boundary around the task and help specify what assessors are looking for in your submission. The criteria are drawn from the ULOs and align with the GLOs. You should familiarise yourself with the assessment criteria before completing and submitting this task.

Students who submit their work by the due date will receive their marks and feedback on CloudDeakin 15 working days after the submission date.

Extensions

Extensions can only be granted for exceptional and/or unavoidable circumstances outside of your control. Requests for extensions must be made by 12 noon on the submission date using the online Extension Request form under the Assessment tab on the unit CloudDeakin site. All requests for extensions should be supported by appropriate evidence (e.g., a medical certificate in the case of ill health).



Applications for extensions after 12 noon on the submission date require University level special consideration and these applications must be must be submitted via StudentConnect in your DeakinSync site.

Late submission penalties

If you submit an assessment task after the due date without an approved extension or special consideration, 5% will be deducted from the available marks for each day after the due date up to seven days*. Work submitted more than seven days after the due date will not be marked and will receive 0% for the task. The Unit Chair may refuse to accept a late submission where it is unreasonable or impracticable to assess the task after the due date. *'Day' means calendar day for electronic submissions and working day for paper submissions.

An example of how the calculation of the late penalty based on an assignment being due on a Monday at 8:00pm is as follows:

- 1 day late: submitted after Thursday 11:59pm and before Tuesday 11:59pm– 5% penalty.
- 2 days late: submitted after Friday 11:59pm and before Wednesday 11:59pm – 10% penalty.
- 3 days late: submitted after Saturday 11:59pm and before Thursday 11:59pm – 15% penalty.
- 4 days late: submitted after Sunday 11:59pm and before Friday 11:59pm – 20% penalty.
- 5 days late: submitted after Monday 11:59pm and before Saturday 11:59pm – 25% penalty.
- 6 days late: submitted after Tuesday 11:59pm and before Sunday 11:59pm – 30% penalty.

- 7 days late: submitted after Wednesday 11:59pm and before Monday 11:59pm – 35% penalty.

The Dropbox closes the Thursday after 11:59pm AEST/AEDT time.

Support

The Division of Student Life provides a range of **Study Support** resources and services, available throughout the academic year, including **Writing Mentor** and **Maths Mentor** online drop ins and the SmartThinking 24 hour writing feedback service at **this link**. If you would prefer some more in depth and tailored support, **make an appointment online with a Language and Learning Adviser**.

Referencing and Academic Integrity

Deakin takes academic integrity very seriously. It is important that you (and if a group task, your group) complete your own work in every assessment task Any material used in this assignment that is not your original work must be acknowledged as such and appropriately referenced. You can find information about referencing (and avoiding breaching academic integrity) and other study support resources at the following website: http://www.deakin.edu.au/students/study-support

Your rights and responsibilities as a student

As a student you have both rights and responsibilities. Please refer to the document ***Your rights and responsibilities as a student*** in the Unit Guide & Information section in the Content area in the CloudDeakin unit site.