

CCT College Dublin Continuous Assessment

Programme Title:	<i>Hdip DA for Business</i>		
Cohort:	<i>FT</i>		
Module Title(s):	<i>Data Visualization Techniques, Machine Learning for Business</i>		
Assignment Type:	<i>Individual</i>	Weighting(s):	<i>50%, 50%</i>
Assignment Title:	<i>CA2</i>		
Issue Date:	<i>19th October 2023</i>		
Lecturer(s):	<i>David McQuaid, Muhammad Iqbal</i>		
Submission Date:	<i>26th November 2023</i>		
Late Submission Penalty:	<p><i>Late submissions will be accepted up to 5 calendar days after the deadline. All late submissions are subject to a penalty of 10% of the mark awarded.</i></p> <p><i>Submissions received more than 5 calendar days after the deadline above <u>will not</u> be accepted and a mark of 0% will be awarded.</i></p>		
Method of Submission:	Moodle		
Feedback Method:	Upload separate files based on your work, for example word file, jupyter notebook, dataset and any supporting information.		
	Results posted in Moodle gradebook		

Feedback Date:	<i>After the approval from Exam board</i>
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Learning Outcomes:

Please note this is not the assessment task. The task to be completed is detailed on the next page.

This CA will assess student attainment of the following minimum intended learning outcomes:

Learning Outcomes Assessed: Machine Learning for Business

List the module learning outcomes to be assessed (delete as necessary)

MLO 2 - Perform market basket analysis on representative transactional data. Explore the potential applications of these techniques outside their usual domain.

(Linked to PLO 4, PLO 5)

MLO 3 - Implement text categorisation, topic modelling and document summarisation on a range of representative texts.(e.g. twitter, facebook)

(Linked to PLO 3, PLO 5)

Learning Outcomes Assessed: Data Visualisation Techniques

MLO 2 - Select appropriate data visualisation techniques for a given use case and data characteristics (Linked to PLO 3 (Stage 4 SLO 3).

MLO 3 - Propose, design, develop, and implement data visualisation solutions.

(Linked to PLO 4).

MLO 4 - Display effective presentation skills to communicate with peers, team members and project stakeholders (Linked to PLO 3, PLO 6)

Attainment of the learning outcomes is the minimum requirement to achieve a Pass mark (40%). Higher marks are awarded where there is evidence of achievement beyond this, in accordance with QQI *Assessment and Standards, Revised 2013*, and summarised in the following table:

Percentage Range	QQI Description of Attainment	
	Level 6, 7 & 8 awards	Level 9 awards
70% +	Achievement includes that required for a Pass and in most respects is significantly and consistently beyond this	Achievement includes that required for a Pass and in most respects is significantly and consistently beyond this
60 – 69%	Achievement includes that required for a Pass and in many respects is significantly beyond this	Achievement includes that required for a Pass and in many respects is significantly beyond this
50 – 59%	Achievement includes that required for a Pass and in some respects is significantly beyond this	Attains all the minimum intended programme learning outcomes
40 – 49%	Attains all the minimum intended programme learning outcomes	
35 – 39%	Nearly (but not quite) attains the relevant minimum intended learning outcomes	Nearly (but not quite) attains the relevant minimum intended learning outcomes
0 – 34%	Does not attain some or all of the minimum intended learning outcomes	Does not attain some or all of the minimum intended learning outcomes

The CCT Grade Descriptor describes the standard of work for grade boundaries summarised below. The full descriptor is available on Moodle. Understanding grading in the Irish Higher Education context is available at:

Grade	90-100%	80-89%	70-79%	60-69%	50-59%	40-49%	35-39%	<35%
Performance	Exceptional	Outstanding	Excellent	Very Good	Good	Acceptable	Fail	Fail

Assessment Task

Students are advised to review and adhere to the submission requirements documented after the assessment task.

Assessment details

Questions:

1) Discuss and explain the purpose of a recommendation system for online retail business in machine learning. Briefly compare Content and Collaborative filtering using any dataset of your choice (Datasets used in the class tutorials or exercises are not allowed to use in this CA2). Train and test machine learning models for the user-user or item-item collaborative filtering. Justify your recommendations for the considered scenario by providing a conceptual insight.

2) Perform Market Basket Analysis on the chosen dataset by using Apriori and FP growth algorithms. Can you express major divergence between these models? Compare and contrast the machine learning results obtained based on both algorithms.

(50, 50 = 100 marks)

3) Create an interactive Dashboard aimed at older adults (65+) with specific features to summarise the most important aspects of the data and identify through your visualisation why this dataset is suitable for Machine Learning models in an online retail business. Explain how your dashboard is designed with this demographic in mind.

(100 marks)

Submission Requirements

All assessment submissions must meet the minimum requirements listed below. Failure to do so may have implications for the mark awarded. All assessment submissions must:

- Include the CCT assessment cover page.
- The code and datasets should be provided and uploaded in zip format on Moodle.
- Use any version control system (for example Github) to show the weekly progress of your CA2 and there should be at least 5 commits. You should provide access to the Github repository to your lecturers.
- Maximum Number of Words for the report (2000 +/- 10% words excluding title page, diagrams, code and HARVARD References).
- Must be clearly specified the number of words used in the report.
- Describe the contribution of each team member in the project clearly and use a bar chart or pie chart to represent the effort and time spent during this project.
- The rubric is provided for the detailed breakdown of marks at the end of this CA.
- Use Harvard Referencing when citing third party material
- Make sure the dataset should not be used in any previous assessments/ lectures/ tutorials for this CA.
- Be the student's own work.
- Any dataset used in the class is not allowed to use in CA.

CCT College Dublin

Assessment Cover Page

To be provided separately as a word doc for students to include with every submission

Module Title:	
Assessment Title:	
Lecturer Name:	
Student Full Name:	
Student Number:	
Assessment Due Date:	
Date of Submission:	

Declaration

By submitting this assessment, I confirm that I have read the CCT policy on Academic Misconduct and understand the implications of submitting work that is not my own or does not appropriately reference material taken from a third party or other source. I declare it to be my own work and that all material from third parties has been appropriately referenced. I further confirm that this work has not previously been submitted for assessment by myself or someone else in CCT College Dublin or any other higher education institution.