

CCT College Dublin Continuous Assessment

Programme Title:	<i>Diploma in Data Analytics for Business</i>		
Cohort:	<i>PT Sept2023</i>		
Module Title(s):	<i>Data Visualisation & Communication Data Exploration & Preparation</i>		
Assignment Type:	<i>Individual</i>	Weighting(s):	<i>40%</i>
Assignment Title:	<i>Integrated CA</i>		
Lecturer(s):	<i>Marina Iantorno Cristiani Eccher</i>		
Issue Date:	<i>23/01/2024</i>		
Submission Deadline Date:	<i>25/02/2024</i>		
Late Submission Penalty:	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 . 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.		
Method of Submission:	Moodle		
Instructions for Submission:	<i>You must submit a MS Word or PDF with the report and a Jupyter Notebook file with the code and the outcome</i>		
Feedback Method:	Results posted in Moodle gradebook		
Feedback Date:	<i>Approximated 3 weeks after submission</i>		

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	CCT Performance Description	QQI Description of Attainment	
		Level 6, 7 & 8 awards	Level 9 awards
90% +	Exceptional	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
80 – 89%	Outstanding		
70 – 79%	Excellent		
60 – 69%	Very Good	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%	Good	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%	Acceptable	Attains all the minimum intended programme learning outcomes	
35 – 39%	Fail	Nearly (but not quite) attains the relevant minimum intended learning outcomes	Nearly (but not quite) attains the relevant minimum intended learning outcomes
0 – 34%	Fail	Does not attain some or all of the minimum intended learning outcomes	Does not attain some or all of the minimum intended learning outcomes

Please review the CCT Grade Descriptor available on the module Moodle page for a detailed description of the standard of work required for each grade band.

The grading system in CCT is the QQI percentage grading system and is in common use in higher education institutions in Ireland. The pass mark and thresholds for different grade bands may be different from what you have experience of in the higher education system in other countries. CCT grades must be considered in the context of the grading system in Irish higher education and not assumed to represent the same standard the percentage grade reflects when awarded in an international context.

Learning Outcomes Data Preparation:

1. Develop strategies for identifying and handling missing and out-of-range data and justify the method applied. (linked to PLO4).
2. Critically evaluate and implement suitable data-encoding techniques and which one is more appropriated for your approach. (linked to PLO 1)
3. Identify potential new features in data with the goal of improving the performance of machine learning models. It it's possible, describe and justify why new features were created. (linked to PLO 2)

Learning Outcomes Data Visualization:

4. Explain the concepts, techniques and processes underlying data visualization (Linked to PLO1).
5. Select appropriate data visualization techniques for a given use case and data characteristics (Linked to PLO3).

Scenario

A leading agriculture company specializing in mushroom cultivation and sales is looking to optimize its business strategies. They have collected a comprehensive dataset on various types of mushrooms, including their characteristics, edibility, and market demand. The company aims to utilize this data to enhance their understanding of mushroom varieties and improve business decisions.

Dataset

You can download the dataset from Moodle Page, same as the Data Dictionary.

Assessment Tasks

As a Data Analyst in the company, your task is to conduct a thorough analysis of the "Mushroom Collection and Business" dataset. Your analysis should cover key areas in data analytics that include data exploration, data preparation, data visualization, and results' presentation.

Data Exploration and Preparation

Evaluate/Explore the data quality and what methods and relevant methods were applied to guarantee the data quality of the results presented. Discuss the potential impact of not treat properly the data. Identify potential outliers and justify the impact on your analysis [0 – 30%].

Treat your original dataset such as standardization, binning, calculated fields in order to improve the quality for your analysis and provide insights to the SMEs about these new features. [0 – 25%]

Transform your original dataset using the encoding techniques (at least one encoding technique) in order to improve the quality of the data as an input for machine learning models. [0 – 20%]

Data Visualisation and Communication

Calculate and present descriptive statistics for relevant variables in the dataset. Discuss the tendencies and variability observed. Justify your choice of variables. Create three visualisations to justify the results you obtained and to describe the current scenario [0 – 35%].

Create two visualizations (e.g., bar charts, histograms box plots) to represent the distribution of selected categorical variables. Discuss any patterns or insights you observe. [0 – 20%]

Create two visualizations of your choice to show possible relations between some variables. Explain what you observe afterwards. [0 – 20%]

For both Subjects:

Data Exploration and Preparation & Data Visualisation and Communication

Report Writing: Compile your findings into a comprehensive report (minimum 1000 words). The report should include an executive summary, detailed analysis, and conclusions with actionable suggestions for the company. [0 - 25%]

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:

- Add required word count if applicable
- Submission of a report in PDF/MS Word format and. JPYNB file containing the code
- Be submitted by the deadline date specified or be subject to late submission penalties
- Use [Harvard Referencing](#) when citing third party material
- Be the student's own work.
- Include the CCT assessment cover page.

Additional Information

- Lecturers are not required to review draft assessment submissions. This may be offered at the lecturer's discretion.
- In accordance with CCT policy, feedback to learners may be provided in written, audio or video format and can be provided as individual learner feedback, small group feedback or whole class feedback.
- Results and feedback will only be issued when assessments have been marked and moderated / reviewed by a second examiner.
- Additional feedback may be requested by emailing the lecturer up to one week after the grade is released. Additional feedback may be provided as individual, small group or whole class feedback. Lecturers are not obliged to respond to email requests for additional feedback where this is not the specified process or to respond to further requests for feedback following the additional feedback.
- Following receipt of feedback, where a student believes there has been an error in the marks or feedback received, they should avail of the recheck and review process and should not attempt to get a revised mark / feedback by directly approaching the lecturer. Lecturers are not authorised to amend published marks outside of the recheck and review process or the Board of Examiners process.
- Students are advised that disagreement with an academic judgement is not grounds for review.
- For additional support with academic writing and referencing students are advised to contact the CCT Library Service or access the [CCT Learning Space](#).
- For additional support with subject matter content students are advised to contact the [CCT Student Mentoring Academy](#)
- For additional support with IT subject content, students are advised to access the [CCT Support Hub](#).