

CCT College Dublin Continuous Assessment

Programme Title:	HDip in Science in Data Analytics for Business (FT)		
Cohort:	Feb 23 Start (Fulltime)		
Module Title(s):	Statistical Techniques for Data Analysis		
Assignment Type:	Individual	Weighting(s):	40%
Assignment Title:	CA1		
Lecturer(s):	John O'Sullivan		
Issue Date:	14th of March 2023		
Submission Deadline Date:	23:59, 14th of April 2023		
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:	Submissions should consist of: a .ipynb Notebook, a corresponding pdf, and dataset		
Feedback Method:	Results posted in Moodle gradebook		
Feedback Date:			

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:

1. Explore and evaluate datasets using descriptive statistical analyses. (Linked to PLO 1)
2. Use and understand current software tools and languages to produce result sets from existing data(e.g. Excel, R, Python). (Linked to PLO 4)

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.

Assessment Task

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

Task 1 - Data Analysis:

Your task is to find a dataset of interest to you, that contains a mix of categorical and numerical variables. As a guideline, the dataset should have a minimum of two categorical variables and three numerical variables (these minimum criteria are guidelines and not hard thresholds).

If you wish you can make use of the following websites to find the dataset:

- The Irish government data repository: <https://data.gov.ie/>
- Google dataset search: <https://datasetsearch.research.google.com/>

You must then use the methods covered in this course to complete an analysis and write a report on the data using Python Notebook. The analysis of the data should involve the use of tables, numerical summaries, and graphical summaries of the data.

This part of your assignment will be assessed in terms of:

- Use of appropriate functions in Python.
- Clearly commenting the code in the .ipynb file.
- Producing clear results for the chosen dataset, using appropriate statistical measures and appropriate plots
- The quality of the graphics included.
- Summarising the conclusions from the analysis appropriately.

(70 points)

Task 2 - Probability (Discrete):

- What is the probability of rolling exactly two 6s in five rolls of a fair die?
- The number of industrial injuries on average per working week in a factory is 0.75. Assuming that the distribution of injuries follows a Poisson distribution, find the probability that in a particular week there will be no more than two accidents.

Stating the answers alone here is not sufficient - you should show clearly how you found your answer, justify any decisions made, and include plots where appropriate.

(15 points)

Task 3 - Probability (Continuous):

The time a person spends at Dublin Zoo is Normally distributed with a mean of 90 minutes and a standard deviation of 10 minutes.

Using this distribution, answer the following:

- If a visitor is selected at random, find the probability that they will spend at most 85 minutes visiting the zoo.
- If a visitor is selected at random, find the probability that they will spend at least 100 minutes visiting the zoo.

- Given that you know that a particular visitor has spent longer than average visiting the Zoo, what is the probability that they have spent more than 100 minutes there?

Stating the answers alone here is not sufficient - you should show clearly how you found your answer, justify any decisions made, and include plots where appropriate.

(15 points)

Total: 100 points

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 adhere to or contain the following:

- Submissions should be in the form of:
 - A .ipynb Notebook file containing all relevant text, code, output, comments, plots, graphs, tables, etc.
 - A single corresponding pdf document created from the above .ipynb Notebook file.
 - The source dataset (ideally in csv format)
- A list of references should be included. These should be in alphabetical order, and use the Harvard referencing system.
- Be neat and presentable (well laid out, consistent font sizes and headings etc.), and be well structured
- Be submitted by the deadline date specified or be subject to late submission penalties
- Be submitted via Moodle upload
- 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 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](#).