

CCT College Dublin Continuous Assessment

Programme Title:	<i>Diploma in Data Analytics for Business</i>		
Cohort:	<i>PT Sept 2023</i>		
Module Title(s):	<i>Fundamental of Statistics of DA</i>		
Assignment Type:	<i>Individual</i>	Weighting(s):	<i>50%</i>
Assignment Title:	<i>CA2</i>		
Lecturer(s):	<i>Marina Iantorno</i>		
Issue Date:	<i>15th November 2023</i>		
Submission Deadline Date:	<i>8th December 2023 at 23:55 hs</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 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 2 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:

1. Formulate and test hypotheses within a business context using appropriate statistical techniques and both evaluate and communicate the results effectively to peers and team members.
2. Apply regression analysis to appropriate datasets and demonstrate an awareness of the limitations of regression models.

Assessment Task

You are a data analyst at a garment manufacturing company. The company is interested in improving productivity on the factory floor. Your task is to provide data-driven insights to support their decision-making process.

You have a dataset on Moodle page named “garments_worker_productivity.csv”. Please find below the variables’ description:

- department : Associated department with the instance
- team_no : Associated team number with the instance
- no_of_workers : Number of workers in each team
- no_of_style_change : Number of changes in the style of a particular product
- targeted_productivity : Targeted productivity set by the Authority for each team for each day.
- smv : Standard Minute Value, it is the allocated time for a task
- wip : Work in progress. Includes the number of unfinished items for products
- over_time : Represents the amount of overtime by each team in minutes
- incentive : Represents the amount of financial incentive (in BDT) that enables or motivates a particular course of action.
- idle_time : The amount of time when the production was interrupted due to several reasons
- idle_men : The number of workers who were idle due to production interruption
- actual_productivity : The actual % of productivity that was delivered by the workers. It ranges from 0-1.

Assessment Details

Inferential Statistics

The company believes implemented new machines and they believe this would reduce the average overtime (in minutes) that the workers will do, which will lead to a cost reduction in the end. They tried it in a group of 200 workers, which shows an average overtime of 6300 minutes. Can we say that the company is right? Formulate an appropriate hypothesis and justify your answer. [0 – 30%]

Formulate an appropriate analysis to determine the real average productivity of these workers each day of the week. Is there any difference between the days? Along with your results, provide a possible explanation on the outcome. [0-30%]

Regression Analysis

Use some variables of the dataset to perform regression analysis. You should identify the key variables that influence employee’s productivity. [0 – 20%]

Reporting

Create a presentation summarizing your analysis above and findings. Explain limitations (if any) and suggest further analysis to be performed. You are allowed to use descriptive statistics and visualisations to describe the data. Your report should contain an introduction, body and conclusion. The length must be between 1000 and 1700 words. [0 – 20%]

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.
- Submission of a zip folder with a Word or PDF document and. JPYNB file containing the code. The name of the file should be DipDAB_YOUR_NAME_Year.
- 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](#).