

CCT College Dublin Continuous Assessment

Programme Title:	Higher Diploma Data Analytics for Business		
Delivery Mode:	In person		
Cohort Details:	Higher Diploma Data Analytics Sep2024 FT Semester 1		
Module Title(s):	Strategic Thinking		
Assignment Type:	Individual	Weighting(s):	20 %
Assignment Title:	CA 2 Capstone Report		
Lecturer(s):	Neil Doyle (ndoyle@cct.ie)		
Issue Date:	5th November 2024		
Submission Deadline Date:	8 th December 2024 23:59		
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 will not be accepted and a mark of 0% will be awarded.		
Method of Submission:	This assignment is submitted via Moodle.		
Instructions for Submission:	<p>Your work must be uploaded to Moodle.</p> <ul style="list-style-type: none"> • Report in Word format ONLY. Word count: 2,000. • Jupyter notebook artefact. • GitHub link at the end of the report. • ZIP or RAR files will not be accepted. Files must be submitted separately. 		
Feedback Method:	Results posted in Moodle gradebook		
Feedback Date:			

Assessment Outline

Assessment Task:

This assessment aims to evaluate your ability to apply project management methodology to develop and execute a capstone project. You will select a dataset, conduct exploratory data analysis, pre-process the data, implement at least one machine learning algorithm, and present your findings effectively through a comprehensive report. The capstone project will be based on a dataset of your choice from any domain, such as finance, marketing, or any other.

You will submit a comprehensive report detailing the following;

- Strategic overview of the business problem
- Project plan
- Business understanding
- Data understanding
- Data preparation
- Machine learning implementation
- Findings
- Conclusions
- Any future recommendations

The report should be presented in a clear and concise manner, and it should demonstrate your ability to use a project management methodology. The project management methodology should enable you to prioritise tasks and monitor the progress of the capstone project. Additionally, the report should provide a background to the business problem and its importance from a strategic viewpoint, an overview of the project's timeline, milestones achieved, and any challenges faced during the implementation phase. It should highlight the key insights gained from analysing the data and present any significant trends or patterns observed. Moreover, the report should address any limitations or constraints encountered during the project and propose potential solutions for future improvements.

This is a two-semester module, and the capstone project will continue into semester two. Students are advised to review and adhere to the submission requirements documented after the assessment task.

Further details of the assessment:

- a) Continue to use the GitHub repo provided in CA 1, the Jupyter Notebook and report Word document must be put into a GitHub repo for version control. The GitHub repo link will be added at the end of the report. There should be another 5 to 10 commits throughout the time worked on CA2.**
- b) Exploratory data analysis of your dataset. Use descriptive statistics.**
- c) Use at least one machine learning algorithm.**
- d) Support your analysis with references and properly reference ALL sources that you have used. WARNING – If you do not support your work, you will not receive a high mark!**
- e) WORD COUNT: 2,000 words. If your report is too short or long, you may *lose up to 10% of marks!***

Assessment Requirements

All assessment submissions must meet the following minimum requirements:

- Include a professional report paper in Word format ONLY of about 2,000 words.
- Code must be submitted as a Jupyter Notebook artefact.
- ZIP or RAR files will not be accepted. Files must be submitted separately.
- 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.

Learning Outcomes:

This assessment addresses the following module learning outcomes for this module:

1. Critically evaluate the relationship between information technology infrastructure and organisational competitive advantage.
2. Critically analyse and select open source and proprietary software with a view to developing IT solutions for business and business-related IT problems.
3. Utilise tools of strategic business analysis to evaluate the current macro and micro business environment with a view to formulating future action plans.
4. Research emerging technologies and critically evaluate their impact on business and business information systems in general.
5. Understand the relationship between data gathering/utilisation and business intelligence and its impact on industry policy.

Statement of Acceptable Use of Artificial Intelligence

Acceptable and Unacceptable Use of AI

- The use of generative AI tools (e.g. ChatGPT, Dall-e, etc.) is permitted in this assignment for the following activities:
 - o Brainstorming and refining your ideas;
 - o Fine tuning your research questions;
 - o Finding information on your topic;
 - o Drafting an outline to organise your thoughts; and
 - o Checking grammar and style.
- The use of generative AI tools is not permitted in this course for the following activities:
 - o Impersonating you in classroom context
 - o Completing group work that your group has assigned to you
 - o Generating code for your assignment
 - o Writing a draft of a writing assignment
 - o Writing entire sentences, paragraphs or papers to complete class assignments.
- You are responsible for the information you submit based on an AI query. Your use of AI tools must be properly documented and cited.
- Any assignment that is found to have used generative AI tools in an unauthorised way will be subject to college disciplinary procedures as outlined in the QA Manual.
- When in doubt about permitted usage, please ask for clarification.

Grading Criteria

This grading rubric sets out the marking criteria for your assignment.

Criteria	Project Management and Planning	Data Analysis and Preprocessing	Machine Learning Implementation and Evaluation	Report
Weighting per criteria	20%	25%	30%	25%
<i>Excellent (+70%)</i>	Comprehensive project plan with a detailed timeline and efficient execution. Challenges are identified and addressed effectively. GitHub shows frequent and meaningful commits.	Thorough EDA with well-applied descriptive statistics and excellent visualizations. Patterns and anomalies are well identified. Data preprocessing and feature engineering are well explained using appropriate tools.	Strong algorithm selection with clear justification. The model is well developed, validated, and sensibly explained. All code works and is error-free.	Report is very well structured and clear, with a strong strategic objective. Insightful analysis and interpretation. Recommendations and future work are logical and relevant. All references and citations are correct.
<i>Very Good (60 - 69%)</i>	Project plan and timeline are well-structured, with minor issues in execution. Most challenges are addressed. GitHub shows good activity with frequent commits.	Good EDA with clear statistics and visualizations. Some patterns or anomalies identified. Data preprocessing and feature engineering are adequately explained, with minor details missing.	Algorithm selection and model development are good, though minor details are lacking in explanation. Code works with few issues.	Report is structured clearly, with a good strategic objective. Good level of analysis and interpretation. Recommendations are provided but could be more in-depth. Referencing is mostly correct
<i>Good (50 - 59%)</i>	Project plan is clear but lacks some detail in timeline or execution. Some challenges addressed but solutions are not fully developed. GitHub commits are regular but sparse.	Adequate EDA with basic descriptive statistics and visualizations. Some findings are noted. Data preprocessing and feature engineering are explained but may lack depth.	The algorithm is appropriately selected, but model development and validation are somewhat lacking in detail. Code mostly works but may contain minor errors.	Report is clear, but the analysis is basic and lacks depth. Some level of strategic business analysis shown. Recommendations are present but not well developed. Some issues with referencing and citations.
<i>Acceptable (40 - 49%)</i>	Project plan and timeline are minimally defined. Few challenges addressed. GitHub shows minimal commits.	Basic EDA, with limited descriptive statistics or visualizations. Findings are unclear. Data preprocessing is explained superficially.	Algorithm selection and model development are unclear. Code may work, but there are errors. Little or no explanation of the methodology.	Report structure is present but lacks clarity. Strategic and Data Analyses are weak, and recommendations are minimal or irrelevant. Several issues with referencing and citations.
<i>Fail (< 39%)</i>	Project plan and timeline are missing or very unclear. Challenges not addressed. GitHub shows little to no activity.	Little to no EDA or descriptive statistics. No meaningful findings. Data preprocessing is either absent or incorrect.	No clear algorithm selection or model development. Code does not work, or there is no clear explanation of methodology.	Report is poorly structured with little to no analysis or interpretation. Recommendations and references are either missing or incorrect.

The Irish Grading System

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 experienced 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.

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, and review the marking criteria outlined in this assignment brief for a breakdown of the marking criteria for this specific assignment.

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.
- 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](#).