CCT College Dublin Continuous Assessment

Programme Title:	*Higher Diploma in Data Analytics for Business*		
Cohort:	*FT Feb 2022*		
Module Title(s):	*Machine Learning*		
Assignment Type:	*Individual*	**Weighting(s)**:	*50%*
Assignment Title:	*CA1: Machine Learning*		
Lecturer(s):	*Marina Iantorno*		
Issue Date:	*27/03/2022*		
Submission Deadline Date:	*17/04/2022 at 23.55pm*		
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:	**Moodle**		
Instructions for Submission:	*You must submit a zip file containing a PDF with the report and a Jupyter Notebook file with the code and the outcome*		
Feedback Method:	**Results posted in Moodle gradebook**		
Feedback Date:	*Approximated 2 weeks after submission*		

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:

<table>
<tr><th rowspan="2">Percentage Range</th><th rowspan="2">CCT Performance Description</th><th colspan="2">QQI Description of Attainment</th></tr>
<tr><th>Level 6, 7 & 8 awards</th><th>Level 9 awards</th></tr>
<tr><td>90% +</td><td>Exceptional</td><td rowspan="3">Achievement includes that required for a Pass and in most respects is significantly and consistently beyond this</td><td rowspan="3">Achievement includes that required for a Pass and in most respects is significantly and consistently beyond this</td></tr>
<tr><td>80 – 89%</td><td>Outstanding</td></tr>
<tr><td>70 – 79%</td><td>Excellent</td></tr>
<tr><td>60 – 69%</td><td>Very Good</td><td>Achievement includes that required for a Pass and in many respects is significantly beyond this</td><td>Achievement includes that required for a Pass and in many respects is significantly beyond this</td></tr>
<tr><td>50 – 59%</td><td>Good</td><td>Achievement includes that required for a Pass and in some respects is significantly beyond this</td><td rowspan="2">Attains all the minimum intended programme learning outcomes</td></tr>
<tr><td>40 – 49%</td><td>Acceptable</td><td>Attains all the minimum intended programme learning outcomes</td></tr>
<tr><td>35 – 39%</td><td>Fail</td><td>Nearly (but not quite) attains the relevant minimum intended learning outcomes</td><td>Nearly (but not quite) attains the relevant minimum intended learning outcomes</td></tr>
<tr><td>0 – 34%</td><td>Fail</td><td>Does not attain some or all of the minimum intended learning outcomes</td><td>Does not attain some or all of the minimum intended learning outcomes</td></tr>
</table>

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.

Introduction
Nowadays the world is changing so fast due to the amount of data collection. In this context, Machine Learning is a field that help analysts to understand the data, transform it into information and forecast future events. You are asked to work with a dataset of your choice. The dataset should contain:

- Minimum of 8 columns and maximum of 100 columns.
- Minimum of 1000 observations.

Assessment Details

Once you decided your dataset, you should start a report that contains your analysis. You are allowed to use additional resources such as visualisations to summarise your data or statistical analysis.

Then, you are asked to perform 3 Regression Models and 2 Classification Models. In the end, you should decide which one would be the best fit for the analysis you are performing. You must reach to some predictions related to the dependent variable. For example, if you used a Multiple Linear Regression Model whose dependent variable is related to the profits related to exportations, you should create the Linear Regression function and estimate the profits under changes in certain variables. You must give interpretation to the results or point something about the model you just performed.

You must justify the choice of your models. Your answers should be in form of academic report, which means that it should have an abstract, introduction to the selected topic, argument, and explanations of your choices/calculations to perform the Machine Learning models and your intentions to do so, and conclusions in the end. You are allowed to work with multiple datasets if you wish.

Your report must be comprehensive and must contain a between 1500 to 3000 words without counting the Appendix and the structure should be as follow:

- Abstract resuming the content of the report.
- An introduction that explains the scenario and the data that is held in the dataset.
- Body (includes the reasoning of your analysis, the point of the models, the justification why you decided to work with those variables, machine learning models performed and justification for their use, and research related to the outcome).
- Conclusions and suggestions for further steps.

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 zip folder with the report in PDF format and. JPYNB file containing the code
- Word count between 1500 and 3000 words (without Appendix)
- 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.