Canterbury Christ Church University

School of Engineering, Technology and Design
Assignment Guidelines

Title of Module	**MCOMD2AIC Artificial Intelligence Computing**
Title(s) of Assignment	**Assignment 1** **Module Team** **Dr. Scott Turner** **TBC (Moderator)**
Assignment Deadline	**1 April 2021 at 14:00**
Expected Feedback Date	**22 April 2021**
Location of Feedback	**Via Turnitin on Blackboard** **Assessment Type** **Written Report** **Where to Submit** **Blackboard Submission Tool** [1]
What to Submit	**Written Report**

[1] If you experience any problems with this system then please contact the Computing Administration Team (computing@canterbury.ac.uk)

Overview

Using at least two of the tables in https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/datasets/coronaviruscovid19infectionsinthecommunityinengland produce report and small artefact that does one of the following:

(1) Clustering the data to show some new insight not in the report or demonstrate an insight in the report in a clearer way. In other words, search through data to find clusters. You must then explore is there any meaning to the groups and can a set of rules be created that define membership of the clusters/group.

(2) Using the data that forms part of a diagnostic/risk tool. So as potential examples but not exclusively
   a. if this person is in this category, they have a probability of a positive COVID test.
   b. If a person is between these ages and in this employment categories, then they have this probability of a positive test.
   c. Or similar to b a set of rules based on the data is produced to make recommendations that someone should go for a test.

In all cases you can use any code or algorithms shown or developed in the class as the basis of your work, if you wish, but you MUST reference them as a website information or as you see appropriate, but you must use the Harvard Referencing style.

Assignment Instructions

You are to produce a report with the following:

0. Title, your name.

1. Introduction: Introduce the problem you are trying to solve or investigate. Background: It is expected you will discuss similar solutions (though probably including some from other illness as examples). You are encouraged to use references from Journals and Books as much as possible all appropriately referenced. It is also expected that you introduce the techniques you are going to use (with appropriate references).

2. Method: In this section you need to describe two areas, but essentially think about it as if someone wanted to replicate and believe your results – what would they need to know?
    - First how do you prepare the data to be used in your solution, so if copied data from one spreadsheet to another and then used formulas to create new categories (e.g., if you said all the values in a particular range are in category low, in another range medium, etc.) but explain how those differences were categorised, what assumptions were used, etc. So, the reader can see your ideas and logic.
    - Second part is to the development of the approach you want to show. Show what the reader the method used, any rules, assumptions, etc. you made. To pass this assignment it is not expected that you automatically feed the data in and the processing happens, but higher grades are possible if this happens.
3. Results: In this section include illustrative examples to make all the points you want to make and even highlight issue areas. Discuss the results so the reader can see your insights.
4. Conclusions: After doing this work what does the report show about the topic (not about how much you learnt about AI), what insights can be seen. How do you suggest someone improves it?
5. Reference List
6. Any Appendices you feel are appropriate.

Submission Guidelines

This is an individual assignment and must be submitted through 'Assignments' area in the MCOMD2AIC module on Blackboard `https://learn.canterbury.ac.uk`.

The submission itself has ONE part:

1. Report (see assignment instructions for guidance)

The submission deadline is 14:00 on 1st April 2021.

CCCU Late Submission Guidelines

In the case of late submission of work for a component of assessment (including dissertations, extended essays, and projects) without an approved extenuating circumstance, the work will be penalized.

The standard penalty will apply to all components of assessed work for all programmes, unless:

EITHER:

(i) a special regulation has been approved by Academic Board;

OR:

(ii) the work is marked on a pass/fail basis and it is not possible to give a numeric mark.

The standard penalty to be applied by all programmes will be 5% of the eligible marks, per day, for up to 7 days, after which a mark of 0 will be recorded.

The reduction of 5% will be applied to the total mark that the student can receive for the component of assessment and not to the mark that the student has earned. If, therefore, the component of assessment is marked out of 100 and the student has scored 50%, the student will lose 5 marks and receive 45%.

Mark Scheme/Rubric

Please see Appendix A for a detailed rubric.

Formatting of Submission

Your work must be adequately referenced throughout, using Harvard referencing style. Pears & Shields (2016) give a complete guide to Harvard referencing. Guidelines on using the Harvard Referencing style are available at:

`https://www.canterbury.ac.uk/library/docs/harvard.pdf`

`https://www.canterbury.ac.uk/students/docs/study-skills/resource-1-Harvard-Referencing-Guide.pdf`

The report must be submitted using the dedicated Blackboard grade centre submission bucket on or before the submission deadline.

Resources You May Find Useful

The majority of the resources you may need are accessible via the Artificial Intelligence computing module on Blackboard at `http://learn.canterbury.ac.uk`.

In addition, the following sources may be of use when building your website:
https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/conditionsanddiseases/datasets/coronaviruscovid19infectionsinthecommunityinengland

https://www.kaggle.com/andyxie/k-means-clustering-implementation-in-python

Learning Outcomes Assessed (Fully or Partially)

	LO Description
1.	Demonstrate a working knowledge of AI using appropriate development environments.
2.	Evaluate AI search algorithms;
3.	Appreciate the fundamentals of knowledge representation;
4.	Understand reasoning where information is incomplete, uncertain, or contradictory.
5.	Apply AI techniques to real-world problems, taking into account ethical and legal issues.

APPENDIX A: MARK RUBRIC

	Levels of Achievement				
Criteria	**Referred**	**Pass**	**Good**	**Very Good**	**Excellent**
Introduction **Weight 10.00%**	**0.00 to 39.00 %** Some of the elements of the good criteria are not adequately developed or missing.	**40.00 to 49.00 %** Some of the elements of the good criteria are only just adequately developed.	**50.00 to 59.00 %** Good work provides a steer to the reader what you are going to show and discuss in the report and why.	**60.00 to 69.00 %** All the features of the Good criteria but including references.	**70.00 to 100.00 %** All the features of Very Good but greater depth.
Background **Weight 20.00%**	**0.00 to 39.00 %** Some of the elements of the good criteria are not adequately developed or missing.	**40.00 to 49.00 %** Some of the elements of the good criteria are only just adequately developed.	**50.00 to 59.00 %** Provides the reader with a sense of where this work fits in and explains the techniques. some referencing.	**60.00 to 69.00 %** All the features of the Good criteria but including references to some journals and the discussion is more detailled.	**70.00 to 100.00 %** All the features of the Very Good criteria but including the majority of the references to journals and the discussion is more detailled.
Method: Data Preparation **Weight 15.00%**	**0.00 to 39.00 %** Some of the elements of the good criteria are not adequately developed or missing.	**40.00 to 49.00 %** Some of the elements of the good criteria are only just adequately developed.	**50.00 to 59.00 %** The reader is left with a reasonable idea of what was done.	**60.00 to 69.00 %** The reader is left with a clear sense of what was done and why.	**70.00 to 100.00 %** All the criteria of Very Good but includes elements such as references to the sources of the methods used, clearer explanations.
Method: Technique **Weight 25.00%**	**0.00 to 39.00 %** Some of the elements of the good criteria are not adequately developed or missing.	**40.00 to 49.00 %** Some of the elements of the good criteria are only just adequately developed.	**50.00 to 59.00 %** The reader is left with a reasonable idea of what was done..	**60.00 to 69.00 %** The reader is left with a clear sense of what was done and why	**70.00 to 100.00 %** All the criteria of Very Good but includes elements such as references to the sources of the methods used, clearer explanations. Some evidence a automatically running all the data through could enhance the score here.
Conclusions **Weight 20.00%**	**0.00 to 39.00 %** Some of the elements of the good criteria are not adequately developed or missing.	**40.00 to 49.00 %** Some of the elements of the good criteria are only just adequately developed.	**50.00 to 59.00 %** Explains what was found and only contains relevant insights from the report.	**60.00 to 69.00 %** As in Good but also a clear sense of how it could be improved and developed further and some consideration of how the approach could be used in other domains.	**70.00 to 100.00 %** Al the features of Very Good but includes elements such as the use of referencing to support the arguments, or clear insights on how this could be applied elesewhere.
Results **Weight 10.00%**	**0.00 to 39.00 %** Some of the elements of the good criteria are not adequately developed or	**40.00 to 49.00 %** Some of the elements of the good criteria are only just adequately developed.	**50.00 to 59.00 %** The results highlight and evidence all elements need to show the insights.	**60.00 to 69.00 %** All the criteria of Good but also clearer descriptions and better use of evidence.	**70.00 to 100.00 %** All the criteria for Very Good but the work is at higher level

Canterbury Christ Church University

School of Engineering, Technology and Design
Assignment Guidelines