Version C Project 1 Specification

Faculty	Information Technology	Module Name	Machine Learning with Python
Module Code	ITLPA0	Project Number	3
Total Marks	100	Copy Editor	Ms Nicole Stern

This project contributes 30% towards the final mark.

Instructions to Student

1. All work, including draft notes, must be submitted with the completed project.

2. The program must be operational with as few faults as possible.

3. 10% will be deducted from this project if it is returned for resubmission due to plagiarism.

4. This Project will require the student to demonstrate core skills required in Machine Learning

Requirements

- The module's learning manual and the prescribed textbook may be referenced.

- Submission consists of neatly formatted documentation, with instructions for use as well as the source code of your machine learning models containing the interpretations of your machine learning models.

- You will need to submit your trained machine learning models in pickle format, as well as the source code for your model.

- Your name, student number, project number and date of submission must be included on the document's cover page.

Plagiarism and Referencing

Consult the section at the end of this document, which outlines how negative marking will be applied as well as the way in which it will affect the assignment mark.

Section A

Question 1   30 Marks

Study the scenario and complete the question(s) that follow:

> You have been contracted by a company to provide them with a machine learning algorithm that can determine whether a day falls within a certain season (Spring, Summer, Autumn, Winter) within their city, based on a set of factors that you will incorporate into a dataset.
>
> Source: Munnik, P.C. (2019)

Create a Toy Dataset

The factors that are mandatory for your dataset are:

- Minimum temperature recorded
- Maximum temperature recorded
- Precipitation
- Humidity
- Wind speed

You are free to add more factors, but these are the absolute minimum that should be included.

End of Question 1

Section B

Question 2   40 Marks

Study the scenario and complete the question(s) that follow:

> You have been contracted by a company to provide them with a machine learning algorithm that can determine whether a day falls within a certain season (Spring, Summer, Autumn, Winter) within their city, based on a set of factors that you will incorporate into a dataset.
>
> Source: Munnik, P.C. (2019)

Train a Machine Learning Model

You are required to code and train an appropriate machine learning model for grouping the days together, considering all the factors that you were required to incorporate into your dataset. Your documentation needs to clearly state why you chose the model that was used in this project, as well as explain your training and testing methodologies.

End of Question 2

Section C

Question 3 30 Marks

Study the scenario and complete the question(s) that follow:

You have been contracted by a company to provide them with a machine learning algorithm that can determine whether a day falls within a certain season (Spring, Summer, Autumn, Winter) within their city, based on a set of factors that you will incorporate into a dataset.

Source: Munnik, P.C. (2019)

Report

For the final section of this project, you are required to produce a neatly formatted document containing your full conclusions as to the result of your machine learning model, as well as each prediction run through the model. This report should also explain why you chose your specific machine learning model. This needs to be submitted online via Turnitin.

End of Question 2

Section B

Plagiarism and Referencing

Eduvos places high importance on honesty in academic work submitted by students, and adopts a policy of zero tolerance on cheating and plagiarism. In academic writing, any source material e.g. journal articles, books, magazines, newspapers, reference material (dictionaries), online resources (websites, electronic journals or online newspaper articles), must be properly acknowledged. Failure to acknowledge such material is considered plagiarism; this is deemed an attempt to mislead and deceive the reader, and is unacceptable.

Eduvos adopts a zero tolerance policy on plagiarism, therefore, any submitted assessment that has been plagiarised will be subject to severe penalties. Students who are found guilty of plagiarism may be subject to disciplinary procedures and outcomes may include suspension from Eduvos or even expulsion. Therefore, students are strongly encouraged to familiarise themselves with referencing techniques for academic work. Students can access the Guide to Referencing on *my*LMS.

Negative Marking

- At the discretion of the marker, if a student has committed plagiarism, an immediate 0% will be awarded for the project and 10% will be deducted from their next submission.
- 1 mark will be deducted per required heading not present, up to a maximum of 6 marks.
- 1 mark will be deducted per row not present in your dataset, up to a maximum of 15 marks.
- 4 marks will be deducted if your data is not in the correct format.
- 5 marks will be deducted if insufficient data is submitted.
- 15 marks will be deducted if your dataset is not properly cleaned and prepared.
- 5 marks will be deducted if your chosen machine learning model is not applicable to the project.
- 5 marks will be deducted if your machine learning model is not submitted as a pickle file.
- 5 marks will be deducted if your code is not sufficiently commented.