**CCT College Dublin**

**Assessment Cover Page**

*To be provided separately as a word doc for students to include with every submission*

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| **Module Title:** | Programming for DA  Statistics for Data Analytics  Machine Learning for Data Analysis  Data Preparation & Visualisation |
| **Assessment Title:** | Continuous Assessment 2 |
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| **Assessment Due Date:** | 20th May 2022 |
| **Date of Submission:** |  |

**Declaration**

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| By submitting this assessment, I confirm that I have read the CCT policy on Academic Misconduct and understand the implications of submitting work that is not my own or does not appropriately reference material taken from a third party or other source. I declare it to be my own work and that all material from third parties has been appropriately referenced. I further confirm that this work has not previously been submitted for assessment by myself or someone else in CCT College Dublin or any other higher education institution. |

1. **Introduction**

It is widely known that meat is a rich source of nutrition for all people. It is a commonly sought-after source of protein in supermarkets and is a highly versatile meat for cooking. Figure 1 below shows how, over the last 50 years, global meat production has expanded dramatically, more than quadrupled since 1961 (Ritchie and Roser, 2017). To attend to this continuously increasing demand of meat in general, it is vital that producers and distributors plan accordingly to increase efficiency of production and reduce waste as to avoid environmental impacts.

Chart, line chart

Description automatically generated

Figure 1

Understanding how different types of meat impact each other in terms of demand can be useful information for farmers and companies within the agricultural sector, as this can lead to more efficient planning for raising livestock and production within slaughterhouses. Previous studies in Turkey have shown that there is a direct correlation between the price of beef and other meats, such as chicken. With this finding, it was possible to predict the price of beef using regression models, with an accuracy rate of 91.4%. (AKIN et al., 2019).

This study aims to understand how the production of adult cattle is impacted by the production of other types of meat and determine an estimation rate of slaughtering (in tonnes) by analysing monthly data of pig meat, lamb, and chicken, using machine learning regression algorithms. Geographically, this study focuses on analysing the Irish market and comparing its findings with findings from the Italian market.

1. **Experimental setup**
   1. *Dataset*

The dataset used for this study can be found on the [Eurostat website via this link](https://ec.europa.eu/eurostat/databrowser/view/APRO_MT_PWGTM__custom_2616459/default/table?lang=en). Eurostat is the official statistical office of the European Union with the mission to provide high quality statistical data on European countries. The data consists of monthly slaughtering in slaughterhouses measured in thousands of tonnes for adult cattle, pig meat, lamb, and chicken. The scope of the data covers Ireland and Italy, from January 2004 until February 2022.

* 1. *Exploratory data analysis and preparation*
  2. *Machine learning algorithm selection*
  3. *Model performance comparison*

1. **Conclusion**
2. **References**
3. **Appendix**