CA1 Machine Learning for Business

**Performing Clustering Algorithm for Education Student Performance and Investigate how Covid 19 pandemic affect the stock market of hotel in 2020 and 2021**

*By*

*Rachel Mae Lademora – 2023396*

Higher Diploma in Science in Data Analytics for Business

Machine Learning for Business

**Dr. Muhammad Iqbal**

**CCT College**

**Dublin, Ireland**

**CCT College Dublin**

**Assessment Cover Page**

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

|  |  |
| --- | --- |
| **Module Title:** | Machine Learning for Business |
| **Assessment Title:** | CA1 |
| **Lecturer Name:** | **Dr. Muhammad Iqbal** |
| **Student Full Name:** | Rachel Mae Lademora |
| **Student Number:** | 2023396@student.cct.ie |
| **Assessment Due Date:** | April 23, 2023 |
| **Date of Submission:** | April 23,2023 |

**Declaration**

|  |
| --- |
| 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. |

Table of Contents

Business Understanding**1**

Data Understanding2

Data Preparation3

Modelling**4**

Evaluation5

References6

**Introduction**

Now a days data analysis is vital role in order to understand deeply the data upon doing the analysis. In this individual CA 1 our teacher gives us the list of topics that we can choose where we can get the related dataset that we want to build and established for deployment the machine learning business models. Education is very informative topics that I want to do my analysis with the student performance dataset. As I take a look of the dataset there are three subjects that I can use for my machine learning clustering algorithm analysis.

One of the crucial topics in stocks is determine the influence of the stock prices on hotel segment. This can be related to the inflation of the stock price close that will get a huge impact the stability of the stocks.

During the end of the month of 2019, The Covid 19 pandemic was faced a wide problem in the whole world. And it causes all of the economic stability of each country in the world get affected. The worldwide pandemic affects in the hotel industry to make the stocks goes down.

The report aims to have a detail visualization of the clustering algorithms. Using these three subjects I can see which machine learning clustering algorithm is best for measure the similarity and dissimilarity between different clusters, It will show and compare which clustering segmentation is better to use for the student performance dataset. Furthermore, this report will include the analysis of stock market inflation rate impact during the pandemic of covid 19.

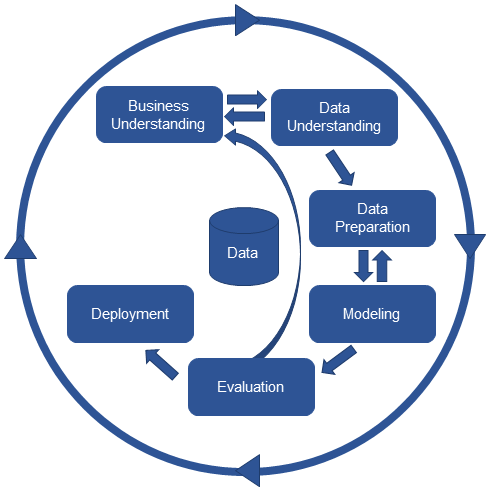
Lastly, In order to properly explain and better understand the report, It will follow the Cross-Industry Standard Process for Data Mining (CRISP-DM) methodology to explain in detail the stages of Business Understanding, Data Understanding, Data Preparation, Modelling, Evaluation, and Deployment.

Objectives

In this project my principal objective is to assess some of clustering algorithms and determine which can be helpful to leverage the data analysis when implementing the distance in the clusters of the education student performance dataset. Determine which month has the hotel stock market face a huge impact during the pandemic.

Secondary Objectives:

* Execute and determine appropriate clustering algorithm to be consider for segmentation in the dataset.
* Implement and identify the silhouette score
* Determine which clustering algorithm can measure the similarity and dissimilarity of different cluster.
* Identify the seasonality, trend, and residuals in the stocks market data analysis that can make a forecast for the future value.



Business Understanding

The business understand is the