**CCT College Dublin**

**Assessment Cover Page**

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

|  |  |
| --- | --- |
| **Module Title:** | Data Preparation & Visualisation  Machine Learning for Data Analysis  Programming for Data Analytics  Statistics for Data Analytics |
| **Assessment Title:** | MSC\_DA\_CA2 |
| **Lecturer Name:** | **David McQuaid**  *Muhammad Iqbal*  *Sam Weiss*  *Taufique Ahmed* |
| **Student Full Name:** | Syed Asad Ailia |
| **Student Number:** | 2023408 |
| **Assessment Due Date:** | 05th January,2024 |
| **Date of Submission:** | 05th January,2024 |

****

**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. |

Author: Syed Asad Ailia

e-mail: [2023408@student.cct.ie](mailto:2023408@student.cct.ie)

Student ID: 2023408

GitHub Link: <https://github.com/SyedAsadAilia110/CA2.git>

**Data Selection**

**Ireland’s Dataset**

Dataset: THA22 - Average weekly volume of heavy goods vehicles for selected traffic count sites

Published by: Transport Infrastructure Ireland

Licensed under: Creative Commons Attribution 4.0

Category: Transport

Source: (https://data.gov.ie/dataset/tha22-average-weekly-volume-of-heavy-goods-vehicles-for-selected-traffic-count-sites)

**Another Country Dataset (Switzerland)**

Dataset: Public Transport in Zurich

Usability: 8.53

License: CC0: Public Domain

Collaborators: LAdams (Owner)

Source: (https://www.kaggle.com/datasets/laa283/zurich-public-transport)

**"Transport In Ireland (Comparison Between Ireland Transport Data V/S Switzerland Transport Data)"**

**Abstract**

*In today's data-driven world, data analytics is becoming more and more significant, having a major impact on many facets of business, science, and society. In this report, we used data analytics techniques to clean insightful information from the Two Different datasets which we take from their official websites which is between Ireland Transport and Switzerland Transport dataset. We carefully imported and checked the information to respond to specific questions. The development of a machine learning model for extracting output parameters from the validation dataset was the final step in this extensive process, which began with data preparation and continued with graphical representation using statistical techniques to identify trends. The Python framework was used to fulfil the programming requirements, and the entire project was recorded in a Jupyter Notebook as per the given instructions.*

**Introduction**

This research investigates statistical analysis of data with an emphasis on the transport sector in Ireland. Our objective is to offer a thorough global examination and contrast of transport patterns using the copious amounts of data generated by smartcard ticketing systems. With a focus on freight transport, air traffic, car traffic, and facilities, the project analyses many datasets to provide a comprehensive understanding of Ireland's transport landscape and provide insights based on data.

With a focus on real-world execution, the project places a high priority on scientific rigor, open records, and effective interaction. A thorough examination of the transportation information area is supported by the tasks listed, which include machine learning programmes, statistical analysis, analysis of information programming, and data processing and visualisation.

**Introduction to the Scenario**

In the age of smartcard ticketing, data turns become a driving force for improving public transportation. In this scenario, judgments are made and services are improved by examining Ireland's transportation data. Forecasting, sentiment analysis, and cross-national comparisons are all part of the challenge, which calls for a comprehensive strategy that combines machine learning, programming, statistics, and sophisticated visualization. Finding insights that will inform strategic recommendations for the ever-changing urban transportation context is the aim.