**CCT College Dublin**

**Assessment Cover Page**

|  |  |
| --- | --- |
| **Module Title:** | Data Visualization Techniques, Machine Learning for Business |
| **Assessment Title:** | CA2 |
| **Lecturer Name:** | David McQuaid, Muhammad Iqbal |
| **Student Full Name:** | Daniela Mariano Barreto |
| **Student Number:** | 2023278 |
| **Assessment Due Date:** | 24/05/2024 |
| **Date of Submission:** | 24/05/2024 |

**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. |

Table of Contents

[**Introduction** 3](#_Toc166694092)

[Recommendation System 3](#_Toc166694093)

[Data description 4](#_Toc166694094)

[klklllll 4](#_Toc166694095)

[Word count 4](#_Toc166694096)

[**References** 4](#_Toc166694097)

# **Introduction**

With the advancement of the internet in people's lives, a large amount of data is generated, such as products researched, purchases made, films watched, music listened to, and more. Without a system that makes accurate recommendations most of the time, customers could get lost in the vast number of options and might even give up on making a purchase or watching a movie, which tends to impact the company's revenue. That is why many companies, such as Amazon, Netflix, and eBay, invest in recommendation systems.

## Recommendation System

Recommendation systems are algorithms designed to suggest relevant items to users based on the similarity of items or the characteristics of the user's profile (Patel, Patel and Chauhan, 2023, p.851). In other words, these algorithms can analyse user behaviour, interests, and characteristics to suggest similar products or services based on previous interactions.

This system interacts with users to learn their characteristics and preferences, storing this feedback in the recommender database that can be used for generating new recommendations for users with similar characteristics (Ricci et al., 2015, p.3; Patel, Patel and Chauhan, 2023, p.851).

According to Ricci et al. (2015, p. 5), there are several reasons to use a recommendation system in online retail businesses, such as increasing the number of items sold by tailoring to the user’s needs and wants, as well as selling more diverse items by offering items that might be hard to find, and so on.

There are several techniques used to develop recommendation systems. In this project, the focus will be on Content-based and Collaborative-based filtering.

*Content-based filtering*

This technique creates a user profile based on data provided directly (explicit feedback) or indirectly (implicit feedback) by the user, such as a rating given to a product; then this information is then used to recommend more similar products or services (Patel, Patel and Chauhan, 2023, p.852).

*Collaborative-based filtering*

The collaborative filtering is widely implemented, especially in e-commerce sites, and this technique works by identifying similarities between users and recommending items based on what similar users have liked or purchased in the past (Ricci et al., 2015, p.12,13). That is why this technique is also called user-to-user similarity.

## Data description

The datasets used are from the Kaggle repository (www.kaggle.com, n.d.) and can be found in the link below. There are two datasets: one named ‘anime.csv’, which contains 12,294 records of various animes and 7 features; the second dataset is called ‘rating.csv’ and has 7,813,737 records and 3 features. The data dictionaries are presented in Tables 1 and 2.

Dataset: [Anime Recommendations Database (kaggle.com)](https://www.kaggle.com/datasets/CooperUnion/anime-recommendations-database)

**Table 1:** Data dictionary of ‘anime.csv’ dataset.

A screenshot of a computer

Description automatically generated

**Table 2:** Data dictionary of ‘rating.csv’ dataset.

A screenshot of a computer

Description automatically generated

## klklllll

## Word count

|  |  |
| --- | --- |
| Introduction: | 0 |
| : |  |
| : |  |
| Total: |  |

# **References**

Patel, D., Patel, F. and Chauhan, U. (2023). Recommendation Systems: Types, Applications, and Challenges. *International Journal of Computing and Digital Systems*, 13(1), pp.851–868. doi:https://doi.org/10.12785/ijcds/130168.

Ricci, F., Lior Rokach, Bracha Shapira and Springerlink (Online Service (2015). *Recommender Systems Handbook*. New York, Ny: Springer Us.

www.kaggle.com. (n.d.). Anime Recommendations Database. [online] Available at: https://www.kaggle.com/datasets/CooperUnion/anime-recommendations-database [Accessed 13 May 2024].