Collaborative-Filtering Recommender System using Supervised Learning

Executive summary report for the Sales Marketing Team
Prepared by Data Science

Overview

Explore and compare **various machine learning models** and **find one** with **the best performance** to improve learners' learning experience by **identifying and offering more engaging and relevant courses to learners** ..

Problem

The challenge we encountered was defining a value to assign to the more engaging and relevant courses to learners. We also considered ethical consequences of building this model, particularly regarding the errors that we will encounter when the model is built.

Solution

The variable we are seeking to predict is numerical and can be categorical, the team could build either regression and classification models.

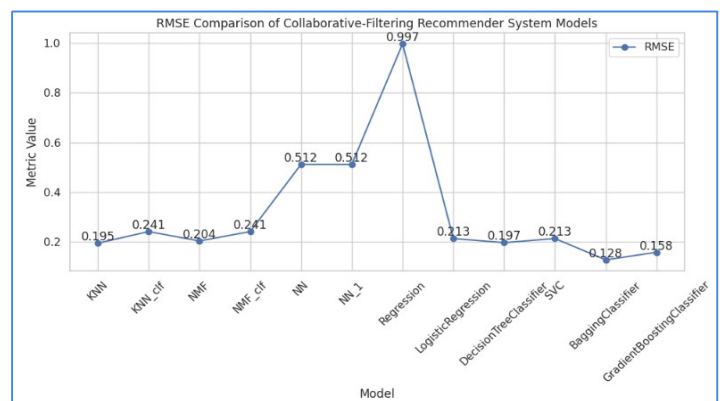The models perform with the lowest RMSE (0.128) is Bagging Classifier.

Details

Behind the data
- Our assumption to predict courses that a user is likely to be interested in based on their past interactions or characteristics, as well as the attributes of the courses themselves.

- This model helps predict courses that best suit the user profile and course profile. This recommendation can assist users in making decisions about their next courses, ultimately increasing engagement and revenue streams.

RMSE Comparison of Collaborative-Filtering Recommender System Models

Future model suggestions
- Considering human suggestion (their level)
- Hybrid models to derive insights from the data

Results Summary
The resulting algorithm is usable to predict courses for user recommendation. An RMSE of 0.128 indicates the average difference between the predicted course ratings and the actual course ratings is approximately 0.128. A lower RMSE value indicates that the model's predictions are closer to the actual ratings.

Next Steps

- Share the results and recommendation that the model could be used as an indicator, as long as there is an understanding of its limits on correct prediction.