Machine Learning Algorithms for Recommendation Systems

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***Abstract*—This paper aims to explore, compare and combine different algorithms that predict the ratings which will be given to movies by potential users, based on the patterns emerged in a user-movie rating dataset. To that end, we consider simple Baseline Models, user and item based Collaborative Filtering Algorithms and Matrix Factorization techniques and evaluate the performance of each in terms of Root Mean Squared Error. In brief, we find out that different algorithms capture different patterns in the dataset, hence we conclude that a combined model performs the best.**

I. Introduction

The ultimate goal of a Recommender System is to assist users to access large digital collections in a personalized manner. They usually do this by predicting the order of preference, the rating, that a user would give to an item. The need for Recommender Systems increased greatly as a result of digital content providers, such as YouTube, Netflix and Amazon, becoming progressively widespread. Such digital content providers consistently seek for better Recommender Systems in order to provide better user experience.