Neural Network and Deep Learning Analysis Applied in Movie Recommendation System

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1. Project Goal & Objective Summary:

Our goal is to create a movie Recommendation system through neural network and deep learning analysis. The users should have a list of movie recommendations after giving an input(a movie name and a subjective score). In this study, we will use Keras package to do deep learning model fitting, use numpy, NlTK package to do data cleaning, and use matplotlib and wordcloud package to do data visualization. We will execute data gathering, data cleaning, data exploration, data training, model fitting, optimization and accuracy checking in the whole project.

2. Proposed Data Source & Methods:

Datasource: https://grouplens.org/datasets/movielens/

The dataset is gathered from MovieLens with over twenty five million user ratings from 162-thousand users over sixty thousand movies between January 09, 1995 and November 21, 2019. All selected users had rated at least 20 movies. Based on the historical rating of an individual user, the preference of the user can be predicted using a neural network algorithm. This project will apply Graph Neural Network based recommender systems, specifically, will focus on inductive matrix completion based on GNNs.

3. Expected results or outcomes:

The recommendation system will try to find movies that users potentially like based on the input of his/her own preferred movie titles and their subjective rating for favorite movies. For instance, if a minor user's input is Toy Stories, Up, CoCo, which are mainly cartoons for children, then the ideal results from our recommendation should be high rating cartoons which match with the user's preference.