A Simple Movie Recommender System

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Motivation

Motivation:
To create a web app which can provide users with movie suggestions according to the user input.

User Input:
The name of the movie that the user enjoys.

Website Output:
A list of 10 movies recommended to the user.

Website Link:
http://final-deploy-dev.us-west-2.elasticbeanstalk.com/

Data Description

Data Source:
The MovieLens dataset on *Kaggle.com*.

Data Description:
Movies: 45,000 movies listed in the Full MovieLens Dataset
Duration: before 2017
Tables: credits (*cast, crew, id*), keywords (*keyword, id*), movies_metadata (*genre, title, id*)

Data Preparation:
EDA
Merge tables on *id*

Model Insight

Algorithm Highlight: content-based recommender system

Logic Flow: movie name (user input) → cosine-similarity (matrix) → 10 movie suggestions (website output)

Success Criterion: user satisfaction (subjective)

Model Selection:

- Model 1: recommender system based on movie descriptions
  - transform movie descriptions into matrix to calculate cosine-similarity
- Model 2: recommender system based on movie director, main actors, genres, and keywords
  - extract directors, actors and genres from the JSON-format text
  - keep top2 actors for each movie to make sure model relevancy
  - create a new variable to save all information of movie director, main actors, genres and key words
  - transform the new variable into matrix to calculate cosine-similarity

Model Discussion

Interesting Findings:

- The content-based recommender system is good for users with consistent tastes.
- To provide users with more relevant movie suggestions based on their input, we can add more more movie information to our model for calculating the cosine-similarity matrix.

Limitations:

- The web app will return the exactly same movie suggestions to all users with the same movie input.
- For users who want to explore new types of movies, this recommender system might fail.

Improvements:

- The method of collaborative filtering (UBCF & IBCF) can provide users with more customized movie suggestions.
- Hybrid recommender system can be the next step.

Thank You!

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