

Books Recommender System

System recommends books using the K-Nearest Neighbours and Cosine Similarity algorithms from a list of 10000 books with 1 million ratings

Requirements

Python version: 3.10.2

Python modules: streamlit, numpy, Pillow, pandas, urllib3, scikit-learn

Dataset

- [goodbooks-10k](#)

There have been good datasets for movies (Netflix, Movielens) and music (Million Songs) recommendation, but not for books. That is, until now.

This dataset contains ratings for ten thousand popular books. As to the source, let's say that these ratings were found on the internet. Generally, there are 100 reviews for each book, although some have less - fewer - ratings. Ratings go from one to five.

Both book IDs and user IDs are contiguous. For books, they are 1-10000, for users, 1-53424. All users have made at least two ratings. Median number of ratings per user is 8.

There are also books marked to read by the users, book metadata (author, year, etc.) and tags.

books.csv has metadata for each book (goodreads IDs, authors, title, average rating, etc.).

Motivation

Recommenders

KNN

A k-nearest neighbor (KNN) based recommender system is a type of collaborative filtering system that uses the ratings given by users to other items to make recommendations. The system works by calculating the similarity between each pair of items, and then using the similarities to predict how a user will rate a given item.

Files

- [app.py](#) the main file of streamlit web-app, have to be runned in by command 'streamlit run'
- [knn.py](#) python file containing a k-NN Algorithm
- [cossim.py](#) python file containing a Cosine Similarity Algorithm
- [Analysis of dataset.ipynb](#) draft jupyter notebook with some helpful charts, commands, not included in app.

Running application

- Clone repo
- Open cmd prompt in working directory
- Run command:

```
pip install -r requirements.txt
```

- To run app, write following command in cmd prompt

```
streamlit run app.py
```

- Then wait a moment, after few seconds you should see following code:

You can now view your Streamlit app in your browser.

Local URL: <http://localhost:8501>

Network URL: <http://192.168.1.1:8501>

And web-app should open in your browser. If not just copy and paste link [Local URL](#) or [Network URL](#)

After page is loaded you should see following view:



Books Recommender System

Select recommendation type and book title to get recommendations

Data is based on "Goodreads 10000 Dataset"

Select Recommendation Type

--Select--

Please select Recommendation Type!!

Made with Streamlit

Input page for KNN (same for Cosine Similarity)

Books Recommender System

Select recommendation type and book title to get recommendations

Data is based on "Goodreads 10000 Dataset"

Select Recommendation Type

K-NN (k-Nearest Neighbor) ▾

Select (or start writing in dropdown list below) book title: (Recommendation will be based on this selection)

Twilight ▾

Want to fetch book cover?

☒ Yes

☐ No

Number of books to recommended:

5

5

20

List of: 5 recommendations, have a look below

Example results of recommendation:

List of: 5 recommendations, have a look below

1. Great Expectations

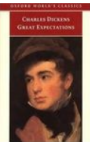
Author(s): Charles Dickens

ISBN number: 192833596

Average rate (1-5): 3.75

Publication year: 1860

Number of ratings: 459247



2. The Pillars of the Earth

Author(s): Ken Follett

ISBN number: 451207149

Screenshots

KNN

Cosine similarity
