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

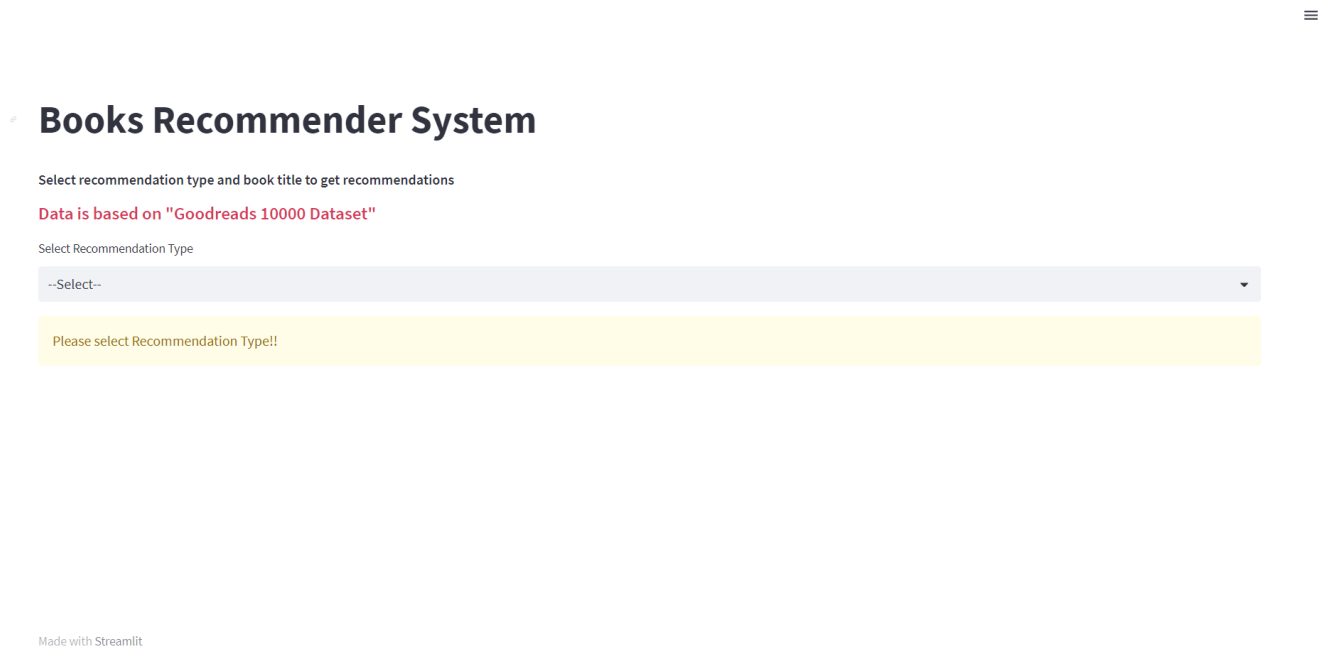
```
streamlit run app.py
```

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

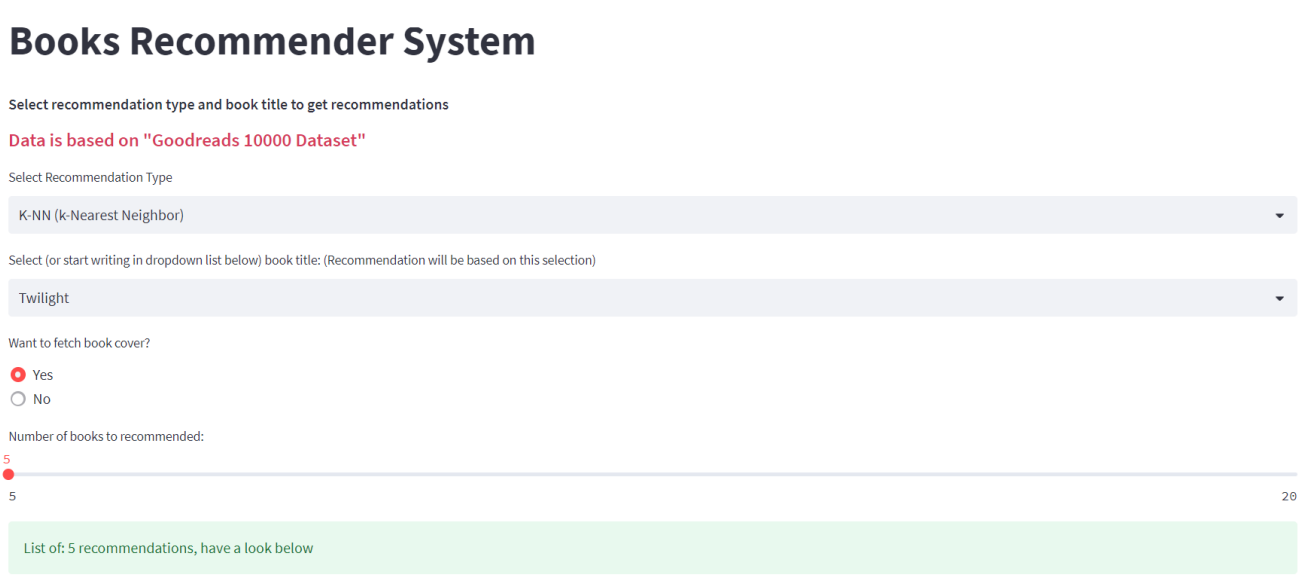
```
You can now view your Streamlit app in your browser.

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`

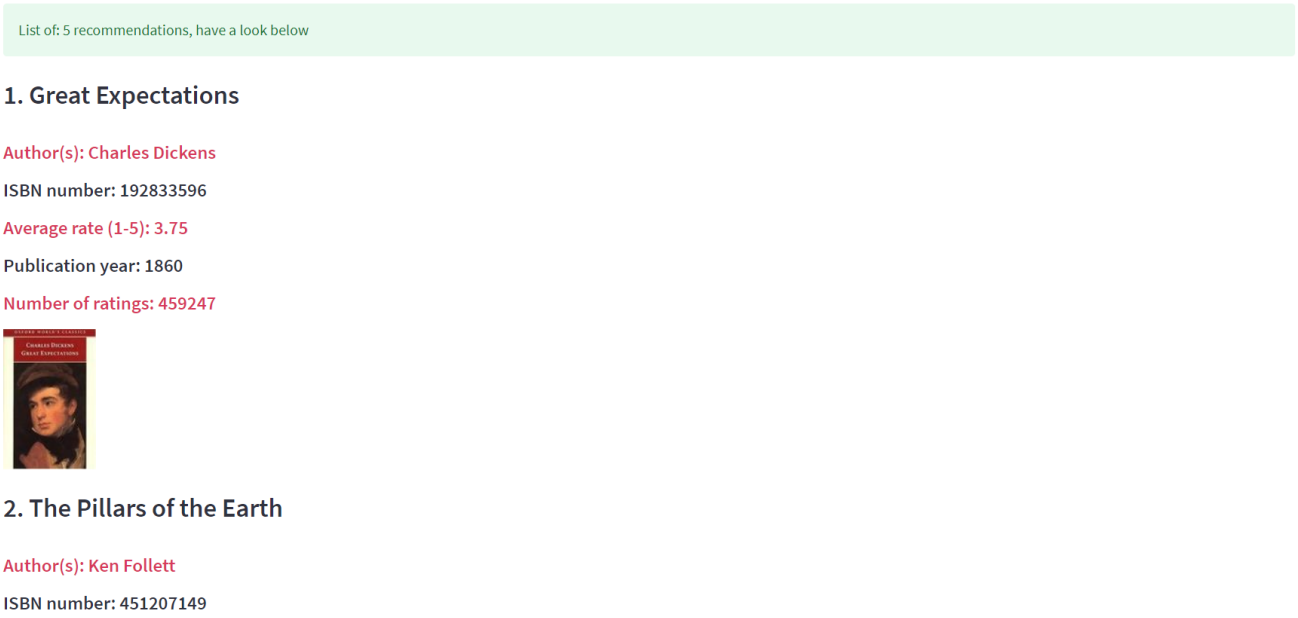
After page is loaded you shold see following view:



Input page for KNN (same for Cosine Similarity)



Example results of recommendation:



Screenshots

KNN

Cosine similarity