**Read Me**

1. **Data extraction**

* Data Download: Goodreads poetry [dataset](https://sites.google.com/eng.ucsd.edu/ucsdbookgraph/home)
  + Poetry dataset download [link](https://drive.google.com/uc?id=17G5_MeSWuhYnD4fGJMvKRSOlBqCCimxJ)
    1. Downloads goodreads\_interactions\_poetry.json.gz
  + Book genres data download [link](https://drive.google.com/uc?id=1ah0_KpUterVi-AHxJ03iKD6O0NfbK0md)
    1. Downloads gooreads\_book\_genres\_initial.json.gz
  + User\_id map download [link](https://drive.google.com/uc?id=15ax-h0Oi_Oyee8gY_aAQN6odoijmiz6Q)
    1. Downloads user\_id\_map.csv
  + Book\_id map download [link](https://drive.google.com/uc?id=1CHTAaNwyzvbi1TR08MJrJ03BxA266Yxr)
    1. Downloads book\_id\_map.csv
* Data Preprocessing:
  + Notebook used – preprocessing.ipynb
    1. Generates the following files
       - interactions.csv
       - Interactions\_full.csv
       - Interactions\_genres.csv
       - user matrix factorized embeddings - ‘user.pickle’
       - Book matrix factorized embeddings - ‘book.pickle’

**2. Item-Item CF**

* Datasets:

1. goodreads\_books\_poetry.json.gz
2. goodreads\_reviews\_poetry.json.gz
3. user\_id\_map.csv
4. book\_id\_map.csv

* Notebooks:

1. Item\_Item\_Collaborative\_Filtering\_for\_Goodreads.ipynb

* Instructions:

1. Run Item\_Item\_Collaborative\_Filtering\_for\_Goodreads.ipynb file to load the json.gz files
2. Run the rest of the notebook to generate item-item collaborative filtering results and evaluation metrics.

**3. NCF with MF:**

* Datasets:

1. goodreads\_interactions\_poetry.json.gz
2. user\_id\_map.csv
3. book\_id\_map.csv

* Notebooks:

1. embeddings.ipynb
2. ncf\_mf.ipynb

* Instructions:

1. run embeddings.ipynb to create user\_item\_ratings.csv, reader and book embeddings.
2. run ncf\_mf.ipynb to build model and generate results.

**4. NeuMF:**

* Datasets:

1. interactions.csv

* Notebooks:

1. NeuMf.ipynb

* Instructions:

1. Run NeuMf.ipynb to build model and generate results for Neural Matrix Factorization model.

**5. NeuMF with Genres:**

* Datasets:

1. interactions\_genres.csv

* Notebooks:

1. neumf\_with\_genres.ipynb

* Instructions:

1. Run neumf\_with\_genres.ipynb to build model and generate results for Neural Matrix Factorization with genres model

**6. Wide and Deep recommendation models:**

* Datasets:

1. interactions\_genres.csv

* Notebooks:

1. wd.ipynb

* Instructions:

1. Run wd.ipynb to build model and generate results for wide and deep recommendation model