Collaborative Filtering
CSE 640

Abhishek Maiti
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Methods Used

1. SVM
   Script: svm.py
   SVM was used with the item and user features with 5 fold cross-validation.
   For the users, the features taken were **languages, gender, job and age.**
   For movies, the features taken were **Genre, Rating and release year**.

Fold Number	1	2	3	4	5
Normalised Mean Absolute Error	0.25	0.24	0.23	0.26	0.27

2. Neural Collaborative Filtering
   Script: neural_collab.py
   Reference: Paper Link
   Github Code: Link

   This uses the trained General Matrix Factorisation and Multi-Layer Perceptron model to initialise the Neural Matrix Factorisation Network.

Fold Number	1	2	3	4	5
Hit Ratio	0.8	0.82	0.87	0.78	0.88
NDCG	0.71	0.68	0.72	0.67	0.70

3. Deep Matrix Factorisation
Script: deep_matrix_factorisation.py
Reference: Paper Link
Github Code: Link

This Model passes the user ratings and item ratings and projects them On the same latent space till it converges.

Fold Number	1	2	3	4	5
Hit Ratio	0.43	0.45	0.39	0.48	0.49
NDCG	0.27	0.289	0.23	0.28	0.3

4. Multi-layer Perceptron

Script: MLP.py
Combining the user and item latent vectors to find a combination which predicts the user item ratings.

Fold Number	1	2	3	4	5
Hit Ratio	0.9	0.88	0.84	0.87	0.89
NDCG	0.76	0.77	0.76	0.73	0.71