CSE 640: Collaborative Filtering

Assignment-1

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User-Based

Table1:

This table is calculated by normal cosine similarity and predicting the rating for different Folds and for different neighbours for user based.

Table: Normal Cosine Similarity

	K=10	K=20	K=30	K=40	K=50	Average
Fold 1	0.723600	0.715800	0.713050	0.713450	0.714700	0.716120
Fold 2	0.713150	0.699950	0.698300	0.699850	0.701150	0.702480
Fold 3	0.711450	0.699200	0.698800	0.700050	0.703350	0.702570
Fold 4	0.705800	0.696950	0.696950	0.696000	0.699400	0.699020
Fold 5	0.718300	0.701250	0.699800	0.704050	0.702850	0.705250
Average	0.714460	0.702630	0.701380	0.702680	0.704290	

Table2 [Bonus]:

This table is calculated by using similarity values with threshold of 15 and predicting the rating for different Folds and for different neighbours for user based.

Table: Significance Weighting

	K=10	K=20	K=30	K=40	K=50	Average
Fold 1	0.722900	0.718650	0.715600	0.716600	0.716550	0.718060
Fold 2	0.712350	0.699950	0.699100	0.700300	0.701500	0.702640
Fold 3	0.710000	0.699600	0.700450	0.701900	0.705900	0.703570
Fold 4	0.705050	0.697350	0.696700	0.696250	0.698900	0.698850
Fold 5	0.718350	0.701550	0.700750	0.704150	0.703550	0.705670
Average	0.713730	0.703420	0.702520	0.703840	0.705280	

Item-Based

Table3:

This table is calculated by normal cosine similarity and predicting the rating for different Folds and for different neighbours for item based.

Table: Normal Cosine Similarity

	K=10	K=20	K=30	K=40	K=50	Average
Fold 1	0.695000	0.691000	0.694850	0.695650	0.699250	0.695150
Fold 2	0.684900	0.679250	0.680750	0.683350	0.685900	0.682830
Fold 3	0.689700	0.686600	0.687800	0.689750	0.690750	0.688920
Fold 4	0.684800	0.682350	0.685000	0.685850	0.687800	0.685160
Fold 5	0.693700	0.689500	0.690450	0.692550	0.695150	0.692270
Average	0.689620	0.685740	0.687770	0.689430	0.691770	

Table4 [Bonus]:

This table is calculated by using variance weight values and predicting the rating for different Folds and for different neighbours for item based.

Table: Variance Weighting

	K=10	K=20	K=30	K=40	K=50	Average
Fold 1	0.695900	0.690450	0.694400	0.695300	0.697900	0.694790
Fold 2	0.686700	0.680200	0.682200	0.684150	0.686850	0.684020
Fold 3	0.692750	0.687150	0.687000	0.688600	0.689700	0.689040
Fold 4	0.689750	0.682600	0.684350	0.685400	0.687450	0.685910
Fold 5	0.693650	0.688900	0.689400	0.690900	0.692000	0.690970
Average	0.691750	0.685860	0.687470	0.688870	0.690780	