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COEN 169

Yi Fang

TR 10:20 – 12:00

Project 2

**1.1 Implement the basic user-based collaborative filtering algorithms:**

Pearson Correlation

MAE of GIVEN 5 : 1.21045392022008

MAE of GIVEN 10 : 0.9045

MAE of GIVEN 20 : 0.917816147390759

OVERALL MAE : 1.01058939418815

Vector Similarity

MAE of GIVEN 5 : 1.090033762661  
 MAE of GIVEN 10 : 0.876166666666667  
 MAE of GIVEN 20 : 0.917816147390759  
 OVERALL MAE : 0.964086356920046

**1.2 Extensions to the basic user-based collaborative filtering algorithms:**

Pearson Correlation with Inverse User Frequency

MAE of GIVEN 5 : 1.45967237714143

MAE of GIVEN 10 : 1.39066666666667

MAE of GIVEN 20 : 1.41101572296711

OVERALL MAE : 1.42197504514858

Pearson Correlation with Case Modification

MAE of GIVEN 5 : 1.52007002625985

MAE of GIVEN 10 : 0.9395

MAE of GIVEN 20 : 0.917816147390759

OVERALL MAE : 1.12083401740273

**2 Item-based Collaborative Filtering Algorithm:**

Adjusted Cosine Similarity

MAE of GIVEN 5 : 1.49781167937977

MAE of GIVEN 10 : 1.44233333333333

MAE of GIVEN 20 : 1.4444873155204

OVERALL MAE : 1.46145953045477

**3 Implement your own algorithm:**

Custom algorithm: average all five other algorithms together

MAE of GIVEN 5 : 0.991996998874578   
 MAE of GIVEN 10 : 0.893833333333333   
 MAE of GIVEN 20 : 0.919938265650622   
 OVERALL MAE : 0.93716138565096

**2 Results Discussion**