**Brian Craft**

**Youtube:**

<https://youtu.be/tfsSD3_LK1A>

**Results:**

* Beta = 5 & K = 50
  + MAE = .7544477
  + Precision = 0.013461538
* Beta = 10 & K = 50
  + MAE = .7554059
  + Precision = 0.013942307
* Beta = 25 & K = 50
  + MAE = .7564913
  + Precision = 0.013942307

**Description:**

To modify the code, I calculated the overlap between each user in the method that calculated the means for each user (trainmodel method). If the overlap was less than the beta, I replaced the entry in the similarity matrix with a new value which was calculated by the overlap/beta \* old similarity measure. I also stored the beta coefficients in a hash map, where the key is a user index and the value is an array list where item n is the significance weighting coefficient between the user index and n user, however the code was written so storage for the overlap isn’t needed as the similarities are updated iteratively. The below pseudo code illustrates what I did.

* *For each user U:*
  + *For all other user V:*
    - *Calculate rating overlap for U and V*
      * *If overlap >= beta*
        + *Continue*
      * *Else* 
        + *Calculate sig. weighting coeff. using overlap/beta*
        + *Calculate adjusted sim using sim \* sig weighting coeff.*
        + *replace value in similarity matrix*
* *return new similarity matrix*

Aside from minor edits to the configuration file, in which a beta was added and the evaluator was adjusted to test run, all the code was reused from assignment 0.