Specific values for this and charts can be seen from the code at:
https://github.com/JoshuaFoldes2/CAP5610-Homework

The best values overall came from the item based evaluations. PMF results in a >1 MSRE. User based had 2 out of 3 MSRE almost equal to 1 while item based only had one value almost equal to 1. The averages of item and user MSRE would reflect this and therefore, the lowest value would come from item based evaluations.

For user based KNNBasic algorithm, MSD was clearly superior to Pearson and Cosine. For item based KNNBasic algorithm, the one that did the worst was Cosine with the other two doing equally well. The impact indicates that the overall best filter is MSD. For Cosine and MSD, its consistent, but is not consistent for Pearson between user and item based collaborative filtering.

After K > 5 or so, the MSRE values don't change nearly as much between increments of K. I would say any value above 10 is safe as a starting point. It is clearly not optimized, but its good enough for general purposes.

User based KNNBasic with MSD algorithm seems to work best at about K = 20 while item based works best around K = 60. For this specific data set and algorithm, K = 18 and K = 61 were the optimal values. These two values are not the same and are very far apart in fact.