Please make some comments on how to improve this or build out the direction we take it in. I am specifically asking to improve the planned analysis of this project. Once we simulate a recommendation engine feedback loop and get our data, what kind of tests and analysis can we do?

Please leave feedback as comments in this document. If everyone gives a bit of feedback, I’ll cut this down to 250 words, integrate feedback and make a final version for submission.

Is everyone good with a deadline of 10/31 for feedback? That’ll give time so we can all check the final draft before submitting.

Project Proposal: Recommendation Engine Feedback Analysis

Abstract:

Recommendation engines, as in Netflix’s movie recommendations, prompt the user to provide ratings on the recommended movies, which then feeds back into the engine for future predictions.. When a person watches and rates a recommended movie, the data available to the engine changes, and the next recommendation is based on that new data. In this way, recommendation engines are expected to change their own recommendations over time. We expect, and would like to test how the engine shapes its own recommendations. We would like to potentially explore, 1) the model will recommend a more similar set of movies over time, and 2) recommended movies across users will converge to only a few (highest globally-rated) movies. We would also like to check if 3) if anyone’s recommendations wildly changed from start to finish.

Procedure:

Part 1 of this project will build out a simple recommendation engine. It need only be accurate enough and comprehensive enough (of the variables it looks at) to produce useful results.

Part 2 will be a simulation. The model will be run once, the recommended movie for each person will be given a simulated rating, and that process repeated for some number of iterations. The highest rated movies will be collected per person at each iteration.

Time allowing, part 2 may extend to creating a control group. This could include giving random scores for watched movies, or giving random recommendations.

Part 3 will analyze the data. It will look for changes in the patterns of recommended movies between the 1st and the last iteration. It will check if anyone started getting recommendations for genres they did not initially like. It will look for changes in the distribution of movies recommended across all users.

**Possible Plots?**

1. Plot of Genre of movies as a proportion of total movies watched over several simulations

-One before simulation

-Another when number of simulations=100,1000,10000,100000 etc.

Need: This would tell us if the recommendation engine is biased towards a particular genre in the long run as more movies are watched.