Tim Taylor

Ponder and Prove 5 Report

For this Ponder and Prove activity, I had help from a coworker. I was having some troubles moving the conjecture from the first section into code. He helped me work through the logic. I was most of the way to the solution before he started helping, and he allowed me to work through the code myself, just nudging me in the direction I should be working.

From there, I spent time developing and researching differing ways that I could increase the speed of my program. The one that did the most was from a library called numba. Using the “@jit” tag on several of my functions I was able to radically increase the speed of my verification. Due to the many overall changes that I made; my final information came out as follows:

Final Count: 2,747,560,000,001  
Start Time: 2021-02-05 13:43:20.974021  
Intended End Time: 2021-02-06 13:43:20.974021  
Actual End Time: 2021-02-06 13:43:21.021742

While working on the probability theory questions, I was reminded of an activity that I did with my high school statistics professor with flipping coins. This previous experience led me to be able to quickly complete the first task, and a video from Khan Academy about winning the lottery helped me to complete the second task.

In all, I honestly had fun this week and feel like I learned a lot about python, efficient programming, O-scores, and Combinatorics.