My entry is:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **C1** | **C2** | **C3** | **C4** | **C5** | **C6** | **C7** | **C8** | **C9** | **C10** |
| 0 | 0 | 1 | 0 | 0 | 26 | 0 | 35 | 38 | 0 |

I solved this problem by running Round Robin simulations on data I found online. The data was from two competitions: Can you Rule Riddler Nation? and The Battle for Riddler Nation, Round 2. The data from both competitions totaled to 2,319 observations, with each observation corresponding to a submission. The benefit of using data containing submissions from real people rather than randomly simulating data is that a human’s submission will, for the most part, be more intelligent than a machine’s random simulation.

From the data, I obtained the top 10 submissions. An immediate observation I made was that none of these entries contained soldiers that were spread out amongst many castles. Rather, soldiers were concentrated at approximately 3-4 castles.

This observation was affirmed when I started testing potential arrangements. Because the problem states that the player who achieves over 20 points first wins, my initial intuition was to try to achieve a sum of 20 as early as possible. The earliest a player could obtain over 20 points is if they win castles 1-6. However, it is very difficult to spread out soldiers in a way that guarantees the first 6 castles. Testing arrangements that had all soldiers in the first 6 castles resulted in only a few hundred wins out of 2,319 castles.

With the assumption that the chances of obtaining the first 6 castles is pretty rare, I decided to focus on the later, heavier castles by concentrating soldiers there. Testing many arrangements with the code I wrote, I finally decided on the arrangement above. This arrangement requires castles 6,8, and 9 to win, so concentrating more soldiers there raises the likelihood. Testing this arrangement, I found that it beat 2,184 castles out of the 2,319 total castles.