**Blotto**

In this project, we have the benefit of getting 10,000 opponents’ strategies. This means we can come up with several feasible strategies of our own and test each of them on our datasets to see which one performs best on average. The first step here is to come up with some possible strategies:

* Even weighted distribution - You have 100 troops and there are 55 points to grab. That means your soldiers can each earn up to 55/100ths of a point on average. Distributing your soldiers evenly so that each castle gets an appropriate number of soldiers according to its point value (e.g. castle 6 has 6 points, gets 6\*100/55 ~~ 11 soldiers) would give you a chance to win each castle without committing heavily to any specific one.
* Low value castles - You only need 28 points to guarantee a win in this game. Therefore you can get a win by taking castles 1 through 7 and ignoring castles 8 through 10. The way you distribute your troops in this strategy can vary, from an even distribution with 14 troops at each of the castles (put the remaining two wherever) or some sort of skewed distribution with more troops at castles 5, 6 and 7.
* High value castles - Alternatively, you can win with just a few high value castles. Castles 8 through 10 and castle 1 would get you the required 28 points. You could evenly distribute 25 soldiers to each of these four castles, or you could do some other weighted distribution. Find what works best by testing on the dataset.
* Human psychology counters - I assume that whatever dataset we have for this game is based on human submissions, not just random computer-generated numbers. Therefore, we can make some assumptions that will likely counter the most common human strategies. One example of this is avoiding rounded numbers. Humans may be likely to select multiples of 5 or 10 when distributing their troops, so go one higher than these numbers when you get the chance. Also, many people may cover several castles with the minimum 1 troop, so put at least 2 at each castle. Other strategies to try would be direct counters to the three strategies I listed above. The weighted distribution, low value, and high value strategies are all going to be common, so come up with a targeted strategy that beats all three of these. For example, you could go for the middle value castles 5, 6, 7 and 10.

Now that we have several ideas for viable strategies, we can program a simulator to test each of them against all 10,000 opponents to see which one comes out with the highest winning percentage. You may also be able to do some optimization using the simulator by testing slightly different distributions for each of these strategies to minimize the amount of unnecessary troops you have at winning castles and losing castles (you want to win castles by the smallest possible margin and lose castles by the largest possible margin). Once this is done, you should have a very successful strategy.