HOMEWORK 1 – GAME THEORY APPLICATION

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COMPARISON

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| Run | Random | Probability |
| Wins | 44 | 41 |
| Losses | 56 | 59 |
| Guess “Heads” | 48 | 87 |
| Guess “Tails” | 52 | 13 |
| Results “Heads” | 46 | 40 |
| Results “Tails” | 54 | 60 |

The results of the coin tosses were opposite of what I considered prior to making the game. I naturally thought that the Probability results would have been closer, but in fact they were very sporadic. Although the results in figure 1 are the result of one hundred coin tosses, each run of the game, the Random results were very consistent, being close to 50/50 in mostly every category. As for the probability results, they varied as from as much as 10/90 to very close to 50/50.

Even in situations where the results were close to 50/50 as in Figure 1, the results from the StrategyRandom class were close to 50/50 in every category, while the StrategyProbabilistic class had swings from 13/87 to 60/40, which shows the inconsistences of the class in relation to the StrategyRandom class’s results. My mentality when beginning this program was that the probability runs would produce more accurate results because of the differences in utilizing known data vs. random selections. However, upon completing the program, I considered that probability results would become more accurate with the amount of data compiled over time.

The sporadic nature of the results for the StrategyProbability class contributed to my consideration that my implementation of the class was not optimal for the application. However, conceptually, I would think that someone with previous knowledge would be able to make a wiser decision based on previous experiences. The more resources that one has in a game, typically the better that player does, depending on the game. This application shows that there is room for further discussion in this situation.