1. Team name : Bog Standard
2. Team members : Abdelrahman Y. Abdalla CCID : 1677641
3. I was the only member in the group and so I did all the work
4. I did not use any code except that which is provided by the python standard library for the math and random. Github repp: <https://github.com/Ayabdall/Assignemnt-4>
5. My game of choice was called [Goofspiel](https://en.wikipedia.org/wiki/Goofspiel) and it is a two player card game that has very minimal luck as two players bet against each other to win the card in the middle so I thought it would be easy to implement. My second game that I ended up Visualizing is called [Mancala](https://en.wikipedia.org/wiki/Mancala) and it is a two player board game that consists of picking a spot on the board and moving all the stones one by one until you fill your goal.
6. Originally I wanted to create a player for the game called Goofspiel. I kept experimenting with different strategies and ran out of time before I could implement any actually decent algorithm. I thought that it was too hard of a task so I started working on a game called Mancala, as I thought it would be easier to write a player for. The good thing is that I ended up writing two pretty okay vizualizers and learned a completely new language. I played both games with friends over text as they live far away and they were happy with the implementation. So I think I ended up with two really good visualizers instead of one really good player.
7. I played the two games with 10 of my friends and my entire family. They all liked them and liked the fact that we don’t need to have the Mancala board or the cards in order for us to play them. I also played it with friends who are abroad just by copying the text output. The rodementry bots I implemented were actually pretty okay as they beat me a couple of times when I was not paying much attention.
8. I am happy with the quality of my project, especially since I just learned the language. I see a huge room for improvement but I am very pleased with what I achieved over the semester. There is definitely room for improvement, I will try to get work on that bot but I am very glad I can play the games I like virtually with friends now.

Diary

I picked these two games because I used to play them a lot with my friends. I spent over 60 hours playing game of pure strategy and over 20 hours in the last month alone playing Mancala with my partner (I even have special time tracking slots for them in my system because of all the time I spend playing them.) I enjoy them a lot and I knew it was going to be a challenge for me. But I never realized it would be this much of a challenge.

28/9/2020 1 hour

Started getting to know the course and started learning about python. Wrote a small printing function to print the numbers from 1 to 13 and started dabbling with functions.

5/10/2020 1 hour

Played around with the codes available on github to try and get a better understanding and feel for the language and started outlining the project

12/10/2020 2 hour

Actually started coding the game. By the end of the week I had a couple of functions that read input and produced output for the cards. Tried to implement the logic for the game but ran out of time.

19/10/2020 1 hour

The logic for the game was pretty simple. It just did not click last week. Two players can now play the game against each other on the same computer. (spent an extra 3 to I am ashamed to admit how much longer playing the game with friends)

26/10/2020 2 hours

Actually started to implement the various bots, started with a random card picker and iterated from there. Wracked my head for a couple of hours between other classes on how to implement a min max algorithm but came back empty handed.

2/11/2020 1 hour

I was inspired by the statistics lab to create a uniform distribution around a card and to allow the computer to pick a card at random that it thinks would beat the other player’s card. But still could not figure out how to guess what the other player would play. One strategy that I discovered that works really well is to play a low card but not too low when your opponent plays a high card. This gives an advantage in the future. No idea how to implement that.

9/11/2020 4 hours

kept trying to make the Uniform distribution bot. To no Avail. A lot of wasted time. The bot Plays okay at best.

16/11/2020 3 hours

Panicking and losing hope in the Game of pure strategy I remembered that I really like to play Mancala with my partner So i went ahead and implemented that. A lot of bugs by the end of the week. Need to fix this next week.

23/11/2020 6 hours

50 minutes before the deadline and I still don’t have a working bot. I think I will settle for a visualizer. I did not realize that writing an AI for a game in addition to writing the game logic would be this hard. This has been an enlightening experience and I really enjoyed all the time it gave me to shove my game in front of family and friends and get to play a couple of rounds. The humans always beat my bots as they figured out their strategies. Maybe machine learning would work really well here. I read about monte carlo tree sets but did not have the time or experience to implement them. Will definitely keep improving this over the winter break