Project Proposal

The goal of my project is to implements a casino game simulator. To be more specific, two classic casino games, Black Jack and Texas Poker will be created. The first goal of my design is it should has good and fancy animation and graphic features. For this goal, I think Tkinter is sufficient. I will try to make all the background looks with the feeling of real casino. Also, all the cards should be looks like real cards. I will also draw the chips together with each game, to make it with more real feeling. Next step is the animation at each step. For example, when new cards are handed, it may have some fade in or fly in animation effect, etc.

In order to implement the algorithm of those games, some AI algorithms needs to be applied to the dealer (the computer). For Black Jack, the dealer is fairly simple. It must stop when the sum reaches 17, and it automatically lose when over 21. This should be easy. However, for the Texas Poker, since the dealer is trying to gamble with the player, it needs to be clever and with strategies. Here, AI is needed, although it may not be sophisticated. The first idea here is at each round, I calculate the probability of the dealer to get each kind of hands (say Royal Flush, Straight Flush, Four of a Kind, Full House………Two Pairs, One Pair, High Hand). Then, the dealer invest money based on those calculated possibilities. However, some randomness, or faultiness are also necessary to make the game more interesting and with uncertainty. Otherwise, the player can easily learn the dealer's strategy and the entire game becomes boring. The most challenging part and technique with this project are good animation and graphic design and the artificial intelligence of dealer.

Technology Demonstration

For the Tkinter animation part, I am familiar with it already based on all the homework and practice. And I can explore more fancy stuff if needed. For the AI, I am able and comfortable to get all the required possibilities calculated correctly, and I feel good to implement a clever enough AI computer dealer.

Competitive Analysis

There are lots of online Black Jack and Texas Poker games exist, and I tried several of those. They have some common advantages and disadvantages. The things that I like and intend to include into my project include that they all have really good animation and graphic design, and they are all robust without any bugs. So, I would like to implement really good user interface with my project to make it as good as, or even better than, the current online versions. Also, there algorithm design are good and robust. For the Texas Poker games, there dealer are really smart, and it reminds me of playing with some real person. So, for my design, I should also include, at least as good as AI compare to the existing version.

However, there are some drawbacks that I don't like about those games. No game online now has integrated multiple casino games into one collection. I would like to create such thing, which can give people better feeling of actually gamble in a casino. So they can switch games whenever they want, and participate in multiple games. When they run out of money, they can go to the last part and play some simple small games to earn money. I think this would make the entire design more usable and interesting. I will also try to make the game available in 2 player mode, which most of the existing version do not have. But I will not use online connection, indeed, only with tkinter.