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15-112
Section N
Mentor - Nanaki Singh

Project Proposal

Project Description: Kings in the Corner is a card game that requires at least two players to play. Each player is dealt eight cards at the beginning of the game and the objective of the game is to get rid of all the cards in your hand. The rest of the deck is placed in the center of the table and four cards are flipped over and placed one in each direction(north, east, south, west) of the deck. The players then take turns placing down as many cards as they can in a solitaire style fashion on the flipped over cards. For every subsequent turn after the first round, every player must draw one card from the stockpile before proceeding on with their turn. Kings can be placed in the corners/diagonal directions of the deck(NE,SE,SW,NW) and decks can be moved to be placed on top of one another as long as they are a valid red-black move and any cards of the player's choosing can be place in the empty spot.

Competitive Analysis: Online there are a couple websites that offer the game Kings in the Corner, but they require a variety of different things like a flash player or an account in order to play. There's also another card game with a similar name(Kings Corners or something like that) and that one seems to be more popular than the one I'm trying to build and so there's a lot of stuff for that version, but not mine. There's one iTunes app for KITC, but it seems to have different rules than the ones I play with and there is one

app for androids in the Google Play store, although people complain about the small card fonts in this one. Overall, this game isn't very popular and so there aren't many versions of the game in existence for people to play.

Structural Plan: state of the game(stockpile, cards in N, NE, E, SE, S, SW, W, NW), game won(when computer or player has 0 cards), tkinter - table, cards on table, display player hand and cards in play, keypressed - new game, start game from menu start screen, rules screen(several modes), end game winner screen, knock button to signal when done, little circle or crown or something to indicate who's turn it is, playerturn state and compturn state;
Computer player class - Game A.I. minimax, depth, heuristic, playCard(isValid/isLegal move); takes the hand it has and the table state and recursively puts down all the cards it can
File - Class - deck, card, dealHand, dealCard(when computer and human have to pick up a card at the beginning of their turn), shuffleDeck;
human player - playCard(isValid/isLegal move); doMove - mousepressed - onmousedrag to a pile in the center of table - or maybe I don't even need a human player class

Algorithmic Plan: I think the trickiest parts of the project will be figuring out how to move the cards from the hand to the table and creating the game AI.

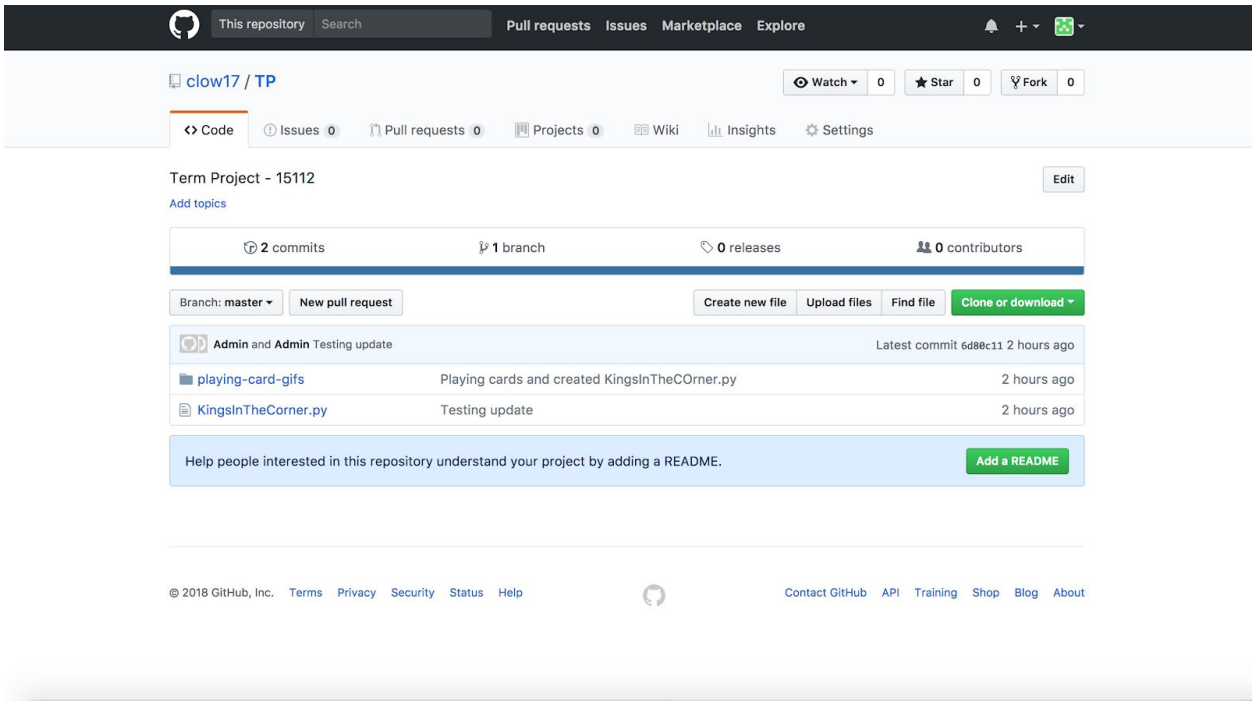
I'm going to probably have a list of stored center X and Y values for the cards on the table and for the cards in the player's hand and I'm thinking that if the event x and y on mousePressed and mouse moved are within the x and y ranges for one of the cards in the middle of the table then that card will move into play IF the move is legal and there is actually somewhere for the card to be played.

As for the game AI I plan to follow the game AI slides that were put up. My game AI will try to maximize it's score(since this isn't like tic tac toe or a perfect information game and it can't try to minimize my score or anything). It'll need an algorithm to figure out the all the cards it can put down in one turn. We can assign each card that it puts down one point or perhaps base it off of you have negative points for every card you have left and you're trying to get to zero.

Timeline Plan:
display: 04/16/18
playingCards class: 04/15/18
Human player moves and knock/turns: 04/19/18

Computer player: 04/23/18
Winner screen and reset game: 04/24/18

Version Control Plan: I plan to use GitHub as version control for my project.



Module List: N/A