EE 551 Project: BlackJack Game

Author: Yixie Chen

“I pledge my honor that I have abided by the Stevens Honor System”

What is it?

- This project is aim to create a modified BLACKJACK game in python.
- It contains several different rules

Game rules

1. The player competes with the computer.

2. System deals 2 cards to both computer and players initially. Only one computer's card can be viewed by the player

3. The entire card pool has 52 cards with 4 types "spades, clubs, hearts, diamond" and from "A,2,3,4,5,6,7,8,9,10,J,Q,K.

4. 10,J,Q,K worths 10 points.

5. The player can decided whether to get a new card or withdraw.

Continued.

6. Computers will keep getting new cards if its score is lower than the player.

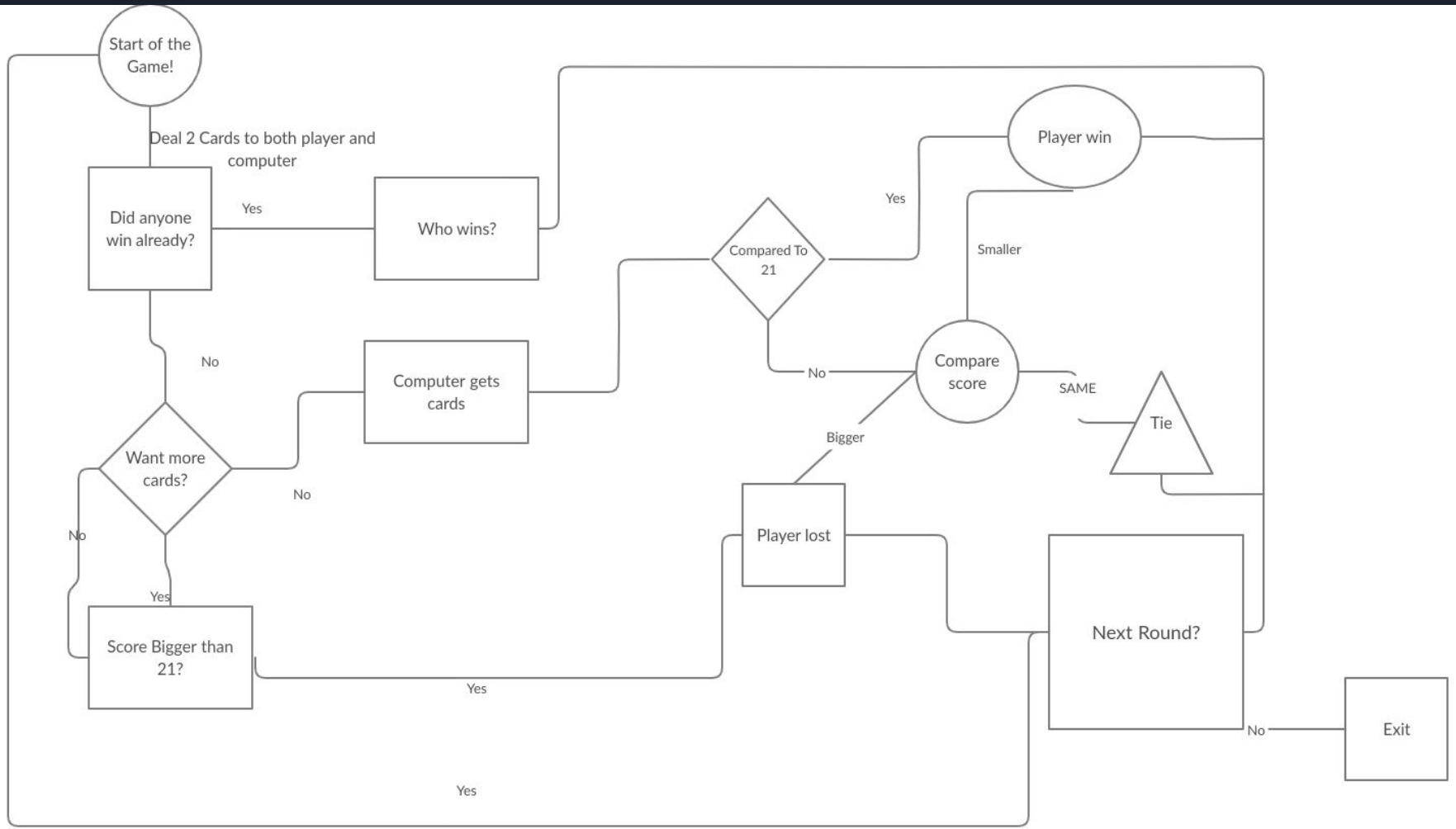
7. If the player's score is higher than 21, he/she loses.

8. Ace can be used as 11 points if the total score is less than 21. Otherwise it worths 1 point.

9. Players can keep playing unless the total card pool is less than 15

How to do it?

- Understand the concept of the game
- Separate different classes to achieve different functionality


Start of the Game!
Deal 2 Cards to both player and computer
Did anyone win already?
Yes
Who wins?
No
Want more cards?
No
Computer gets cards
No
Yes
Score Bigger than 21?
Yes
Compared To 21
Yes
Player win
Smaller
No
Compare score
SAME
Tie
Bigger
Player lost
Next Round?
No
Exit
Yes

Different Class: PokerCard

```python
import random
import numpy

class PokerCard:
    def __init__(self, card_number, card_text, card_index):
        self.card_text = card_text
        self.card_number = card_number
        self.card_index = card_index
        """Create the first class which is pokercard, as we all know, In the game of BlackJack, there is three
        identity, which are card text, card number, and index. Card text is the card's image about what it is;
        card index is its type including  spates clubs diamonds and hearts. Finally, card number is what is worths"""


class DealCard:
    def __init__(self):
        self.cards = []
        total_card_number = [1, 10, 10, 10, 10, 9, 8, 7, 6, 5, 4, 3, 2]
        total_card_text = ["A", "K", "Q", "J", "10", "9", "8", "7", "6", "5", "4", "3", "2"]
        total_card_index = "HSCD"
        """Define the index of the poker card as well as the numbers & texts
        Create the total card list"""

        for card_index in total_card_index:
            for i in range(len(total_card_text)):
                card=PokerCard(total_card_number[i], total_card_text[i],card_index)
                self.cards.append(card)
            """" Using for loops to create every single cards in the poker game.
                all cards are created in to a list with their types, text and related value
            THen we randomize the cards to create the card pool and be able to deal cards"""

        random.shuffle(self.cards)
```

```python
        random.shuffle(self.cards)

    def MoreCard(self):
        return self.cards

    """Give cards to the player"""
    def send_card(self,player, num=1):
        for i in range(num):
            card = self.cards.pop()
            player.cards.append(card)
    """pop up one card initially from the card pool, reduce that card from the pool and
    then append it to the player's card list"""
```

Different Class: Player

```python
class Player:
    def __init__(self):
        self.cards = []

        """Initialized a list Used to save players card from players"""

    def display_card(self, display=0, showcards = True):
        finalposition = len(self.cards)-1
        """count for the final cards"""
        if display == 0:
            userchange = ' Your cards are: '
        else:
            userchange= ' Computer cards are: '

        carddisplay = ''
        for i, card in enumerate(self.cards):
            if showcards:
                carddisplay = carddisplay+ (card.card_text + card.card_index)+ ', '
            else:
                if i< finalposition:
                    carddisplay= carddisplay+ (card.card_text + card.card_index)+', '
                else:
                    carddisplay = carddisplay+ '???'

        print(userchange+' ' + carddisplay)
        print()
        """The display function is used to display the cards of the player, it has two parameters.
         Display parameters is used to distinguish between computer's card or your's card, showcards are
         used to find how many cards to show"""
```

```python
def calculate_score(self):
    rScore = 0; """initialize the score"""
    for card in self.cards:
        rScore += card.card_number
        """go through the card the player has and calculate the total"""
    Have_A = False
    for i in self.cards:
        if i.card_text =='A':
            Have_A = True
            break
        else:
            continue

    if Have_A:
        if rScore <= 11:
            rScore = rScore + 10;
    return rScore

    """calculate_score is the function to figure out the total score of the player, including the
    special case of card Ace "A". """
def clear_card(self):
    self.cards = []
    """clean up the cards for a new round"""
```

Class Gameinitialter

- Class that initial the game!
- Can be viewed in classgameinitialter.py

Game On!

```
Start Game! <<ENTER>>
Round: 1
--------------------------------------------------
 Your cards are:  9H, 2S,

 Computer cards are:  KC, ???

DO you want more cards? [Y/N]Y
 Your cards are:  9H, 2S, AC,

DO you want more cards? [Y/N]Y
 Your cards are:  9H, 2S, AC, 9S,

wow, you get a BlackJack! Let's wait to see what computer gets
You win! Computer does not get a BlackJack
 Your cards are:  9H, 2S, AC, 9S,

 Computer cards are:  KC, 2H, 4D, 7C,

You win!
21 23
Total score is 1 0
Want to play another round [Y/N]N
Thank you for playing this game!
```