CS101 – **Program 3 "Shuffle Cards"**

Fall 2020

Assignment 3 Algorithm and Code: Deadline October 18 by 11:59PM

All work submitted must be your own

Shuffle Cards:

In this assignment you **MUST** implement your own functions to create 'Shuffle Cards' with specific rules. Rules of the game are fairly simple.

Game will be played with 3 players,1 Human player and 2 AI players.

Game Rules:

1- Will have 3 players.
2- The cards we will use in the game are three ones (1), three twos (2), and three three's (3).
3- Cards need to be shuffled randomly (random number between 1 – 3) so each player will have 3 different cards at the start of the game.
   - **Make sure each player has 3 different cards at the start of the game.**
4- Program will end when the first player collects three cards with the same number.
5- **Break** the problem down into smaller portions (functions) that you can solve and implement and test them in function form. Then you will find it easier to put them together like puzzle pieces to make the final solution.

Program Requirements:

1- Need to generate 3 random cards with values between 1 and 3 (both included) for each player.

Sample Output:

```
Welcome to Shuffle Cards:
Number of players is 3 and total cards for each player are 3
Lets shuffle the cards
We have 2 AI players and 1 Human player
Player 1 AI Cards: [3, 1, 2]
Player 2 AI Cards: [1, 3, 2]
Player 3 Human Cards: [3, 1, 2]
================================================
```

2- Now, the game will start:
    a. At each round:
        i. First player will choose a card from the second player. Now first player has 4 cards, and second player has 2 cards.
        ii. Now Second player will choose a card from third player. Now second player will have 3 cards, and third player will have 2.
        iii. Third player will take card from first player. Now third player will have 3 cards and first player will have 3 cards as well.
    b. AI players picking cards from opponent:
        i. Rules for AI Player:
            1. Generate a random number between 1-3 (both included)
                a. In case the number is 1:
                    i. This means AI player will take the first card from the other opponent.
                b. In case the number is 2:
                    i. This means AI player will take the second card from the other opponent.
                c. In case the number is 3:
                    i. This means AI player will take the third card from the other opponent.
    c. Human player picking card from opponent:
        a. Ask player which card to pick (1 for 1st card, 2 for 2nd card, and 3 for 3rd card) from opponent.

Sample Output:

```
Round :  1

==================================================


AI decision is : 3

Human cards: [3, 1]

player1 cards: [3, 1, 2, 2]


player2_AI: [1, 3, 2]

Human turn

Enter 1 for card 1
```

```
Enter 2 for card 2

Enter 3 for card 3

Enter your choice: 1


Human cards: [3, 1, 1]

player2 cards: [3, 2]


AI decision is : 1

player2 cards: [3, 2, 3]

player1 cards: [1, 2, 2]


==================================================
```

d. Game will continue until one player win (have all 3 cards the same)
e. Once you announce the winner, need to ask the Human player if he/she wants to play again.

Sample Output:

```
Round :  3

==================================================


AI decision is : 3

Human cards: [1, 1]

player1 cards: [2, 2, 3, 3]


player2_AI: [2, 3, 1]

Human turn

Enter 1 for card 1

Enter 2 for card 2
```

```
Enter 3 for card 3

Enter your choice: 3


Human cards: [1, 1, 1]

player2 cards: [2, 3]


Player3_HUMAN WON!!

Thanks for playing

Do you want to play again:Y/N
y
Welcome to Shuffle Cards:
Number of players is 3 and total cards for each player are 3
Lets shuffle the cards
We have 2 AI players and 1 Human player
Player 1 AI Cards: [1, 3, 2]
Player 2 AI Cards: [3, 1, 2]
Player 3 Human Cards: [2, 1, 3]
```