

TEST CASES

Description:

This document includes 14 test cases to validate the designed Card Game.

There are 6 functional test cases, which validate the designed game functionally working well.

There are 8 edge test cases, which validate the robustness of the designed game in case of errors and exception.

One python file named "test_case.py" with the 13 test cases is created for the user's convenience to test the designed Card Game.

Functional Test Case:

Test Case 1:

Test the card is initiated correctly.

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1}, deck_number=1)

print("cards=", cardgame.cards, '\n')

print("suits=", cardgame.suits, '\n')

print("points=", cardgame.points, '\n')

print("deck number=", cardgame.deck_number)
```

Expected Output:

```
cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]

suits= ['red', 'yellow', 'green']

points= {'red': 3, 'yellow': 2, 'green': 1}

deck number= 1
```

Output:



```
test_case
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]
suits= ['red', 'yellow', 'green']
points= {'red': 3, 'yellow': 2, 'green': 1}
deck number= 1
Process finished with exit code 0
```

```
test_case x
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4)]
suits= ['red', 'yellow', 'green']
points= {'red': 3, 'yellow': 2, 'green': 1}
deck number= 1
Process finished with exit code 0
```

Test Case 2:

#Test "Shuffle cards in the deck" Operation works

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1}, deck_number=1)

print("original cards:", cardgame.cards)

cardgame.shuffleCards()

print("original cards:", cardgame.cards)

print("shuffled cards", cardgame.cards)
```

Expected Output:

Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]

Shuffled Cards 1 ="original cards with random order"

Shuffled Cards 2 ="original cards with random order which is different from Shuffled Cards 1"

Output:

```
1 from CardGame import *
2
3 cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                      deck_number=1)
5
6 print("Original Cards=", cardgame.cards)
7
8 cardgame.shuffleCards()
9
10 print("Shuffled Cards 1 =", cardgame.cards)
11
12 cardgame.shuffleCards()
13
14 print("Shuffled Cards 2 =", cardgame.cards)
15
```

```
test_case x
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]
Shuffled Cards 1 = [('green', 0), ('green', 5), ('red', 1), ('yellow', 0), ('yellow', 2), ('green', 4), ('green', 3), ('yellow', 1), ('red', 0), ('green', 1), ('green', 2), ('yellow', 3)]
Shuffled Cards 2 = [('green', 5), ('red', 1), ('green', 3), ('green', 0), ('red', 0), ('yellow', 3), ('green', 1), ('yellow', 2), ('yellow', 1), ('yellow', 0), ('green', 2), ('green', 4)]
```

Test Case 3:

Test "Get a card from the top of the deck" Operation works

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3,
'yellow': 2, 'green': 1}, deck_number=1)

print("Original Cards=", cardgame.cards)

print("Card Number=", len(cardgame.cards), '\n')

deal_card = cardgame.dealCard()

print("Deal Card=", deal_card)

print("Cards=", cardgame.cards)

print("Card Number=", len(cardgame.cards), '\n')

deal_card = cardgame.dealCard()

print("Deal Card=", deal_card)

print("Cards=", cardgame.cards)

print("Card Number=", len(cardgame.cards), '\n')

deal_card = cardgame.dealCard()

print("Deal Card=", deal_card)

print("Cards=", cardgame.cards)

print("Card Number=", len(cardgame.cards), '\n')
```

Expected Output:

```
Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0),
('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]
Card Number= 12

Deal Card= ('green', 5)
Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green',
1), ('green', 2), ('green', 3), ('green', 4)]
Card Number= 11

Deal Card= ('green', 4)
Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green',
1), ('green', 2), ('green', 3)]
```

Card Number= 10

Deal Card= ('green', 3)

Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2)]

Card Number= 9

Output:

```
1  from CardGame import *
2
3  cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                      deck_number=1)
5
6  print("Original Cards=", cardgame.cards)
7
8  print("Card Number=", len(cardgame.cards), '\n')
9
10 deal_card = cardgame.dealCard()
11
12 print("Deal Card=", deal_card)
13
14 print("Cards=", cardgame.cards)
15
16 print("Card Number=", len(cardgame.cards), '\n')
17
18 deal_card = cardgame.dealCard()
19
20 print("Deal Card=", deal_card)
21
22 print("Cards=", cardgame.cards)
23
24 print("Card Number=", len(cardgame.cards), '\n')
25
26 deal_card = cardgame.dealCard()
27
28 print("Deal Card=", deal_card)
29
30 print("Cards=", cardgame.cards)
31
32 print("Card Number=", len(cardgame.cards), '\n')
33
```

```
test_case x
/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]
Card Number= 12
Deal Card= ('green', 5)
Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4)]
Card Number= 11
Deal Card= ('green', 4)
Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3)]
Card Number= 10
Deal Card= ('green', 3)
Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2)]
Card Number= 9
Process finished with exit code 0
```

Test Case 4:

Test "Sort cards" Operation Works

Input:

```
from CardGame import *
```

```
cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'],
                    points={'red': 3, 'yellow': 2, 'green': 1}, deck_number=1)
```

```
print("Original Cards=", cardgame.cards, '\n')
```

```
cardgame.shuffleCards(seed=1)
```

```

print("Shuffled Cards=", cardgame.cards, '\n')

cardgame.sortCards(suits_order=["yellow", "green", "red"])

print("Sorted Cards=", cardgame.cards)

```

Expected Output:

Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]

Shuffled Cards= [('green', 1), ('green', 5), ('red', 0), ('green', 2), ('yellow', 3), ('green', 0), ('yellow', 1), ('green', 4), ('yellow', 2), ('red', 1), ('green', 3), ('yellow', 0)]

Sorted Cards= [('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5), ('red', 0), ('red', 1)]

Output:

```

1  from CardGame import *
2
3  cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'],
4                  points={'red': 3, 'yellow': 2, 'green': 1}, deck_number=1)
5
6  print("Original Cards=", cardgame.cards, '\n')
7
8  cardgame.shuffleCards(seed=1)
9
10 print("Shuffled Cards=", cardgame.cards, '\n')
11
12 cardgame.sortCards(suits_order=["yellow", "green", "red"])
13
14 print("Sorted Cards=", cardgame.cards)
15

```

"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"

Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]

Shuffled Cards= [('green', 1), ('green', 5), ('red', 0), ('green', 2), ('yellow', 3), ('green', 0), ('yellow', 1), ('green', 4), ('yellow', 2), ('red', 1), ('green', 3), ('yellow', 0)]

Sorted Cards= [('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5), ('red', 0), ('red', 1)]

Process finished with exit code 0

Test Case 5:

Test "Determine winners" Operation works

Input:

```

from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3,
'yellow': 2, 'green': 1}, deck_number=1)

print("Original Cards=", cardgame.cards, '\n')

cardgame.play()

```

Expected Output:

Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]

Card Suit - Point: {'red': 3, 'yellow': 2, 'green': 1}

Player 1's cards: [('green', 5), ('green', 3), ('green', 1)]
Player 2's cards: [('green', 4), ('green', 2), ('green', 0)]

Player 1 Wins!(Points: 9)

Output:

```
1 from CardGame import *
2
3 cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                     deck_number=1)
5
6 print("Original Cards=", cardgame.cards)
7
8 cardgame.play()
9
```

```
test_case x
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]
Card Suit - Point: {'red': 3, 'yellow': 2, 'green': 1}
Player 1's cards: [('green', 5), ('green', 3), ('green', 1)]
Player 2's cards: [('green', 4), ('green', 2), ('green', 0)]
Player 1 Wins!(Points: 9)
Process finished with exit code 0
```

Test Case 6:

Test "Determine winners" Operation works with reproducible Shuffling

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3,
'yellow': 2, 'green': 1}, deck_number=1)

print("Original Cards=", cardgame.cards, '\n')

cardgame.shuffleCards(seed=1)

print("Shuffled Cards=", cardgame.cards, '\n')

print(cardgame.cards)

cardgame.play()

cardgame.play()
```

Expected Output:

Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]

Shuffled Cards= [('green', 1), ('green', 5), ('red', 0), ('green', 2), ('yellow', 3), ('green', 0), ('yellow', 1), ('green', 4), ('yellow', 2), ('red', 1), ('green', 3), ('yellow', 0)]

[('green', 1), ('green', 5), ('red', 0), ('green', 2), ('yellow', 3), ('green', 0), ('yellow', 1), ('green', 4), ('yellow', 2), ('red', 1), ('green', 3), ('yellow', 0)]
Card Suit - Point: {'red': 3, 'yellow': 2, 'green': 1}

Player 1's cards: [('yellow', 0), ('red', 1), ('green', 4)]
Player 2's cards: [('green', 3), ('yellow', 2), ('yellow', 1)]

Player 2 Wins!(Points: 9)
Card Suit - Point: {'red': 3, 'yellow': 2, 'green': 1}

Player 1's cards: [('green', 0), ('green', 2), ('green', 5)]
Player 2's cards: [('yellow', 3), ('red', 0), ('green', 1)]

Tie (Points: 7, 7)

Output:

```
1 from CardGame import *
2
3 cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                      deck_number=1)
5
6 print("Original Cards=", cardgame.cards, '\n')
7
8 cardgame.shuffleCards(seed=1)
9
10 print("Shuffled Cards=", cardgame.cards, '\n')
11
12 print(cardgame.cards)
13
14 cardgame.play()
15
16 cardgame.play()
17
```

```
test_case
/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]
Shuffled Cards= [('green', 1), ('green', 5), ('red', 0), ('green', 2), ('yellow', 3), ('green', 0), ('yellow', 1), ('green', 4), ('yellow', 2), ('red', 1), ('green', 3), ('yellow', 0)]
[('green', 1), ('green', 5), ('red', 0), ('green', 2), ('yellow', 3), ('green', 0), ('yellow', 1), ('green', 4), ('yellow', 2), ('red', 1), ('green', 3), ('yellow', 0)]
Card Suit - Point: {'red': 3, 'yellow': 2, 'green': 1}
Player 1's cards: [('yellow', 0), ('red', 1), ('green', 4)]
Player 2's cards: [('green', 3), ('yellow', 2), ('yellow', 1)]
Player 2 Wins!(Points: 9)
Card Suit - Point: {'red': 3, 'yellow': 2, 'green': 1}
Player 1's cards: [('green', 0), ('green', 2), ('green', 5)]
Player 2's cards: [('yellow', 3), ('red', 0), ('green', 1)]
Tie (Points: 7, 7)
Process finished with exit code 0
```

Edge Test Case:

Test Case 7:

Test the case of more than one deck

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1}, deck_number=2)

print("cards=", cardgame.cards, '\n')
```

```

print("suits=", cardgame.suits, '\n')

print("points=", cardgame.points, '\n')

print("deck number=", cardgame.deck_number)

```

Expected Output:

```

cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green',
1), ('green', 2), ('green', 3), ('green', 4), ('green', 5), ('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1),
('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]

suits= ['red', 'yellow', 'green']

points= {'red': 3, 'yellow': 2, 'green': 1}

deck number= 2

```

Output:

```

1  from CardGame import *
2
3  cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                      deck_number=2)
5
6  print("cards=", cardgame.cards, '\n')
7
8  print("suits=", cardgame.suits, '\n')
9
10 print("points=", cardgame.points, '\n')
11
12 print("deck number=", cardgame.deck_number)
13
14

```

Run: test_case

"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"

```

cards= [('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5),
('red', 0), ('red', 1), ('yellow', 0), ('yellow', 1), ('yellow', 2), ('yellow', 3), ('green', 0), ('green', 1), ('green', 2), ('green', 3), ('green', 4), ('green', 5)]

suits= ['red', 'yellow', 'green']

points= {'red': 3, 'yellow': 2, 'green': 1}

deck number= 2

Process finished with exit code 0

```

Test Case 8:

Test the case where the number of a suit is less than 1

Input:

```

from CardGame import *

cardgame = CardGame(card_number=[2, 0, 6], suits=['red', 'yellow', 'green'], points={'red': 3,
'yellow': 2, 'green': 1}, deck_number=1)

print("cards=", cardgame.cards, '\n')

print("suits=", cardgame.suits, '\n')

print("points=", cardgame.points, '\n')

```



```
print("deck number=", cardgame.deck_number)
```

Expected Output:

ValueError: The card number of any suit should be greater than 0.

Output:

```
1 from CardGame import *
2
3 cardgame = CardGame(card_number=[2, 0, 6], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                     deck_number=2)
5
6 print("cards=", cardgame.cards, '\n')
7
8 print("suits=", cardgame.suits, '\n')
9
10 print("points=", cardgame.points, '\n')
11
12 print("deck number=", cardgame.deck_number)
```

```
test_case x
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Traceback (most recent call last):
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py", line 4, in <module>
    deck_number=2)
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/CardGame.py", line 26, in __init__
    self.cards.extend(Card(card_number=card_number, suits=suits).cards)
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/CardGame.py", line 8, in __init__
    raise ValueError("The card number of any suit should be greater than 0.")
ValueError: The card number of any suit should be greater than 0.
Process finished with exit code 1
```

Test Case 9:

Test the case where the card number for suits does not match suits

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6, 3], suits=['red', 'yellow', 'green'], points={'red': 3,
'yellow': 2, 'green': 1}, deck_number=1)

print("cards=", cardgame.cards, '\n')

print("suits=", cardgame.suits, '\n')

print("points=", cardgame.points, '\n')

print("deck number=", cardgame.deck_number)
```

Expected Output:

ValueError: The card number and suit number are not matching.

Output:

```

1  from CardGame import *
2
3  cardgame = CardGame(card_number=[2, 4, 6, 3], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                      deck_number=2)
5
6  print("cards=", cardgame.cards, '\n')
7
8  print("suits=", cardgame.suits, '\n')
9
10 print("points=", cardgame.points, '\n')
11
12 print("deck number=", cardgame.deck_number)
13

```

```

test_case x
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Traceback (most recent call last):
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py", line 4, in <module>
    deck_number=2)
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/CardGame.py", line 19, in __init__
    raise ValueError("The card number and suit number are not matching.")
ValueError: The card number and suit number are not matching.
Process finished with exit code 1

```

Test Case 10:

Test case where user-assigned suits does not match user-assigned suit-point pairs (number of items do not match)

Input:

```

from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6], suits=['red', 'yellow', 'green'], points={'red': 3,
'green': 1}, deck_number=1)

print("cards=", cardgame.cards, '\n')

print("suits=", cardgame.suits, '\n')

print("points=", cardgame.points, '\n')

print("deck number=", cardgame.deck_number)

```

Expected Output:

ValueError: The input suits and input points are not matching.

Output:

```

1  from CardGame import *
2
3  cardgame = CardGame(card_number=[2, 4, 6, 3], suits=['red', 'yellow', 'green'], points={'red': 3, 'green': 1},
4                      deck_number=2)
5
6  print("cards=", cardgame.cards, '\n')
7
8  print("suits=", cardgame.suits, '\n')
9
10 print("points=", cardgame.points, '\n')
11
12 print("deck number=", cardgame.deck_number)
13

```

```
test_case x
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Traceback (most recent call last):
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py", line 4, in <module>
    deck_number=2)
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/CardGame.py", line 22, in __init__
    raise ValueError("The input suits and input points are not matching.")
ValueError: The input suits and input points are not matching.
Process finished with exit code 1
```

Test Case 11:

Test case where user assigned suits do not match user assigned suit-point pairs (terms of items do not match)

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[2, 4, 6], suits=['blue', 'yellow', 'green'], points={'red': 3, 'green': 1}, deck_number=1)

print("cards=", cardgame.cards, '\n')

print("suits=", cardgame.suits, '\n')

print("points=", cardgame.points, '\n')

print("deck number=", cardgame.deck_number)
```

Expected Output:

ValueError: The input suits and input points are not matching.

Output:

```
1 from CardGame import *
2
3 cardgame = CardGame(card_number=[2, 4, 6], suits=['blue', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                      deck_number=2)
5
6 print("cards=", cardgame.cards, '\n')
7
8 print("suits=", cardgame.suits, '\n')
9
10 print("points=", cardgame.points, '\n')
11
12 print("deck number=", cardgame.deck_number)

"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Traceback (most recent call last):
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py", line 4, in <module>
    deck_number=2)
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/CardGame.py", line 22, in __init__
    raise ValueError("The input suits and input points are not matching.")
ValueError: The input suits and input points are not matching.
Process finished with exit code 1
```

Test Case 12:

Test case where there is no card left to deal

Input:

```
from CardGame import *
```

```

cardgame = CardGame(card_number=[1, 1, 1], suits=['red', 'yellow', 'green'], points={'red': 3,
'yellow': 2, 'green': 1}, deck_number=1)

print("cards=", cardgame.cards, '\n')

deal_card = cardgame.dealCard()

print("Deal Card=", deal_card)

deal_card = cardgame.dealCard()

print("Deal Card=", deal_card)

deal_card = cardgame.dealCard()

print("Deal Card=", deal_card)

deal_card = cardgame.dealCard()

print("Deal Card=", deal_card)

```

Expected Output:

```

Deal Card= ('green', 0)
Deal Card= ('yellow', 0)
Deal Card= ('red', 0)
ValueError: There is no card left in the deck.

```

Output:

```

1  from CardGame import *
2
3  cardgame = CardGame(card_number=[1, 1, 1], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                      deck_number=1)
5
6  print("cards=", cardgame.cards, '\n')
7
8  deal_card = cardgame.dealCard()
9
10 print("Deal Card=", deal_card)
11
12 deal_card = cardgame.dealCard()
13
14 print("Deal Card=", deal_card)
15
16 deal_card = cardgame.dealCard()
17
18 print("Deal Card=", deal_card)
19
20 deal_card = cardgame.dealCard()
21
22 print("Deal Card=", deal_card)
23

```

```
test_case x
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
cards= [('red', 0), ('yellow', 0), ('green', 0)]
Traceback (most recent call last):
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py", line 20, in <module>
    deal_card = cardgame.dealCard()
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/CardGame.py", line 46, in dealCard
    raise ValueError("There is no card left in the deck.")
ValueError: There is no card left in the deck.
Deal Card= ('green', 0)
Deal Card= ('yellow', 0)
Deal Card= ('red', 0)
Process finished with exit code 1
```

Test Case 13:

Test the case where there are duplicates in user-assigned suits

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[1, 1, 1], suits=['red', 'red', 'green'], points={'red': 3, 'green': 1}, deck_number=1)

print('cards=', cardgame.cards, "\n")
```

Expected Output:

ValueError: The suits should have unique suit.

Output:

```
1 from CardGame import *
2
3 cardgame = CardGame(card_number=[1, 1, 1], suits=['red', 'red', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                      deck_number=1)
5
6 print("cards=", cardgame.cards, '\n')
7
```

```
test_case x
"/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
Traceback (most recent call last):
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py", line 4, in <module>
    deck_number=1)
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/CardGame.py", line 20, in __init__
    raise ValueError("The suits should have unique suit.")
ValueError: The suits should have unique suit.
Process finished with exit code 1
```

Test Case 14:

Test case where the left cards are not enough to play to get a winner

Input:

```
from CardGame import *

cardgame = CardGame(card_number=[2, 1, 3], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
                    deck_number=1)

print("Original Cards=", cardgame.cards, '\n')

cardgame.shuffleCards(seed=1)
```

```
print("Shuffled Cards=", cardgame.cards, '\n')
```

```
print(cardgame.cards)
```

```
cardgame.play()
```

```
cardgame.play()
```

Expected Output:

Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('green', 0), ('green', 1), ('green', 2)]

Shuffled Cards= [('yellow', 0), ('green', 0), ('green', 2), ('red', 0), ('green', 1), ('red', 1)]

[('yellow', 0), ('green', 0), ('green', 2), ('red', 0), ('green', 1), ('red', 1)]

Card Suit - Point: {'red': 3, 'yellow': 2, 'green': 1}

Player 1's cards: [('red', 1), ('red', 0), ('green', 0)]

Player 2's cards: [('green', 1), ('green', 2), ('yellow', 0)]

ValueError: The number of cards left is not enough to play the game.

Output:

```
1 from CardGame import *
2
3 cardgame = CardGame(card_number=[2, 1, 3], suits=['red', 'yellow', 'green'], points={'red': 3, 'yellow': 2, 'green': 1},
4                     deck_number=1)
5
6 print("Original Cards=", cardgame.cards, '\n')
7
8 cardgame.shuffleCards(seed=1)
9
10 print("Shuffled Cards=", cardgame.cards, '\n')
11
12 print(cardgame.cards)
13
14 cardgame.play()
15
16 cardgame.play()
```

```
test_case x
↑ "/Users/kangjian_ma/.conda/envs/Essex Management Code Interview/bin/python" "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py"
↓ Original Cards= [('red', 0), ('red', 1), ('yellow', 0), ('green', 0), ('green', 1), ('green', 2)]
⇅ Shuffled Cards= [('yellow', 0), ('green', 0), ('green', 2), ('red', 0), ('green', 1), ('red', 1)]
⇅ [('yellow', 0), ('green', 0), ('green', 2), ('red', 0), ('green', 1), ('red', 1)]
⇅ Card Suit - Point: {'red': 3, 'yellow': 2, 'green': 1}
⇅ Player 1's cards: [('red', 1), ('red', 0), ('green', 0)]
⇅ Player 2's cards: [('green', 1), ('green', 2), ('yellow', 0)]
⇅
Tie (Points: 3, 3)
Traceback (most recent call last):
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/test_case.py", line 16, in <module>
    cardgame.play()
  File "/Users/kangjian_ma/Desktop/Essex Management Code Interview/CardGame.py", line 61, in play
    raise ValueError("The number of cards left is not enough to play the game.")
ValueError: The number of cards left is not enough to play the game.
Process finished with exit code 1
```