

Lab3 Poker game

For this problem, you need to randomly generate one hand of cards (five cars) to two players. Sort the cards by number (regardless of suit), evaluate type of cards (Straight Flush , Four of a Kind , Full house ...), compare and output who is the winner.

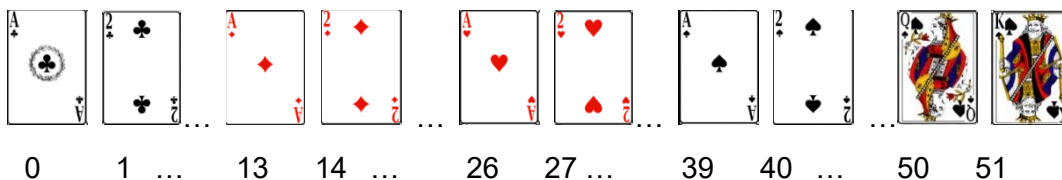
You must use template to finish this assignment.

[Task One] Generate cards

For TA's convenience you need to give each card a virtual number.

Use following format:

0 for Club A , 1 for Club 2 ... 13 for Diamond A , 14 for Diamond 2 ... 26 for Heart A , 27 for Heart 2 ... 39 for Spade A , 40 for Spade 2 ... 51 for Spade 13



1. Implement two mode, normal mode and cheating mode. Input "S" to enter normal mode and input "C" to enter cheating mode.
2. In the normal mode, you should randomly generate one hand of cards (five cards) to each player and make sure that two players do not get the same card.
(hint: Use usedCards array to keep track of which card have been used)
e.g. If player1 get the Diamond A, then player2 should not have Diamond A.

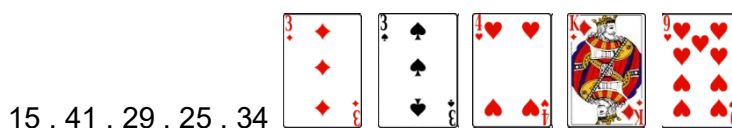
3. In cheating mode, your program should ask user to input five cards for each player.

```
Enter S to start the game, C to enter cheating mode, Q to Exit the process
C
Input player1's cards:2 3 4 5 6
Input player2's cards:31 32 33 34 35 36
```

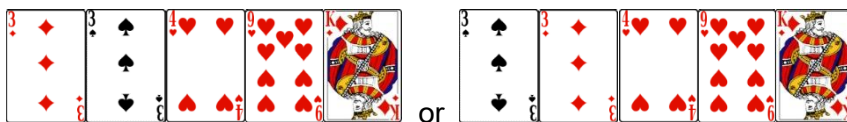
4. After randomly generate cards or input cards, store those value into vector of class.

[Task Two] Evaluate cards

1. Sort the card number from small to large(regardless of suit).
e.g. If player get the number of cards are:



You can sort them to



2. Evaluate the type of card. You need to evaluate following type.

Type	Example
Straight Flush (Straight + Flush)	
Four of a kind	
Full house	
Flush	
Straight	
Three of a Kind	
Two pairs	
One pair	
High card	



For convenience you can ignore this type in straight.
(This type should be classified as High card)

[Task Three] Compare and output winner

Compare the type of cards of each player and output the winner.

Straight Flush > Four of a kind > Full house > Flush > Straight > Three of a Kind > Two pairs > One pair > High card

If the type of cards of each player are the same, we need to consider the suit and number of cards.

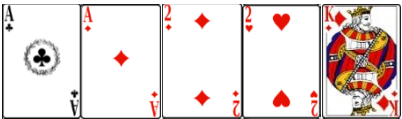
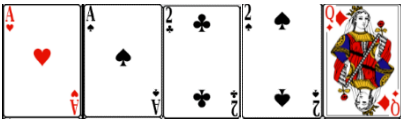
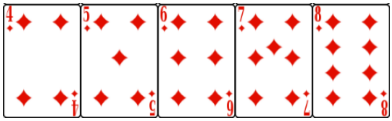
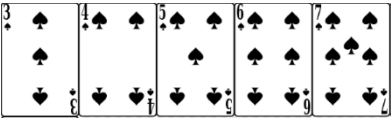
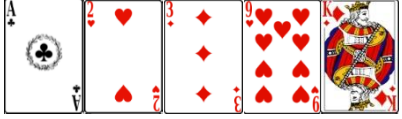

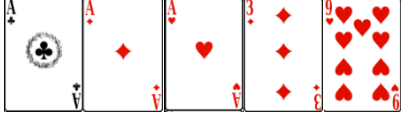

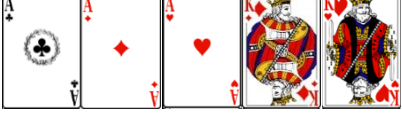
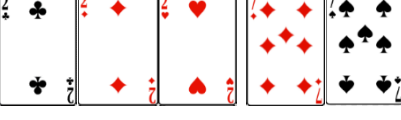
In general, we compare the numbers first, then the suits.

that is $1 < 2 < \dots < Q < K$ and Club < Diamond < Heart < Spade

But if the type of cards of each player are the same and the type of cards is such a Four of a kind 、 Full house 、 Three of a Kind 、 Two pairs or One pair

You need to compare the highest suit and number in at most the same number.

For example:

Player1	Player2
	
Result : Player2 is winner. Because Spade 2 > Heart 2	
	
Result : Player1 is winner. Because 8 > 7	
	
Result : Player2 is winner. Because Heart K > Diamond K	
	
Result : Player2 is winner. Because Heart 2 > Heart 1	
	
Result : Player2 is winner. Because Full house Heart 2 > Full house Heart 1	

Input Format

The First line shows that “s” is normal mode, “c” is cheating mode, “q” is exit the process

If the first line input “c”, the following two lines contain five integers(0~51) for each.

Output Format

The output format should contain two players' card number and type and print which player win.

The card number needs to change virtual number to card suit and number.

Virtual number 0~12 are Club, represent as “C”

Virtual number 13~25 are Diamond, represent as “D”

Virtual number 26~38 are Heart, represent as “H”

Virtual number 39~51 are Spade, represent as “S”

e.g. If virtual number is “0”, output “C1”

Sample Input and Sample Output

```
Enter S to start the game, C to enter cheating mode, Q to Exit the process
s
```

```
Player cards:
C3 S6 C6 S9 S13
Player cards:
D3 D6 C10 D10 C13
Player1 Type = OnePair
Player2 Type = OnePair
Player2 win
```

```
Enter S to start the game, C to enter cheating mode, Q to Exit the process
c
```

```
Input player 1's card:0 13 14 27 25
Input player 2's card:26 39 1 40 24
Player cards:
C1 D1 D2 H2 D13
Player cards:
H1 S1 C2 S2 D12
Player1 Type = TwoPairs
Player2 Type = TwoPairs
Player2 win
```

```
Enter S to start the game, C to enter cheating mode, Q to Exit the process
c
```

```
Input player 1's card:16 17 18 19 20
Input player 2's card:41 42 43 44 45
Player cards:
D4 D5 D6 D7 D8
Player cards:
S3 S4 S5 S6 S7
Player1 Type = StraightFlush
Player2 Type = StraightFlush
Player1 win
```

Enter S to start the game, C to enter cheating mode, Q to Exit the process
c

Input player 1's card:0 27 15 34 25
Input player 2's card:15 22 10 24 38
Player cards:
C1 H2 D3 H9 D13
Player cards:
D3 D10 C11 D12 H13
Player1 Type = HighCard
Player2 Type = HighCard
Player2 win

Enter S to start the game, C to enter cheating mode, Q to Exit the process
c

Input player 1's card:0 13 26 15 34
Input player 2's card:1 14 27 24 38
Player cards:
C1 D1 H1 D3 H9
Player cards:
C2 D2 H2 D12 H13
Player1 Type = ThreeOfKind
Player2 Type = ThreeOfKind
Player2 win

Enter S to start the game, C to enter cheating mode, Q to Exit the process
c

Input player 1's card:0 13 26 25 38
Input player 2's card:1 14 27 19 45
Player cards:
C1 D1 H1 D13 H13
Player cards:
C2 D2 H2 D7 S7
Player1 Type = FullHouse
Player2 Type = FullHouse
Player2 win