

## Context

A famous casino suddenly faces a huge decline in its revenue. So the casino decides to offer a new Poker online version. Can you help them write an algorithm to ranking the Poker hands?

Notes:

- A Poker hand is consists for 5 cards;
- Each card has a string with 2 (two) characters.
  - The first character is the card value and it can have the values below, ranked from lowest to highest:
    - 2
    - 3
    - 4
    - 5
    - 6
    - 7
    - 8
    - 9
    - T (10)
    - J (Jack)
    - Q (Queen)
    - K (King)
    - A (Ace)
  - The second character is the card suit and it can assume the values below.
    - S (Spades)
    - H (Hearts)
    - D (Diamonds)
    - C (Clubs)
- Below we have some samples of cards and their representations in string.



= AH



= QC



= TD



= 7S

- The rules for classifying Poker cards are listed below:

## POKER HAND VALUE RATINGS

From TOP to BOTTOM and LEFT to RIGHT

<p><b>ROYAL STRAIGHT FLUSH (ROYAL FLUSH)</b> The highest five denominations all in the same suit</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">A ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">K ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Q ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">J ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">10 ♥</div> </div>	<p><b>STRAIGHT</b> Five cards in denomination sequence</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">4 ♣</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">5 ♦</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">6 ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">7 ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">8 ♣</div> </div>
<p><b>STRAIGHT FLUSH</b> Five cards in denomination sequence, all in the same suit</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">5 ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">6 ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">7 ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">8 ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">9 ♠</div> </div>	<p><b>THREE OF A KIND</b> Three cards of the same denomination</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">7 ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">7 ♦</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">7 ♣</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">A ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">9 ♥</div> </div>
<p><b>FOUR OF A KIND</b> Four cards of the same denomination</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">10 ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">10 ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">10 ♣</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">10 ♦</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Q ♠</div> </div>	<p><b>TWO PAIR</b> Two cards of one denomination and two cards of another denomination</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">A ♦</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">A ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">6 ♣</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">6 ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">2 ♠</div> </div>
<p><b>FULL HOUSE</b> Three cards of one denomination and two of another denomination</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Q ♦</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Q ♣</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">Q ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">5 ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">5 ♣</div> </div>	<p><b>ONE PAIR</b> Two cards of the same denomination</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">K ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">K ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">A ♦</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">7 ♦</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">4 ♠</div> </div>
<p><b>FLUSH</b> Five cards in the same suit but not in denomination sequence</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">K ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">10 ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">7 ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">6 ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">3 ♥</div> </div>	<p><b>HIGH CARD</b> Hand with the card of the highest denomination. Tie breakers go to the next highest card etc.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;">Q ♣</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">5 ♥</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">2 ♠</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">7 ♦</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">8 ♣</div> </div>

## The Challenge

1. The challenge consists in create a class that represents a Poker hand called "PokerHand" and create a method to compare it with another Poker hand. The class "PokerHand" must have a constructor that accepts a string containing 5 (five) cards. A space will be used as a separator for each card. Each card consists in 2 (two) characters as previously described. Let's see an example:

```
poker_hand_1 = PokerHand("KS 2H 5C JD TD")
poker_hand_2 = PokerHand("9C 9H 5C 5H AC")

result = poker_hand_1.compare_with(poker_hand_2)
```

The result must be one enumerated with 2 (two) possible values that will represent the following states: WIN or LOSS.

2. The functioning of the solution must be guaranteed through unit tests. Below is a code snippet with the comparisons and their respective results. These are the minimum comparisons that must be made to ensure operation. Use this code as the basis for your implementation of unit tests.  
Tips: Implement the unit test before.

```
self.assertTrue(PokerHand("TC TH 5C 5H KH").compare_with(PokerHand("9C 9H 5C 5H AC")) == Result.WIN)
self.assertTrue(PokerHand("TS TD KC JC 7C").compare_with(PokerHand("JS JC AS KC TD")) == Result.LOSS)
self.assertTrue(PokerHand("7H 7C QC JS TS").compare_with(PokerHand("7D 7C JS TS 6D")) == Result.WIN)
self.assertTrue(PokerHand("5S 5D 8C 7S 6H").compare_with(PokerHand("7D 7S 5S 5D JS")) == Result.LOSS)
self.assertTrue(PokerHand("AS AD KD 7C 3D").compare_with(PokerHand("AD AH KD 7C 4S")) == Result.LOSS)
self.assertTrue(PokerHand("TS JS QS KS AS").compare_with(PokerHand("AC AH AS AS KS")) == Result.WIN)
self.assertTrue(PokerHand("TS JS QS KS AS").compare_with(PokerHand("TC JS QC KS AC")) == Result.WIN)
self.assertTrue(PokerHand("TS JS QS KS AS").compare_with(PokerHand("QH QS QC AS 8H")) == Result.WIN)
self.assertTrue(PokerHand("AC AH AS AS KS").compare_with(PokerHand("TC JS QC KS AC")) == Result.WIN)
self.assertTrue(PokerHand("AC AH AS AS KS").compare_with(PokerHand("QH QS QC AS 8H")) == Result.WIN)
self.assertTrue(PokerHand("TC JS QC KS AC").compare_with(PokerHand("QH QS QC AS 8H")) == Result.WIN)
self.assertTrue(PokerHand("7H 8H 9H TH JH").compare_with(PokerHand("JH JC JS JD TH")) == Result.WIN)
self.assertTrue(PokerHand("7H 8H 9H TH JH").compare_with(PokerHand("4H 5H 9H TH JH")) == Result.WIN)
self.assertTrue(PokerHand("7H 8H 9H TH JH").compare_with(PokerHand("7C 8S 9H TH JH")) == Result.WIN)
self.assertTrue(PokerHand("7H 8H 9H TH JH").compare_with(PokerHand("TS TH TD JH JD")) == Result.WIN)
self.assertTrue(PokerHand("7H 8H 9H TH JH").compare_with(PokerHand("JH JD TH TC 4C")) == Result.WIN)
self.assertTrue(PokerHand("JH JC JS JD TH").compare_with(PokerHand("4H 5H 9H TH JH")) == Result.WIN)
```

```
self.assertTrue(PokerHand("JH JC JS JD TH").compare_with(PokerHand("7C 8S 9H TH JH")) == Result.WIN)
self.assertTrue(PokerHand("JH JC JS JD TH").compare_with(PokerHand("TS TH TD JH JD")) == Result.WIN)
self.assertTrue(PokerHand("JH JC JS JD TH").compare_with(PokerHand("JH JD TH TC 4C")) == Result.WIN)
self.assertTrue(PokerHand("4H 5H 9H TH JH").compare_with(PokerHand("7C 8S 9H TH JH")) == Result.WIN)
self.assertTrue(PokerHand("4H 5H 9H TH JH").compare_with(PokerHand("TS TH TD JH JD")) == Result.LOSS)
self.assertTrue(PokerHand("4H 5H 9H TH JH").compare_with(PokerHand("JH JD TH TC 4C")) == Result.WIN)
self.assertTrue(PokerHand("7C 8S 9H TH JH").compare_with(PokerHand("TS TH TD JH JD")) == Result.LOSS)
self.assertTrue(PokerHand("7C 8S 9H TH JH").compare_with(PokerHand("JH JD TH TC 4C")) == Result.WIN)
self.assertTrue(PokerHand("TS TH TD JH JD").compare_with(PokerHand("JH JD TH TC 4C")) == Result.WIN)
```

### Important tips:

Be creative, you may create as many classes as needed;

Explore your development knowledge;

## Evaluation criteria

All units tests above working.	0 to 30 points
The best practices of python.	0 to 30 points
Documentation of the code.	0 to 20 points
Deliver on time.	0 to 20 points

After complete your test, post it in a git repository and submit the address by e-mail to [marcelo.piovan@datah.com.br](mailto:marcelo.piovan@datah.com.br) with the link to clone or download the repository (codes). Your e-mail must contain your full name and cell phone (whatsapp).

Good Luck!