pokerDocument

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Problem Statement:

Poker is a game played with a standard 52-card deck of cards (https://en.wikipedia.org/wiki/Standard_52-card_deck), in which players attempt to make the best possible 5-card hand according to the ranking of the categories given at the following site: http://www.pokerlistings.com/poker-hand-ranking. If you are unfamiliar with poker we recommend that you familiarize yourself with this list. The provided link also has a short video explaining how these hands work.

In this challenge, you may assume:

- A single 52 card deck will be in use
- No wild cards
- Aces are treated as high cards only

Cards will be represented by their number or first letter for the non-numeric cards (J, Q, K, A) and the suits will be represented by their first letter (H, C, D, S) and stored as a JSON array.

When a category involves less than 5 cards, the next highest cards are added as “kickers” for the sake of breaking ties. For example, a pair of queens with a king beats a pair of queens with a 10.

1. Write a function that takes a 5-card hand as a JSON array and determines its category, with any tie breaking information that is necessary. For example, the input [“JH”, “4C”, “4S”, “JC”, “9H”] would have the value of two pair: jacks and 4s with a 9 kicker. You may choose your own representation for the output.
2. Write a function that takes 2 or more 5-card hands and determines the winner.
3. Some poker variations use more than 5 cards per player, and the player chooses the best subset of 5 cards to play. Write a function that takes 5 or more cards and returns the best 5-card hand that can be made with those cards. For example, the input [“3H”, “7S”, “3S”, “QD”, “AH”, “3D”, “4S”] should return [“3H”, “3S”, “3D”, “AH”, “QD”], which is a 3-of-a-kind with 3s, ace and queen kickers.

Design and Implementation:

Evaluating Hand

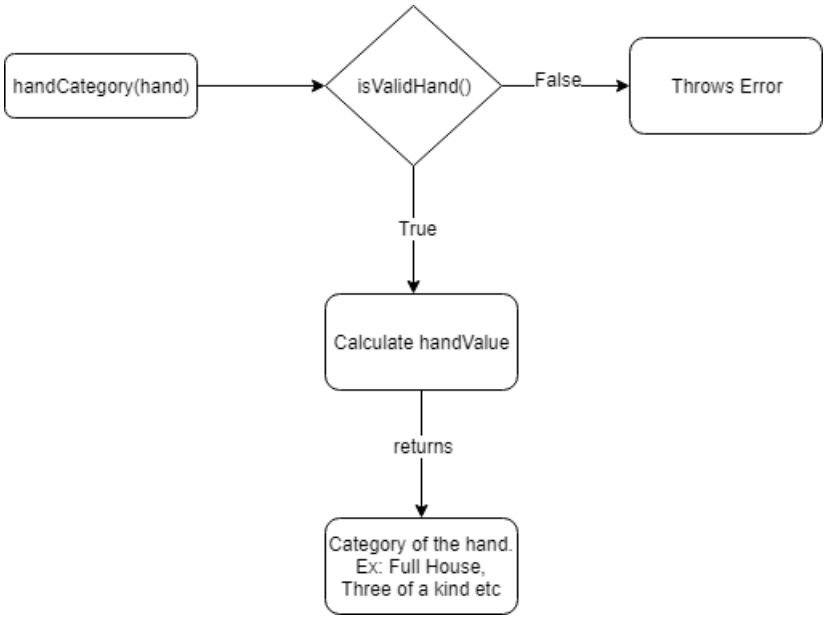
- Hand Ranks can be of the following:

Straight Flush Four of a kind Full house Flush Straight Three of a kind Two Pair Pair High card

- Ranks are assigned to the cards, based on the categories. For instance, Straight Flush is of Rank 9 and high card is of Rank 1.
- Valid hand checks if each card has 5 different types of cards.

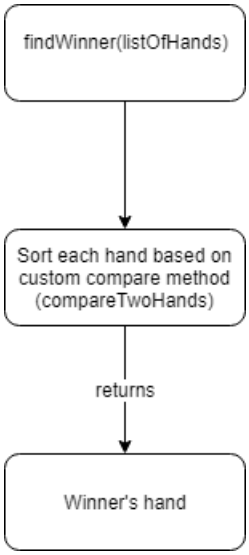
Solution 1:

- The method handCategory takes in 5 cards, i.e, a signle hand and determines the category of the card which can be of above cards mentioned.
- It imports class Evaluate, from where method handvalue is called which determines the category of the cards.



Solution 2:

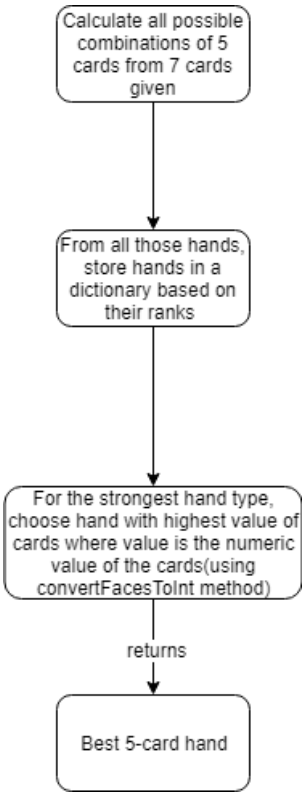
- FindWinner method takes in a list of hands. Each hand has 5 different cards. Find winner returns the hand of the winner with best cards.



- Find winner sorts the cards based on a custom compare method which takes only two hands at a time based on the higher rank of the cards. Ranks are assigned to the hands based on the Evaluate class.

Solution 3:

- Here getBestHand method returns the best possible hand of 5 cards from 7 cards.
- It calculates all the 5- card combinations of the cards of 7, evaluates their individual ranks. It then converts the card value to integer and the cards which highest ranks and greater integer value of the card is returns and makes the best 5-card combination from the 7 cards.



Assumptions:

- A single 52 card deck will be in use

- No wild cards
- Aces are treated as high cards only
- Input is of a valid card
- Sample input, as mentioned in the problem statement is like: [“3H”, “3S”, “3D”, “AH”, “QD”]
- Hand Ranks can be of type : Straight Flush Four of a kind Full house Flush Straight Three of a kind Two Pair Pair High card

References:

- https://stackoverflow.com/
- https://docs.python.org/3/tutorial/
- https://www.draw.io/