Poker Variations

A deck of cards consists of 52 cards, each with a suit and rank.

Suits: clubs, diamonds, hearts, spades
Rank: two, three, four, five, six, seven, eight, nine, ten, jack, queen, king, ace

For example, the ‘ace of spades’.

In poker, players name the best hand they can from 5 cards. The hands we want to support, in ascending order, are:

- **High Card** - any hand that doesn’t match any other higher hand
- **Pair** - a hand containing 2 cards with the same rank
- **Two Pairs** - a hand containing 2 different pairs
- **Three of a Kind** - a hand containing 3 cards with the same rank
- **Straight** - a hand containing 5 cards with consecutive ranks. The cards may be input valued as 1 or 14 (below the two or above the king) for the purposes of a straight
- **Flush** - a hand containing 5 cards with the same suit
- **Full House** - a hand made up of a pair and three of a kind
- **Four of a kind** - a hand containing 4 cards with the same rank
- **Straight flush** - a hand containing 5 cards of the same suit with consecutive ranks

Poker has many variations with each defining a set rules for how a player can form 5 cards. Each variation we want to support defines how many cards each player is dealt (their own cards), how many are dealt as shared cards all players can use, and rules for how 5 cards can be chosen.

For example:

- **Straight** - each player gets 5 own cards, there are no shared cards. A player can only form one hand
- **Texas Hold ‘Em** - each player gets 2 own cards and there are 5 shared cards. A player forms the best hand from the 2 they own and any 3 of the 5 shared
- **Omaha** - each player gets 4 own cards and there are 5 shared cards. A player forms the best hand from any 2 they own and any 3 of the 5 shared

Note, we are ignoring betting and how the cards are dealt incrementally - we are only examining the final cards.

Your task is to produce a library for computing the best hand a player can form with a set of cards for a particular poker variation. The input is the cards (own and shared) and a poker variation and the return should be the best hand the player can form. For example,

Variation: Texas Hold ‘Em
Own Cards: Two of Spades, Three of Spades

Shared Cards: Five of Spades, Ace of Hearts, King of Diamonds, Four of Spades, King of Spades
Best Hand Returned = Flush
Note, this hand also contains a straight and a pair but flush is the highest.

The API design is completely up to you. You control the data types, formats and methods. The solution should be extensible to support new poker variations.

How we will be evaluating the solution:

- The design of the public API (ease of use)
- The ease of adding new Poker variations
- The overall solution design
- The level of testing
- Clean code

Add comments to your solution to highlight key design decisions.
Once you have submitted your solution we may arrange a Q&A session to discuss the solution.

Reference:
List of Poker Hands