

Introduction

Texas Hold'em Poker uses a standard deck of 52 playing cards. The deck has 4 suits: diamonds (d), hearts (h), spades (s), and clubs (c) each of which has 13 ranks ordered from lowest to highest: two (2), three (3), four (4), five (5), six (6), seven (7), eight (8), nine (9), ten (T), jack (J), queen (Q), king (K), ace (A). Each card can be represented by a combination of its suit and rank: eight of diamonds (8d). There can be 2 to 10 players in a game. Each player is dealt 2 "pocket" cards from the deck. Additionally there are 5 "community" cards that are shared by all players. Each player determines their best 5 card hand from their 2 pocket cards combined with the 5 community cards. The player that has the best 5 card hand is considered the winner.

Challenge Requirements

- Write a program that takes a list of 5 community cards and a list of 2 pocket cards per player as input
- The program must allow for 2 to 10 player's pocket cards to be evaluated
- The program output must indicate the player that can form the highest ranked hand (see page 2)
- The program must allow you to indicate different rule sets as input (see page 3)
- It is up to you to determine how data is input and output from this program
- Your work must be emailed back within 2 hours from receiving this challenge

Evaluation

Your program will be evaluated on the following criteria ordered by importance:

1. Development best practices
2. Correctness
3. Completeness

Hand Ranking Rules

A hand is a collection of 5 cards from a players available 7 (2 pocket + 5 community). A hand can be ranked relative to other hands by its hand ranking category listed below from highest rank to lowest rank. Two hands with the same rank can be further evaluated to see which one within the same hand rank is higher.

1: Straight Flush: **2c, 3c, 4c, 5c, 6c**

Five cards of the same suit that can be arranged in sequence.

One straight flush is higher than another straight flush if it has a card with a higher rank.

2: Four of a kind: **2c, 2d, 2h, 2s, 5d**

Four cards of the same rank.

When comparing two hands with four of a kind the four cards with a higher rank is considered a higher hand.

3: Full House: **2c, 2d, 6h, 6d, 6s**

Three cards of one rank and two cards of another.

When comparing two hands the rank of the three cards determines which hand is higher.

4: Flush: **Ks, 5s, Ts, Js, 2s**

Five cards that share the same suit.

When comparing two flushes the one with the highest ranked cards is higher.

5: Straight: **2c, 3d, 4h, 5d, 6c**

Five cards that can be arranged in sequence

When comparing two straights the one with the highest ranked cards is higher.

6: Three of a kind: **4c, 4d, 4s, Ks, Qd**

Three cards of the same rank.

When comparing two hands with three of a kind the three cards with a higher rank is considered a higher hand.

7: Two pair: **8c, 8d, 5s, 5d, Kd**

Two sets of two cards with the same rank.

When comparing two hands with two pair the hand with the highest ranked pair is considered higher

8: Pair: **8c, 8d, 4s, 5d, Kd**

Two cards with the same rank.

When comparing two hands with a pair the hand with the highest ranked pair is considered higher

9: High Card: **Ac, Jd, 9s, 5h, 3h**

Five cards that do not form any of the combinations above.

When comparing two hands that don't form any other hand rank the hand with the highest card is considered higher.

Rule Sets

Rule sets add another dimension to this challenge. They are not found in standard Texas Hold'em Poker. In this challenge a rule set is a combination of the above hand ranks that your program will use to evaluate hands. The following rule sets should be supported:

Complete

- 1: Straight Flush
- 2: Four of a kind
- 3: Full House
- 4: Flush
- 5: Straight
- 6: Three of a kind
- 7: Two pair
- 8: Pair
- 9: High Card

Matching Ranks

- 2: Four of a kind
- 3: Full House
- 6: Three of a kind
- 7: Two pair
- 8: Pair
- 9: High Card

Straight

- 1: Straight Flush
- 5: Straight
- 9: High Card

Matching Suits

- 1: Straight Flush
- 4: Flush
- 9: High Card