

CSE 11

Week 4 discussion

Arrays

- Arrays are “**pass by reference**”

```
int[] myarray = new int[5];  
some_function(myarray);
```

some_function can actually modify
the contents of myarray



- int, float, double, etc. are “**pass by value**”

```
int stuff = 5;  
some_function(stuff);
```

some_function only gets a copy,
stuff is left unharmed here



- Analogy:

pass by reference is like sending a URL

pass by value is downloading the entire webpage

- Use this to your advantage

```
int[] cards = new int[5];  
get_user_input(cards); //let this function set up the array
```

2D Arrays

```
int[][] matrix = new int[3][3]  
some_function(matrix[0]);
```

← Pass by reference?

0	0	0
0	0	0
0	0	0

← Yes, it passes the whole row

HW4: Poker



1. Input

- At the very least, use 2 arrays per player

```
int[] cardValues = new int[NUM_CARDS];  
char[] cardSuits = new char[NUM_CARDS];
```

- Loop through Scanner methods repeatedly, nextInt(), next()

- Cards are always provided in increasing order, e.g.

5 H 6 D 7 C 8 S 9 D

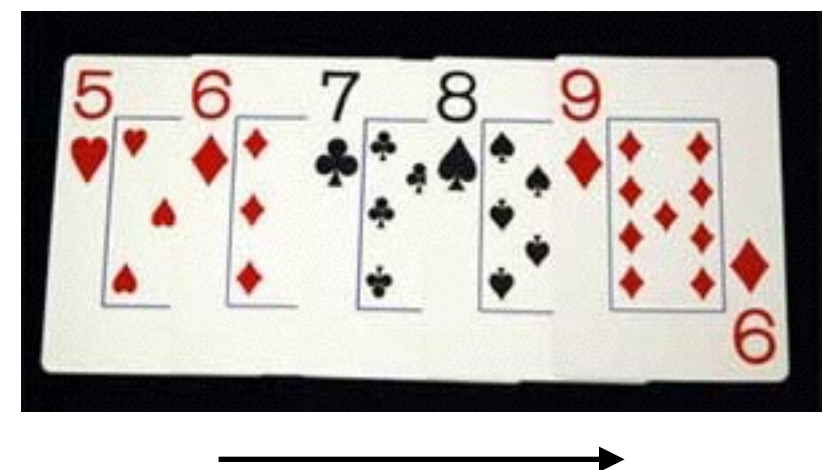
(but if you really want to sort it yourself, it's easy)

```
Arrays.sort(cardValues);
```

- No error checking necessary
- I recommend making a method to handle input
e.g.

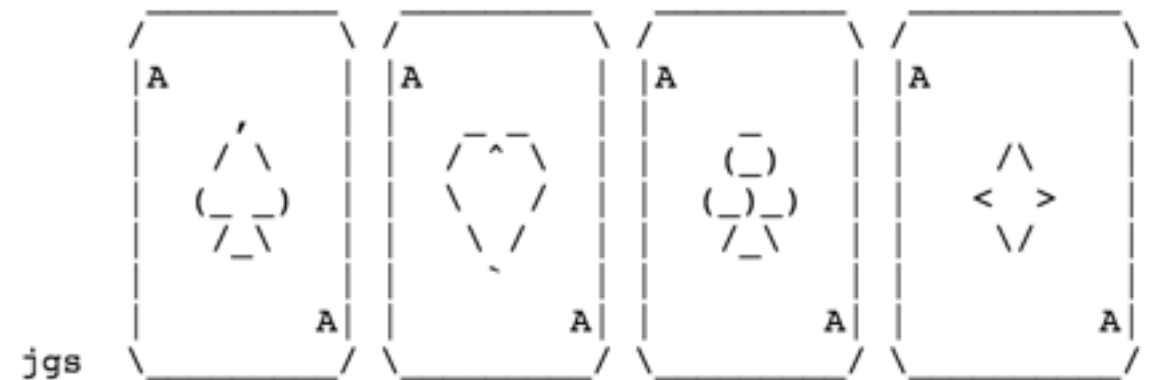
```
public static void getInput(int[] values, int[] suits){  
    //...fill up both arrays...  
}
```

- Never repeat yourself: don't copy-paste the same code twice when you have to handle player 2



2. Display the cards

- Use your `System.out.println` and for-loop skills
- POWWeek idea: use ASCII art or turtle graphics



3. Rank the hand

- Test each hand in an order that avoids false positives
- e.g. 3 of a kind and 4 of a kind might both be valid, but pick 4 of a kind first
- **8 methods are required**; one to check each hand
- Lots of potential for re-use, e.g.
`straightFlush = straight(...) && flush(...)`
- Ace can be 1 or 14

Straight Flush	3♠	4♠	5♠	6♠	7♠
4 of a Kind	10♦	10♣	10♥	10♠	4♦
Full House	J♥	J♣	7♥	7♦	7♣
Flush	2♥	6♥	9♥	Q♥	K♥
Straight	3♠	4♥	5♣	6♦	7♦
3 of a Kind	9♠	9♥	9♣	6♦	2♦
2 Pairs	4♠	4♥	J♣	J♦	9♦
1 Pair	6♠	6♥	3♣	Q♦	10♦
High Card	A♠	K♥	4♣	10♦	8♦



4. & 5. Compare against another player

- Should be easy if your part 3 is correct
- Same hand = tie (not the actual rules)

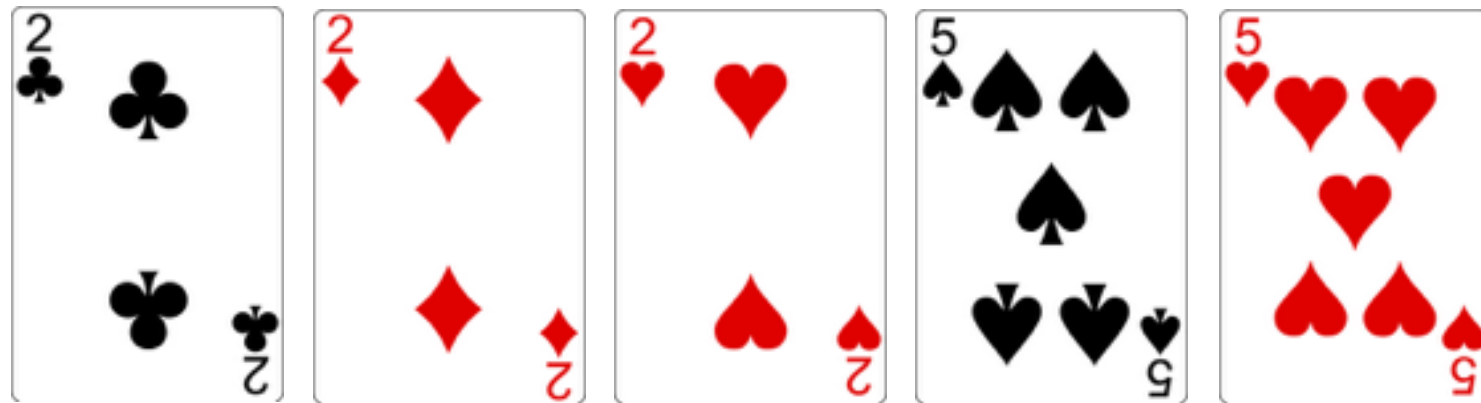


POWeek ideas

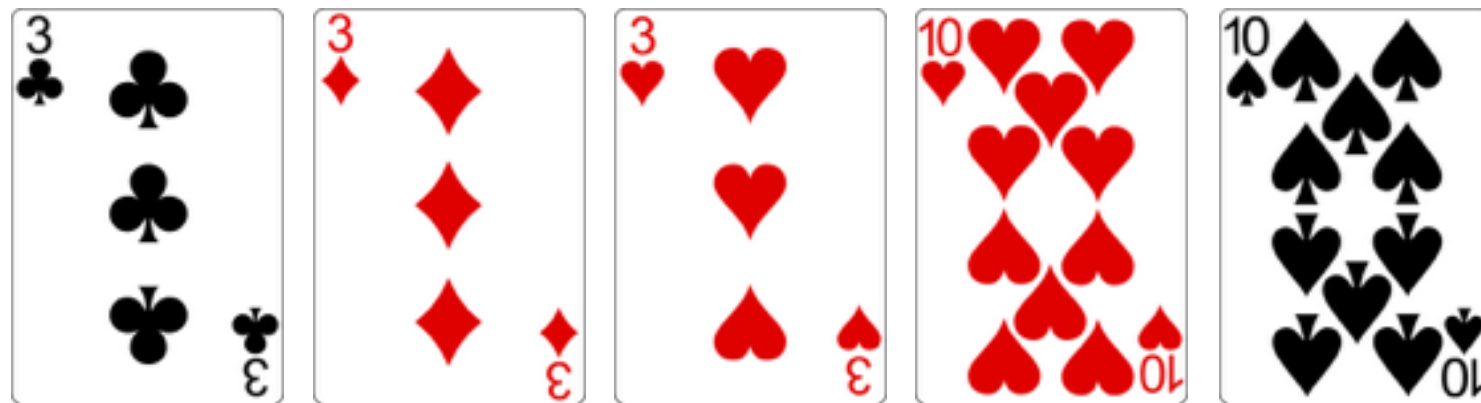
- Handle ties
- Different rules (Texas Hold 'em)
- Graphics
- Make a dealer

Handling ties

- Go by the “most important” rank first



Both full house



Winner: because the rank of the group of 3 cards is “3”, while player 1 got “2”