

CS 247 Spring 2013

Straights Program Output Specifications

1. Command Line Parameter

To start the program, the user can provide an optional integer argument, like this:

```
./straights 44
```

This allows for pseudo---random shuffling. At the beginning of your program, call the `srand48` function (see `man srand48`) with the provided argument. Games that are started with the same argument value have the same sequences of deals.

2. Invite Players

At the beginning of the program, prompt the user with the following message:

```
Is player <x> a human(h) or a computer(c)?  
>
```

The user will then type either “h” or “c”. Repeat this step for each of the four players.

3. Shuffling and Dealing

Initially, the cards in the deck should be in the following order:

```
AC 2C 3C ... QC KC AD 2D ... QD KD AH 2H ... QH KH AS 2S ... QS KS
```

At the beginning of every round, shuffle the deck *once* (using the provided shuffle function in your solution). Do not shuffle the cards in any other way. After the shuffle, assume that the first 13 cards belong to Player 1, the next 13 cards belong to Player 2, the next 13 belong to Player 3, and the last 13 cards belong to Player 4.

4. Gameplay — Start

The game starts after the shuffle and the deal. The four players will take turns to play their cards. First, print the following line (regardless of whether the first player is a human):

```
A new round begins. It's player <x>'s turn to play.
```

Where <x> depends on who has the 7 of spades.

5. Gameplay — Human Player

Whenever it is a human player's turn, print the following **8** lines:

```
Cards on the table:  
Clubs: <list of clubs>  
Diamonds: <list of diamonds>  
Hearts: <list of hearts>  
Spades: <list of spades>  
Your hand: <cards in your hand>  
Legal plays: <legal plays in your hand>  
>
```

Each of <list of spades>, <list of hearts>, <list of clubs>, <list of diamonds> is an ordered sequence of all the ranks in that suit (e.g., 6 7 8 9 10 J Q) that have already been played.

<cards in your hand> and <legal plays in your hand> are lists of cards in the player's hand, where each card is in the form <rank><suit> (e.g. 7S). Print the cards in the same order that they appear in the deck. Do not rearrange the cards.

The program will then wait for the user to enter a command.

6. Gameplay — Commands

There are 5 valid commands in this game:

```
play <card>
discard <card>
deck
quit
ragequit
```

a) play <card>

Play the specified card. You may assume that the <card> has valid syntax (i.e., <rank><suit>, such as 7C), and that the specified card is in the player's hand. However, it might not be a legal play.

If the play is legal, print

```
Player <x> plays <card>.
```

and proceed to the next player. Otherwise, print

```
This is not a legal play.
>
```

and do *not* proceed to the next player.

b) discard <card>

Discard the specified card. Again, assume that the <card> has valid syntax and that the <card> is in the player's hand.

If the player has no legal plays, the card will be discarded.

```
Player <x> discards <card>.
```

Otherwise, print the following error message.

```
You have a legal play. You may not discard.
>
```