

ECE 71 – Engineering Computations in C

Professor Kriehn – Fall 2016

Code Due By: Mon/Tue, Nov 13/14, 2017 (Demo to ISA)

Writeup Due By: Class on Mon/Tue, Nov 13/14, 2017

HOMEWORK #27 – EXTRA CREDIT: Poker with House Rules

You are tired of programming, so you decide to play nickel, dime, quarter poker on Friday night with some custom house rules:

1. Little Dog: Seven high, two low (for example, 7-6-4-3-2). It ranks just above a straight, and below a flush or any other cat or dog.
2. Big Dog: Ace high, nine low (for example, A-K-J-10-9). It ranks above a straight, or little dog, and below a flush or cat.
3. Little Cat: Eight high, three low. It ranks above a straight or any dog, but below a flush or big cat.
4. Big Cat: King high, eight low. It ranks just below a flush, and above a straight or any other cat or dog.
5. Royal Flush: The highest straight flush, A-K-Q-J-10, all of the same suit.

The following links may be helpful if you are a bit unfamiliar with poker rules:

http://en.wikipedia.org/wiki/List_of_poker_hands
http://en.wikipedia.org/wiki/Non_standard_poker_hands

Unfortunately, you are so tired, that you have trouble figuring out what hand you have, so you decide to write a program to help you. Back to programming!

Specifications:

Use the source code for 5 card stud as an initial code base. Modify the code to allow for the custom house rules listed above, and to allow the user to play either 5 card stud (normal poker) or 7 card stud. See the rules for 7 card stud if you are unfamiliar with them:

http://en.wikipedia.org/wiki/Seven-card_stud

In 7 card stud, you play the best 5 of 7 poker cards. Therefore, if the user chooses to play 7 card stud, you will have to allow 7 cards to be input into the system. You will then use the 2d card_exists[][] array and the 1D num_in_rank[] array to figure out the best hand. The output should then display the best hand and print out the **best** 5 cards used to create it.

For example: Alice shows her cards: 9♥ 5♦ 9♣ K♥ K♣ 3♠ 5♠. The best five-card poker hand she can play is K-K-9-9-5, making two pair, kings and nines. Carol shows Q♠ 2♥ K♦ J♣ 10♥ 10♦ A♦. She can play A-K-Q-J-10, making an ace-high straight, and so Carol wins the pot.

If you execute the program, the following information should be displayed:

```
~> main.o
```

Welcome to Poker
Press 0 to Quit

5 Card or 7 Card Stud? (Type 5 or 7): 0

~> main.o

Welcome to Poker
Press 0 to Quit

5 Card or 7 Card Stud? (Type 5 or 7): 5
5 Card Stud will be played.

Enter a card: 0

~> main.o

Welcome to Poker
Press 0 to Quit

5 Card or 7 Card Stud? (Type 5 or 7): 5
5 Card Stud will be played.

Enter a card: 9k
Bad card; ignored.
Enter a card: kh
Enter a card: kh
Duplicate card; ignored.
Enter a card: qc
Enter a card: ts
Enter a card: 9s
Enter a card: 8h

Best Hand: Big Cat - KH QC TS 9S 8H

5 Card or 7 Card Stud? (Type 5 or 7): 7
7 Card Stud will be played.

Enter a card: kh
Enter a card: kc
Enter a card: kd
Enter a card: qc
Enter a card: ts
Enter a card: 9s
Enter a card: 7h

Three of a Kind - KH KC KD QC TS

5 Card or 7 Card Stud? (Type 5 or 7): 0
~>