

CS250 Assignment 3

Card

Date assigned: Friday, February 23, 2018
Date due: Monday, March 5, 2018
Points: 20

To play any card game, it is necessary to have a card. Ultimately, we will create a deck of cards, but for this assignment, you are to create a Card class that has all of the behavior of a single card.

Cards have a denomination (2, 3, 4, 5, 6, 7, 8, 9, 10, J, Q, K, A) and a suit (Hearts, Diamonds, Clubs, and Spades). A card can be represented internally by an integer value in the range of 0 to 51 inclusive. The card denomination can be calculated using a formula such as $\text{card} \% 13$ and the suit can be determined by a formula such as $\text{card} / 13$.

For this assignment, you are to create a **Card** class that holds a single card and is able to do the following:

- initialize a card using the constructor with a default value of 0
- print a suit (**printSuit**) accepts an ostream
- print a denomination (**printDenomination**) accepts an ostream
- print a card (**print**) which is a denomination followed by a suit (e.g. 2H)
print accepts an ostream
- test the relationship of two cards with three different functions (**isLessThan**, **isGreaterThan**, **isEqualTo**) whose return value is bool

You are to have a driver that tests your Card class as follows. User input is in large font.

```
*****  
Card Tester  
*****
```

```
Enter a card value: 53  
Enter a card value: 1  
Your card is: 3H
```

```
Enter a card value: 2  
Your card is: 4H
```

```
Card1 Less Than Card2
```

```
Press any key to continue . . .
```

IMPORTANT

a) You are to design your Card class and write the interface by Wednesday, February 28, 2018. Turn in a color copy of your designed interface on Wednesday.

b) The implementation of the entire program is due on Monday, March 5, 2018. A correct implementation must have CardDriver.cpp, Card.h, and Card.cpp. Print out the hard copy in the same order.

Notes

- a) Make sure the user enters a value in the range of 0 to 51 inclusive
- b) For relationships of cards output either "Less Than", "Greater Than", or "Equal To"
- c) Output H for Hearts, D for Diamonds, C for Clubs, and S for Spades. Further, Cards 0 through 12 are Hearts, 13 through 25 are Diamonds, ..., Clubs, Spades.
- d) I will test your program extensively with another driver, so make sure to test your program thoroughly, especially at the edge cases. Further, the names of the functions for class Card must be **printSuit**, **printDenomination**, **print**, **isLessThan**, **isGreaterThan**, **isEqualTo** spelled exactly as listed (with correct parameters) or my driver will not compile and that will cost you 40%.
- e) You will need to declare Cards after getting an integer card value from the user.
- f) To keep from repeating code in main, you will need to write a few functions in CardDriver.cpp. For this assignment, there is no need to create another .h file for these functions used for main only.
- g) **No more using namespace std;**

To complete this assignment you must submit the following:

An electronic copy of your program on Grace

- a) Add a project called **03_Card** to your existing solution **PUNetID-Assignments**. It is vital that you name your project correctly!
- b) Type your program (fully documented/commented) into the project. You need to follow the coding standards from the CS250 Web page. These coding standards have been modified to include additional C++ language features introduced in CS250, so please be sure to read the new coding standards.
- c) Pay attention to the example output. Your program's output must look **exactly** like the sample output. The spacing and newlines in your output must match exactly.
- d) Make sure that your program builds without errors & warnings and runs correctly. If you get any errors or warnings, double check that you typed everything correctly. Be aware that C++ is case-sensitive. You will lose 10% if there are any warnings and 40% if your program does not build successfully.
- e) Once you are sure that the program works, it is time to submit your program. You do this by logging on to Grace and placing your complete solution folder in the correct drop folder based on the section of the course in which you are enrolled (**CS250-XX Drop**).
- f) The solution must be in the drop folder by the time class starts on the day the assignment is due. Anything submitted after that will be considered late.
- g) If you drop multiple solutions, you will lose 10% of the assignment points, so do not drop until you are entirely sure you are completely done working on the assignment.

A hard copy of your program

- a) The hard copy must be placed on the instructor's desk by the time class starts on the day that it is due.
- b) The hard copy must be printed in color, double-sided, and stapled in the upper left corner if your solution contains multiple pages.
- c) Your tab size must be set to 2 and you must not go past column 80 in your output.

Remember, if you have any problems, come to me straight away with your project on a flash drive or on Grace. Good Luck!!!!