

Assignment #3 – CSCI330 – C++ Programming

In this assignment you will create a program that illustrates how hard it is to be dealt a 5-card poker hand that contains four cards with the same rank (a four of a kind). In your program I would like you to represent a card using a structure called `Card` that contains the rank and suit of the card. The rank should be represented as an integer from 1 to 13. The suit should be an enumeration called `Suit` that can have one of four values: (`hearts`, `clubs`, `diamonds`, `spades`).

To solve this problem you will need to be able to continually generate hands until you create one that has a four of a kind. Remember, a deck of cards has only one copy of each card. As a result, **it should not be possible to have the same card appear more than once in any given hand**. Once you generate a four of a kind you should print the hand, as well as the number of attempts it took to generate it. Your output should look similar to this:

```
Hand:
5 of hearts
5 of clubs
King of hearts
5 of diamonds
5 of spades
It took 2453 to get four of a kind!
```

In order to create a random hand of cards, you need to know how to create a random number in C++. The simple program below shows you how to create a random number from 0 to 3:

```
#include <ctime>
#include <cstdlib>
int main()
{
    srand(time(NULL)); // just do this once at the top of your file

    int num = rand()%4; // change 4 to change the range
}
```

This program will take a bit more code than some of the other assignments. As a result, I would recommend decomposing your code into functions. For example, you might find the following functions helpful:

```
// returns a random rank (1 to 13)
int randRank()
// returns a random suit
Suit randSuit()
// returns true if c is in hand
bool inHand(Card c, Card[] hand, int size) // return true
// prints the cards in hand
void printHand(Card hand[]) // prints the cards in a hand
// returns true if the hand is a four of a kind
bool fourOfAKind(Card hand[]);
```

Please submit your file to the appropriate Canvas dropbox when you are done.