CSCI 2170 Spring 2006
Open Lab Assignment 1
Design Due: Tuesday January 24th, Program Due: Tuesday, January 31st.

This lab is designed to review materials you have studied in Computer Science I, and to prepare for the next open lab assignment.

Problem: Your program will implement the preparation routines used in a card game played among four players. First, the program shuffles a deck of cards, then it deals the cards to each of the four players, one at a time in clockwise rotation. After all cards are dealt to the players, the program organizes the cards in each player's hand by sorting their cards by suit. Then the program will display each player's cards.

Requirements:

- Each card is described by its suit, value, and points in game. Define a structured data type **CardType** with following components: suit (CardSuitType), value (int), and points (int). For suit, create an enumeration type called "CardSuitType" that has the four values: DIAMOND, CLUB, HEART, SPADE.

- Function **FormCards** creates the deck of cards.
  - The deck of cards should be represented as an array of **CardType**. The size of the array is 52. Each card is described by its suit, value, and points in game.
  - A card value is the face value of the card which is from 1 to 13, i.e., 11 for Jack, 12 for Queen, and 13 for King.
  - For card points in game, all the cards of HEART suit have points: each HEARTS card of less than 10 face value has 5 points; HERATS of 10, Jack, Queen, and King have 10 points. All Spade, Diamond, and Club cards have a value 0, except that the Queen of Spade has a point of 100, Jack of Diamond has a point of -100.

- Function **ShuffleCards** shuffles the cards into random order.

- Function **DealCards** deals out shuffled cards to the four players. The cards of the four players are stored in 4 one dimensional arrays of CardType. Each player will receive 13 cards.

- Function **SortCards** sorts cards by suit for one player, i.e., 1-D array of CardType of 13 cards.

- Function **PrintCards** prints the cards for one player in sorted order. The card suit, value and points in game for each card are displayed. Output should be nicely formatted. Print suit and value with meaningful name not numbers.

- You are encouraged to add routines to make your output graphical.

Make sure that your program has the proper documentation (program heading, variable explanation, description/pre-condition/post-condition for each user defined function, explanation

for logically related C++ statements, etc), and style for good program readability and modifiability.

Example of the program main comment block:

```
/************************** ************************************************

        FILE:           ola1.cc
        AUTHOR:         Matt Smith
        INSTRUCTOR:     Dr. Cen Li
        COURSE:         CSCI 2170 – 03
        DUE DATE :      Thursday, January 19th , 2006.
        DESCRIPTION:    This program calculates the area of a circle where the radius of
                        circle is supplied by the user.
        INPUT :         Radius of the circle is entered by user through keyboard..
        OUTPUT :        The area of the circle is displayed.

*******************************************************************************/
```