CSCI 2170 Open Lab Assignment 2 (Due: 23:59, Tuesday, February 19th)

Your program will implement the preparation routines used in a card game played among four players. First, the program creates a deck of 52 cards and shuffles the 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 first by suit, then by value.
Program output: The program displays each player's cards in sorted order in table format.

Your program should have the following routines, in addition to the main function:

(1) **FormCards** -- creates the deck of cards. The deck of cards should be represented as an array of stuct type data. The size of the array is 52. Each card is described by its suit, value, and points in game. For suit, create an enumeration type called "CardSuitType" that has the four values: DIAMOND, CLUB, HEART, SPADE. 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. In addition Queen of SPADE has a point of 100, Jack of CLUB has a point of -100.

(2) **ShuffleCards** -- shuffles the cards into random order.

(3) **DealCards** -- deals out shuffled cards to the four players. The cards of the four players are stored in a 2-D array of struct type. Each player will receive 13 cards. That is player one's cards are in the first row of the 2D array, player two's cards are in the 2nd row of the array, etc..

(4) **SortCards** -- sort cards for one player, i.e., one row of struct records in the 2-D array.

(5) **DisplayCards** -- displays the cards for one player in sorted order. The card suit, value and points in game for each card are displayed.

(6) **LinearSearch** – searches for 2 of CLUB in one's hand. It returns the index of the card in the hand if it is found, or -1 if the card is not found.

Make sure that your program has the proper documentation (program heading, variable explanation, description for each user defined function, explanation for logically related C++ statements, etc), and style for good program readability and modifiability.

---------- Example Output ----------

PLAYER 1

SUIT	VALUE	POINTS
Diamond	K	0
Diamond	Q	0
Diamond	J	0
Diamond	9	0
Diamond	7	0
Club	K	0
Club	8	0
Club	4	0
Heart	K	10
Heart	6	5
Heart	2	5
Spade	8	0
Spade	3	0

PLAYER 2

SUIT	VALUE	POINTS
Diamond	8	0
Diamond	6	0
Diamond	4	0
Club	Q	0
Club	7	0
Club	6	0
Club	5	0
Heart	Q	10
Heart	8	5
Heart	A	5
Spade	10	0
Spade	9	0
Spade	A	0

PLAYER 3

SUIT	VALUE	POINTS
Diamond	10	0
Diamond	2	0
Diamond	A	0
Club	J	-100
Club	2	0
Club	A	0
Heart	J	10
Heart	7	5
Spade	Q	100
Spade	J	0
Spade	6	0
Spade	5	0
Spade	4	0

PLAYER 4

SUIT	VALUE	POINTS
Diamond	5	0
Diamond	3	0
Club	10	0
Club	9	0
Club	3	0
Heart	10	10
Heart	9	5
Heart	5	5
Heart	4	5
Heart	3	5
Spade	K	0
Spade	7	0
Spade	2	0

Player 3 has the card 2 of CLUB.