

Saving the Card Game

This lab is an extension of lab 10. Lab 10 must be complete before this functionality is added.

Add a **CGame** struct in a file named **Game.h** that contains an array of 52 cards (the Deck), and four players.

```
#ifndef SPADE_GAME_H
#define SPADE_GAME_H

#include "Player.h"
#include "Card.h"

const int TOTAL_CARDS_IN_DECK = 52;

struct CSpadeGame
{
    CPlayer Player1;
    CPlayer Player2;
    CPlayer Player3;
    CPlayer Player4;

    CCard Deck[TOTAL_CARDS_IN_DECK];
};

#endif
```

Add a deal function that will initialize the deck and initialize each of the four players.

```
void Deal(CGame& Game)
{
    InitializeDeck(Game.Deck);

    InitializePlayer(Game.Player1, Game.Deck);
    InitializePlayer(Game.Player2, Game.Deck);
    InitializePlayer(Game.Player3, Game.Deck);
    InitializePlayer(Game.Player4, Game.Deck);
}
```

Modify the rest of your program to work with one instance of the game struct.

```
void main()
{
    CGame Game;
    //...
}
```

Add a menu to your program that will:

- 1) (D)eal the cards.
- 2) (V)iew the cards in the hands of each of the players.
- 3) (S)ave the current game to disk. (When the user chooses this option, ask them for a filename to save the game as.)
- 4) (O)pen a saved game. (When the user chooses this option, ask them for the name of the file they wish to open. Remember the file may not exist.)

```
void ShowMenu()
{
    cout << "(D)eal the cards" << endl;
    cout << "(V)iew the cards in the hands of each of the players" << endl;
    cout << "(S)ave the current game" << endl;
    cout << "(O)pen a saved game " << endl;
    cout << "(Q) Quit" << endl;
}
```

```

void PreformUsersCommand(char MenuSelection, CGame& Game)
{
    CSuperHero SuperHero;

    switch (MenuSelection)
    {
        case 'D':
            Deal(Game);
            break;
        case 'V':
            ShowPlayersHands(Game);
            break;
        case 'S':
            Save(Game);
            break;
        case 'O':
            Open(Game);
            break;
        default:
            cout << "Sorry, menu selection not recognized." << endl;
    }
}

```

The data file should:

- 1) be opened in binary format using `ios::binary`.
- 2) contain the information for all four players in the game.
- 3) not contain the deck of cards. The deck of cards can be created each time the program is started without being saved to disk.

Example from class yesterday.

```

void AppendSuperHeroToFile(CSuperHero SuperHero)
{
    ofstream SuperHeroFile;

    SuperHeroFile.open(SUPER_HERO_FILE_NAME, ios::app|ios::binary);

    SuperHeroFile.write((const char*)&SuperHero, sizeof(CSuperHero));

    SuperHeroFile.close();
}

void ReadSuperHeroFromFile()
{
    ifstream SuperHeroFile;
    int SupperHeroIndex;
    CSuperHero SuperHero;

    cout << "Please enter the number of the super hero to view: ";
    cin >> SupperHeroIndex;
    cin.ignore(cin.rdbuf()->in_avail(), '\n');

    SuperHeroFile.open(SUPER_HERO_FILE_NAME, ios::binary);

    SuperHeroFile.seekg(sizeof(CSuperHero) * SupperHeroIndex);
    SuperHeroFile.read((char*)&SuperHero, sizeof(CSuperHero));

    ShowSuperHero(SuperHero);

    SuperHeroFile.close();
}

```