

One Card WAR - Prog 1

CECS 325-02 – Spring 2024

Due: 2/15/2024

This assignment will use a Card class to build a Deck class. Then you will use the Deck class to play a card game called **One Card WAR**.

This is a simple game for 2 players. One card is dealt to each player, face up. The highest value card wins. If the cards are the same, then it's a tie. Announce the winner – Game over. You will allow the users to play all cards in the deck – 26 games.

You will have 2 classes:

- 1) The Deck class which will create the deck of 52 cards
- 2) The Card class which creates cards

The main logic of the game will be in the main program. You will use the Card class and the Deck class to play the game.

Here are the class header information for each class. Use these classes and only these functions.

class Deck

```
Deck( )           // constructor which creates a deck of 52 cards
Card deal( )      // deal a card
void display( )   // show all the cards in the deck
void shuffle( )   // shuffle the cards in the deck
```

class Card

```
Card(char , char ) // constructor to create a card, setting the suit and rank
void display( )     // display the card example: AC, 10S, KD
int compare(Card)   // return 1 for win, 0 for tie, -1 for lose
```

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When you run your program the following will happen in this order:

- 1) A new deck will be created.
- 2) The program will ask for the names of the 2 players.
- 3) The unshuffled deck will be displayed on the screen.
- 4) The deck will be shuffled.
- 5) The shuffled deck will display on the screen.
- 6) 26 games will be played, announcing the winner of each game. Ties are possible as well.
- 7) After all 26 games are played the program will print the statistics.

Things to consider:

- How are you going to shuffle?
- You MUST use a vector to store cards in your deck.
- Use this command to compile your program:
g++ war.cpp card.cpp deck.cpp -o war

What to submit:

Submit 5 source files: main.cpp, Deck.h, Deck.cpp, Card.h, Card.cpp

2 screenshots:

- 1) The first part of the program just before the 2 names are accepted. This will show the unshuffled and the shuffled deck as well as the 2 names
- 2) The final screen showing the statistics.

Here is a sample of how the game will play out:

Enter the name of the first player: Aquaman
Enter the name of the second player: Batman

First Screenshot

Original Deck

AC, 2C, 3C, 4C, 5C, 6C, 7C, 8C, 9C, 10C, JC, QC, KC
AS, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, JS, QS, KS
AD, 2D, 3D, 4D, 5D, 6D, 7D, 8D, 9D, 10D, JD, QD, KD
AH, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H, JH, QH, KH

Shuffled Deck

9C, 8H, 6H, KC, 8C, JH, 2S, 6D, 9H, 10D, 7D, 3D, JS
5C, 6C, 5S, QS, 5D, 9S, AD, AS, QC, 4H, JC, 2C, 6S
2H, JD, 10H, 9D, QH, QD, 2D, KS, 7C, 4C, KD, AH, KH
4S, 10S, 8D, 7S, 3C, 3H, 3S, 8S, AC, 7H, 5H, 4D, 10C

Game 1

Aquaman=>9C

Batman=>8H

Aquaman=> Winner

Game 2

Aquaman=>6H

Batman=>KC

Batman=> Winner

Game 3

Aquaman=>8C

Batman=>JH

Batman=> Winner

Game 4

Aquaman=>2S

Batman=>6D

Batman=> Winner

Game 5

Aquaman=>9H

Batman=>10D

Batman=> Winner

Game 6

Aquaman=>7D

Batman=>3D

Aquaman=> Winner

Game 7

Aquaman=>JS

Batman=>5C

Aquaman=> Winner

Game 8

Aquaman=>6C

Batman=>5S

Aquaman=> Winner

Game 9

Aquaman=>QS

Batman=>5D

Aquaman=> Winner

Game 10

Aquaman=>9S

Batman=>AD

Aquaman=> Winner

Game 11

Aquaman=>AS

Batman=>QC

Batman=> Winner

Game 12

Aquaman=>4H

Batman=>JC

Batman=> Winner

Game 13

Aquaman=>2C

Batman=>6S

Batman=> Winner

Game 14

Aquaman=>2H

Batman=>JD

Batman=> Winner

Game 15

Aquaman=>10H

Batman=>9D
Aquaman=> Winner

Game 16

Aquaman=>QH
Batman=>QD
Tie game

Game 17

Aquaman=>2D
Batman=>KS
Batman=> Winner

Game 18

Aquaman=>7C
Batman=>4C
Aquaman=> Winner

Game 19

Aquaman=>KD
Batman=>AH
Aquaman=> Winner

Game 20

Aquaman=>KH
Batman=>4S
Aquaman=> Winner

Game 21

Aquaman=>10S
Batman=>8D
Aquaman=> Winner

Game 22

Aquaman=>7S
Batman=>3C
Aquaman=> Winner

Game 23

Aquaman=>3H
Batman=>3S
Tie game

Game 24

```
-----  
    Aquaman=>8S  
    Batman=>AC  
Aquaman=> Winner
```

Game 25

```
-----  
    Aquaman=>7H  
    Batman=>5H  
Aquaman=> Winner
```

Game 26

```
-----  
    Aquaman=>4D  
    Batman=>10C  
Batman=> Winner
```

```
-----Final Stats-----  
    Aquaman vs. Batman  
Wins    14          10  
Losses  10          14  
Ties    2           2
```

Second Screenshot

Objectives:

- 1) Understand how to create classes
- 2) Learn how to use vectors and arrays in C++
- 3) Learn how to use header files and .cpp file as separate files.
- 4) Learn about preprocessor directives, #include libraries, and "using namespace std"
- 5) Learn how to protect header files by using #ifndef, #define, #endif
- 6) Introduce the rand() function for shuffling cards
- 7) Get a random number within a range of numbers