

Lab 02 - Classes

Instructions:

- A value object is an object whose equality is based on its attributes and is immutable (unchangeable) after creation. Your objective is to define a value object class and a function in a header file named 'Card.h'.
- 'Card.h' must contain a header guard.
- The class and function must be defined within a namespace named 'dsl'.
- 'Card.h' can only include the libraries *iostream*, *string*, *sstream*, *cstdlib*, *ctime*, and *cctype*.
- Each function or method excluding special member functions must include pseudocode as a comment above it to receive any credit.
- Your submissions must be submitted to the GitHub repository in the Lab02 directory.
- Cheating of any kind is prohibited and will not be tolerated.
- Violating or failing to follow any of the rules above will result in an automatic zero (0) for the lab.

Grading

Task	Maximum Points	Points Earned
1	2	
2	2	
3	1	
Total	5	

Note: solutions will be provided for tasks colored blue only.

Task 1

- Within the namespace *dsl* of the file 'Card.h', define the class *Card* that take contains
 - ☐ A private char field named *suit*.
 - ☐ A private char field named *face*.
 - ☐ A public default constructor that assigns '0' to both fields.
 - ☐ A public overloaded constructor that takes two char parameters. It assigns the first and second parameters to *face* and *suit*, respectively.
 - ☐ A public empty destructor.
 - ☐ A public overloaded assignment operator.
 - ☐ A friend overloaded ostream operator that displays

```
                "[x:y]"
```

where *x* and *y* are the values of *suit* and *face*, respectively.
 - ☐ A friend overloaded equal operator (==) that takes two constant *Card* reference parameters. It returns true if the parameters' fields are equal; otherwise, it returns false.
 - ☐ A friend overloaded not equal operator (!=) that takes two constant *Card* reference parameters. It returns true if any of the parameters' fields are not equal; otherwise, it returns false.

Task 2

- Within the namespace *dsl* of the file 'Card.h', define the *Card* pointer function named **StandardDeck()** that takes no parameters. It returns a dynamic *Card* array that represents a standard playing cards deck. Use the characters 'A', '2', '3', '4', '5', '6', '7', '8', '9', 'T', 'J', 'Q', and 'K' for the faces, and 'C', 'D', 'H', and 'S' for the suits.

Task 3

- Within the namespace *dsl* of the file 'Card.h', define the void function named **Display()** that takes a constant *Card* array parameter and an integer parameter, respectively. Given that the integer parameter represents the size of the array parameter, it displays 10 elements of the array parameter on each line.

Extra Credit

- Create a header file named 'Extra.h' that contains a header guard and within the namespace *dsl*, defines the void function named **Shuffle()** that takes a *Card* array parameter and an integer parameter, respectively. Given that the integer parameter represents the size of the array parameter, it shuffles the elements of the array parameter.

Note: 'Extra.h' must include 'Card.h'