

## CS 12 - Lab 8

# Operator Overloading

In this lab you will use the smartarray class from lecture and use operator overloading. You must use separate files and you must have a makefile. Be sure to include all necessary information at the top of the each file in the program and use good commenting and style throughout your program.

Implement the smartarray array class. You do not have to write all the constructors and functions given in class, just write the necessary ones.

Below is the code that you must be able to run.

```
const int SIZE = 5;
const int SIZE2 = 3;

smartarray A(SIZE);
smartarray B(SIZE2);

for(int i=0; i<SIZE; i++){
    cout << "Enter a value: ";
    cin >> A[i];
}

for(int i=0; i<SIZE2; i++){
    cout << "Enter a value: ";
    cin >> B[i];
}

smartarray C;
C = A & B;

cout << "Smartarray A:" << endl;
cout << A << endl;
cout << "Smartarray B:" << endl;
cout << B << endl;
cout << "Smartarray C:" << endl;
cout << C << endl;
```

You should have the following functions:

**Constructor** This function should take one integer parameter and dynamically allocate the smartarray to hold that many integers.

**Destructor** Perform clean up of the dynamic allocation.

**Insertion Operator** Overload the insertion operator so that you can print out the smartarray with one simple line.

**Subscript Operator** Overload the subscript operator so that you can allow the user to set values to the array in the smartarray.

**Concatenation** Overload the ampersand (&) to perform concatenation of two smartarrays. The concatenation of two smartarrays is the values of one followed by the values of the other.

**Assignment Operator** Overload the assignment operator so that you may assign one smartarray the value of another.

If A's values are 1,2,3,4,5 and  
B's values are 9,8,9,8 then given

C = A & B

C's values would be 1,2,3,4,5,9,8,9,8