

## COEN 244 (Fall 2017) - Assignment 3: Operator Overloading

**Individual Assignment - Deadline: Nov 9<sup>th</sup> 2017 23:55**

### Submission format:

Create only ONE zip file (.gz, .tar, .zip are acceptable. **.rar file is NOT acceptable**) that contains all the folders that include header files, cpp files and test files. The name of the file must follow the template below:

[student\_id\_of\_member]\_A3.zip or  
[student\_id\_of\_member]\_A3.tar or  
[student\_id\_of\_member]\_A3.gz

Submissions do not follow about format should be responsible for the consequences.

### Problem Description

A Class Set is partially defined as below. This definition still missing a number of member functions and operators.

```
class Set {  
  
public:  
    Set(int[], int);    // default constructor  
    Set(const Set&) // copy constructor  
    ~Set();           // destructor  
    int getSize() const; // return size  
  
private:  
    int size; // set size  
    int *ptr; // pointer to first element of set  
};
```

- 1) Please provide full program implementation of the Class Set with the following operator overloaded. [4 parks each operator: totally 40 marks]
  - = means assignment operator
  - == means checking equal or not
  - != means checking not equal
  - > means checking the sum of one Set is greater than the sum of another Set
  - < means checking the sum of one Set is smaller than the sum of another Set.
  - ++ means incrementing every element of Set by one; please consider both prefix and postfix situations;
  - means decreasing every element of Set by one; please consider both prefix and postfix;
  - >> means from input stream to read in element values to put in the Set;
  - << means display every element of a Set to the output stream; every 5 element per line separated by , between elements;
  - [ ] means accessing the index of the Set to either retrieve the value of an element or make change to the value of an element.
- 2) Program full implementation of all the member functions; you should add necessary functions. [15 marks]

3) Program a driver to run and test every member function and the overloaded operators. [5 marks]  
Although the driver is only 5 marks, if it was not provided, the requirement 1 and 2 are not going to be evaluated properly, may lead to mark deduction for program correctness and execution error free.

**Marking Scheme:** Program correctness (60%) + execution error free (40%)