

## **Problem**

**[30 Marks]**

Edit the source code file **sbt2.cpp** to accomplish the following task requirements:

**Notes:** You do not allow to modify the codes of the **main( )** function.

1. Complete the definition of default constructor. The constructor will create an array with the default size of 10, if the array size is not given when the object is created. The constructor also initializes each element of the array with the value 0. **(5 marks)**
2. Complete the definition of the overloaded equality (==) operator function. The function determines if two arrays are equal and return true, otherwise return false. The arrays are considered equal, if their corresponding elements are equal. **(7 marks)**
3. Complete the definition of the overloaded assignment (=) operator function. The function copies all values from right array into left array, with assumption that two arrays have same size. **(3 marks)**
4. Complete the definition of the overloaded addition (+) operator function. The function returns an object of class `Array` that sums up the elements of left array with the passed object elements. Make sure the value of elements in the left array and the passed object (right array) are not changed. **(4.5 marks)**
5. Complete the definition of the overloaded input (>>) operator function. The function input values for the entire array. **(3 marks)**
6. Complete the definition of the overloaded output (<<) operator. The function displays two numbers per row of outputs. **(7.5 marks)**

Figure 1 shows the output of the program.

```
Size of array Num1: 4
After initialization, contents of array Num1:
  0  0
  0  0

Size of array Num2: 4
After initialization, contents of array Num2:
  0  0
  0  0

Enter 8 numbers:
1 2 3 4 5 6 7 8

After input, contents of array Num1:
  1  2
  3  4

After input, contents of array Num2:
  5  6
  7  8

Evaluating Num1 == Num2 >> Num1 and Num2 are not equal

Assigning Num2 to Num1
After assigning, contents of array Num1:
  5  6
  7  8

After assigning, contents of array Num2:
  5  6
  7  8

Evaluating Num1 == Num2 >> Num1 and Num2 are equal

Create new object of class Array named Num3
After initializing, contents of array Num3:
  0  0
  0  0

After assigning new values, contents of array Num3:
 10 12
 14 16
```

**Figure 1:** Output of program