COSC 2336.S01
PROGRAM ONE

ASSIGNMENT:

Create a template class (named UBArray for UnBounded Array), which will have the following capabilities:

1) Two template arguments will be used
   a) The first will be the data type to be stored
   b) The second is the data type of the index of the array (default to integer)
2) Allow an unlimited number of elements
3) Elements will not be created unless they are used
4) In addition to the usual constructors, destructor, and assignment operator, implement the following
   a) A subscript operator []
   b) A function **At,** which will operate in the same way as the subscript operator
   c) A function **Remove,** which will remove the element with the index value passed
   d) A function **Size**, which will return the number of elements in the array
   e) A set of iterator functions
      i) **GetFirst** to return the first element in the array
      ii) **GetLast** to return the last element in the array
      iii) **GetNext** to return the next element in the array
      iv) **GetPrev** to return the previous element in the array
   f) The iterator functions will throw exceptions when no appropriate index exists
      i) **ArrayEmpty** when no elements exist
      ii) **NoNextElement** when no more elements follow
      iii) **NoPrevElement** when no elements preceed

A test program must be written which shows all functionality using in one case a string as data type and an integer as the index type. A second case will show a class consisting of multiple data elements as the data type and a string as the index type.

TURN IN:

1) An electronic copy of the .cpp and .h files in the project folder as created by Visual Studio. This will be emailed to the instructor with the subject line "COSC 2336.S01 – Program 1".
2) If you wish any feedback on your work, turn in a printed listing of the .cpp and .h files that you created.

DUE: 12 Feb 2020