

Quiz #1A

Name:

READ THE QUESTIONS CAREFULLY!!! DO NOT WASTE TIME DOING MORE THAN IS ASKED FOR. DO NOT IMPLEMENT METHODS UNLESS SPECIFICALLY REQUESTED. YOU DO NOT NEED TO COMMENT THE CODE.

1. Write an **interface** `cop3530.Set` with the public methods below. (This is a different interface than what you wrote for program 1, but the principles are identical.) **Set** is the name of the interface that stores **Objects** (NOT pairs) that has the following functionality:
 - Three accessors: **contains** returns true if a specified object is found in the set; returns false otherwise. **isEmpty**, tests if the **Set** is empty; and **size** returns the number of elements currently stored in the **Set** container.
 - Two mutators: One makes the **Set** empty; the other (**add**) inserts a new item.
2. Provide a class `cop3530.SortedArraySet` that implements the **Set** interface. Represent the **SortedArray** internally as a (sorted) `Object[]`, a **size** data member, and a **Comparator**. After listing the data fields, you may use `...` to indicate the rest of the body of this class, except for the following which must be implemented:
 - (a) Implement a constructor that takes a **Comparator** as a parameter. Make sure you initialize all fields. You do not need to implement a zero-parameter constructor for this quiz.
 - (b) Implement **contains**. **In your implementation, you should use a sequential search. If you find an item in the array that is larger than the item being search for, you should immediately return false.**