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COSC 436 Object-Oriented Design and Programming
In-class Exercise: Iterator

Use the Iterator Pattern:

1. Create a class called **InClassExercise**, and then, in its main method, create an **ArrayList** called **stringArrayList**. Add the following five strings to **stringArrayList**:
"one", "two", "three", "four", "five".
Then, use a for loop and the index of **stringArrayList** to print all these five strings out to the console.
2. For **stringArrayList** above, can you use an iterator to traverse the five strings inside, without using the index?
3. If change **stringArrayList** into a **TreeSet**, how do you traverse the five strings use an iterator?

Using the hasNext() function.

Implement an Iterator:

4. Create a class called **StringArray** that is able to store a number of String objects. Create an instance variable, String[] values, (internal data storage) of **StringArray** to store all the strings.
5. Create a constructor for **StringArray**, which is able to build an object of **StringArray** using the parameter.

```
public StringArray(String[] values)
```

6. Make the class **StringArray** implements **Iterable** interface. So that it can generate iterators. What function do you need to implement this interface? What should be returned by that function?

Iterator function is needed, the values in the string should be returned

7. Create an inner class called **ArrayIterator** in **StringArray**. This is our first iterator. Create an int variable called **current** inside **ArrayIterator**. it works as an index for our iterator.
8. Make **ArrayIterator** implements **Iterator** interface, so that it becomes an iterator. What functions do you need to implement this interface? Implement these functions.

Functions needed are hasNext() and next()

9. Go back to your **StringArray** class, what should be returned by the **iterator()** function?

A value from the list

10. So far, an iterator is done. Create a main method, and build an object of **StringArray**, add five strings in step 1 to it. Traverse and print them out.

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11. Create another iterator (inner class) **LongStringIterator**. This new iterator traverses only String elements equal or longer than 4 characters.

Upload your code to the Blackboard.