**Iterator**

**Use the Iterator Pattern:**

1. Create a class called **hw4**, 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.

A screen shot of a computer code

AI-generated content may be incorrect.

1. For **stringArrayList** above, can you use an iterator to traverse the five strings inside, without using the index?

Yes! The Iterator function can be used to print each string within the array.

1. If change **stringArrayList** into a **TreeSet**, how do you traverse the five strings use an iterator?

It can be done by manually using the iterator class in a while loop to move through the Treeset rather than using the for-each method. If the iterator hasNext() = true, the index will be shifted and the next valid value will be printed or whatever function is being done to it.

**Implement an Iterator for StringArray:**

1. 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.
2. Create a constructor for **StringArray**, which is able to build an object of **StringArray** using the parameter.

public StringArray(String[] values)

1. 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?
2. 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.
3. Make **ArrayIterator** implements **Iterator** interface, so that it becomes an iterator. What functions do you need to implement this interface? Implement these functions.
4. Go back to your **StringArray** class, what should be returned by the **iterator()** function?
5. 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.
6. Create another iterator (inner class) **LongStringIterator.** This new iterator traverses only String elements equal or longer than 4 characters.
7. Instead of using the iterator you created,

What to turn in: similar as hw2.