

1. Write a method **findLongest** which accepts an ArrayList of String objects and returns the longest String.

```
public static String findLongest(ArrayList<String> words)
{
    String longest = words.get(0);
    for (String w: words)
    {
        if (w.length() > longest.length())
            longest = w;
    }
    return longest;
}
```

2. An ArrayList contains these values: [ 8, 2, 4, 5 ] Write out the state of the data after each pass of a selection sort:

pass 1: 2 8 4 5

pass 2: 2 4 8 5

pass 3: 2 4 5 8

- 0 1 2 3
- ① start @ index zero - Find smallest value from 0 to end, it's 2, swap 2 + 8.
  - ② Now you're at index 1 (8), find smallest value from 1 to end (4) swap 4 + 8
  - ③ You're at index 2 (8), find smallest value to right, it's 5, swap 5 + 8.

3. An ArrayList contains these values: [ 8, 2, 4, 5 ] Write out the state of the data after each pass of an insertion sort:

pass 1: 2 8 4 5

pass 2: 2 4 8 5

pass 3: 2 4 5 8

- ① start at index 1 (2). Should this value be inserted to left? yes, do it.
- ② Look at index 2 (4). Should this be inserted to left? yes. do it.
- ③ Look at index 3 (5). Should this go anywhere to the left? yes, do it.

4. Write code that does the following:

- Create an ArrayList of Frog objects
- Add a Frog
- Make that Frog hop 10 spaces

```
ArrayList<Frog> pond = new ArrayList<Frog>();
pond.add(new Frog());
pond.get(0).hop(10);
```

(continued on back)

5. You are given an ArrayList which already contains over 1000 Strings. The ArrayList is sorted. Write code to delete all duplicate entries.

```
ArrayList<String> stuff = new ArrayList<String>();
//code not shown fills stuff with a wonderful collection of Strings
//code not shown sorts the list
```

```
for (int i = stuff.size() - 1; i > 0; i--) // Line 1
{
    if (stuff.get(i).equals(stuff.get(i-1))) // Line 2
        stuff.remove(i);
}
}
```

Notes: ① you must not let  $i$  be zero (Line 1) because of the  $i-1$  in Line 2  
 ② you must start @ the end .size()-1 and work backwards. (Line 1)

6. Write out the contents of the ArrayList after each line of code is run:

```
ArrayList<String> stuff = new ArrayList<String>();
stuff.add("A");
stuff.add("C");
stuff.add("B");
stuff.add(1, "E");
stuff.set(0, "F");
stuff.add("G"+stuff.size());
stuff.remove(2);
```

  []  
[A]  
[A,C]  
[A,C,B]  
[A,E,C,B]  
[F,E,C,B]  
[F,E,C,B,G4]  
[F,E,B,G4]

7. Assume many more items have been added to the ArrayList from problem 6. Write code which swaps the values in the first and last spots of the ArrayList.

```
String temp = stuff.get(0);
stuff.set(0, stuff.get(stuff.size()-1));
stuff.set(stuff.size()-1, temp);
```