

Quiz #2 Answers

1. In Java, arrays of objects are actually arrays of references to objects. How is this significant to you when you are programming? In particular, what additional power does it give us?

This is significant to us when we program for a number of reasons. On a practical side, we have to make all the references point to something before we use them. By default they will all be null. It can also be nice because in some cases we can have multiple of them point to the same thing which can save some memory. The true power we get from this though is that the array can be polymorphic. Because the array does not actually store the objects and doesn't have memory allocated for the objects, the references are allowed to point to any subtype of the declared type of the array.

2. Trace what happens after each iteration of the outer loop for a selection (min) sort on the array {4,2,7,6,1,9}.

```
4,2,7,6,1,9
1,2,7,6,4,9 // swap 1 and 4
1,2,7,6,4,9 // 2 stays
1,2,4,6,7,9 // swap 4 and 7
1,2,4,6,7,9 // 6 stays
1,2,4,6,7,9 // 7 stays
```

Extra Credit: Write the code for a Comparator that you could use to sort a class, Foo, that has a method int getValue() that you want to sort on.

```
new Comparator() {
    public int compare(Object o1, Object o2) {
        return ((Foo)o1).getValue()-((Foo)o2).getValue();
    }
}
```