

CSE 341 — Java Generics Discussion Questions

1. Consider the following Java code fragments. (The first 3 lines are the same for all of them; it's just the last line that is different.) In each case, does the code compile correctly? If so, does it execute without error, or is there an exception?

```
Point[] a = new Point[10];
Object[] b;
b = a;
b[0] = new Point(10,20);
```

```
Point[] a = new Point[10];
Object[] b;
b = a;
b[0] = "hi there";
```

```
Point[] a = new Point[10];
Object[] b;
b = a;
a[0] = "hi there";
```

2. Sketch the class definition and method signatures for a Stack class, parameterized by the type of element on the stack. Give the method signatures for push, pop, and isEmpty.
3. Sketch the class definition and method signatures for a Dictionary class, which allows one to store or look up a value indexed by a key. Give the method signatures for get, put, isEmpty, keys, and elements. The last two methods should return parameterized Enumerations.
4. Joe Mocha is defining an interface Appendable that includes an append method. He then defines two classes, MyString and MyList, which both implement Appendable. He wants Java's type system to allow a MyString to be appended to a MyString, and a MyList to be appended to a MyList, but not a MyString to a MyList, or a MyList to a MyString.

Here is his definition of Appendable:

```
interface Appendable {
    Appendable append(Appendable a);
}
```

What is wrong with this definition? What is a correct one?

Also write a definition for a class MyString that uses the revised definition of Appendable. (Just put ... in the body of the method — we only care about the header.)