

## 1 Boxes and Pointers II

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Draw a box and pointer diagram for each code block.

- (a) 

```
int[] x = {1, 2, 3};
int[] y = x;
y[2] = 7;
```
- (b) 

```
IntList l = IntList.list(1, 2, 3);
IntList l2 = l;
l.tail.tail.head = 7;
```
- (c) 

```
IntList[] ll = new IntList[3];
ll[0] = IntList.list(1, 2);
ll[1] = IntList.list(2);
```

## 2 Objects Refresher: Does this make sense?

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- (a) Determine what would be printed after executing the main method of class `Avatar`.

```
1 public class Avatar {
2     public static String electricity;
3     public String fluid;
4
5     public Avatar(String str1, String str2) {
6         Avatar.electricity = str1;
7         this.fluid = str2;
8     }
9
10    public static void main(String[] args) {
11        Avatar fool = new Avatar("one ", "two");
12        Avatar foo2 = new Avatar("three ", "four");
13        System.out.println(fool.electricity + fool.fluid);
14        fool.electricity = "I declare ";
15        fool.fluid = "a thumb war";
16        System.out.println(foo2.electricity + foo2.fluid);
17    }
18 }
```

- (b) Consider swapping `Avatar` and `this` in lines 6 and 7. Which swaps, if any would cause errors if we tried to compile and run the code?
- (c) Will adding the following method to class `Avatar` cause any errors during compilation or execution?

```
public static String getFluid() {
    return fluid;
}
```

### 3 Min/Max

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Given an array A, return a 2 element array B where B [0] is the minimum element of A and B [1] is the maximum element of A.

```
import static java.lang.Math.max; // max(a, b) returns max of a, b
import static java.lang.Math.min; // min(a, b) returns min of a, b

public static int[] minMax(int[] A) {
    int maxVal = Integer.MIN_VALUE; // smallest int in Java
    int minVal = Integer.MAX_VALUE; // largest int in Java

}

```

### 4 Reverse

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Given an array A, reverse its elements in place (i.e. do not create any new arrays; this should be a destructive method).

```
public static void reverse(int[] A) {

}

```