

15-214: Principles of Software Construction: Objects, Design, and Concurrency

In-Class Worksheet for Lecture 2: Objects

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Your Andrew IDs _____

```
public class EmptyIntList implements IntList {
    public IntList concatenate(IntList other) {
        return other;
    }
}

public class IntListCell implements IntList {
    public IntList concatenate(IntList other) {
        IntList newNext = next.concatenate(other);
        return new IntListCell(value, newNext);
    }
}
```

In main(...)

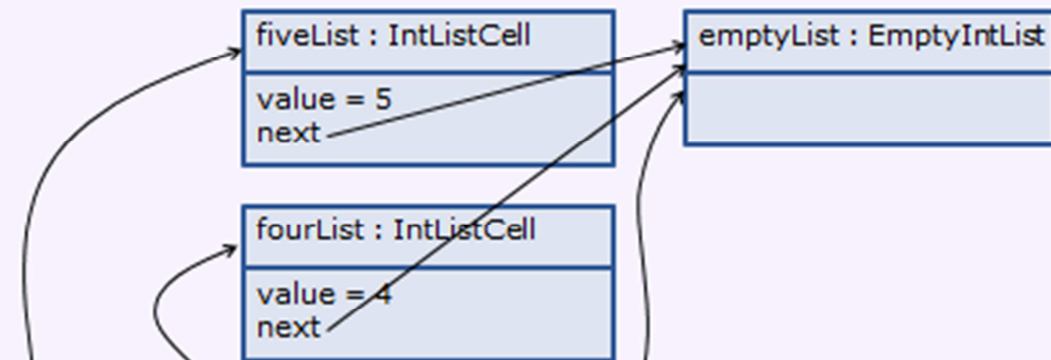
```
List emptyList = new EmptyIntList();
List fiveList = new IntListCell(5, emptyList);
List fourList = new IntListCell(4, emptyList);
List fourFive = fourList.concatenate(fiveList);
```

In the program above, when `IntListCell.concatenate(...)` is executing with `fourList` as the receiver, which concatenate method is invoked in the call `next.concatenate(other)`? Put a star by the method.

Why is that method implementation invoked, and not the other one?

Complete the drawing of the final heap, and put a star by the object to which the `fourFive` variable points.

A Question for You!



In `main(...)`

```
List emptyList = new EmptyIntList();  
List fiveList = new IntListCell(5, emptyList);  
List fourList = new IntListCell(4, emptyList);  
List fourFive = fourList.concatenate(fiveList);
```