

## Solution to Section #4

Portions of this handout by Eric Roberts and Patrick Young

### 1. Adding commas to numeric strings

```
private String addCommasToNumericString(String digits) {
    String result = "";
    int len = digits.length();
    int nDigits = 0;
    for (int i = len - 1; i >= 0; i--) {
        result = digits.charAt(i) + result;
        nDigits++;
        if (((nDigits % 3) == 0) && (i > 0)) {
            result = "," + result;
        }
    }
    return result;
}
```

### 2. Deleting characters from a string

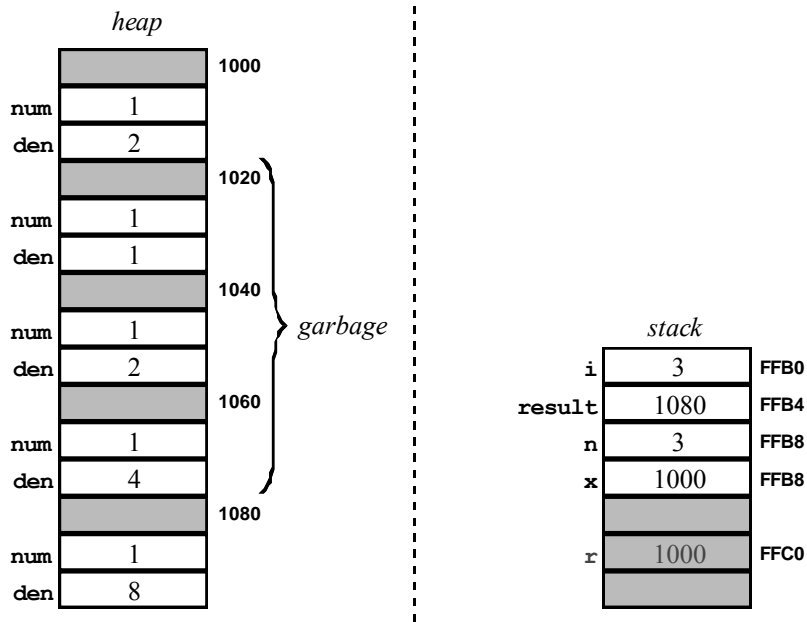
```
private String removeAllOccurrences(String str, char ch) {
    String result = "";
    for (int i = 0; i < str.length(); i++) {
        if (str.charAt(i) != ch) {
            result += str.charAt(i);
        }
    }
    return result;
}
```

A slightly different approach that involves a `while` loop instead of a `for` loop:

```
private String removeAllOccurrences(String str, char ch) {
    while (true) {
        int pos = str.indexOf(ch);
        if (pos >= 0) {
            str = str.substring(0, pos)
                + str.substring(pos + 1);
        } else break;
    }
    return str;
}
```

Could you generalize these functions to remove substrings? For instance, `removeAllSubstrings("Mississippi", 'si')` returns `"Missppi"`. Would these two functions ever return different values for the same input?

### 3. Heap/Stack diagrams



### 4. Tracing method execution

