

## Solution to Section #4

Portions of this handout by Eric Roberts, Patrick Young, Jeremy Keeshin and Nick Troccoli

### 1. Adding commas to numeric strings

```
function addCommasToNumericString(digits) {
  var result = "";
  var len = digits.length;
  var nDigits = 0;
  for (var 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

```
function removeAllOccurrences(str, ch) {
  var result = "";
  for (var 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:

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

### 3. Converting a string to alternating capital letters

```
function isLetter(ch) {
    return ch.length === 1 &&
    "abcdefghijklmnopqrstuvwxyz".indexOf(ch.toLowerCase()) !== -1;
}

function altCaps(str) {
    var result = "";
    var counter = 0;
    for(var i = 0; i < str.length; i++) {
        if (isLetter(str.charAt(i))) counter++;

        if ((counter % 2) === 0) {
            result += str.charAt(i).toUpperCase();
        } else {
            result += str.charAt(i).toLowerCase();
        }
    }
    return result;
}
```

### 4. An ineffective cipher

```
function anIneffectiveCipher(message, shiftNum, direction) {
    var result = "";
    var totalLength = message.length;
    shiftNum = shiftNum % totalLength;

    if (direction === "left") {
        result += message.substring(shiftNum);
        result += message.substring(0, shiftNum);
    } else if (direction === "right") {
        result += message.substring(totalLength - shiftNum);
        result += message.substring(0, totalLength - shiftNum);
    }

    return result;
}
```