

## **Problem Set 3, Problems 0 and 1**

### **Problem 0: Reading and response**

*Put your response to the reading below.*

- 1. Which contributing factor within the bug's origins (there are many!) strikes you as the "most preventable" and why? Of course, this will be in hindsight.**
- 2. The investigative report that uncovered the bug stated that software "does not fail in the same sense as a mechanical system." Do you agree or disagree with this statement? Explain briefly.**

**1. I think the most preventable bugs are spelling mistakes. As I was learning and going through the course of the cs 111 Python course, I am having assignments with the different roles of functions and codes. The spelling mistake was the mistake that I made the most often, but it was also the easiest error I could fix. The Python software is friendly enough to tell us what error has made from the software. So I think it is the most preventable bug.**

**2. I agree with the statement that "does not fail in the same sense as a mechanical system." I think the software as mental health or mindset if I compare it as a human body. A mechanical system is outside body parts such as muscle and bones, which make people can stand. Software is not the actual hardware that runs the body part to move. But software is the actual system that allows how it should be moved.**

## Problem 1: Tracing list comprehensions and recursion

1-1

x	scored_vals
-2	[4, -2]
1	[1, 1]
3	[9, 3]
-4	[16, -4]

1-2 value assigned to bestpair

[16, -4]

1-3 value returned by mystery1

-4

1-4

**mystery2('sizes')**

```
s = 'sizes'
result_rest = mystery2('izes') = 'sezi'
return result_rest = 'sezi'
```

**mystery2('izes')**

```
s = 'izes'
result_rest = mystery2('zes') = 'sez'
return result_rest + s[0] = 'sez' + 'i' = 'sezi'
```

**mystery2('zes')**

```
s = 'zes'
result_rest = mystery2('es') = 'se'
return result_rest + s[0] = 'se' + 'z' = 'sez'
```

**mystery2('es')**

```
s = 'es'
result_rest = mystery2('s') = 's'
return result_rest + s[0] = 's' + 'e' = 'se'
```

**mystery2('s')**

```
s = 's'
result_rest = mystery2('') = ...
return 's'
```

**mystery2(...)**

```
s = ...
result_rest = mystery2(...) = ...
return ...
```

1-5

'sezi'