Problem Set 2, Problems 0, 1, and 2

Problem 0: Reading and response

Put your response to the reading below.

I think that the most interesting part of the article was how Watson only managed to tie with Ruttgers on the first round, but was easily able to overcome him in the next two matches. The ability to quickly search for information through opaque questions could be the most useful for algorithms that are used for search engines like google and bing. It would allow for more effective results for questions that are not the most clear. I think the most human style thinking that watson displays is when its unconfident in its responses. Similarly to how people would react, Watson takes longer to respond because it's afraid that it'll embaress itself by being wrong, a habit that I also perform often.

Problem 1: Tracing function calls

global variables

a	b	c	d
3	5	2	4

hello's local variables

a	b	c	d
3	5	2	4
3	7	2	4
3	7	2	6

goodbye's local variables

a	c	b
5	4	
5	4	7

adios's local variables

a	b	c	d
5	5	4	4
3	4	7	5

output (the lines printed by the program)

```
3 5 2 4
5 5 4 4
3 4 7 5
hello 3 7 2 6
3 5 2 4
```

Problem 2: Thinking recursively

2-1)

```
mystery(0, 9)
-------------
    a = 0
    b = 9
    myst_rest = mystery(1, 7) = 8
    return 24

    mystery(1, 7)
    -----------------
        a = 1
        b = 7
        myst_rest = mystery(2, 5) = 8
        return 15

           mystery(2, 5)
           --------------------
           a = 2
           b = 5
           myst_rest = mystery(3,3)
           return 8

                mystery(3, 3)
                ----------------------
                a = 3
                b = 3
                return 3
```

2-2)

24

2-3)

5 stack frames

2-4)

a = 10

b = 1

This will recurse infinitely because b is lower than a and only adding a and subtracting b will only increase the distance and prevent them from being equal to each other.