Problem Set 2, Problems 0, 1, and 2

Problem 0: Reading and response

Put your response to the reading below.

The most interesting and important point for me is that scientists make a breakthrough in artificial intelligence that Watson could understand questions asked in natural language and answer those questions. The most obvious reason is that it is pretty cool for a machine to understand what you are talking about, but for a deeper reason, the machine could reduce some kind of inconvenience, or even avoid danger to some extent. For example, if this kind of artificial intelligence is applied in cars, people, especially those businessmen or doctors who sometimes have to check incoming emergency messages, do not have to be distracted while driving. They could just tell the machine “what is the incoming message” and wait for it to read for them, which reduces the accidents due to distraction. Besides, I think the similarity between human-style and Watson-style thinking is that both would hesitate while feeling unconfident to answer others’ questions. According to the article, Watson would spend more time buzzing in, which is similar to humans adding “um” or other modal words to their speech.

Problem 1: Tracing function calls

global variables

a	b	c	d
4	3	2	1
4	3	2	4

hello's local variables

a	b	c	d
3	4	1	2
3	6	1	2
3	6	1	4

goodbye's local variables

a	b	c
4	2	
4	2	6

adios's local variables

a	b	c	d
4	4	2	2
1	2	6	5

output (the lines printed by the program)

```
4 3 2 1
4 4 2 2
1 2 6 5
hello 3 6 1 4
4 3 2 4
```

Problem 2: Thinking recursively

2-1)

```
mystery(3, 9)
-------------
    a = 3
    b = 9
    myst_rest = mystery(4, 7) = 9
    return 3+9=12

    mystery(4, 7)
    -----------------
        a = 4
        b = 7
        myst_rest = mystery(5, 5) = 5
        return 4+5=9

        mystery(5, 5)
        -----------------
            a = 5
            b = 5
            base case!
            return 5
```

2-2)

12

2-3)

4

2-4)

a=6 b=4

This a and b would produce infinite recursion because as it does the recursive call, a would do multiplication to make it bigger while b would do subtraction to make it smaller. And as the initial input value of a is bigger than b, the base case would never be reached.