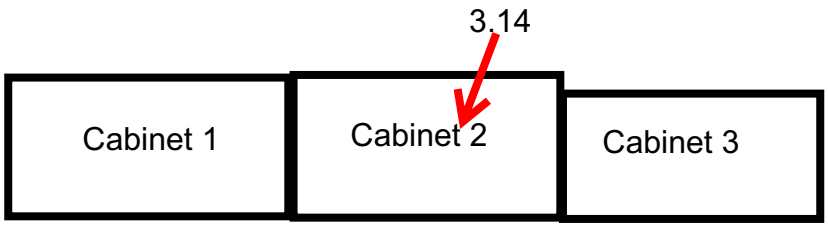
An introduction to coding (specifically to Python)

This first introduction set of exercises is done in the form of discrete .py files meant to lead you through the Python language. Ideally, you have UNIX based terminal where you can run the files and a text editor such as Atom already installed on your computer. If not, go back to the main directory and follow the instructions in the Install folder.

The simplest way to describe 'coding' in general is by talking about file cabinets. Every computer has millions of '3.14' or drawers for storing data.

Let's say I want to tell the computer to save the number 3.14 = 314/1000 = 0.314*10^(-1)



To do this saving of a number in python, you type:

```
var1 = 3.14
```

Then, whenever you want the number 3.14, you can use the VARIABLE var1.

Variables are the backbone of every coding language. The nice thing is that variables do not have to be numbers! They can be lists of numbers, a letter, lists of letters, etc.
However, if your variable is a list of numbers, it will need more than one 'cabinet' to store all those numbers. If each cabinet can store one number, the length of your list determines the number of cabinets your computer needs to store that information.

In most coding languages, like C++, C#, and Java, you have to tell the computer what the DATA TYPE of a particular variable is. In python, we don't have to specify the data type because the COMPILER figures out what the correct data type is! In python, we just say a variable equals a number and the code works. Same thing for a list of letters, or STRING

```
var1 = 'Hi my name is Roark'
```

What is the COMPILER? Open your terminal and type the python command (for me, that is python3)

```
roarkh@DESKTOP-0OO6BDV:~$ python3
Python 3.6.9 (default, Nov  7 2019, 10:44:02)
[GCC 8.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

As long as you aren't a computer scientist, this is the closest you will get to the python 'compiler.' It takes in chunks of code and translates them into binary, and then executes them through the computer's electronics.

Go ahead and type in except with your first name instead of Roark, and hit enter!

```
var1 = 'Hi my name is Roark'
```

WOW. Nothing happened, right?

```
roarkh@DESKTOP-0OO6BDV:~$ python3
Python 3.6.9 (default, Nov  7 2019, 10:44:02)
[GCC 8.3.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> var1 = 'Hello my name is Roark'
>>>
```

WRONG. SOMETHING VERY IMPORTANT HAPPENED.
You saved your first variable! Congrats!