CSSE 120 – Introduction to Software Development (Robotics section)

Concept: *Calling Functions*

Defining functions

A function is a chunk of code that has a name. Here (to the right) is a portion of an example of the notation for ***defining*** a function.

```
def input(prompt):
    print(prompt, end='')
    ...
    ...
    return <what the user typed, as a string>
```

The ***name*** of the function follows the keyword `def`. The variables in the parentheses after the name of the function are called ***parameters***. We'll talk lots more about *parameters* in a subsequent session.

Why have functions?

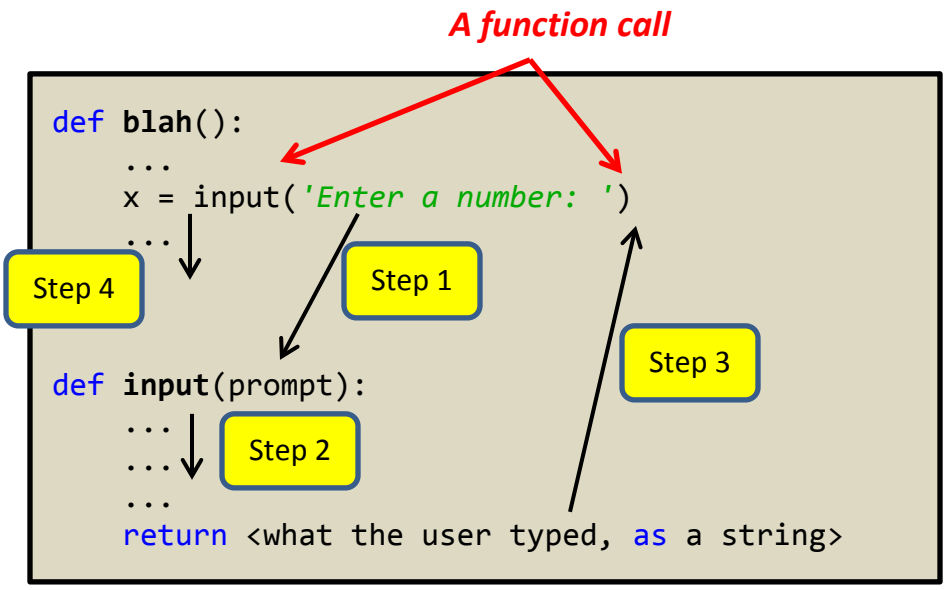
Functions are powerful for 2 reasons:

- They help ***organize a program into logical chunks***. That makes it easier to:
  - Test the program (by testing the chunks, called unit testing).
  - Modify the program (by focusing your interest on the chunks of interest).
  - Write correct code (by understanding the organization of the program).
- You can ***re-use functions***. That is, you can call them over and over again, with different values for the parameters to achieve different results.

Calling functions

You ***call*** (aka ***invoke***) a function by writing its ***name followed by parentheses***, with the ***actual arguments*** placed inside the parentheses.

When you call a function:



1. The actual ***arguments*** of the function call (the values in the parentheses) are sent into the formal ***parameters*** of the function definition.
2. ***Execution continues*** at the beginning of the definition of the called function.
3. When the function's ***return*** statement is executed, the returned value is sent back to the calling function. Or, if the end of the function is reached without a return statement, the special value *None* is sent back to the calling function.
4. ***Execution continues*** from the place where the function call appeared, with the returned value replacing the function call.