

## Python – Inputs and Outputs – Assignment 3

Consider the following problem: Prompt the user for two numbers, and then print out a sentence stating the sum. For instance if the user entered 2 and 3, you would print ‘The sum of 2 and 3 is 5.’

You might imagine a solution like the example file `addition1.py`, shown below. There is a problem. Can you figure it out before you try it? Hint: [\[2\]](#)

```
'''Error in addition from input.'''

x = input("Enter a number: ")
y = input("Enter a second number: ")
print('The sum of ', x, ' and ', y, ' is ', x+y, '.', sep='') #error
```

End up running it in any case.

We do not want string concatenation, but integer addition. We need integer operands. Briefly mentioned in [Whirlwind Introduction To Types and Functions](#) was the fact that we can use type names as functions to convert types. One approach would be to do that. Further variable names are also introduced in the example `addition2.py` file below to emphasize the distinctions in types. Read and run:

```
'''Conversion of strings to int before addition'''

xString = input("Enter a number: ")
x = int(xString)
yString = input("Enter a second number: ")
y = int(yString)
print('The sum of ', x, ' and ', y, ' is ', x+y, '.', sep='')
```

Needing to convert string input to numbers is a common situation, both with keyboard input and later in web pages. While the extra variables above emphasized the steps, it is more concise to write as in the variation in example file, `addition3.py`, doing the conversions to type `int` immediately:

```
'''Two numeric inputs, with immediate conversion'''

x = int(input("Enter a number: "))
y = int(input("Enter a second number: "))
print('The sum of ', x, ' and ', y, ' is ', x+y, '.', sep='')
```

The simple programs so far have followed a basic *programming pattern*: input-calculate-output. Get all the data first, calculate with it second, and output the results last. The pattern sequence would be even clearer if we explicitly create a named result variable in the middle, as in `addition4.py`

```
'''Two numeric inputs, explicit sum'''

x = int(input("Enter an integer: "))
y = int(input("Enter another integer: "))
sum = x+y
print('The sum of ', x, ' and ', y, ' is ', sum, '.', sep='')
```

We will see more complicated patterns, which involve repetition, in the future.

### **1.10.3.1. Exercise for Addition**

Write a version, `add3.py`, that asks for three numbers, and lists all three, and their sum, in similar format to `addition4.py` displayed above.