

# W04 Lab

## Understanding Function Call

# Activity 1

- Form a group of 2-3 students
- Go to **play.blooket.com**
  - and enter Game ID [on screen]
- Answer the questions quickly and accurately to win the game
- After the game played, the statistics will be examined.

# Visualize Python

- Python Tutor: Online python interpreter with visualization
  - <https://pythontutor.com/visualize.html>

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

Write code in Python 3.6

1

Visualize Execution

Ads keep this tool free; we are not responsible for contents of displayed ads.

hide exited frames default

inline primitives, don't nest objects default

draw pointers as arrows default

[Show code examples](#)

# Input as a String

Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

Python 3.6  
[known limitations](#)

```
1 first = input("Input name: ")
2 last = input("Input lastname: ")
3 age = input("Input age: ")
4
5 print(first, type(first))
6 print(last, type(last))
7 print(age, type(age))
8
→ 9 age_graduated = age + 4
```

[Edit this code](#)

→ line that just executed

→ next line to execute



<< First < Prev Next > Last >>

Done running (7 steps)

**TypeError: must be str, not int**  
(see [KNOWN LIMITATIONS and unsupported features](#))

Print output (drag lower right corner to resize)

```
Input lastname: Smith
Input age: 17
Adam <class 'str'>
Smith <class 'str'>
17 <class 'str'>
```

Frames

Objects

Global frame

first	"Adam"
last	"Smith"
age	"17"



<https://tinyurl.com/29xsdk7f>

# Input conversion

## Python Tutor: Visualize code in [Python](#), [JavaScript](#), [C](#), [C++](#), and [Java](#)

Python 3.6  
[known limitations](#)

```
1 in_a = input("Enter a number :")
2 print(in_a, type(in_a))
3 a = int(in_a)
→ 4 print(a, type(a))
```

[Edit this code](#)

→ line that just executed  
→ next line to execute

Done running (4 steps)

Ads keep this tool free; we are not responsible for contents of displayed ads

Non-default options: show all frames (Python), primitive/object nesting, text labels for pointers

[Move and hide objects](#)

Print output (drag lower right corner to resize)

```
Enter a number :5
5 <class 'str'>
5 <class 'int'>
```

Frames

Objects

Global frame

in_a	"5"
a	5



<https://tinyurl.com/n3688syz>

# Input conversion

- Fix the code from <https://tinyurl.com/29xsdk7f>
- Make it run correctly



Print output (drag lower right corner to resize)

```
Input name: Adam
Input lastname: Smith
Input age: 17
Adam <class 'str'>
Smith <class 'str'>
17 <class 'str'>
21
```

Frames

Objects

Global frame

first	"Adam"
last	"Smith"
age	"17"
age_graduated	21

# What is the output of the following code?

- Type in below code in python tutor to visualize the see what it runs

```
1 def numval(num):  
2     num += 1  
3     print("num is: ", num)  
4  
5 value = 10  
6 numval(value)
```

# Activity 2

- Form a group of 2-3 students (Or you can do it soloist)
- Study the code in python tutor in order to understand the concept of parameter passing



# Check Your Understanding

**What is the output of the following code?**

```
1 def test():  
2     x = 10  
3     print("x is:", x)  
4  
5 x = 20  
6 test()  
7 print("x is:", x)
```

# Check Your Understanding

**What is the output of the following code?**

```
1 def modify_value(x):  
2     x += 5  
3  
4 value = 10  
5 modify_value(value)  
6 print(value)
```

# Check Your Understanding

**What is the output of the following code?**

```
1 def modify_value(value):  
2     value += 5  
3  
4 value = 10  
5 modify_value(value)  
6 print(value)
```

# Activity 3

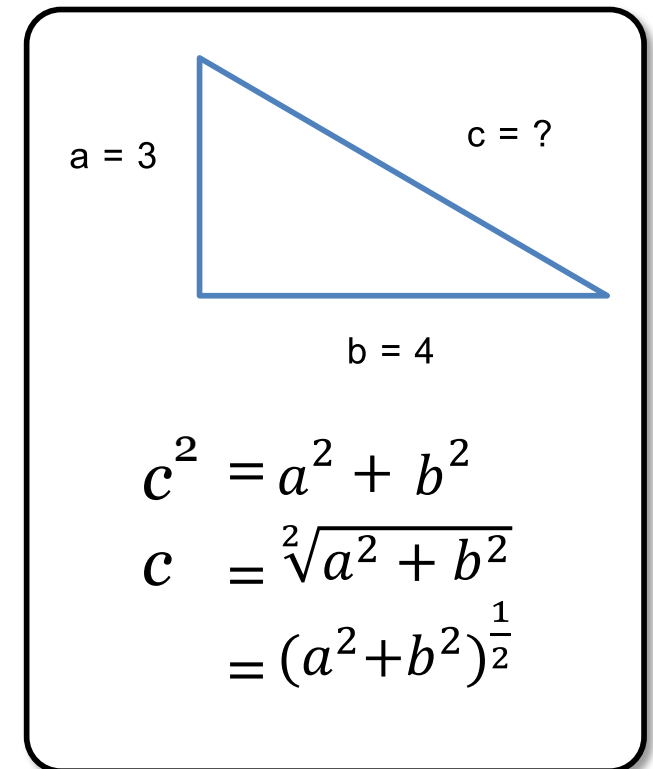
- Form a group of 2-3 students
- Go to [play.blooket.com](https://play.blooket.com)
  - and enter Game ID [on screen]
- Answer the questions quickly and accurately to win the game
- After the game played, the statistics will be examined

# Coding Exercise

Write a Python program that calculates the length of the hypotenuse in a right triangle, given the lengths of the other two sides and the math module.

**You are required to:**

1. Create your own **square()** function that takes a number as an argument and returns its square.
2. Create a separate function to calculate the length of the hypotenuse in a right triangle. This function should take two arguments, each representing one side of the triangle.
3. The function created in step 2 should use the square() function from step 1, as well as the sqrt() function from **the math module**.
4. Ask the user for the lengths of the two sides of a triangle, pass the two lengths to the function in step 2.
5. The result should be printed using the format() function with the following text:



“The hypotenuse in a right triangle with sides (**a,b**) is **xx.xx**”

**xx.xx** is a float value rounded to 2 decimal places