

Topic 1: Intro to Python

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Updates

- ➊ **Homework 1:** Posted and due this Friday.
- ➋ **Topic 2 (Part 1) and Post-reading:** Posted and due this Friday.
- ➌ Feel free to drop by office hours if you have any questions.
- ➍ As a reminder, I encourage you all to work together to complete the homeworks. Don't share exact answers but feel free to discuss things at a high level.

A Brief Review

Computability

- Complexity \neq Non-computable (undecidable)

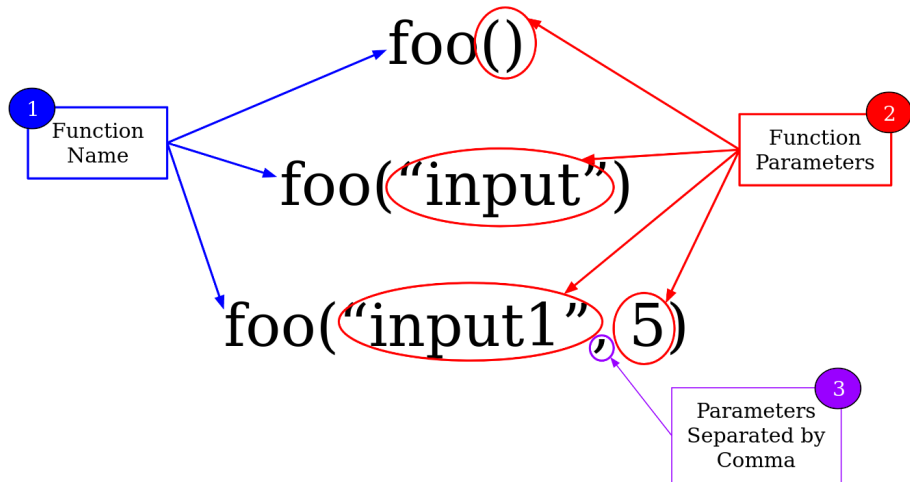
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- **The Halting Problem:** Given a description of a Turing Machine and its initial input (the paper strip), determine whether the program, when executed on this input, ever halts.
- There is no *general solution* to the halting problem.

Anatomy of a Function Call



Input and Print

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- **The Print Function**: A builtin function that takes a string as a parameter (in between the parentheses) and outputs that string
 - **print('Hello, World!')** → Will output the 'Hello, World!'.

Data Types in Python

- Two types we'll need to know now:
 - **Strings:** A long list of characters accompanied by surrounding quotes (e.g., 'Hello, CS 105!').
 - **Integers:** Whole numbers, both positive and negative.
- You can check the type of a variable or expression with the `type()` function.

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Poll Questions

Poll Question: Input and Print

Assuming there is a variable `value` with the value 7, which of the following statements prints: `count = 7`.

- ☐ A `print("count = " value)`
- ☐ B `print("count = ", end="value")`
- ☐ C `print("count = ", value)`
- ☐ D `print("count = $value")`

Poll Question: Addition Operation

In Python $x + y$ is:

- ☒ A an assignment
- ☐ B a statement
- ☐ C a variable
- ☐ D an expression

Errors

Poll Question: Errors

What happens if I type the following code into a **brand new** Python interpreter:

```
1 x + y
```

- ☐ A Nothing
- ☐ B SyntaxError
- ☐ C NameError
- ☐ D ValueError

Poll Question: Error

What happens if I type the following code into a Python interpreter?

```
1 print(input("Enter a number: "))
```

- ☐ A No error
- ☐ B SyntaxError
- ☐ C NameError
- ☐ D TypeError

Poll Question: Errors

What happens if I type the following code into a Python interpreter?

```
1 value = input("Input your favorite number!\n")  
2 print("Your new favorite number is", value + 1)
```

- ☐ A No error
- ☐ B `SyntaxError`
- ☐ C `ValueError`
- ☐ D `TypeError`

Poll Question: The Print Function

What type of error will Python produce when this segment of code is run?

```
1 x = "Hello, world"  
2 y = 5  
3 foo = x + y
```

- ☐ A SyntaxError
- ☐ B NameError
- ☐ C ValueError
- ☐ D TypeError

Poll Question: The Print Function

What type of error will Python produce when this segment of code is run?

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1 x = "Hello, world"  
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3 foo = x + y + z
```

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- ☐ C ValueError
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Poll Question: Error

What happens if I type the following into a Python interpreter?

```
1 a = input()  
2 b = input()  
3 a + b = x
```

- ① No error
- ② SyntaxError
- ③ NameError
- ④ TypeError

Data Types and Errors

Poll Question: Data Types

What is the type of `x` after the following segment of code runs if the user inputs a 5 and then a 4?

```
1  a = input()
2  b = input()
3  x = a + b
```

- ☐ A String
- ☐ B Integer

Poll Question: Data Types

What is the result of running the following code if the user types in `world` and then `hello`?

```
1 a = int(input())  
2 b = int(input())  
3 x = a + b
```

- ☐ A No error
- ☐ B `SyntaxError`
- ☐ C `NameError`
- ☐ D `ValueError`
- ☐ E `TypeError`

Converting from string to integer

```
1 x = input() #type(x) is str
2 x = int(x)  #type of x is int
3
```

is the same as

```
1 x = int(input())
2
```

Your Questions!

Two options for remaining time

- Get Python/text editor setup using the instructions on under the lab section on the course website's about page.
- Get started on homework 1

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