

Problem Set 1

Due date: 10/18

Name: _____

Group Members: _____

This problem set is based on Lecture 1 (10/4), and textbook chapters 1 & 2.

Part 1: Write the Output

For each of the following, write the **output** that would be produced from running each of the following line(s) of code in the Python **interpreter**.

1.

```
>>> x = 10
>>> x + 1
```

2.

```
>>> y = "hello"
>>> y + "!"
```

3.

```
>>> "three" * 3
```

4.

```
>>> 3 ** 2
```

5.

```
>>> type(3)
```

6. `>>> type("3")`

7. `>>> 1digit = 8`

Part 2: Paragraph Response

For the following questions, write a few sentences (between 1-5) as a response.

8. In your own words, what is **Python**? (Hint: use any relevant vocabulary terms from the reading and lecture slides)

9. What are the three main **data types** used in Python? Include examples of each.

10. Describe the three kinds of **errors** that can occur in programs, and give an example of each.

11. What happens in a **variable declaration**?

12. What is the "=" used for in programming?

Part 3: Understanding Code

The following **3 questions** refer to the following code:

```
num1 = 10
num2 = 3.6
animal = "Elephants"
diff = num1 - num2
sentence = animal + " are mammals."
```

13. What is the **data type** of the variable *diff* after executing the code above?

Mark only one oval.

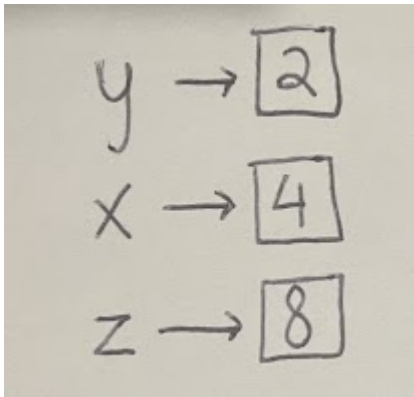
- ☐ int
- ☐ float
- ☐ String

14. What is the **value** of the variable *sentence* after executing the code?

15. Draw a **memory model** to represent the state of memory after executing the code.
(Feel free to draw on a separate sheet of paper and attach, just make sure to write your name)

Part 2: Code Writing Challenge

16. Write a program that would produce the following memory diagram (hint: there is more than one correct answer!)



17. Write a *different* program than the one you wrote above that would produce the same memory diagram.

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