Name:_____ **Partners:** _____

Python Activity 2: Input and Variables

Being able to store values for later use and gather user input would allow us to make more dynamic programs!

Learning Objectives

Students will be able to:

Content:

- Explain how to input data using Python
- Explain the meaning and purpose of a variable
- Determine if a variable name is valid
- Explain concatenation and the use of "+"

Process:

- Create **input** statements in Python
- Create *Python* code that prompts the user for data and stores it in a variable
- Create valid and good variable names

Prior Knowledge

- Running and saving a Python script, examining output in Terminal.

Critical Thinking Questions:

Program:

Python Program

```
name = input("What is your name? ")
print("Your name is", name)
```

Output (Before & After User Input):

```
ihowley@ihYeti pogil % python3 pogil02_input.py
What is your name?
```

```
What is your name? iris
Your name is iris
```

1. Examine the output of the Python program above. What is printed on the screen when the Python program is executed?

_____

_____

FYI: `input()` **and** `print()` are ***functions*** in Python.

2. Examine the first line of Python program: `name = input("What is your name? ")`
   a. What appears on the screen when this line of code is executed?

_____

FYI: The words that appear on the screen and tell the user what to enter are known as a ***prompt***.

FYI: `name = input("What is your name? ")`
The word **name** in the Python code is a ***variable*** – *a name given to a memory location used to store data.*

   b. What happens to the data the user entered?

_____

3. Guess why each of these lines of Python code *produce an error* when executed:

   a. `name? = input("What is your name?")`

   _____

   b. `your name = input("What is your name?")`

   _____

   c. `1st_name = input("What is your name?")`

   _____

   d. `from = input("Where were you born?")`

   _____

4. Examine the errors that occurred when executing the lines of code in question 3, as a class. Then examine the following lines of valid code.

```
name2 = input("What is your name?")
your_name  = input("What is your name?")
yourName = input("What is your name?")
```

List the rules that you need to follow to create a valid ***variable*** name.

_____

_____

_____

5. Are the following variable names **valid**? Are they **good** names? Why or why not?

Variable name	Comments about variable name
price	
costoffirstitem	
Ic	
firstName	

6. Execute the following lines of code. Is the output what you would expect? Why or why not?

_____

_____

_____

_____

```
name = input("What is your name? ")
print("Your name is", Name)
```

7. Use the following set of Python statements to answer the questions below.

Python Statements:

```
print("Your name is", "Pat.")
print('Your name is', "Pat.")
print("Your name is" + "Pat.")
print("Your age is", 20)
print("Your age is" + 20)
```

Output:

```
Your name is Pat.
Your name is Pat.
Your name isPat.
Your age is 20
TypeError: can only concatenate str
     (not "int") to str
```

   a. Draw lines connecting the program input (on the left) to its matching program output on the right.

b. How are the first two print statements different? Does the difference affect the output?

_____

c. Notice that some statements include a comma (,) between the two literals being printed and some statements use a "+". Do they produce the same output? _____

d. Explain the purpose of the comma. _____

_____

e. Why does the last print statement crash the program? What would you do to correct it?

_____

_____

FYI: "+" **concatenates** two strings. The strings can be string literals or a variable containing string literals.

8. When we run the following code:

```
name = input("Enter your name: ")
id = input("Enter your student ID number: ")
course = input("Enter your course number: ")

print(name + "'s ID is " + id + "\nand is enrolled in " + course)
```

We observe this output:

```
Enter your name: Iris
Enter your student ID number: 000000001
Enter your course number: 134
Iris's ID is 000000001
and is enrolled in 134
```

a. What caused the output in the print statement in question 8 to be printed on more than one line?

_____

Application Questions: Use the Python Interpreter to input your code and check your work

1. State a good variable name for an employee's ID number. _____

2. Write a line of Python code that prompts the user for the name of their favorite ice cream and stores it in a valid variable name. _____

3. **Crazy Sentence Program**. Create a program that prompts the user for the name of an animal, a color, the name of a vehicle, and the name of a city. Then print a sentence that contains the user input in the following order. Include the additional words in the sample output as part of your output. Example: Assume the user enters the words: tiger, green, motorcycle, and Wildwood. The output would be: ***The*** **green tiger** ***drove the*** **motorcycle** ***to*** **Wildwood.**

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