Intro to Coding with Python– User Input

Dr. Ab Mosca (they/them)

Slides based off slides courtesy of Jordan Crouser (https://jcrouser.github.io/)

Reminder!

- First quiz (on PLATO) is out today!
- Quizzes (and homeworks) are *week long* assignments; expect to spend 5-7 hours on them (this is standard for a college class)

Plan for Today

- Learn how to get user input
- Write a few programs

Recall: the `print()` function

- **`print()`** outputs information to the console ("the shell")
- Works on lots of different **data types** (strings, integers, floats, and many more!)
- When **`print()`** is called on ("passed") a **`variable`**, it outputs the **contents**

```
Python 3.8.2 (default, Feb 26 2020, 02:56:10)
> x = 3
> print(x)
```

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> x = 3
> print(x)
3
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Practice

- Write a short program that prints the following:

```
##############
# CAIS117 #
##############
```

Discussion

What if we wanted to be able to print a banner around ANY word? What would we need?

Discussion

What if we wanted to be able to
print a banner around ANY word?
What would we need?

- The word
- To be able to count how many characters are in the word

Another function: `len()`

- **`len()`** takes in a string and gives back the string's length (number of characters, including spaces)
- Can be called on string **literals** (**`"stuff in quotes"`**) or on **variables** whose contents are strings
- Unlike **`print()`**, **`len()`** **returns** a value

```
Python 3.8.2 (default, Feb 26 2020, 02:56:10)
> len("Jordan")
```

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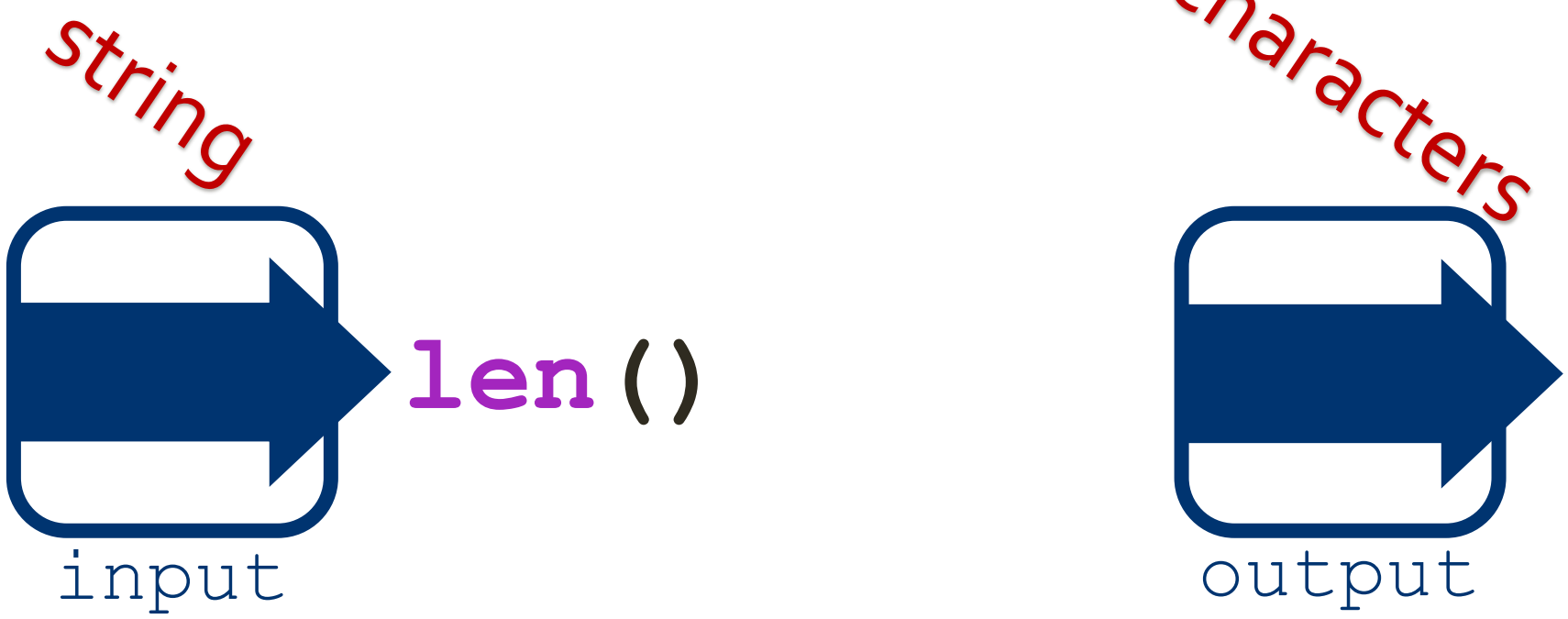
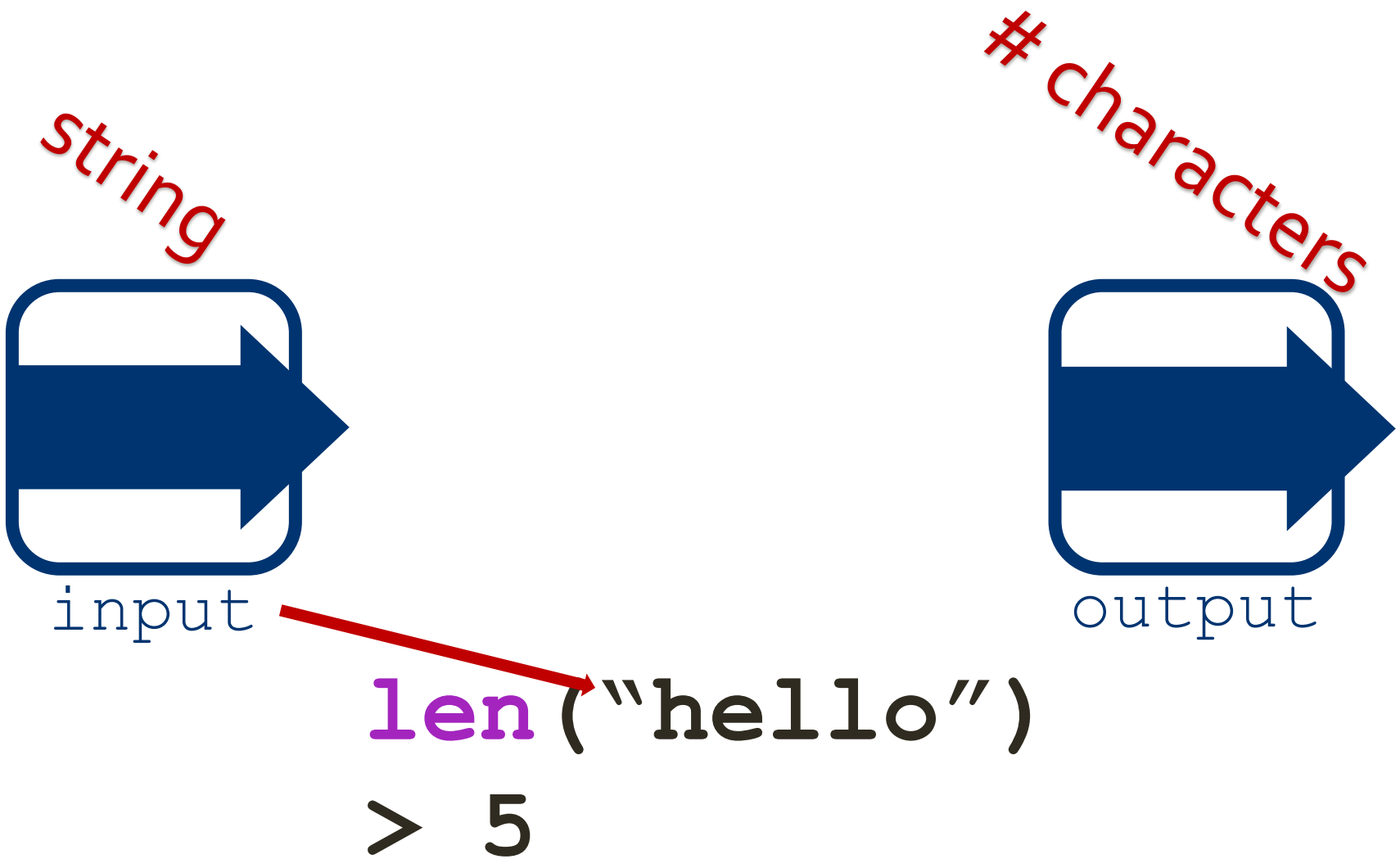
> len("Jordan")
6
```

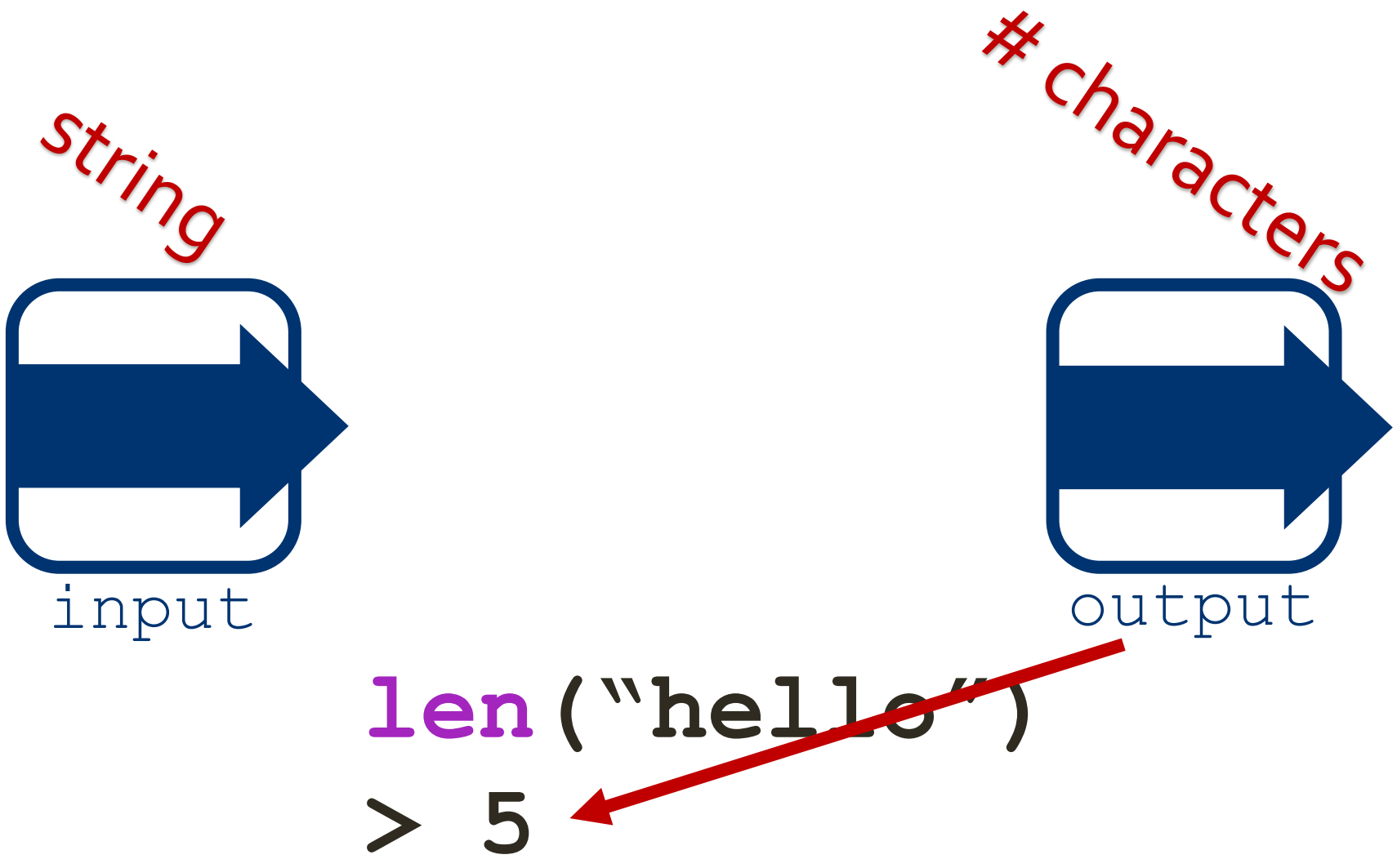
Back to the 4 basic tasks



Back to the 4 basic tasks

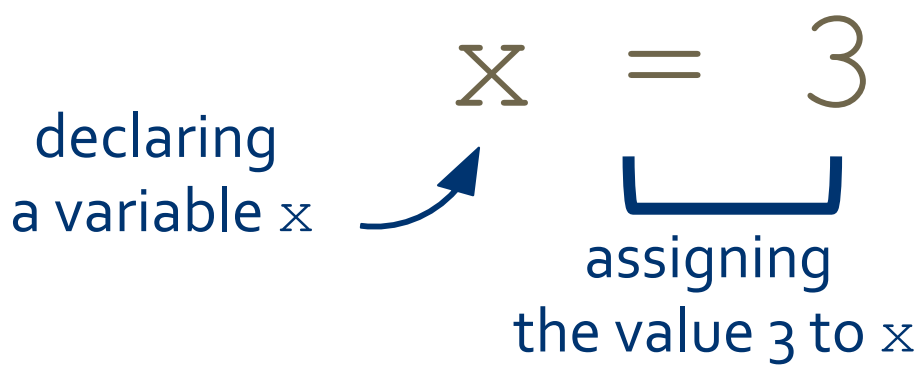


Back to the 4 basic tasks



Recall: `variables`

- In CS, a **`variable`** is a place to store a piece of data
- In Python, variables are:
  - **declared** by giving them a name
  - **assigned** using the equals sign
- Example:



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- Example:

```
x = len("hello")
```

declaring a variable `x`

assigning the return value to `x`

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- In Python, variables are:
  - **declared** by giving them a name
  - **assigned** using the equals sign
- Example:

```
myStrLen = len("hello")
```

declaring a variable

assigning the return value

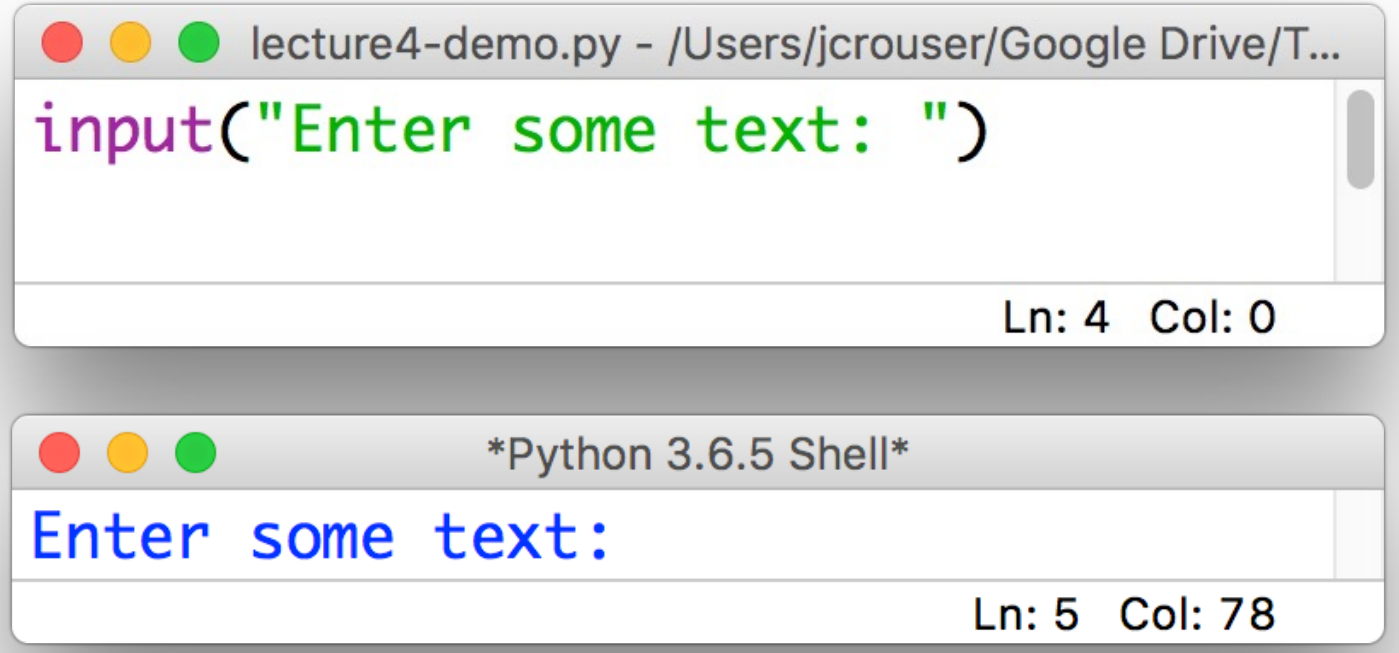
Discussion

What if we wanted to be able to print a banner around ANY word? What would we need?

- The word
- To be able to count how many characters are in the word (and store answer)

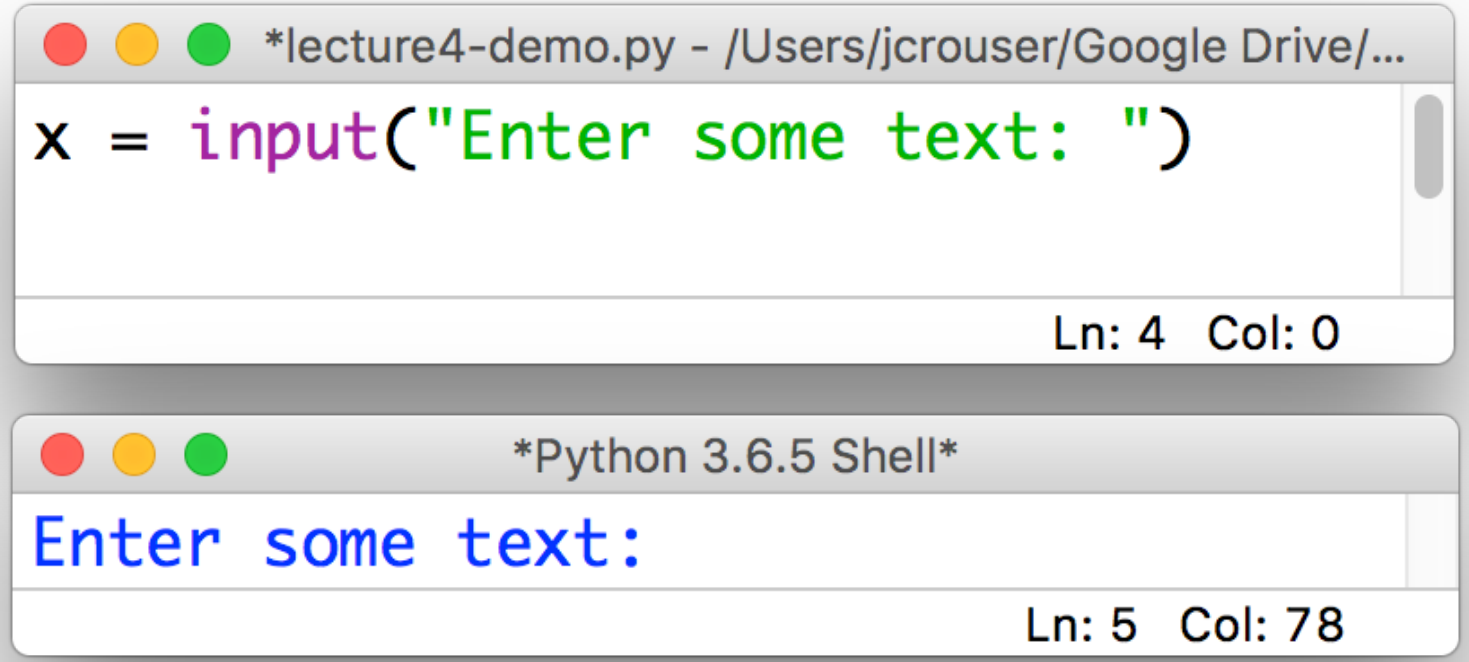
The `input()` function

- Python has a built-in **`input()`** function that allows us to ask the user to type in information
- The **`input()`** function takes in a value, which will be printed to the console as a prompt:



The `input()` function

- In general, we will want to **save** what the user enters so we can do something with it
- This means we need to **assign** the value **returned** by the `input()` function to some variable, e.g.



Discussion

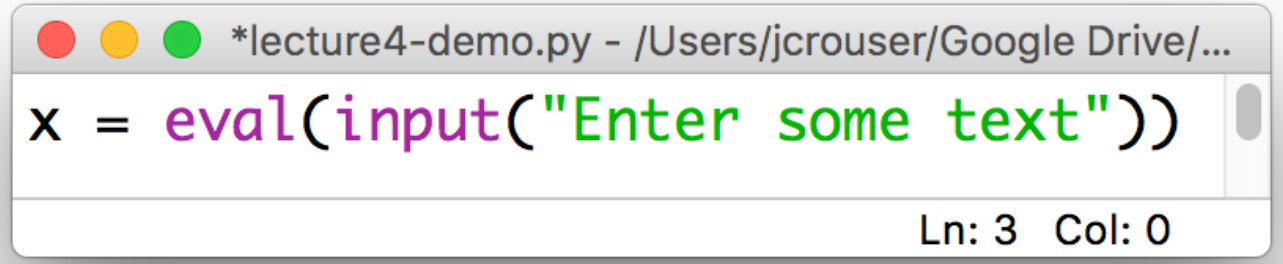
What if we wanted to be able to print a banner around ANY word? What would we need?

- ☑ The word
- ☑ To be able to count how many characters are in the word (and store answer)

- Modify your program from earlier to work for any string

Note: The `eval()` function

- The user's input is always returned as a **`string`**, even if they enter only numeric characters
- If we want Python to interpret it as a number, we can use the **`eval()`** function



- Then we can manipulate `x` using mathematical operations

Putting it all together

- In small groups, write a program that asks the user to `input()` two strings:
  - a **`word`**
  - a **`number`**
- Store the user input in appropriate **variables** (remember: `eval()` will return the *numeric value* of a *string*)
- `print()` the **`word`** the user-specified **`number`** of times
  - Note: try multiplying a string by an int and see what happens
- Want a **challenge**? Also ask the user to input a **`character`** (a single letter or symbol), and use that to print a banner around the repeated word

Discussion

What did you come up with?