# CS 110 Python Basics, Printing, Input

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#### **Announcements**

- Groups and seating
- Videos for online component
- Prep 2 (due monday)

#### Variables

- We can assign names to particular values in our program
- When we give a value a name, this is called assigning a variable

# The input() function

- The input() function is the second function introduced
  - The first one being print()
- The input function allows the programmer to read in a value from the user
- Now, we can make an interactive program!

Use replit if you don't have Python 3 and and IDE in your computer

# replit.com

#### Activity

Change so that the user can customize the input

```
name = 'Jim'
age = '35'
print('Hello ' + name)
print('you are', age, 'years old')
```

Change so that the user can customize the input

```
name = input('What is your name? ')
age = input('How old are you? ')
print('Hello ' + name)
print('you are', age, 'years old')
```

#### Newlines

- We've seen several escape sequences so far
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  - \' \" What do these produce?

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  - And now: **\n**

#### Integers and Variables

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  - Integer: a number with no fractional or decimal representation
- For example:

```
age = 32
years_in_service = 17
wing_width = 25
```

#### What will this print out?

```
name = 'Joe'
age = 35
inches = 72
print('Hello', name)
print('you are', age, 'years old')
print('and', inches, 'inches tall')
```

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- For example

```
name = 'CSc' * 3
print(name)
```

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- For example

```
name = 'CSc' * 10
print(name)
```

CScCScCScCScCScCScCScCSc

# String Multiplication question

What will this print out? Don't use your computer, use the whiteboard!

```
print('#' * 2)
print('#' * 4)
print('#' * 6)
print('#' * 8)
```

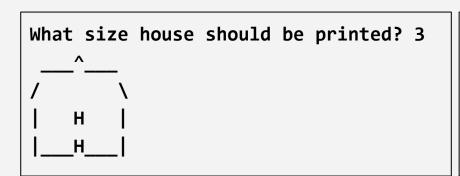
# String Multiplication question

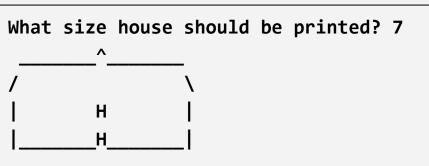
What will this print out. Use your white board - no computers!

```
print(' ' * 5, 'A' * 1)
print(' ' * 4, 'B' * 3)
print(' ' * 3, 'C' * 5)
print(' ' * 2, 'D' * 7)
print(' ' * 1, 'E' * 9)
print(' ' * 0, 'F' * 11)
```

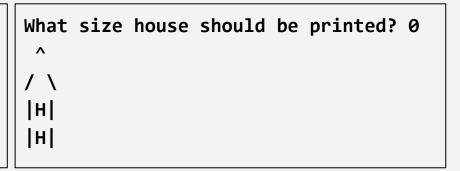
# House printing

- Write a program that allows us to print out a house of various widths
- The user can tell the program how wide of a house to print





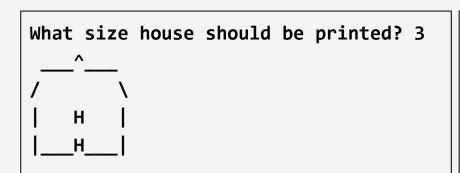
What	size	house	should	be	printed?	12
		^_			_	
/					\	
		Н			1	
		H			_	

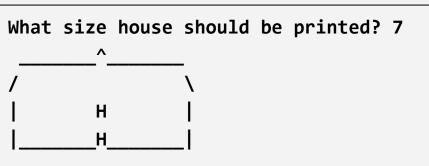


# House printing

# Let's write it!

- Write a program that allows us to print out a house of various widths
- The user can tell the program how wide of a house to print





What	size	house	should	be	printed?	12
		^_			_	
/					\	
		Н			1	
		H			_	

```
What size house should be printed? 0

/
/ \
|H|
|H|
```

Write a program that just prints out one house size:

Here's a size 3 house:

```
___^__
/ \
| H |
|___H__|
```

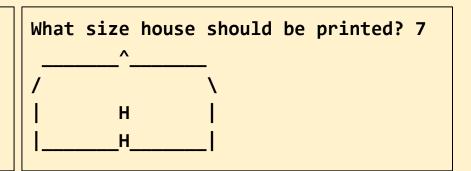
#### **Activity**

#### Step 2

- Next, change the program to grab an input value
  - (Can still print just the size 3 house)

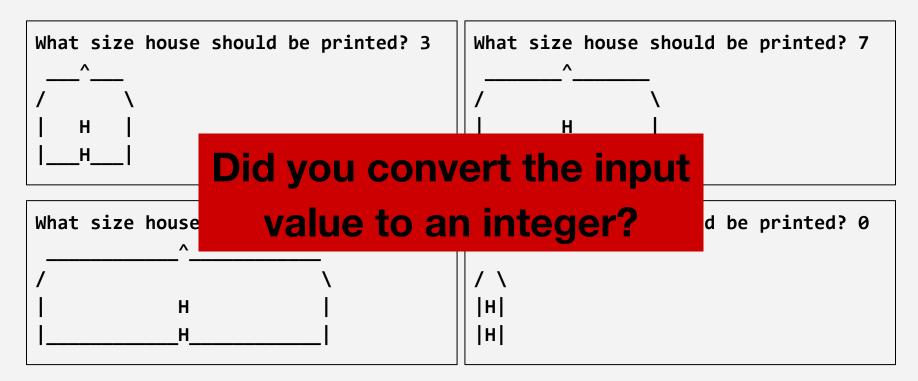
```
1 print("Here's a size 3 house:")
2 print(" ___^_")
3 print("/ \ ")
4 print("| H |")
5 print("|_H_|")
```

Now, use this number to grow the width of the house



```
What size house should be printed? 0
^
/ \
|H|
|H|
```

Now, use this number to grow the width of the house



# Converting an input value to a string

#### Does not work:

```
width = input('enter width: ')
print('-' * width)
```

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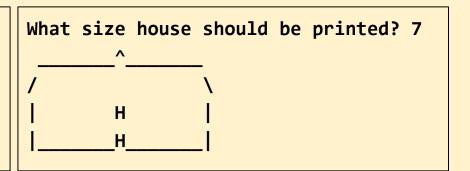
#### Does work:

```
width = int(input('enter width: '))
print('-' * width)
```

#### **Commas and Concatenation**

Use string concatenation (+) instead of a comma (,)

Now, use this number to grow the width of the house



```
What size house should be printed? 0

/
/ \
|H|
|H|
```

#### house.py

```
size = int(input('What size house should be printed? '))
print(' ' + '_' * size + '^' + '_' * size + ' ')
print('/' + ' ' * size + ' ' + ' ' * size + '\\')
print('|' + ' ' * size + 'H' + ' ' * size + '|')
print('|' + '_' * size + 'H' + '_' * size + '|')
```

#### Comments

- Lines starting in # are comments to the user
- You can leave comments for yourself, of future readers of your code!

```
# This is come code that will print out two lines of text
print('He said, "What is up?"')
print("Joe's friend didn't reply.")
```

#### Comments

- It is typical to put a comment at the top of all code files
- This is called a header comment or file comment
- You should do this for all of your programs, including the Movies PA

```
#
# Author: Benjamin Dicken
# Class: CSc 110
# Description: A program that . . .
#
```

# What does it print?

print(o \* b + t \* b)

```
a = int(input('input a: ')) # 5
b = int(input('input b: ')) # 2

o = '#' * a + '\n'
t = '|' * a + '\n'
```

# What does this print?

```
a = int(input('input a: '))
                                # 10
b = int(input('input b: '))
                                # 1
o = '#' * a + ' n'
r = o * 2 + ' n '
print(o + r + o)
```