Python for Beginners

Part 2

What We Learned in Part 1

* Python is a great beginner language.
* Idle - Integrated DeveLopment Environment
* Idle has two modes:

1. Interactive Mode :

   `>>>` on the screen

   responds immediately to commands

2. Script Mode :

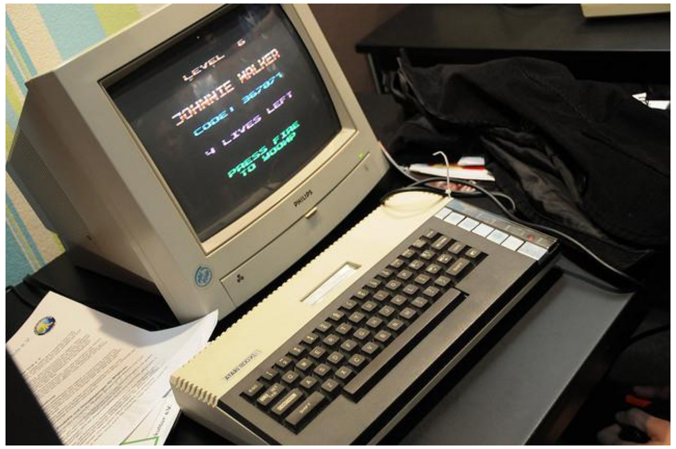
   Use *File->New File* to write a program

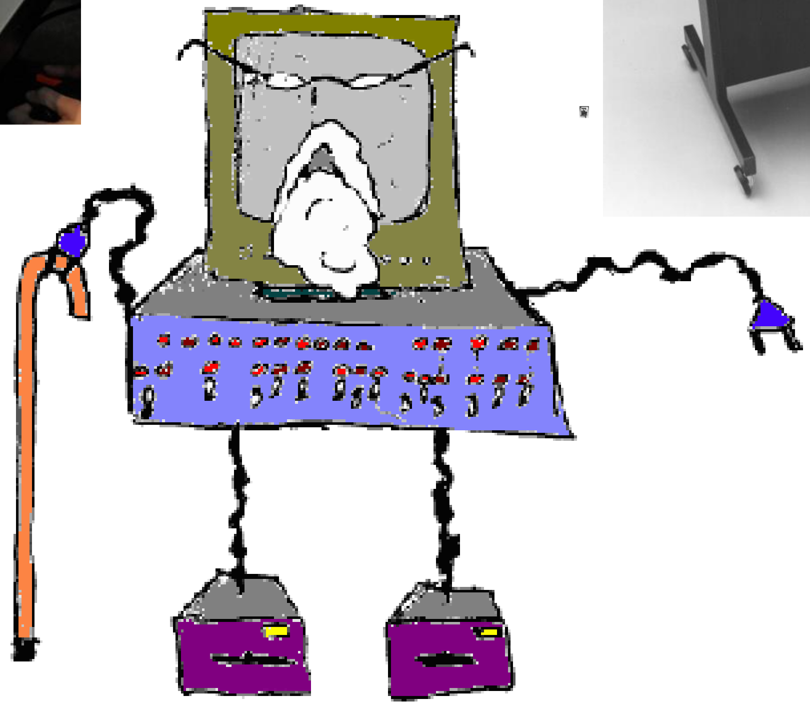
* We learned Two functions :
  * print() : prints out a string
  * input() : asks for input and waits for user to type the Enter key
* We learned how to add comments
  * # this is a human readable comment that Python ignores

What We Are Learning in Part 2

* Escape Sequences or How to print the unprintable!
* Triple Quoted Strings
* Fun With ASCII Art
* Variables
    - Strings
    - Integers
    - Floating Point Numbers
* Printing & Formatting Numbers
* Your Favorite Subject – MATH!

Printing In The Good Ol’ Days



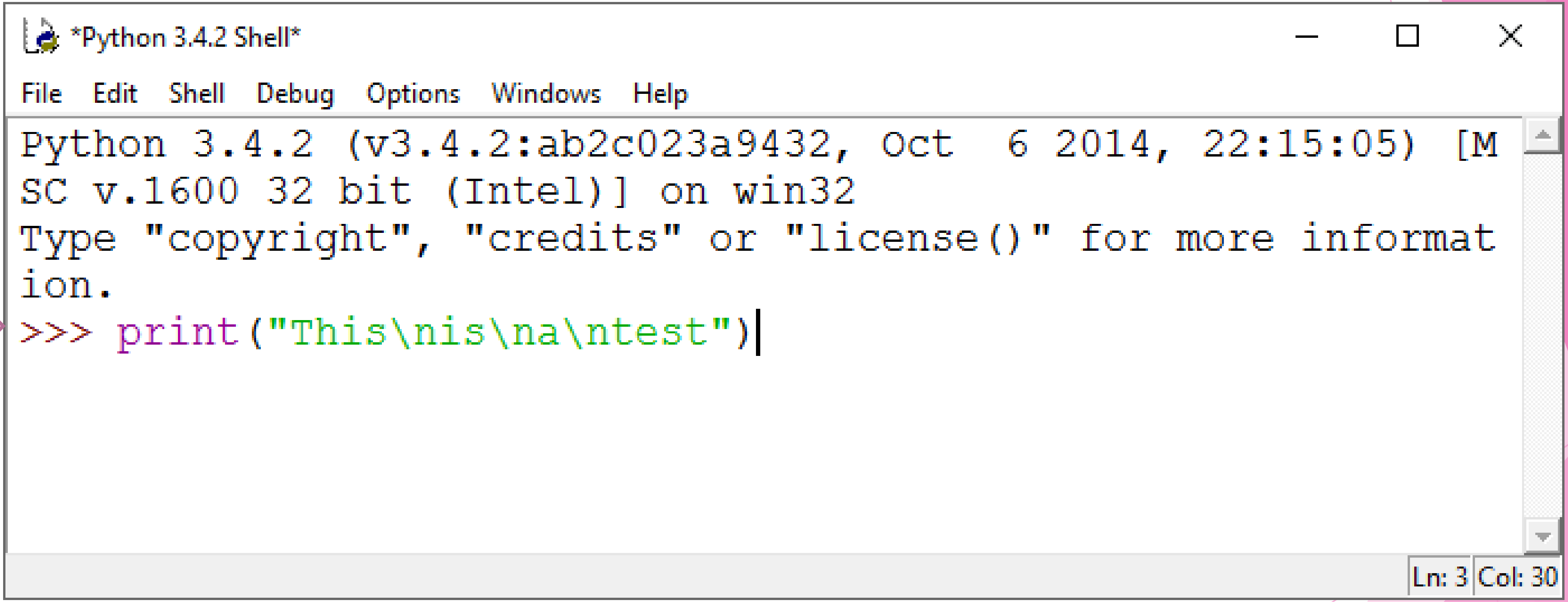


Basic Escape Sequences

\n	Prints on the next line.
\t	Prints a tab.
\a	Makes a bell sound. (depends on the device)

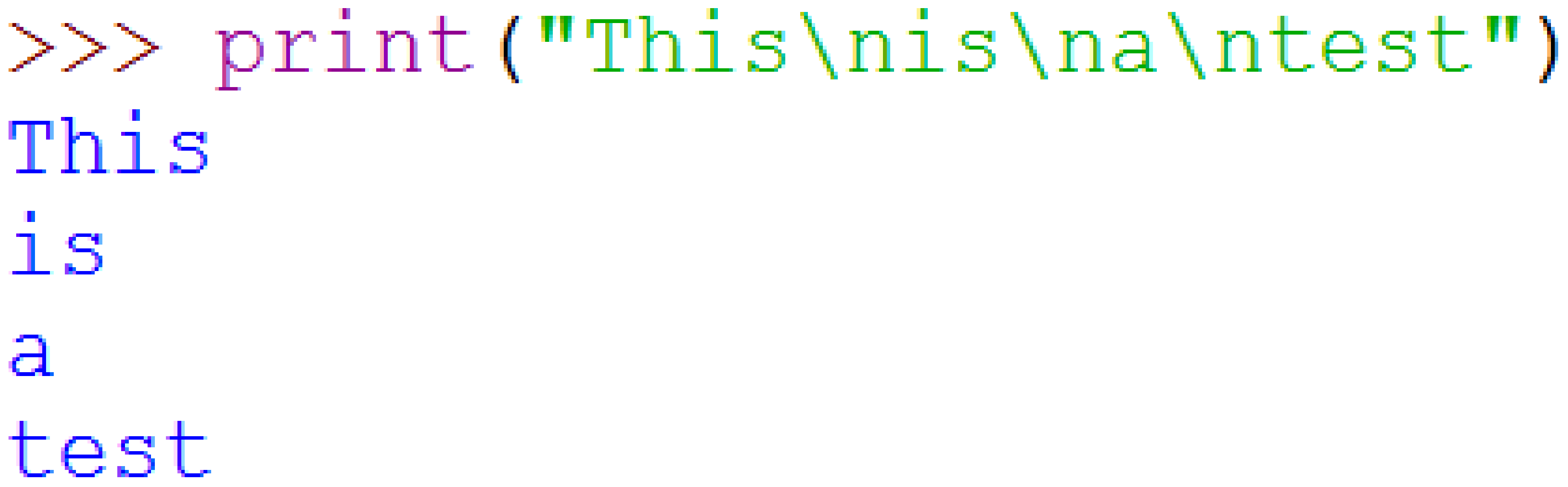
Let’s Try This in the Python Shell

Instead of spaces use \n.



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [M
SC v.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more informat
ion.
>>> print("This\nis\na\ntest")
```

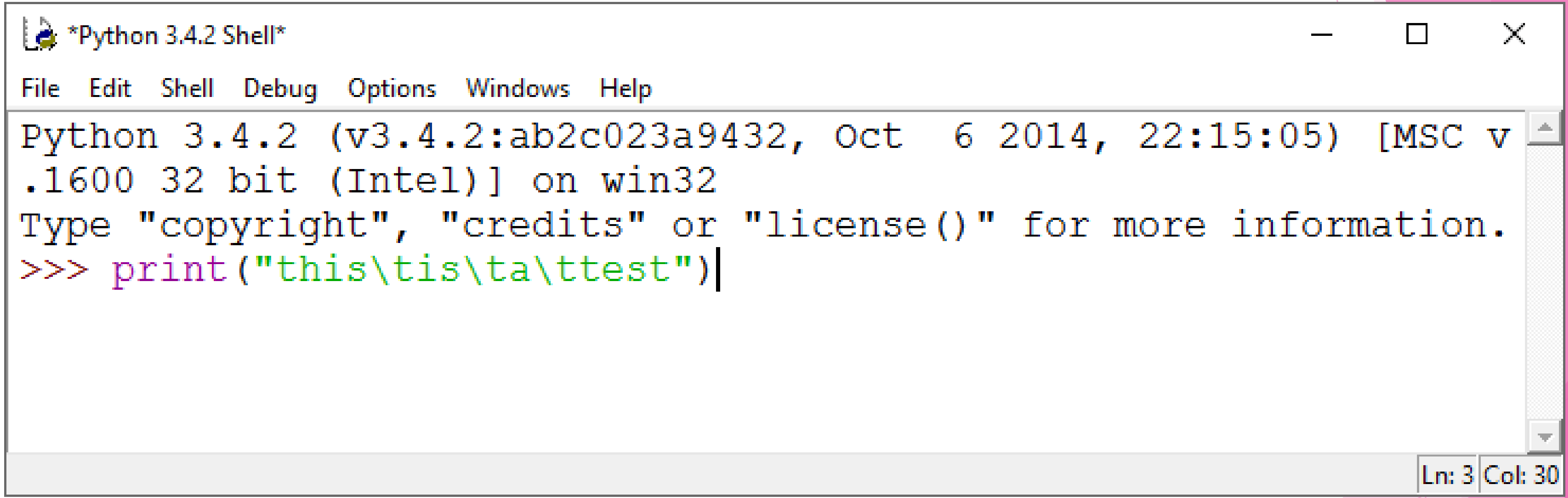
Escape Sequences \n



```
>>> print("This\nis\na\ntest")
This
is
a
test
```

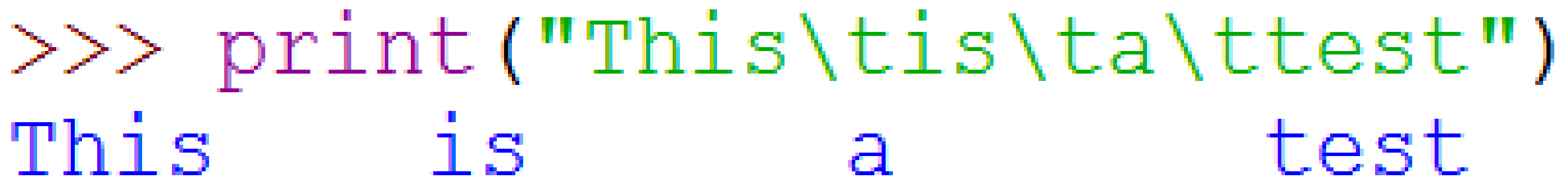
Let’s Try This in the Python Shell

Instead of spaces use \t.



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v
.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("this\tis\ta\ttest")
```

Escape Sequences \t

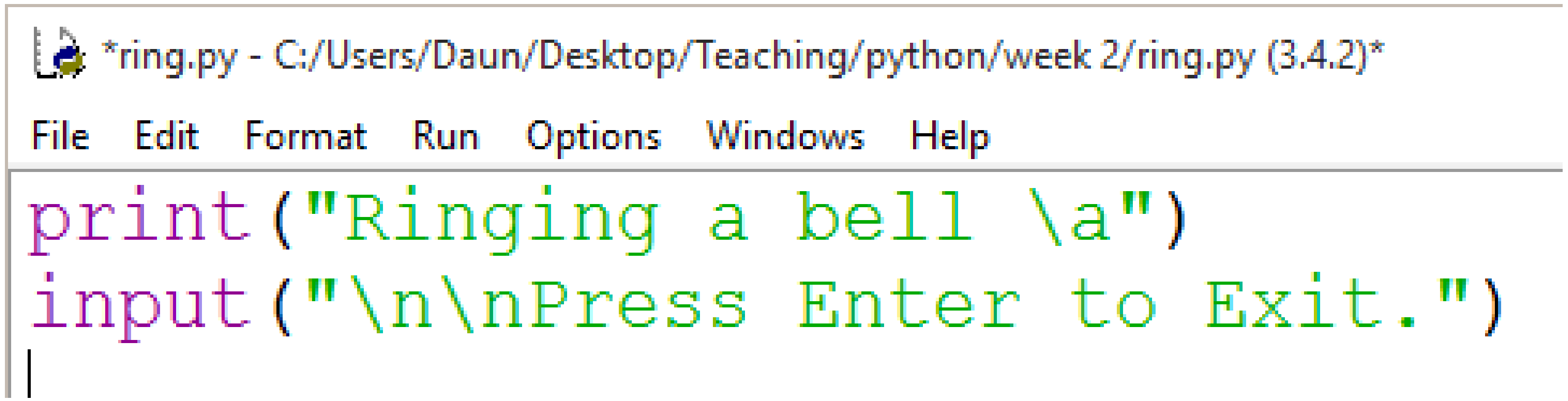


```
>>> print("This\tis\ta\ttest")
This    is      a       test
```

tabs

Escape Sequences \a

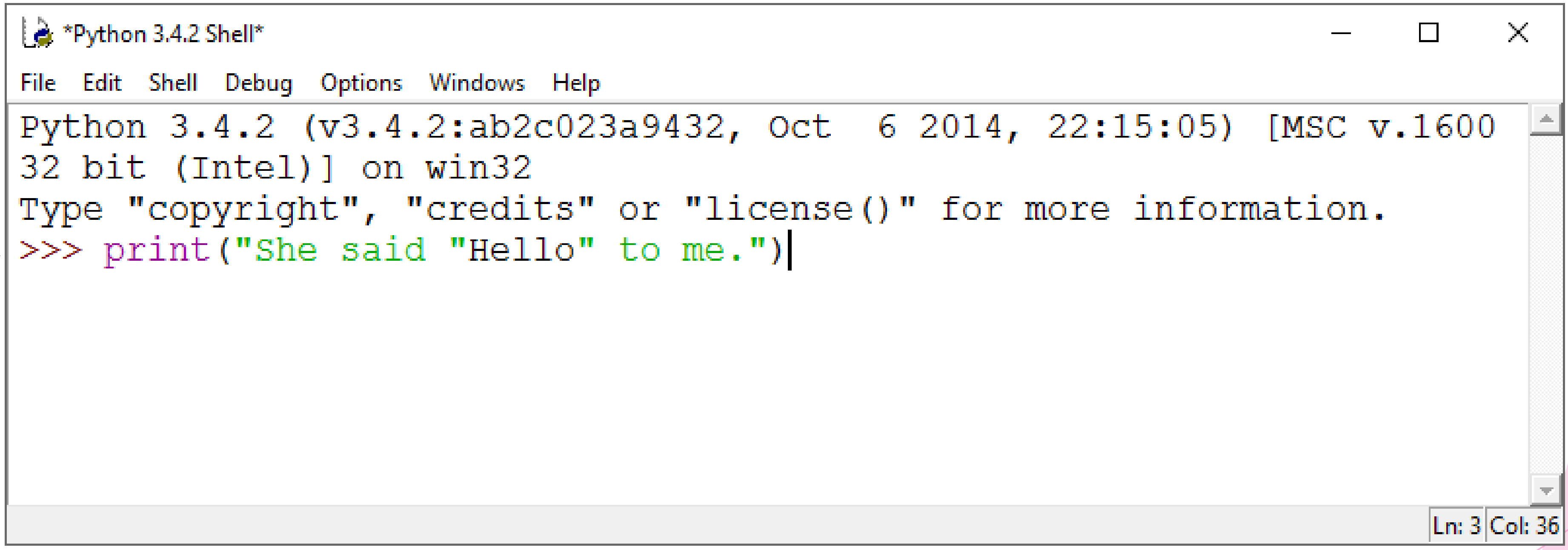
Type these statements in a script file & save.
Run from Windows folder by double clicking.


ring.py - C:/Users/Daun/Desktop/Teaching/python/week 2/ring.py (3.4.2)
File Edit Format Run Options Windows Help

```
print("Ringing a bell \a")
input("\n\nPress Enter to Exit.")
```

If we use double quotes to indicate a string, then how do we print a quote?

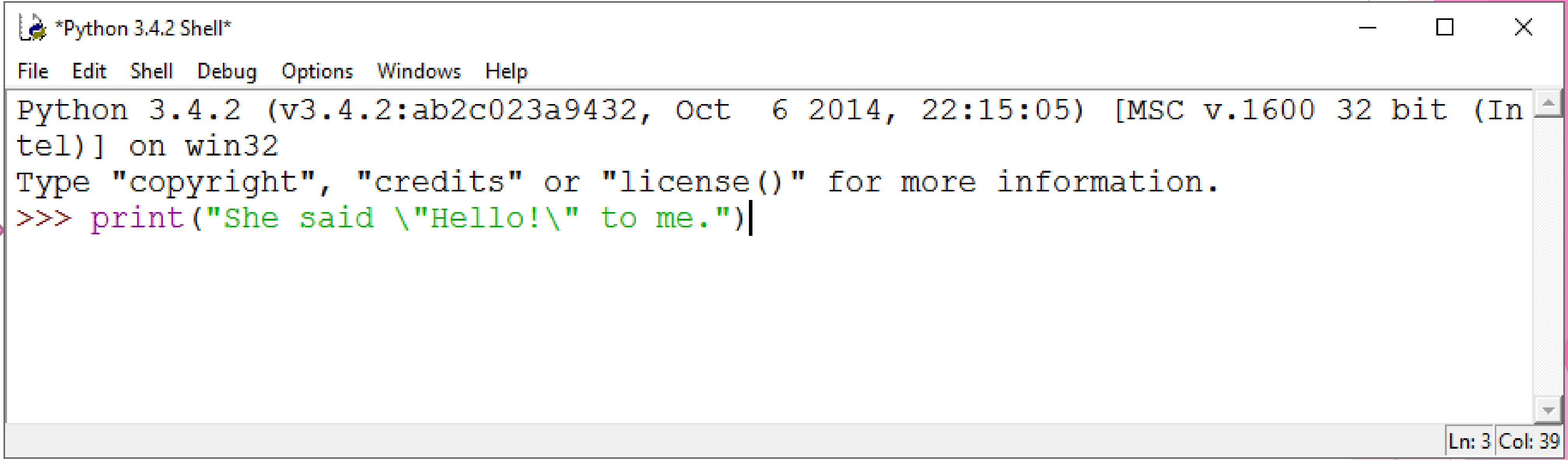
Try This in the Shell… What Happens?



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v.1600
32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("She said "Hello" to me.")
```

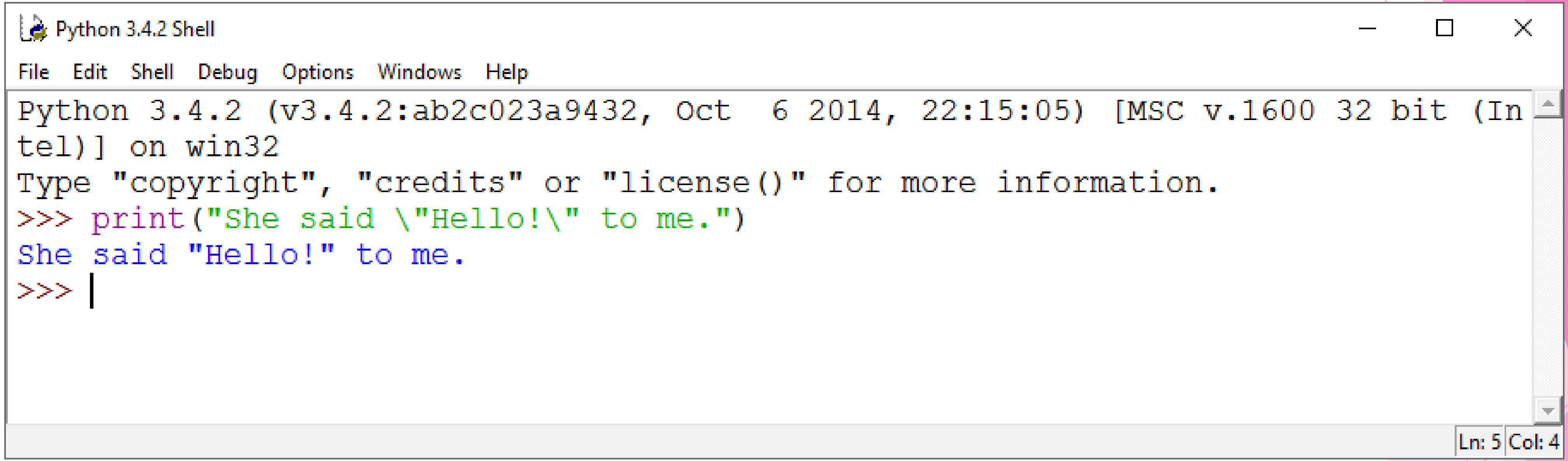
Printing a Quote \”

Try it this way instead!



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v.1600 32 bit (In
tel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("She said \"Hello!\" to me.")
```

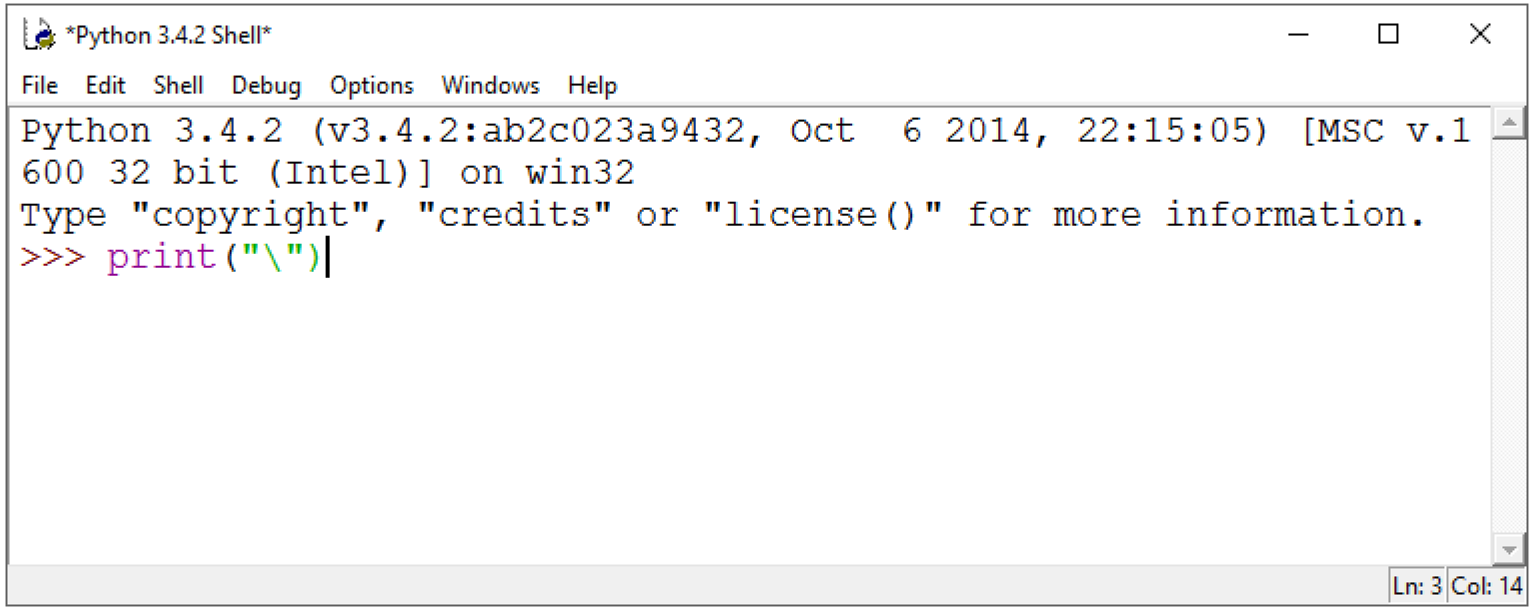
Printing a Quote \”



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v.1600 32 bit (In
tel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("She said \"Hello!\" to me.")
She said "Hello!" to me.
>>> 
```

If we use back slashes to indicate an escape sequence, then how do we print a backslash?

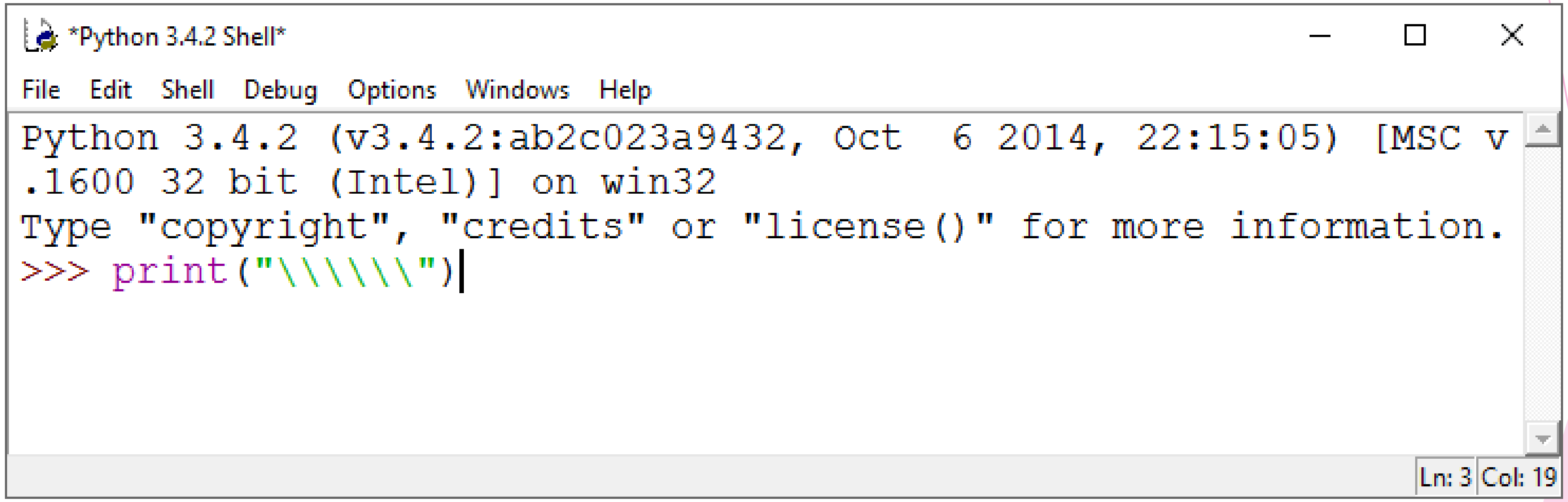
Type a print statement with only one(1) backslash in the string argument. What happens?



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v.1
600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("\")
```

Printing a Backslash \\

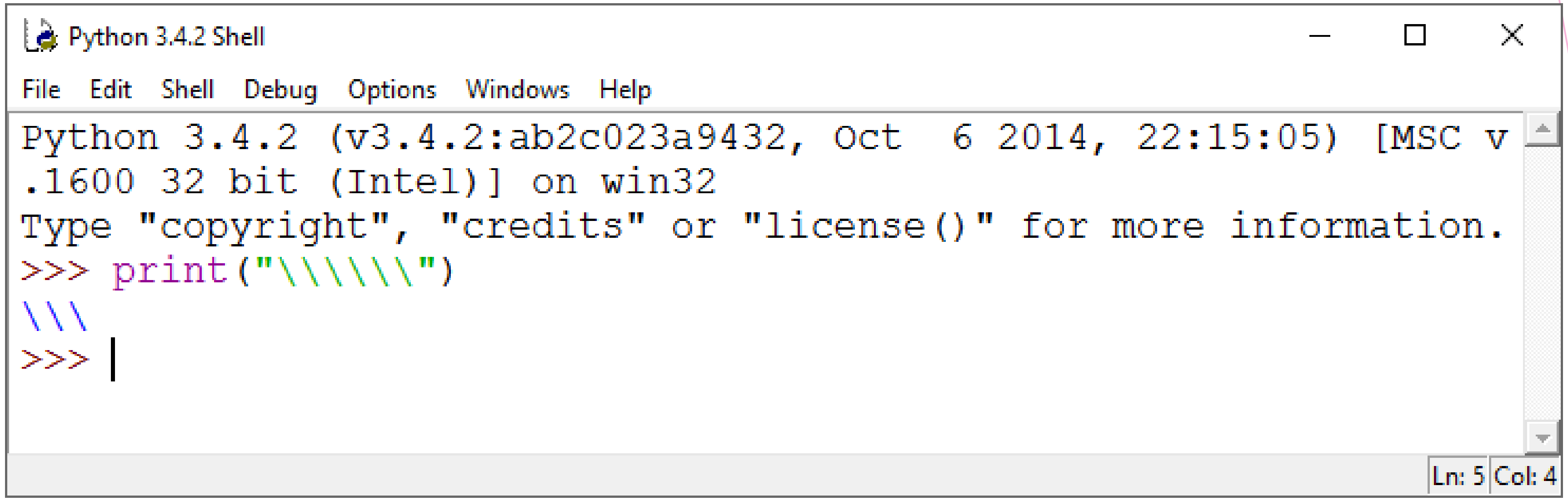
Type a print statement with 6 backslashes in the string argument.



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v
.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("\\\\\\")
```

How many backslashes actually print?

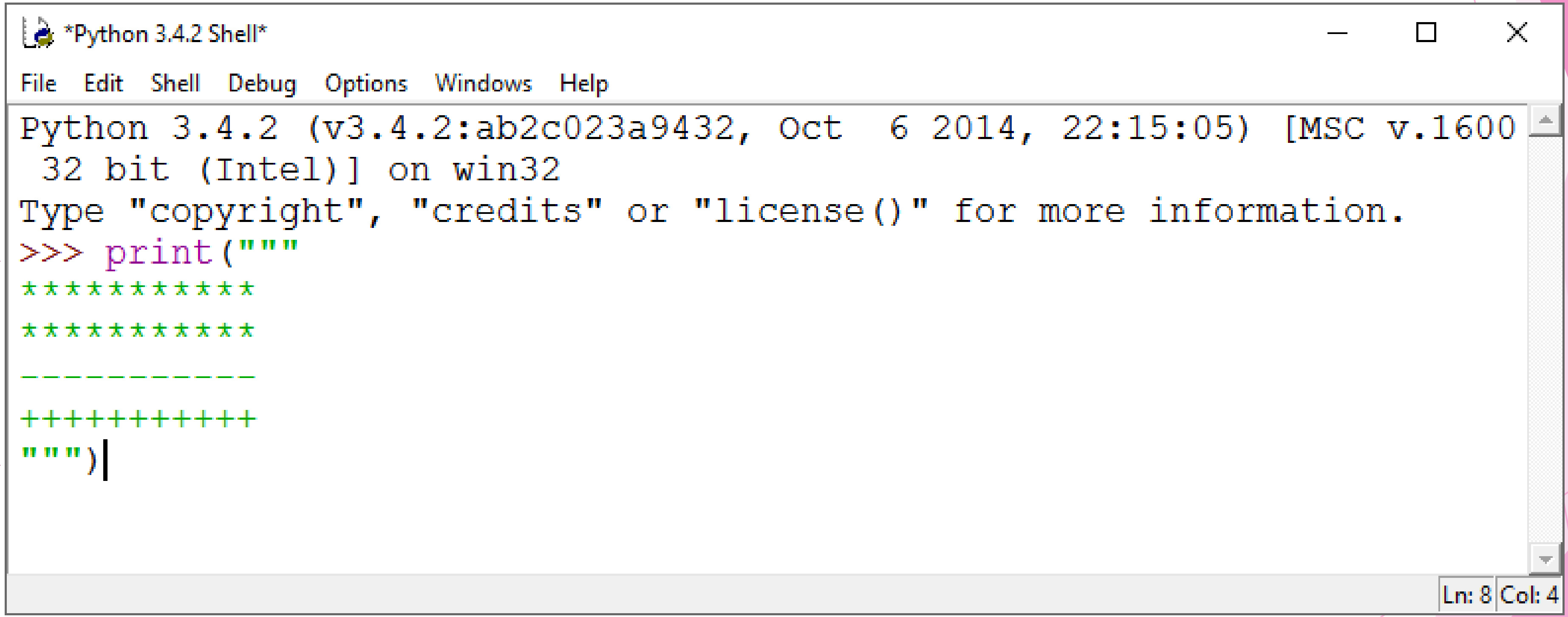
Printing a Backslash \\



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v
.1600 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("\\\\\\")
\\\
>>> 
```

Triple Quoted Strings

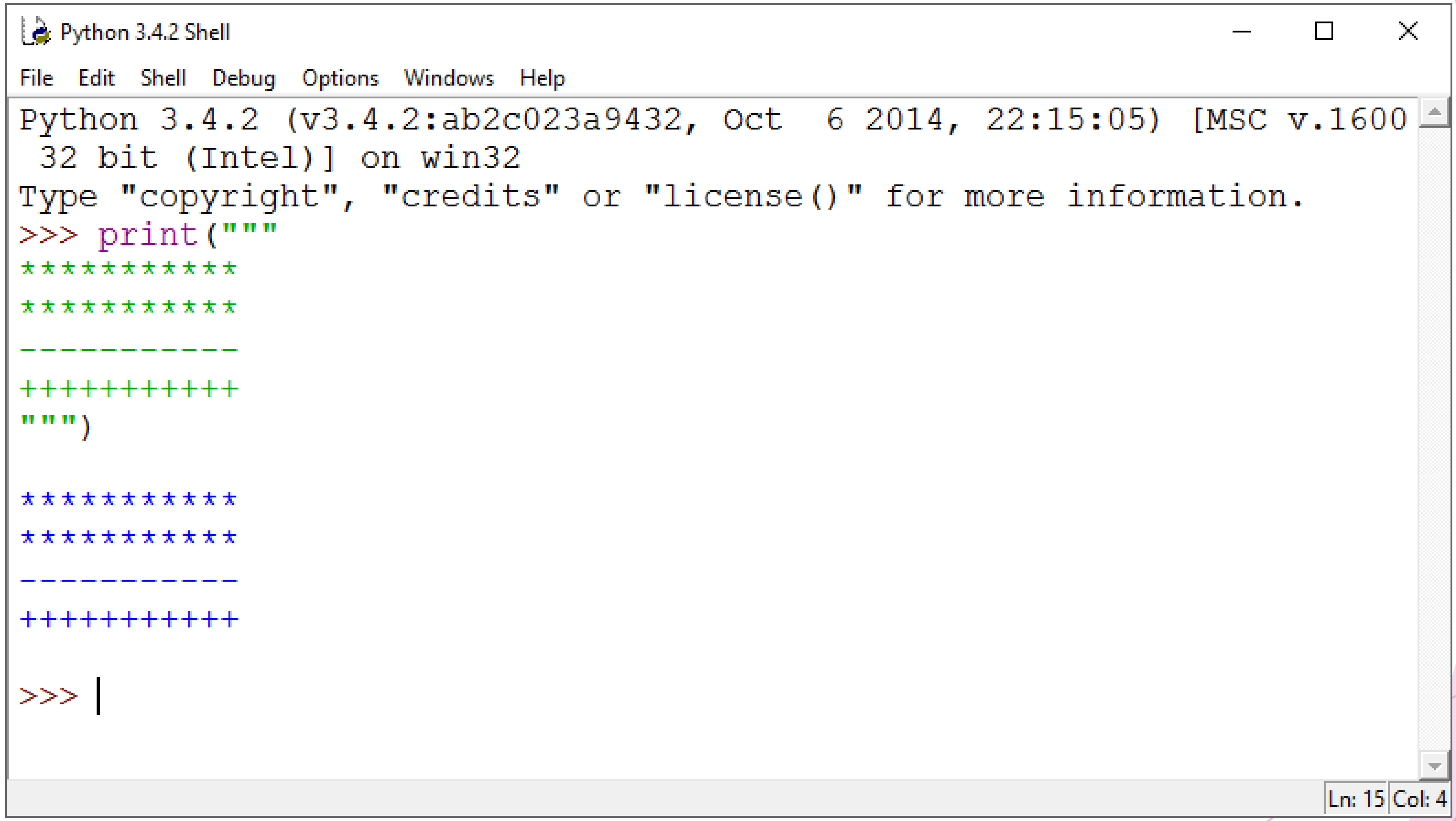
Type this …
There are 3 quotes at the beginning and end.
There are 11 of each character.



```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v.1600
 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("""
***********
***********
-----------
+++++++++++
""")
```

Triple Quoted String

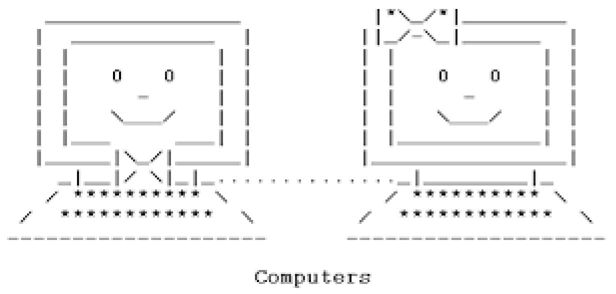
Prints exactly what is between the triple quotes.. even line feeds

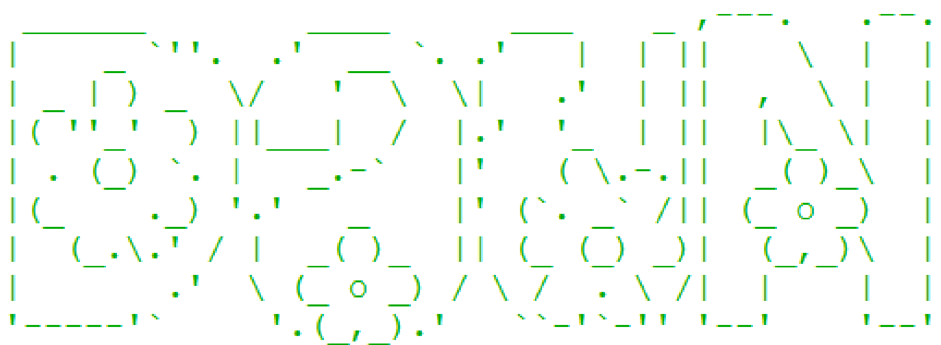


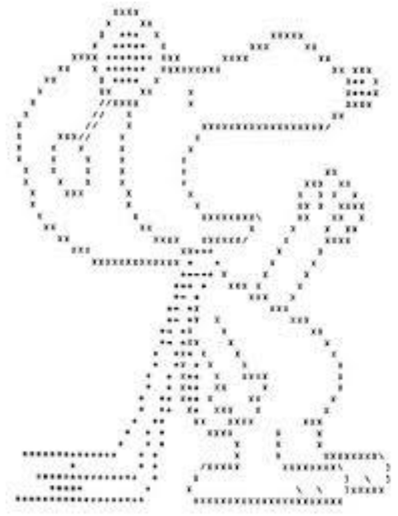
```
Python 3.4.2 (v3.4.2:ab2c023a9432, Oct  6 2014, 22:15:05) [MSC v.1600
 32 bit (Intel)] on win32
Type "copyright", "credits" or "license()" for more information.
>>> print("""
***********
***********
-----------
+++++++++++
""")

***********
***********
-----------
+++++++++++

>>> 
```

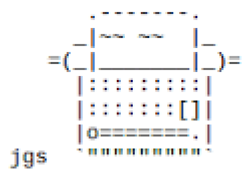
Fun With ASCII Art

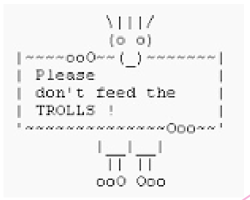
ASCII art is a graphic design technique that uses computers for presentation and consists of pictures pieced together from the 95 printable (from a total of 128) characters defined by the ASCII Standard

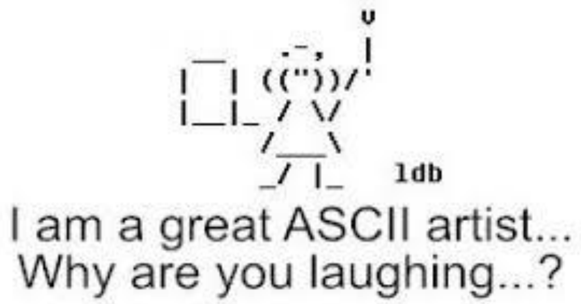








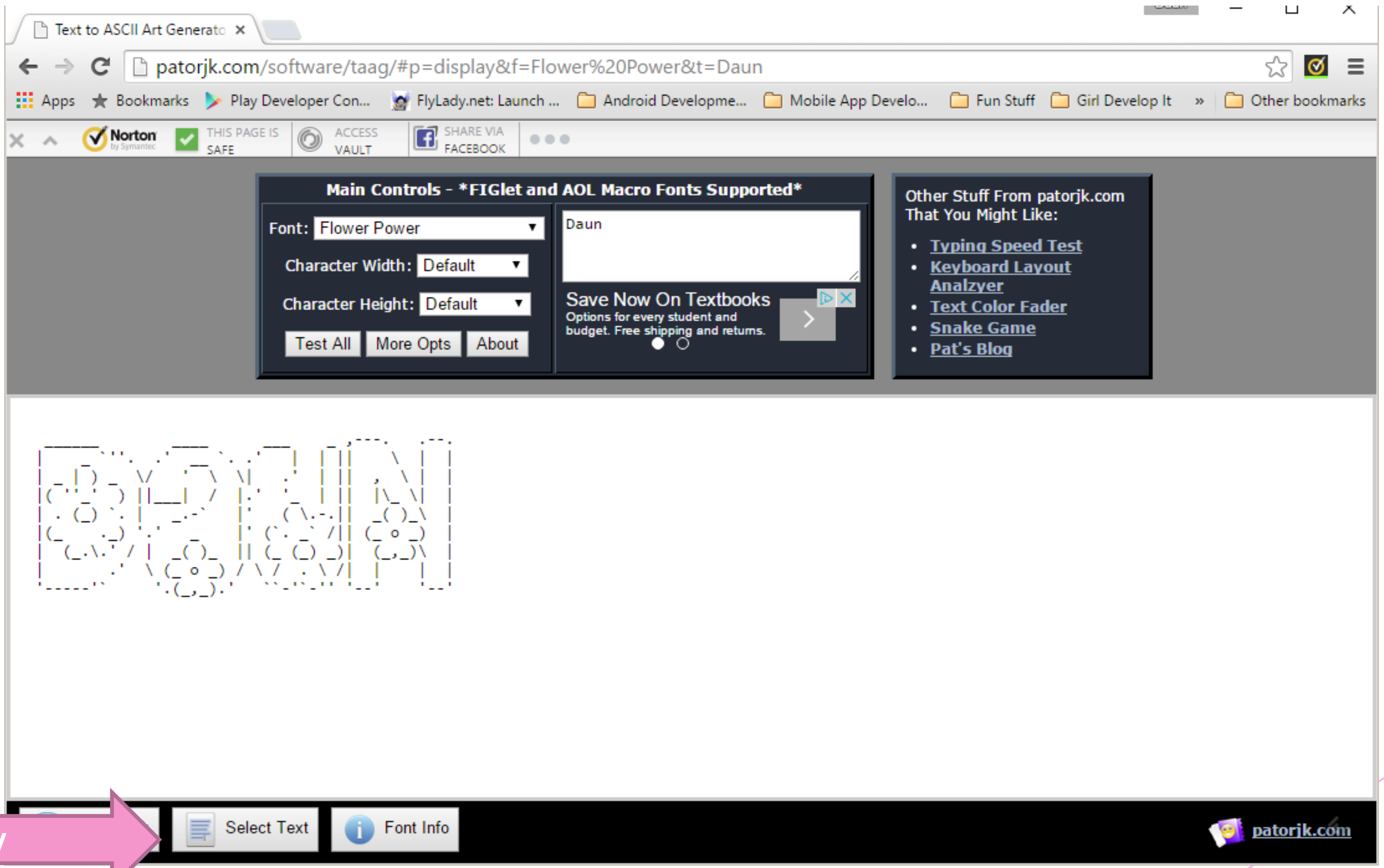




ASCII Art Website (patorjk.com/software)

Select this

- Text ASCII Art Generator – A web app that lets you type in large ASCII Art text lettering. This can create art you can put in your email signature, on your webpage, etc etc.



Main Controls - *FIGlet and AOL Macro Fonts Supported*

Font: Flower Power

Character Width: Default

Character Height: Default

Daun

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- Keyboard Layout Analzyer
- Text Color Fader
- Snake Game
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Working Break Time

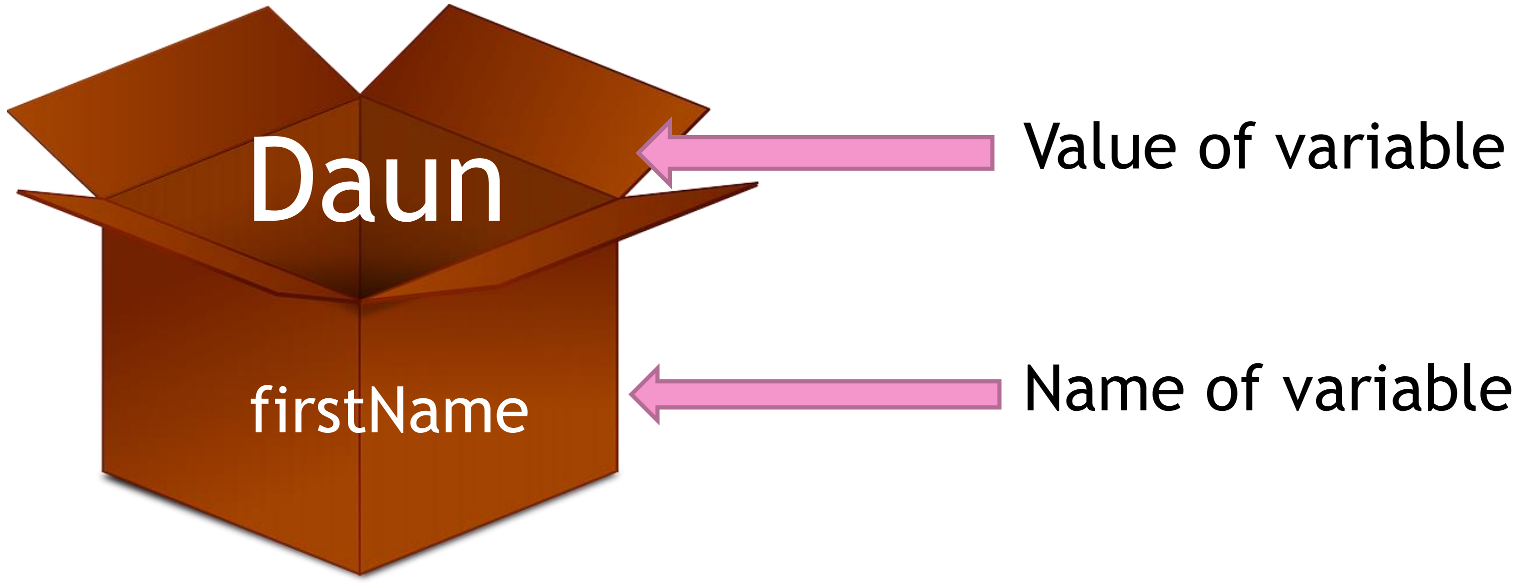
Use the ASCII Art Generator to create art from your name.
Write a Python Program using triple-quoted strings to prints out your ASCII Art.
(Optional) Have your program ding a bell when printing your name.

Some Functions Return Values

We can “capture” these values and store them in the computer’s memory.

We store them by assigning the values to what is called a VARIABLE

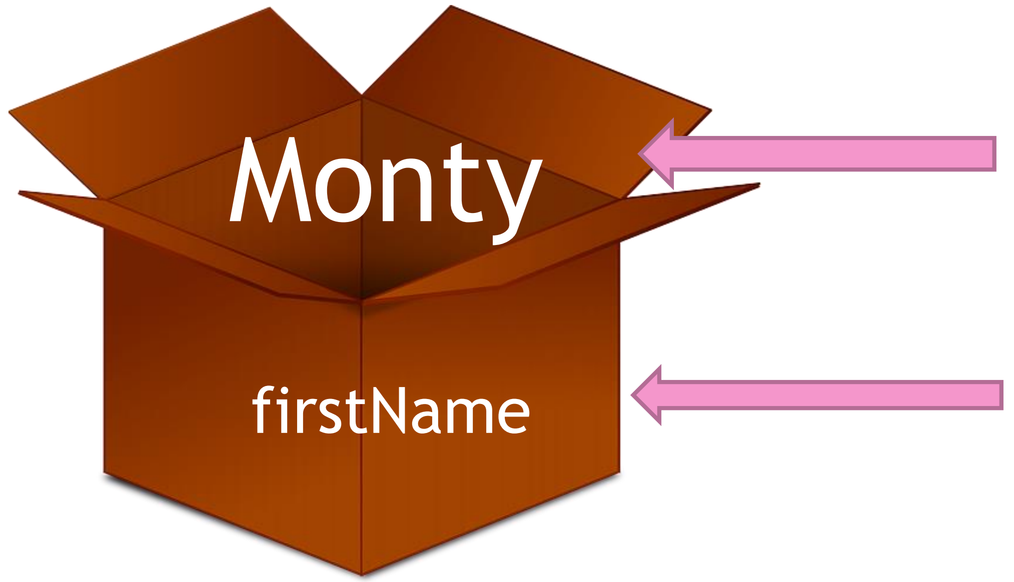
Variables



This variable holds a string

firstName = “Daun”

Variables



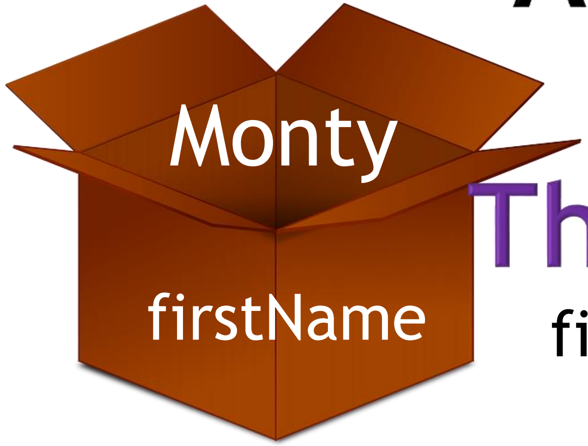
Value of variable

Name of variable

This variable holds a string

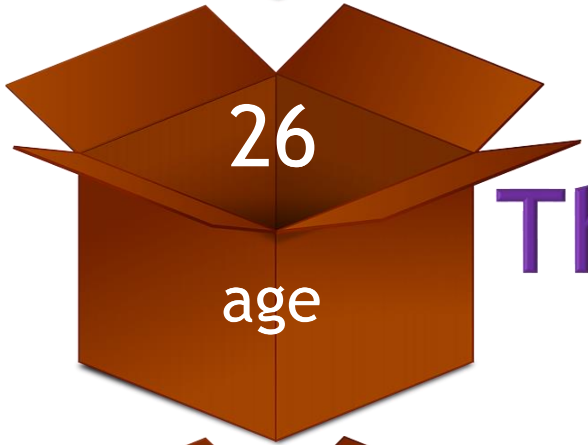
firstName = “Monty”

Assign variables with =



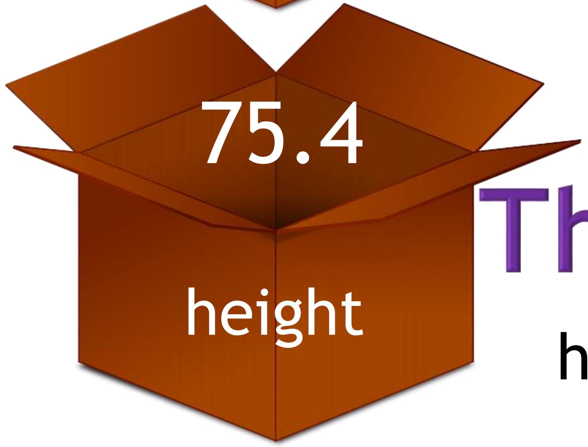
This variable holds a **string**

```
firstName = "Monty"
```



This variable holds an **int**

```
age = 26
```



This variable holds a **float**

```
height = 75.4
```

What type of variable does input() return?

```
firstName = input("Please enter your first name")
```

What type of variable does input() return?

```
firstName = input(“Please enter your first name”)
```

A String

How do we get an integer from input()?

How do we get an integer from input()?

int()

```
age = int(input(“Please enter your age :”))
```

A function inside a function

TRICKY! … Try it!

How do we get an float from input()?

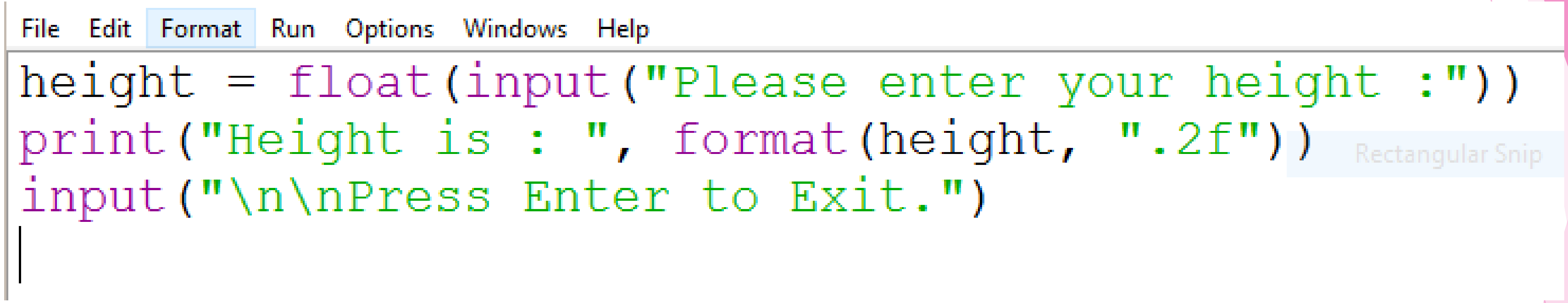
How do we get an float from input()?

float()

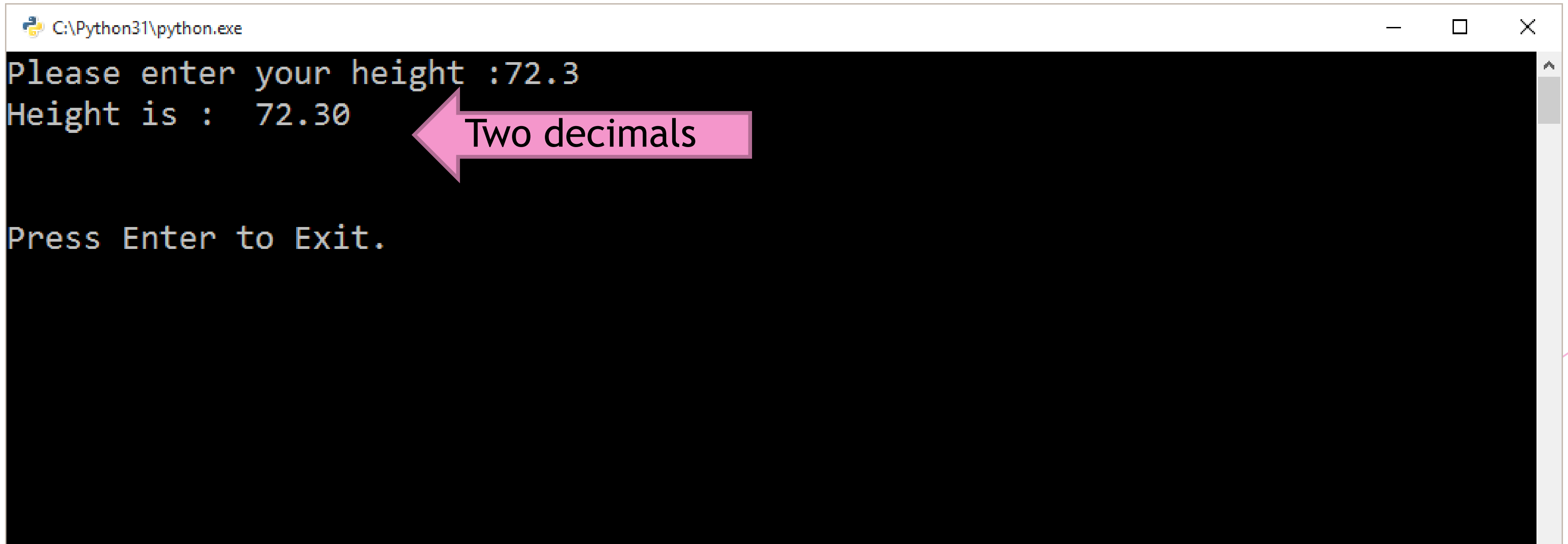
```
height = float(input(“Please enter your height :”))
```

How do we print 2 decimal places?

format(number, “.2f”)



```
height = float(input("Please enter your height :"))
print("Height is : ", format(height, ".2f"))
input("\n\nPress Enter to Exit.")
```



```
Please enter your height :72.3
Height is :  72.30


Press Enter to Exit.
```

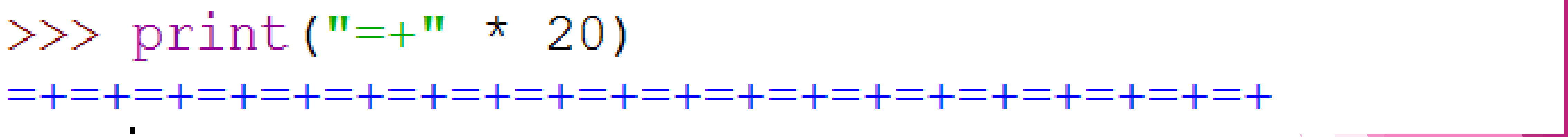
Math

=	Assigns a value
+	Add
-	Subtract
*	Multiply
/	Divide

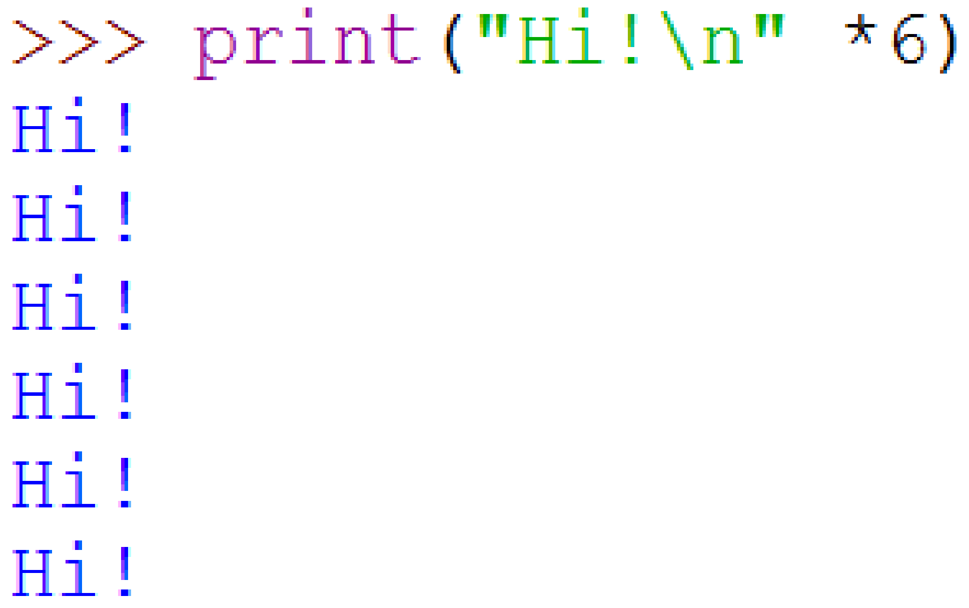
Math

```
twoYearsOlder = yourAge + 2

oneYearYounger = yourAge - 1;

evenNumber = number * 2

halfAge = yourAge / 2
```

Repeating Strings By Using *

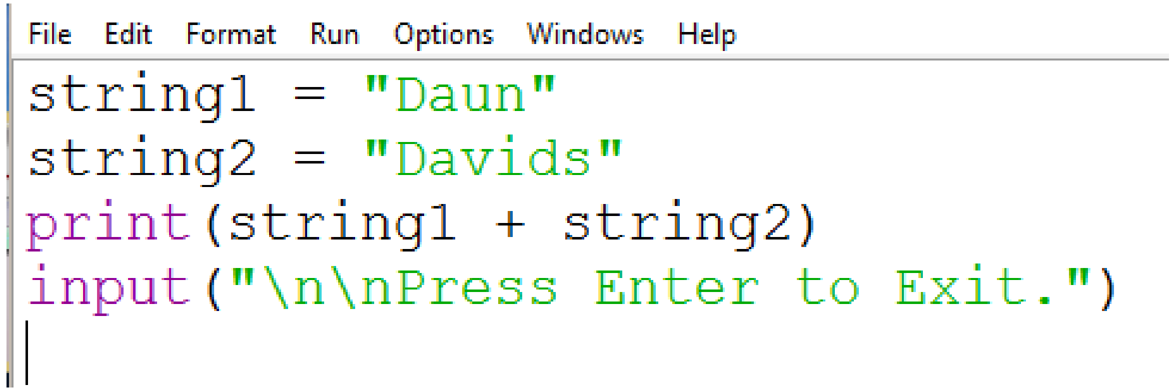


```
>>> print("=+" * 20)
=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+=+
```



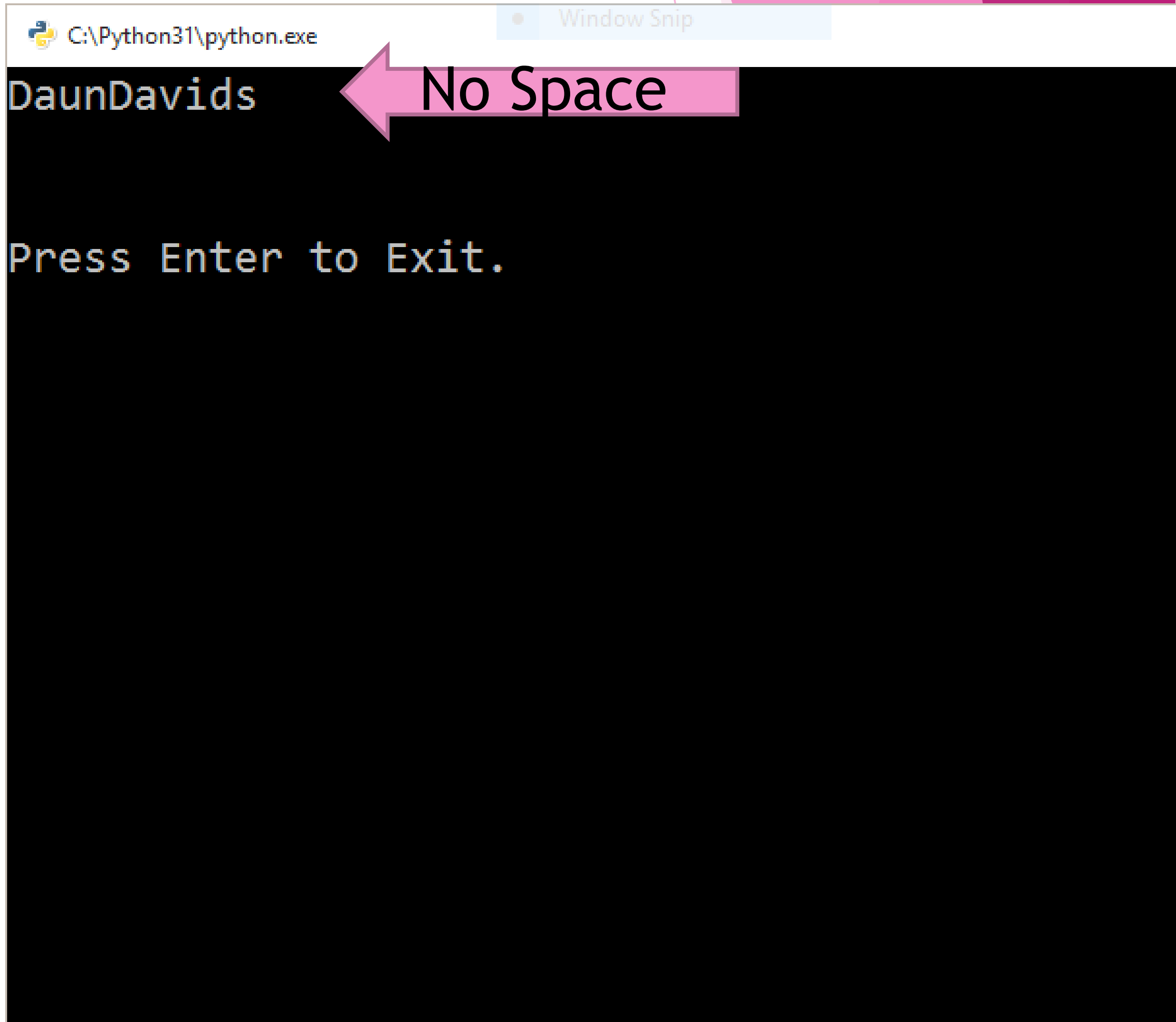
```
>>> print("Hi!\n" *6)
Hi!
Hi!
Hi!
Hi!
Hi!
Hi!
```

Putting Strings Together (Concatenation)



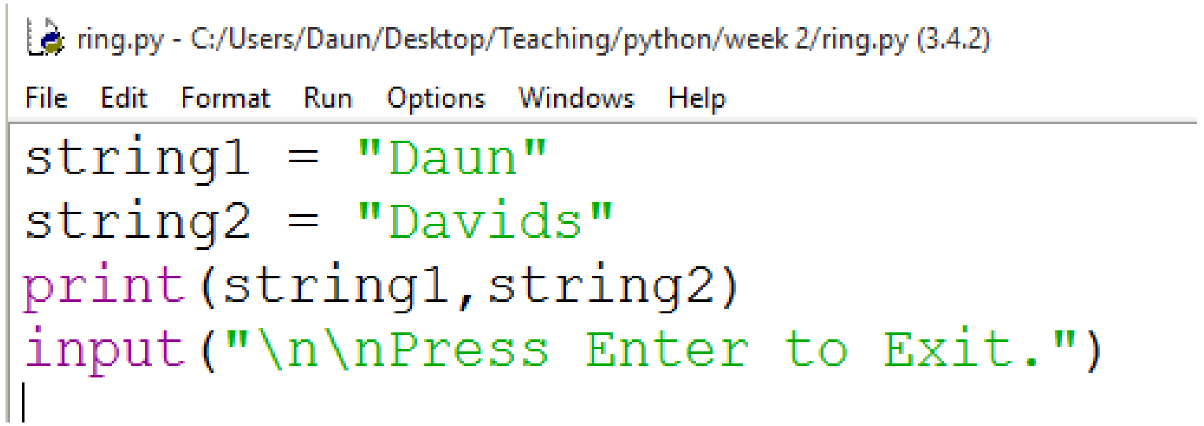
```python
string1 = "Daun"
string2 = "Davids"
print(string1 + string2)
input("\n\nPress Enter to Exit.")
```

+ sign



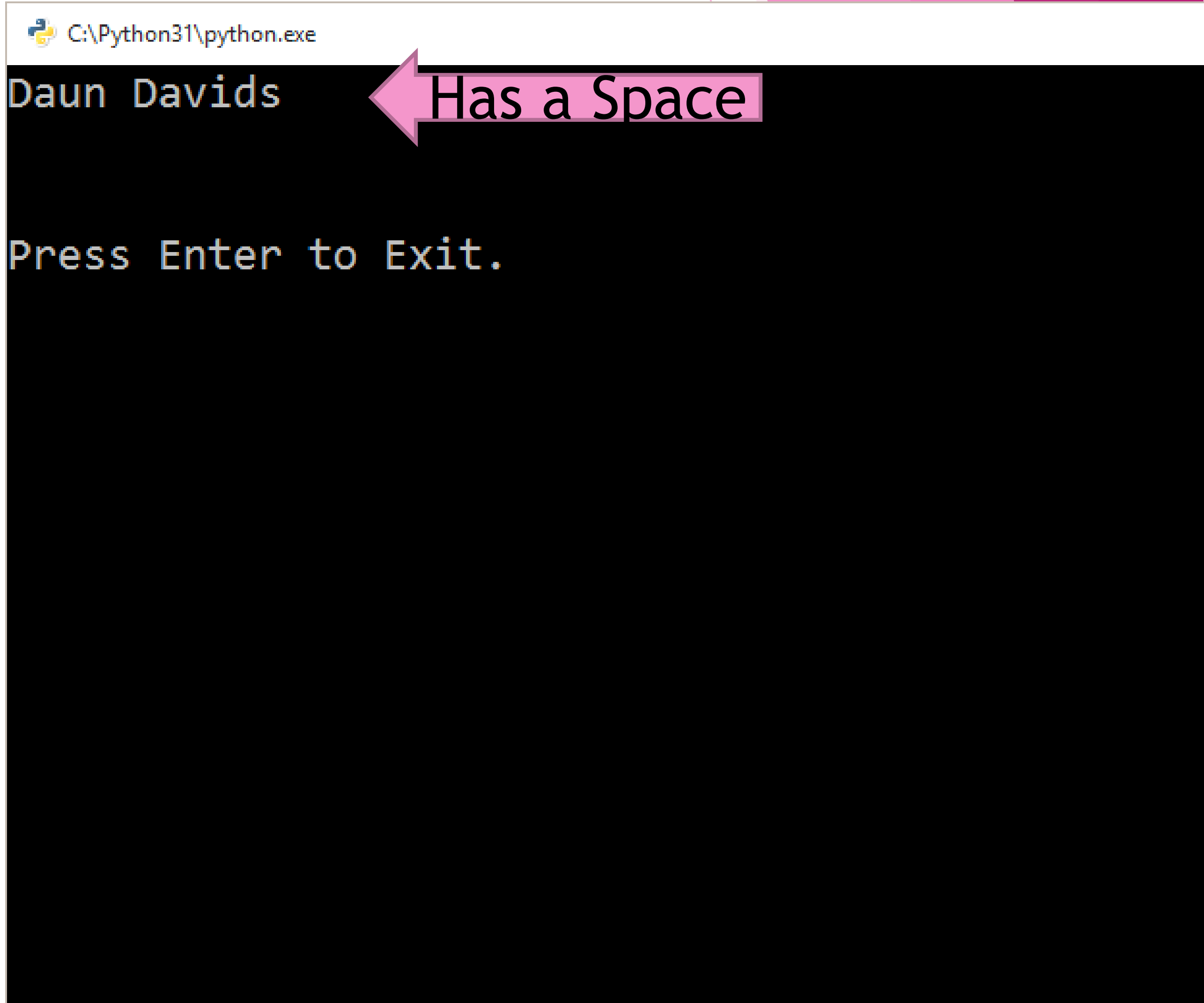
```
DaunDavids


Press Enter to Exit.
```

Putting Strings Together (Concatenation)


ring.py - C:/Users/Daun/Desktop/Teaching/python/week 2/ring.py (3.4.2)
File Edit Format Run Options Windows Help

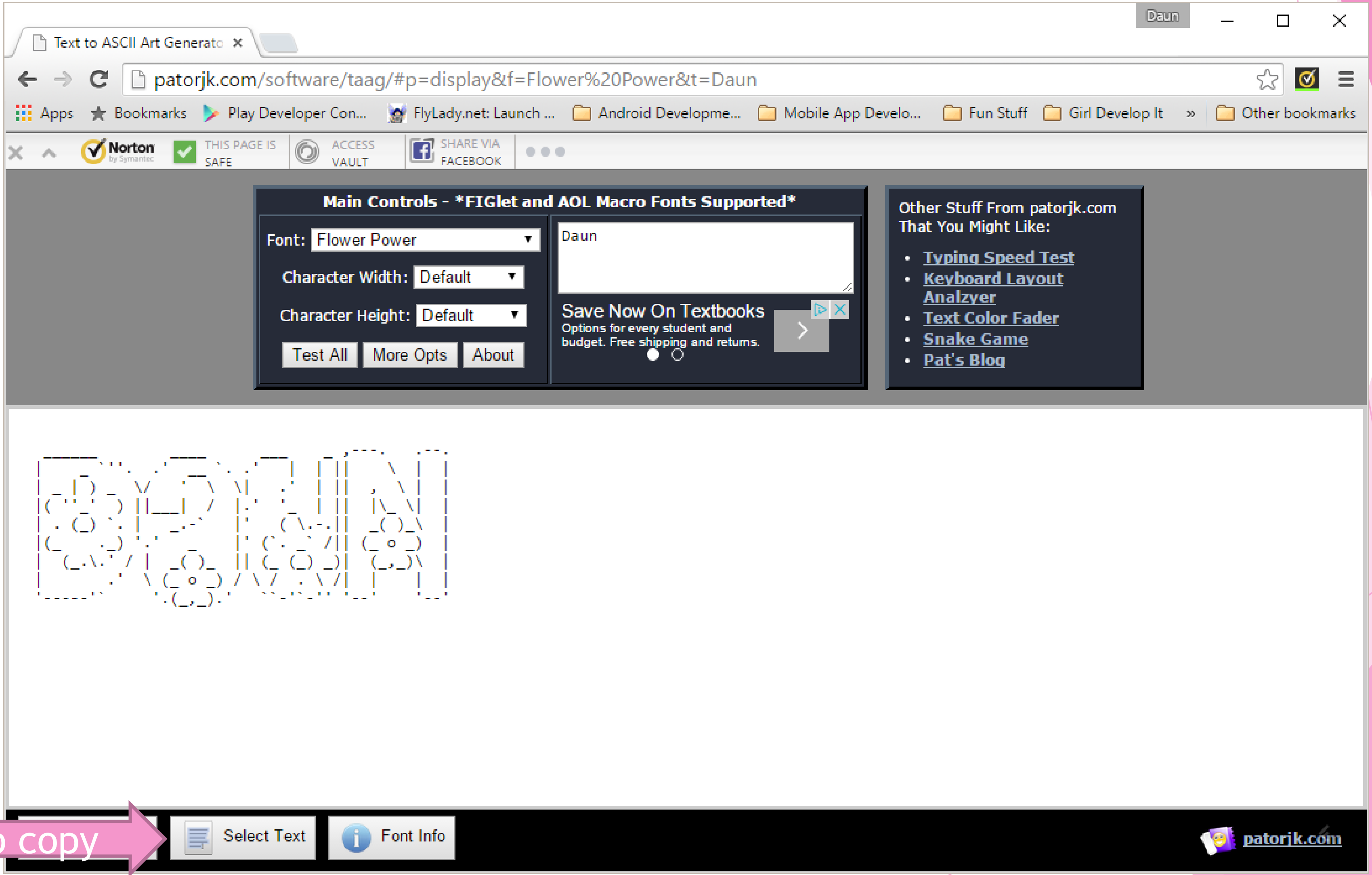
```
string1 = "Daun"
string2 = "Davids"
print(string1,string2)
input("\n\nPress Enter to Exit.")
```

Comma



```
Daun Davids


Press Enter to Exit.
```

ASCII Art Website (patorjk.com/software)



Text to ASCII Art Generato ×

Daun

patorjk.com/software/taag/#p=display&f=Flower%20Power&t=Daun

Apps Bookmarks Play Developer Con... FlyLady.net: Launch ... Android Developme... Mobile App Develo... Fun Stuff Girl Develop It » Other bookmarks

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Main Controls - *FIGlet and AOL Macro Fonts Supported*

Font: Flower Power

Character Width: Default

Character Height: Default

Test All More Opts About

Daun

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- Keyboard Layout Analzyer
- Text Color Fader
- Snake Game
- Pat's Blog

```
 ______        ____      ___    _ ,---.   .--.
|    _ `''.  .'  __ `. .'   |  | ||    \  |  |
| _ | ) _  \/   '  \  \|   .'  | ||  ,  \ |  |
|(  ''_'  ) ||___|  /  |.'  '_  | ||  |\_ \|  |
| . (_) `. |   _.-`   |'   ( \.-.||  _( )_\  |
|(_    ._) '.'   _    |' ( . _` /||  (_ o _)  |
|  (_.\.'  / |  _( )_  || (_ (_) _)|  (_,_)\  |
|       .'  \ (_ o _) / \ /  . \ /|  |    |  |
'-----'`     '.(_,_).'   ``-'`-'' '--'    '--'
```

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Select Text Font Info

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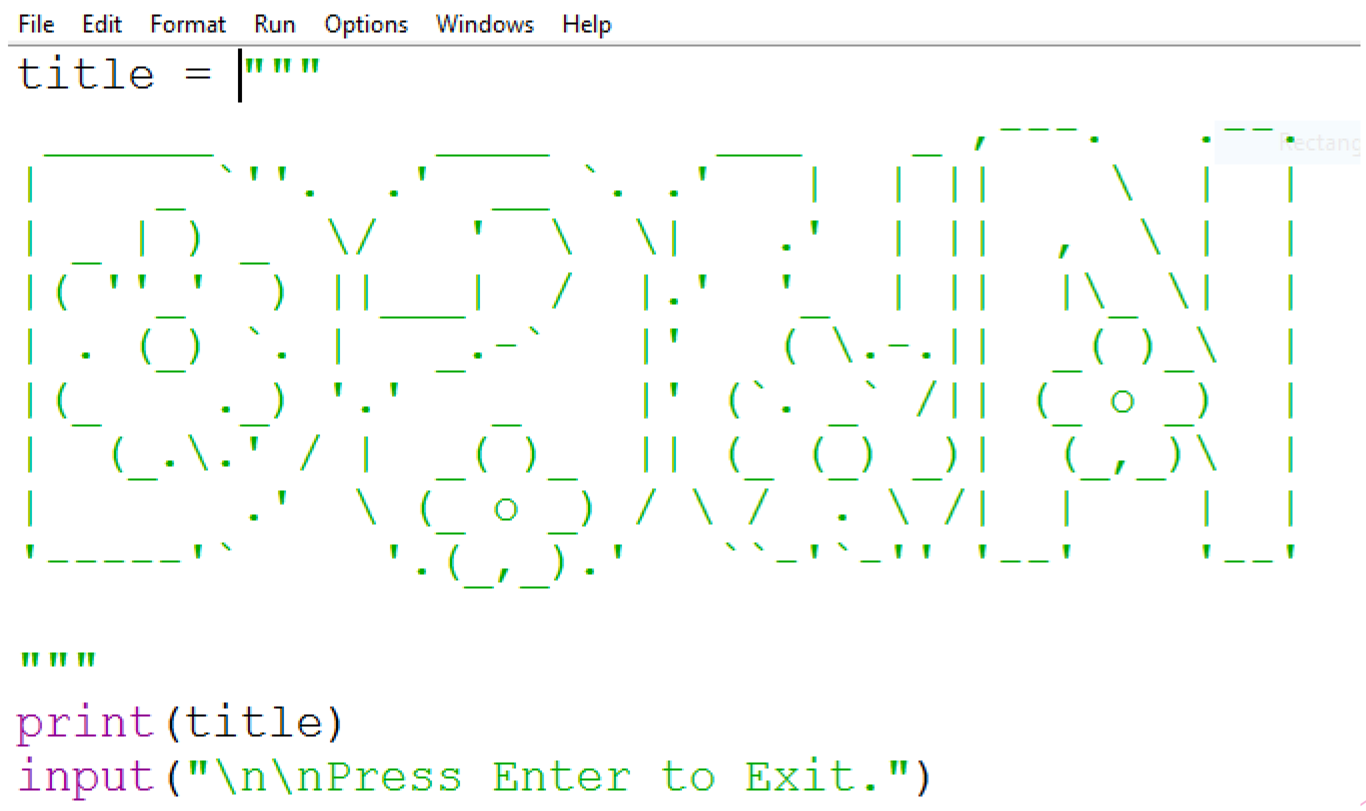
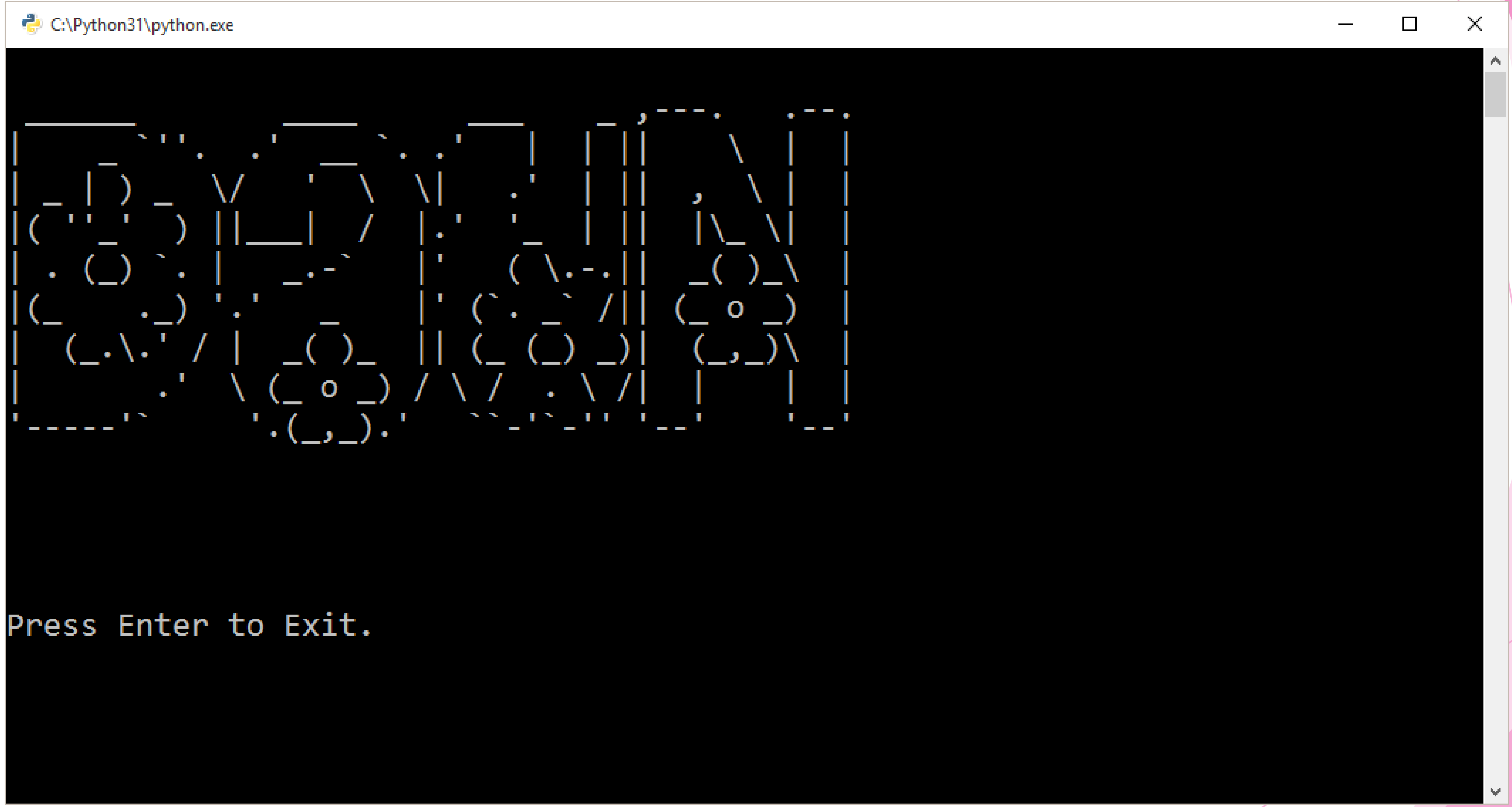
Triple Quoted String Stored as a Variable



```
title = """
 ______        ____      ___    _ ,---.   .--.
|    _ `''.  .'  __ `. .'   |  | ||    \  |  |
| _ | ) _  \/   '  \  \|   .'  | ||  ,  \ |  |
|( ''_'  ) ||___|  /  |.'  '_  | ||  |\_ \|  |
| . (_) `. |   _.-`   |'   ( \.-.||  _( )_\  |
|(_    ._) '.'   _    |' (`. _` /|| (_ o _)  |
|  (_.\.' / |  _( )_  || (_ (_) _)|  (_,_)\  |
|       .'  \ (_ o _) / \ /  . \ /|  |    |  |
'_____'`     '.(_,_).'   ``_'`_'' '__'    '__'

"""
print(title)
input("\n\nPress Enter to Exit.")
```

Triple Quoted String


C:\Python31\python.exe

```
 ______        ____      ___    _ ,---.   .--.
|    _ `''.  .'  __ `. .'   |  | ||    \  |  |
| _ | ) _  \/   '  \  \|   .'  | ||  ,  \ |  |
|( ''_'  ) ||___|  /  |.'  '_  | ||  |\_ \|  |
| . (_) `. |   _.-`   |'   ( \.-.||  _( )_\  |
|(_    ._) '.'   _    |' (`. _` /|| (_ o _)  |
|  (_.\.' / |  _( )_  || (_ (_) _)|  (_,_)\  |
|       .'  \ (_ o _) / \ /  . \ /|  |    |  |
'-----'`     '.(_,_).'   ``-'`-'' '--'    '--'



Press Enter to Exit.
```

What We Learned in Part 2

* Escape Sequences or How to print the unprintable!
* Triple Quoted Strings
* Fun With ASCII Art
* Variables
    - Strings
    - Integers
    - Floating Point Numbers
* Printing & Formatting Numbers
* Your Favorite Subject – MATH!

Working Break Time

Write your own Python program that uses any ASCII Art stored in a variable.
Google ASCII art generator to find programs that convert images into
ASCII art.