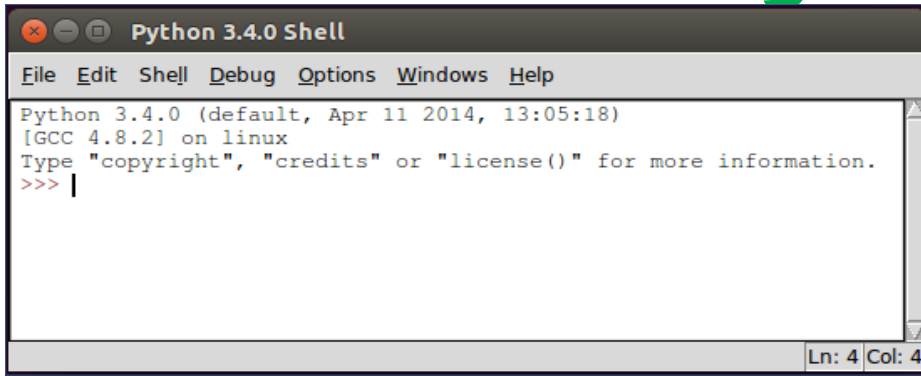


Introducing Python



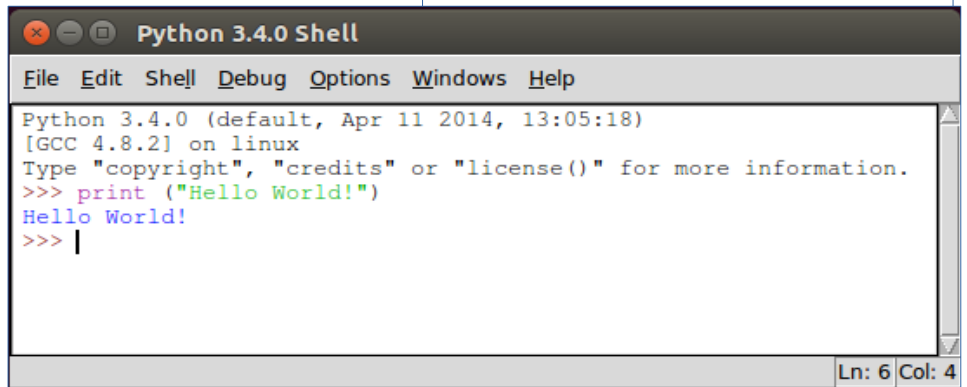
```
Python 3.4.0 Shell
File Edit Shell Debug Options Windows Help
Python 3.4.0 (default, Apr 11 2014, 13:05:18)
[GCC 4.8.2] on linux
Type "copyright", "credits" or "license()" for more information.
>>> |
```

Using IDLE.

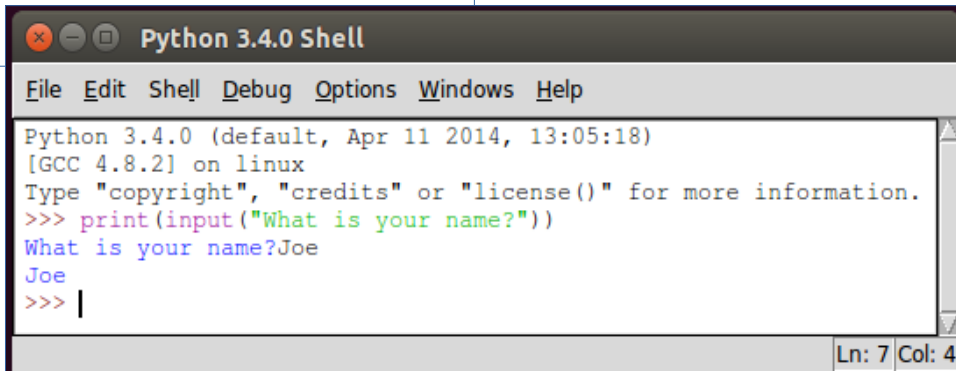
IDLE is an environment for using Python. The "shell" allows you to enter single Python instructions. From here you can also create new Python program files from the file menu or open previously saved programs.

Outputs.

Python allows us to output all kinds of things such as graphics and text. To simply output some text to the screen we can use the `print()` instruction. `print("Hello World!")`



```
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Python 3.4.0 (default, Apr 11 2014, 13:05:18)
[GCC 4.8.2] on linux
Type "copyright", "credits" or "license()" for more information.
>>> print ("Hello World!")
Hello World!
>>> |
```



```
Python 3.4.0 Shell
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Python 3.4.0 (default, Apr 11 2014, 13:05:18)
[GCC 4.8.2] on linux
Type "copyright", "credits" or "license()" for more information.
>>> print(input("What is your name?"))
What is your name?Joe
Joe
>>> |
```

Inputs.

The `input()` command allows us to enter some text into our program. We can combine `input()` with other commands: `print(input("What is your name?"))`

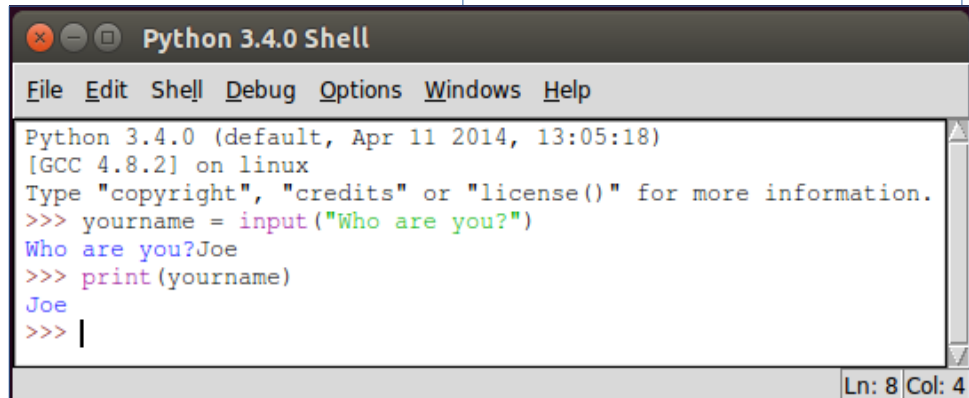
This will make Python repeat back the name you type in.

Variables

Variables are a way of allowing the computer to remember a single item of data that has been input.

`yourname = input("Who are you?")`
Then enter your name. This stores the name you type in the variable "yourname"

`print(yourname)` and this will then print it out.



```
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Type "copyright", "credits" or "license()" for more information.
>>> yourname = input("Who are you?")
Who are you?Joe
>>> print(yourname)
Joe
>>> |
```

Project 1:

Introducing Python

Program Recipes: Area of a triangle and temperature converter.

1. You can calculate the area of a triangle using the formula $\text{area} = \text{half base times height}$. We need to enter Python commands to perform this calculation.

2. First we need to input the values for base and height and make them integer numbers.

```
base = int(input("Length of the base? "))
```

The `int()` function makes the computer know it needs to treat the values you type in as numbers.

Enter a number for the length of the base.

```
height = int(input("Height?"))
```

Enter a number for the height.

```
print(base / 2 * height)
```

You have just carried out a calculation using the numbers stored in the two variables, base and height and printed the result on the screen!

4. Enter the command:

```
C = input("What is the temperature in C? ")
```

Go ahead and type in a number.

```
C = C * 9
```

This takes the value in `C`, multiplies it by 9 and stores the answer back in `C` again.

Now `C` only contains this new answer.

```
Now enter C = C / 5
```

This takes the previous answer stored in `C`, divided it by 5 and saves it back into `C`.

```
C = C + 32
```

This time we add 32 to the last answer and store it back into `C`. The number that is now stored in the variable `C` is actually the temperature converted into degrees Fahrenheit!

```
print(C)
```

Finally we print out the answer!

3. Now we are going to try a more complicated formula that has lots of steps.

To convert from Centigrade to Fahrenheit:

Multiply `C` by 9,

then divide the answer by 5,

then add 32 to the answer.

To do this algorithm we will need a single variable called "`C`" and we are going to carry out calculations and change the value it is storing one step at a time.