

Intro to Python - Part 1

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Overview of Tutorial

- 1 Introduction to Python
- 2 Programming Principles
- 3 Programming Principles
- 4 File Manipulation

We will be using the IDLE programming environment

Windows: START → *Programs* → *Python2.X* → *IDLE*

MAC: Applications → *Python2.X* → *IDLE*

Programming Concepts

Three Concepts

- 1 Variables
- 2 Control Structures ('If statements' and 'For Loops')
- 3 Functions

Python is case sensitive and reads whitespace (use space-bar, not tab key)

The 'Print' function and Strings

```
print "hello world"
```

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```
# this is a string  
name = "william"  
# or 'william'  
print name
```

Integers and Floats

```
int_sample = 10
float_sample = 10.0

# printing variables
# cast as a string using str()
print "The value of this integer is: " + str(int_sample)
print "The value of this float is: " + str(float_sample)
```

if statement

```
x = 2  
  
# Condition checks if statement is true  
if x == 1:  
    print 'x is 1!'
```


if / elif / else statement

```
x = 2

# Condition checks if statement is true
if x == 1:
    print 'x is 1!'
elif x ==2:
    print 'x is 2!'
else:
    print 'x is not known. :( '
```

for loop

```
for i in range(3):  
    # convention is to use 4 spaces to indent  
    # python reads whitespace at the begining of a line  
    print i
```

while loop

```
# define j
j = 1

# 'while' less than some condition
while j < 3:
    print j
    #increment j
    j += 1
```

Example Function 1

```
# Python uses dynamic typing (a.k.a. Duck typing)
def example( argument ):
    print argument
```

Example Function 2

```
def test_value( number ):  
    """This is called a doc string and describes what the ←  
        functions does"""  
    if number == 1:  
        print 'Value is 1'  
    else:  
        print 'Value is not 1'  
    # default return is none for a function
```

There are three ways to access a folder

```
# Accessing a folder  
  
path = "C:\\folderName\\"  
  
path = "C:/folderName/"  
  
path = r"C:\folderName\"
```

Importing Modules

Use the *import* command:

```
# Count number of files in a directory

import os
files = os.listdir( path )
len( files)
```

A module is a list of python programs that can be accessed. Commonly used modules are: *os*, *sys*, *glob*

glob

Here the *glob* module is being imported:

```
import glob # use the glob module

path = "/Users/djq/Documents/personal/" # set the folder path

for i in glob.glob( path + '*'): # loop through all files
    print i
```

Try replacing '*' with '*.txt'

Writing to a Text File

```
# Create a file ('a' means append)
f = open("C:\example.txt", 'a')
# If file does not exist it will be created

# Write results to a file
f.write("I am the content of your file\n")

# Use these commands when finished
f.flush()
f.close()
```

Create a folder called 'tmp-folder':

- Make 20 text files called File1.txt, File2.txt File20.txt
- Write a text string into each file

Create a simple script to print out all the files in the folder Tutorial-1. You need to figure out what modules you should use:

- Make a new folder 'new-folder' (need to import a module to do this)
- Copy file 'File3.txt' to 'new-folder'
- Rename file 'File3.txt' to 'Author1990.txt'

Questions — ? — Comments