Python – An Introduction

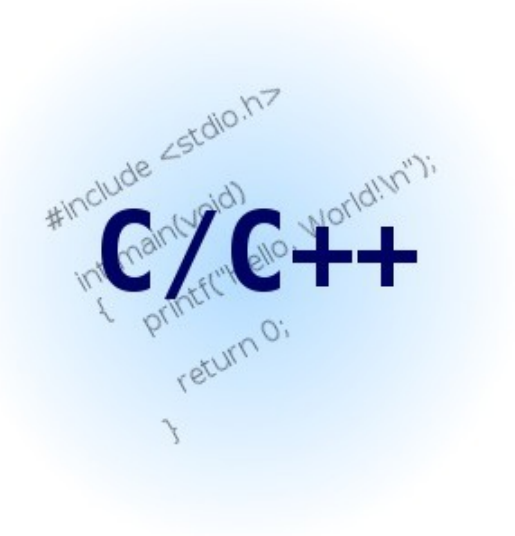
Shrinivasan T
tshrinivasan@gmail.com

http://goinggnu.wordpress.com


Python is a Programming Language

There are so many Programming Languages.

Why Python?


#include <stdio.h>
int main(void)
{
printf("Hello, World!\n");
return 0;
}
C/C++


perl


php

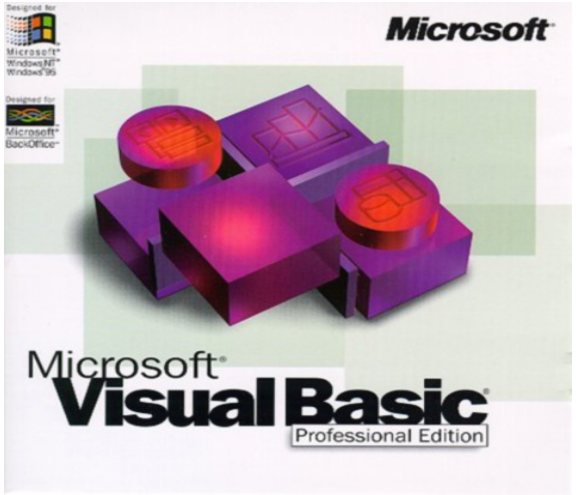

lisp

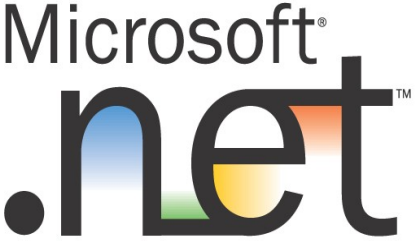

Lua


python™


Ruby


Java™


Microsoft
Microsoft
Visual Basic
Professional Edition


Microsoft®
.net™


C#


#include <stdio.h>
int main(void)
{
printf("Hello World!\n");
return 0;
}
C/C++
perl
php
lisp
Lua
python™
Java™
Ruby
Microsoft
Visual Basic
Professional Edition
C#
Microsoft
.net™


Python is simple and beautiful


Python is Easy to Learn

Python is Free Open Source Software

Can Do

- Text Handling
- System Administration
- GUI programming
- Web Applications
- Database Apps
- Scientific Applications
- Games
- NLP
- ...


History

Guido van Rossum

Father of Python

1991

Perl	Java	Python	Ruby	PHP
1987		1991	1993	1995

What is Python?

Python is…

A dynamic, open source programming language with a focus on simplicity and productivity. It has an elegant syntax that is natural to read and easy to write.

Quick and Easy

- Intrepreted Scripting Language
- Variable declarations are unnecessary
- Variables are not typed
- Syntax is simple and consistent
- Memory management is automatic

Object Oriented Programming

Classes

Methods

Inheritance

Modules

etc.,

Examples!

```
def add5(x):
    return x+5

def dotwrite(ast):
    nodename = getNodename()
    label=symbol.sym_name.get(int(ast[0]),ast[0])
    print ' %s [label="%s' % (nodename, label),
    if isinstance(ast[1], str):
        if ast[1].strip():
            print '= %s' % ast[1]
        else:
            print '"]'
    else:
        print '"];'
        children = []
        for n, child in enumerate(ast[1:]):
            children.append(dotwrite(child))
        print ' %s -> {' % nodename,
        for name in children:
            print '%s' % name,
```


HELLO
WORLD

```
print    (“Hello World”)
```

No Semicolons !

Indentation

You have to follow the Indentation Correctly.

Otherwise,

Python will beat you !


Why?

Discipline

Makes

Good

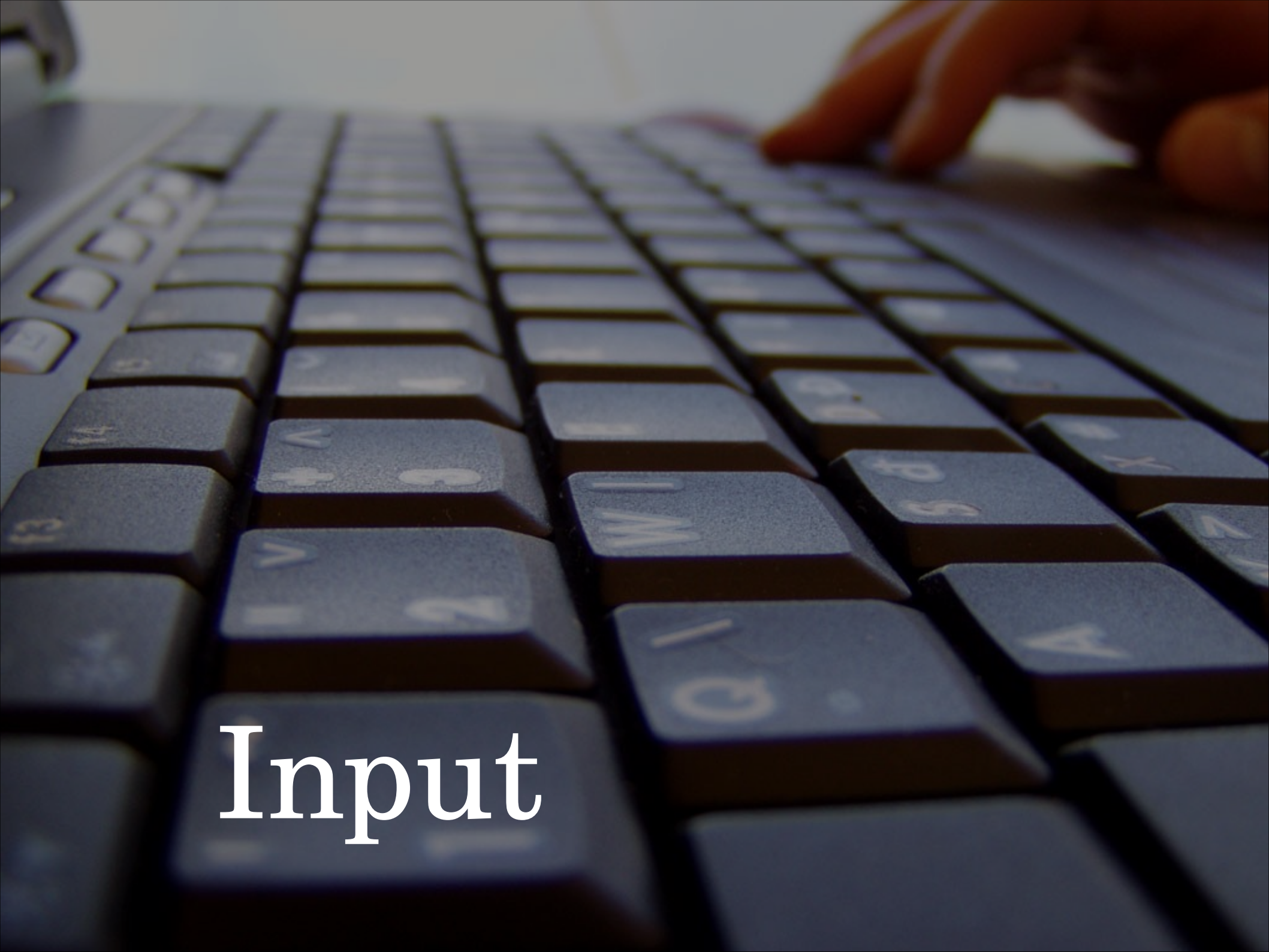
Variables

colored_index_cards

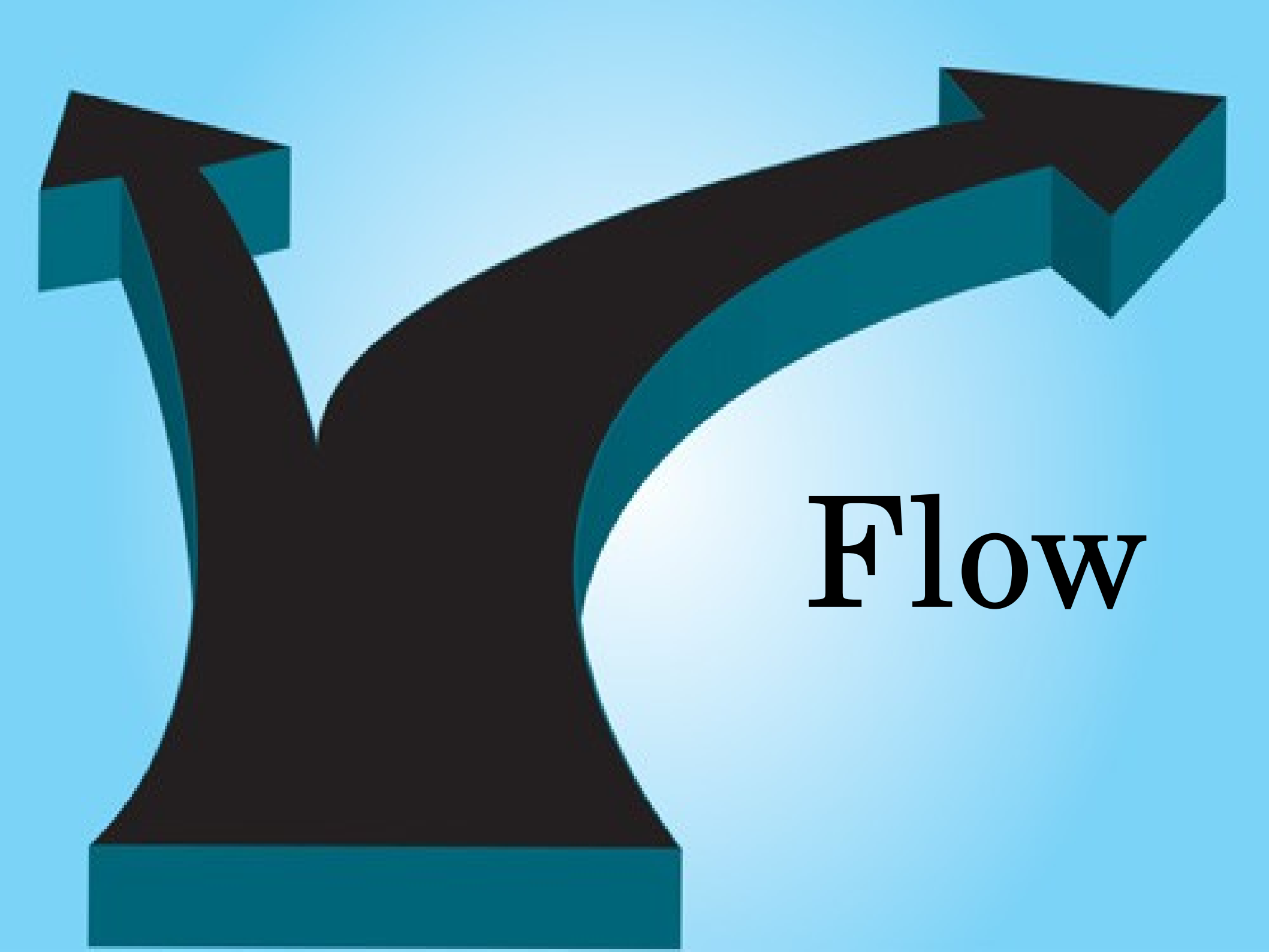
No Need to Declare Variable Types !

Python Knows Everything !

```
value = 10

print(value)

value = 100.50

print(value)

value = “This is String”

print(value * 3)
```


Input

```
name = input(“What is Your name?”)

print("Hello" ,name , "Welcome")
```


Flow

```
score=int(input(“ type a number”))
if  score >= 5000 :
  print(“You win!”)
elif  score <= 0 :
  print(“Game over.”)
else:
  print(“Current score:”,score)

print(“Done\n”)
```

Loop

```
for  i   in   range(1, 5):
        print (i)

print('The for loop is over')
```

```
number = 23
running = True
while running :
        guess = int(input('Enter an integer : '))
        if  guess == number :
                print('Congratulations, you guessed it.')
                running = False
        elif  guess < number :
                print('No, it is a little higher than that.')
        else:
                print('No, it is a little lower than that.')

print('Done')
```


Array

List = Array

```
numbers = [ "zero", "one", "two", "three",
"FOUR" ]
```

List = Array

```
numbers = [ "zero", "one", "two", "three",
"FOUR" ]

numbers[0]
>>> zero

numbers[4]                          numbers[-1]
>>> FOUR                            >>> FOUR
                  numbers[-2]
                                    >>> three
```

Multi Dimension List

```
numbers = [ ["zero", "one"],["two", "three",
"FOUR" ]]

numbers[0]
>>> ["zero", "one"]

numbers[0][0]                    numbers[-1][-1]
>>> zero                          >>> FOUR
                  len(numbers)
                                  >>> 2
```

Sort List

```
primes = [ 11, 5, 7, 2, 13, 3 ]
```

Sort List

```
primes = [ 11, 5, 7, 2, 13, 3 ]

primes.sort()
```

Sort List

```
primes = [ 11, 5, 7, 2, 13, 3 ]


>>> primes.sort()

>>> print(primes)
[2, 3, 5, 7, 11, 13]
```

Sort List

```
names = [ "Shrini", "Bala", "Suresh",
"Arul"]

names.sort()
print(names)
>>> ["Arul", "Bala","Shrini","Suresh"]

names.reverse()
print(names)
>>> ["Suresh","Shrini","Bala","Arul"]
```

Mixed List

```
names = [ "Shrini", 10, "Arul", 75.54]


names[1]+10
>>> 20


names[2].upper()

>>> ARUL
```

Mixed List

```
names = [ "Shrini", 10, "Arul", 75.54]


names[1]+10
>>> 20


names[2].upper()

>>> ARUL
```

Append on List

```
numbers = [ 1,3,5,7]

numbers.append(9)

>>> [1,3,5,7,9]
```

Tuples

immutable

```
names = ('Arul','Dhastha','Raj')

name.append('Selva')
```

Error : Can not modify the tuple

Tuple is immutable type

String

```
name = 'Arul'

name[0]
>>>'A'


myname = 'Arul' + 'alan'
>>> 'Arulalan'
```

split

```
name = 'This is python string'

name.split(' ')
>>>['This','is','python','string']

comma = 'Shrini,Arul,Suresh'

comma.split(',')
>>> ['Shrini','Arul','Suresh']
```

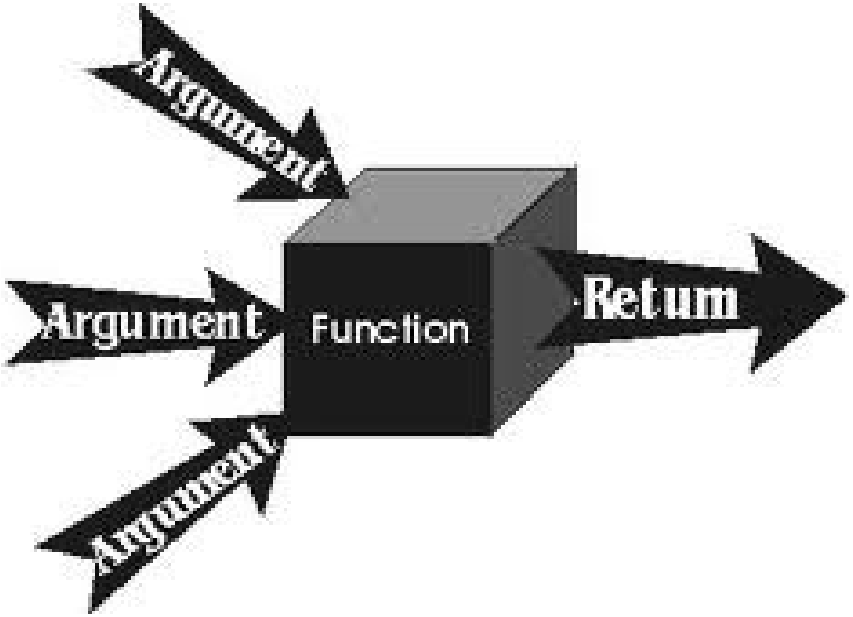
join

```
li = ['a','b','c','d']
s = '-'

new = s.join(li)
>>> a-b-c-d

new.split('-')
>>>['a','b','c','d']
```

```
'small'.upper()
>>>'SMALL'

'BIG'.lower()
>>> 'big'

'mIxEd'.swapcase()
>>>'MiXwD'
```

Dictionary

```
menu = {
   “idly”          : 2.50,
   “dosai”       : 10.00,
   “coffee”          : 5.00,
   “ice_cream”  : 5.00,
    100           : “Hundred”
}

menu[“idly”]
2.50

menu[100]
Hundred
```



Function

```
def sayHello():
        print('Hello World!') # block belonging of fn
# End of function

sayHello() # call the function
```

```
def printMax(a, b):
        if a > b:
                print(a, 'is maximum')
        else:
                print(b, 'is maximum')
printMax(3, 4)
```

Using in built Modules

```
#!/usr/bin/python
# Filename: using_sys.py
import time

print('The sleep started')
time.sleep(3)
print('The sleep finished')
```

```
#!/usr/bin/python
import os

print(os.listdir('/home/arulalan'))

print(os.walk('/home/arulalan'))
```

Making Our Own Modules

```
#!/usr/bin/python
# Filename: mymodule.py
def sayhi():
        print("Hi, this is mymodule speaking.")
version = '0.1'

# End of mymodule.py
```

```
#!/usr/bin/python
# Filename: mymodule_demo.py

import mymodule

mymodule.sayhi()
print('Version', mymodule.version)
```

```
#!/usr/bin/python
# Filename: mymodule_demo2.py
from mymodule import sayhi, version
# Alternative:
# from mymodule import *

sayhi()
print('Version', version)
```

Class

Classes

```
class Person:
        pass # An empty block

p = Person()

print(p)
```

Classes

```
class Person:
        def sayHi(self):
                print('Hello, how are you?')

p = Person()

p.sayHi()
```

Classes

```
class Person:
        def __init__(self, name):
                                #like contstructor
                self.name = name
        def sayHi(self):
                print('Hello, my name is', self.name)

p = Person('Arulalan.T')

p.sayHi()
```

Classes

Inheritance

Classes

```
class A:
        def   hello(self):
                              print (' I am super class ')
class B(A):
                 def  bye(self):
                              print(' I am sub class ')

p = B()
p.hello()
p.bye()
```

Classes

```
class A:
        Var = 10
    def __init__(self):
            self.public = 100
            self._protected_ =
'protected'
            self.__private__ = 'private'

Class B(A):
        pass
p = B()
p.__protected__
```

File Handling

File Writing

```
poem = ''' Programming is fun
When the work is done
if you wanna make your work also fun:
        use Python!
'''

f = open('poem.txt', 'w') # open for 'w'riting
f.write(poem) # write text to file
f.close()
```

File Reading

```
f= open('poem.txt','r')
for line in f.readlines():
        print(line)
f.close()
```

Database Intergration

```
import psycopg2


conn = psycopg2.connect(" dbname='pg_database'
user='dbuser' host='localhost' password='dbpass' ")

cur = conn.cursor()
cur.execute("""SELECT * from pg_table""")
rows = cur.fetchall()
print(rows)

cur.close()
conn.close()
```

```
import psycopg2


conn = psycopg2.connect(" dbname='pg_database'
user='dbuser' host='localhost' password='dbpass' ")

cur = conn.cursor()
cur.execute("'insert into pg_table values(1,'python')"')
conn.commit()

cur.close()
conn.close()
```

THE END

of code :-)

How to learn ?

Python – Shell

Interactive Python

Instance Responce

Learn as you type

bpython
ipython
} teach you very easily

Python can communicate With Other Languages

C

+

Python


Cython

Java

+

Python


Jython

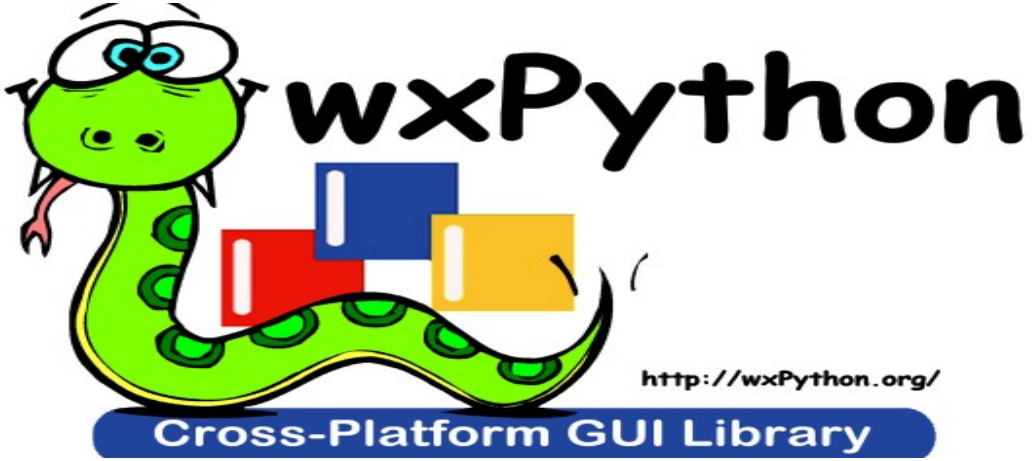
GUI

With

Python


Qt


GTK


wxPython
http://wxPython.org/
Cross-Platform GUI Library

Glade

+

Python

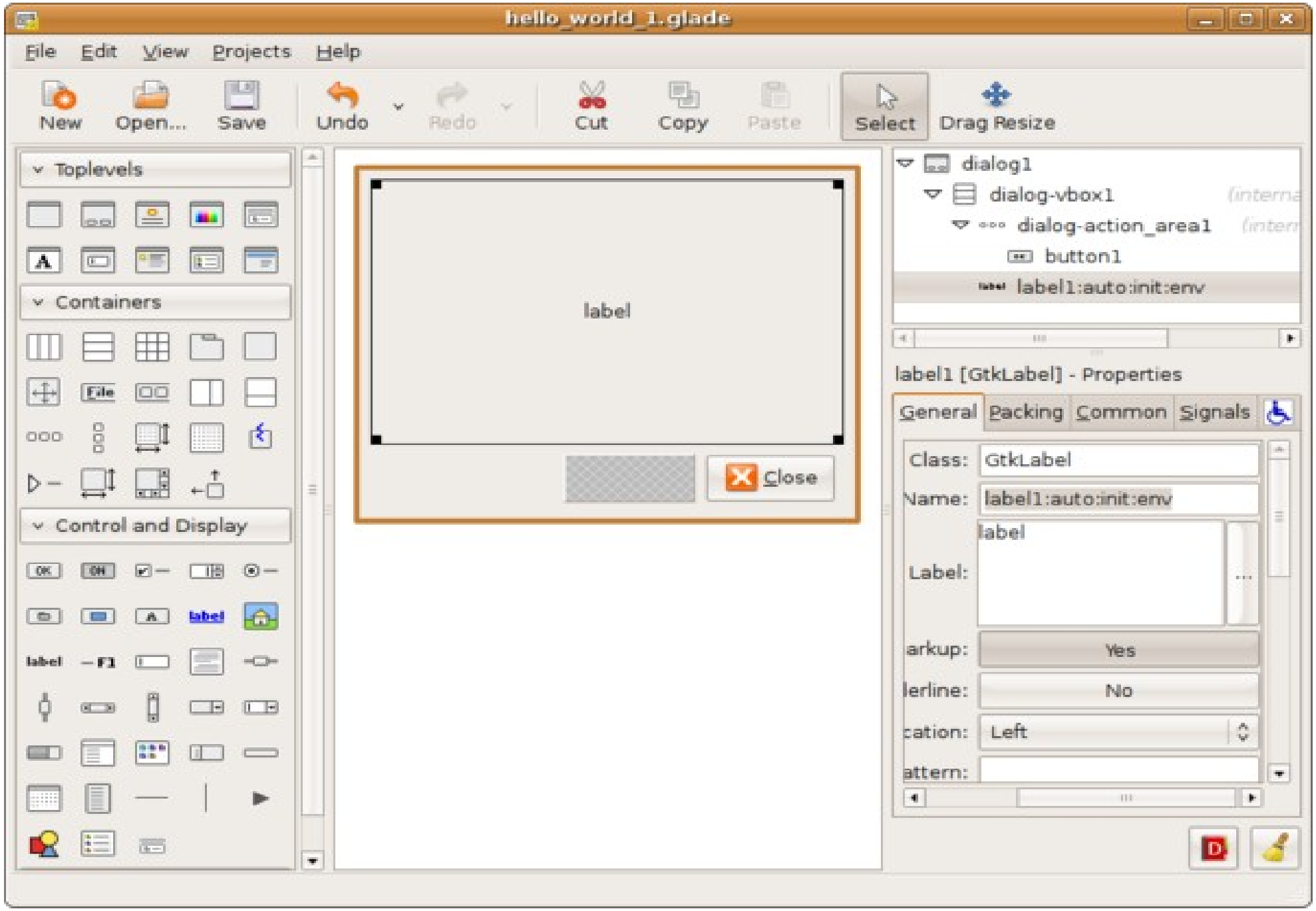
+

GTK

=

GUI APP

GLADE


hello_world_1.glade
File Edit View Projects Help
New Open... Save Undo Redo Cut Copy Paste Select Drag Resize
Toplevels
Containers
Control and Display
label
Close
dialog1
dialog-vbox1
dialog-action_area1
button1
label1:auto:init:env
label1 [GtkLabel] - Properties
General Packing Common Signals
Class: GtkLabel
Name: label1:auto:init:env
Label: label
Yes
No
Left

Using Glade + Python


Web

Web Frame Work in Python

python™

search

Advanced Search

Screen styles
normal* large userpref

- ABOUT
- NEWS
- DOCUMENTATION
- DOWNLOAD
- COMMUNITY
- FOUNDATION
- CORE DEVELOPMENT

Help

Package Index

Quick Links (2.7)
- Documentation
- Windows Installer
- Source Distribution

Quick Links (3.1.2)
- Documentation
- Windows Installer
- Source Distribution

Python Jobs

Python Programming Language – Official Website

Python is a programming language that lets you work more quickly and integrate your systems more effectively. You can learn to use Python and see almost immediate gains in productivity and lower maintenance costs.

Python runs on Windows, Linux/Unix, Mac OS X, and has been ported to the Java and .NET virtual machines.

Python is free to use, even for commercial products, because of its OSI-approved open source license.

New to Python or choosing between Python 2 and Python 3? Read Python 2 or Python 3.

The Python Software Foundation holds the intellectual property rights behind Python, underwrites the PyCon conference, and funds other projects in the Python community.

Read more, -or- download Python now

» Python 2.6.6rc1 released

A release candidate for Python 2.6.6 has been released for testing. Python 2.6.6 final is schedule for release on August 16, 2010.

Published: Wed, 04 Aug 2010, 18:09 -0400

» Python 3.2 alpha 1 released

The first alpha release of Python 3.2 has been released for testing.

Published: Sun, 01 Aug 2010, 8:30 +0200

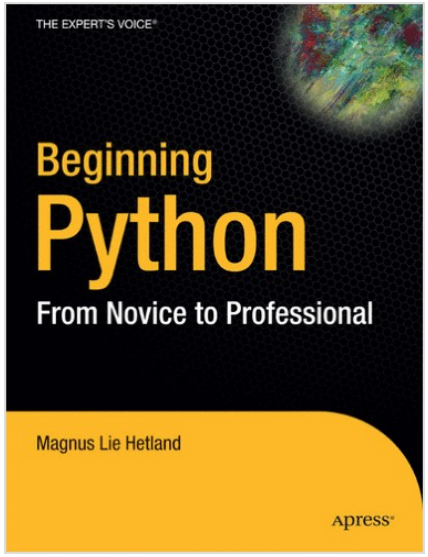
U. of St Andrews uses Python...

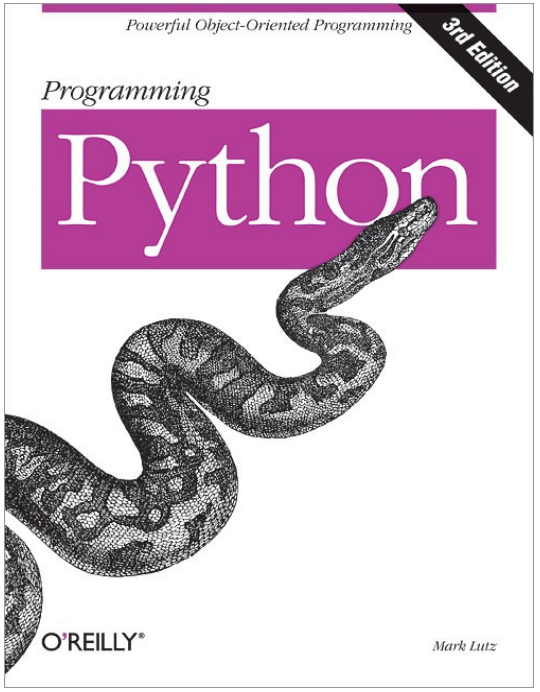
... joining users such as Rackspace, Industrial Light and Magic, AstraZeneca, Honeywell, and many others.

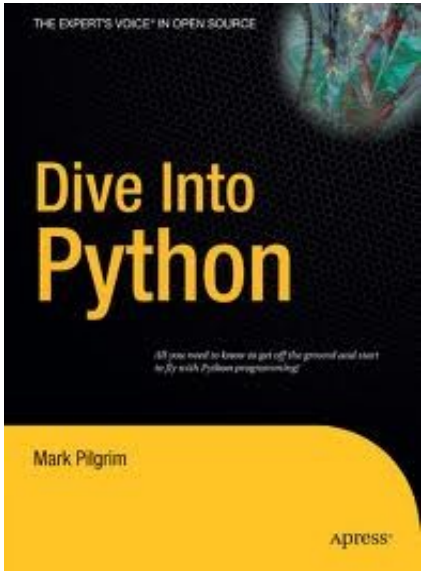
What they are saying...

EVE Online:

"Python enabled us to create EVE Online, a massive multiplayer game, in record time. The EVE Online server cluster runs over 25,000 simultaneous players in a shared space simulation, most of which is


THE EXPERT'S VOICE®
Beginning
Python
From Novice to Professional
Magnus Lie Hetland
Apress®


Powerful Object-Oriented Programming
3rd Edition
Programming
Python
O'REILLY®
Mark Lutz


THE EXPERT'S VOICE® IN OPEN SOURCE
Dive Into
Python
Mark Pilgrim
Apress®

A Byte of Python

Swaroop C H

https://python.swaroopch.com/

Easiest free online book for Python

Type to search

Introduction
Dedication
Preface
About Python
Installation
First Steps
Basics
Operators and Expressions
Control flow
Functions
Modules
Data Structures
Problem Solving
Object Oriented Programming
Input and Output
Exceptions
Standard Library
More
What Next
Appendix: FLOSS
Appendix: About
Appendix: Revision History

A Byte of Python

"A Byte of Python" is a free book on programming using the Python language. It serves as a tutorial or guide to the Python language for a beginner audience. If all you know about computers is how to save text files, then this is the book for you.

For Python version 3

This book will teach you to use Python version 3. There will also be guidance for you to adapt to the older and more common Python version 2 in the book.

Who reads A Byte of Python?

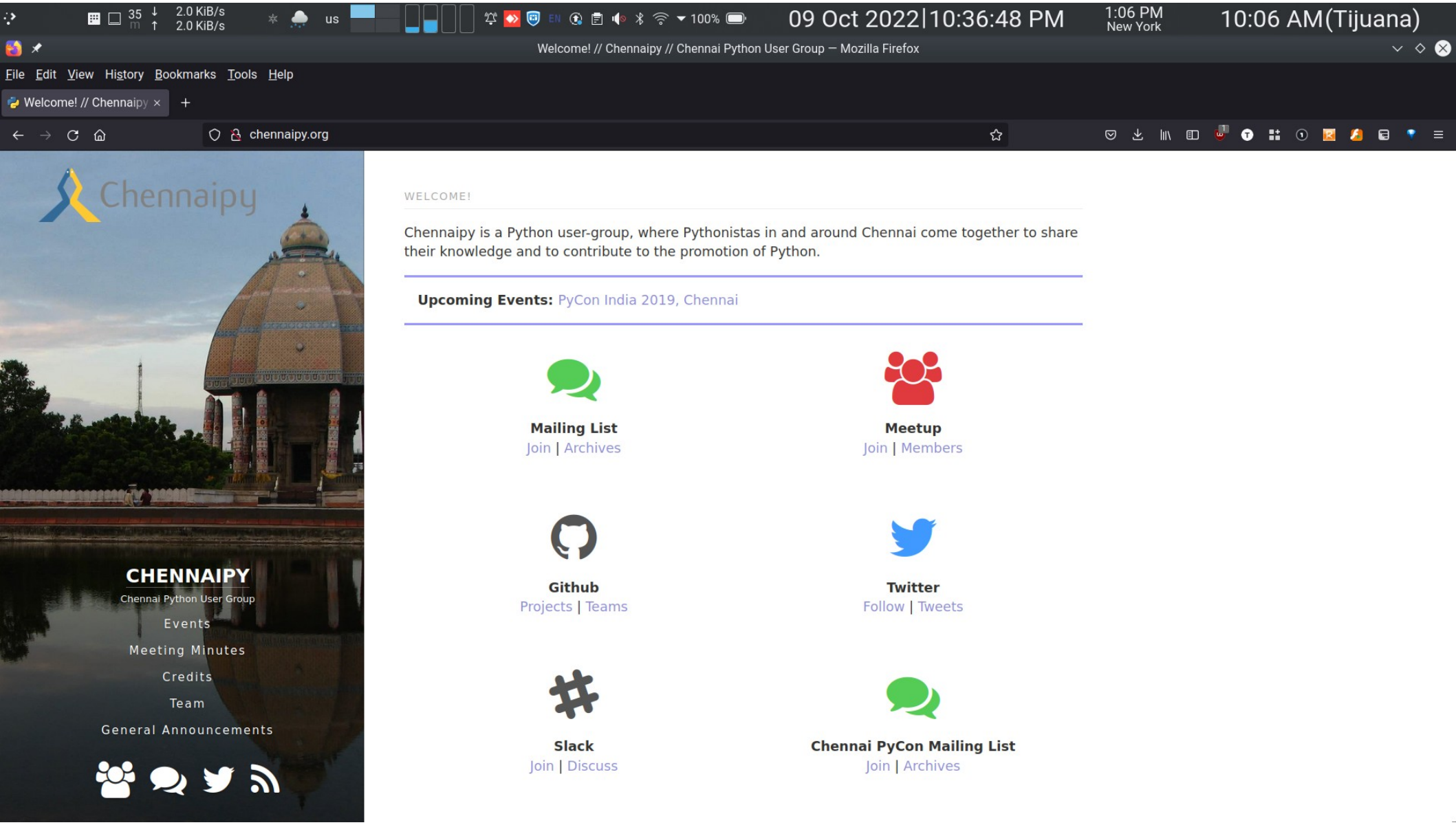
Here are what people are saying about the book:

> Somewhere around 2004 - 05 when I was convinced I wasn't smart enough to be a programmer , I came came across the original A Byte of #Python, and that changed my entire perspective on computing and life , I owe a lot to that book @swaroopch had written. -- Rahul on Jul 30, 2020

> This is the book that got me into programming almost a decade ago. Thank you @swaroopch. You changed my life. -- Stefan Froelich on Aug 2, 2019

> I am writing this email to thank you for the great help your book has done for me! It was a really good book that I enjoyed thoroughly. As a 15 year old who has never done programming before, trying to learn Python online was difficult and I couldn't understand anything. But I felt like your book gave was much easier to understand and eased me into the whole new world of programming. Thanks to you, I can now write a high level language with ease. I thought programming would be hard and boring, but with your book's help, I realised how fun and interesting yet simple it can be! I would like to thank you again for your hard work on helping out beginners like me. -- Prottyashita Tahiyat on Sep 17, 2019


Chennaipy


09 Oct 2022|10:36:48 PM
1:06 PM
New York
10:06 AM(Tijuana)
Welcome! // Chennaipy // Chennai Python User Group — Mozilla Firefox
File Edit View History Bookmarks Tools Help
Welcome! // Chennaipy
chennaipy.org
Chennaipy
CHENNAIPY
Chennai Python User Group
Events
Meeting Minutes
Credits
Team
General Announcements
WELCOME!
Chennaipy is a Python user-group, where Pythonistas in and around Chennai come together to share their knowledge and to contribute to the promotion of Python.
Upcoming Events: PyCon India 2019, Chennai
Mailing List
Join | Archives
Meetup
Join | Members
Github
Projects | Teams
Twitter
Follow | Tweets
Slack
Join | Discuss
Chennai PyCon Mailing List
Join | Archives

Join ChennaiPy Mailing List and Ask/Answer questions

https://mail.python.org/mailman/listinfo/chennaipy


THANKS