Python Programming

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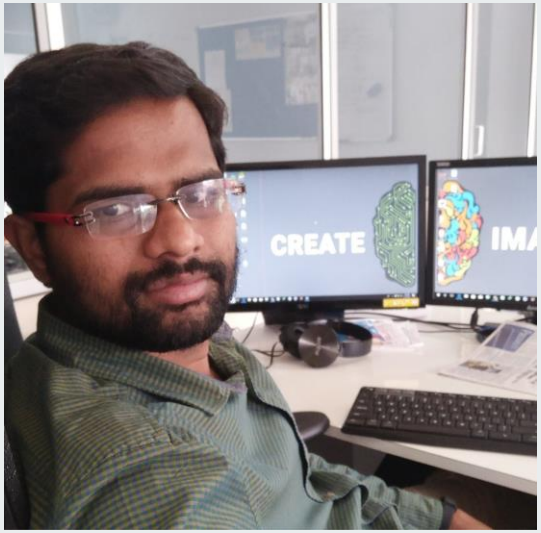
About Me

Learn
Teach
Code
Repeat



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Agenda for Today

Lets Learn Python

Python Language

Python is a general-purpose interpreted, interactive, object-oriented, and high-level programming language.

It is Free and developed by Open Source Community Python Software Foundation

History

It was created by Guido van Rossum during 1985- 1990.

It is influenced by Modula 3 & ABC Programming Language

Features

- Easy-to-learn -read - maintain
- Portable
- Supports Popular Databases (MySQL, MSSQL, MongoDB
- GUI Programming (Tkinter)
- Scalable
- Vast Library

Application (Python Usage)

1. Web and Internet Development
2. Desktop GUI Applications
3. Scientific and Numeric
4. Education
5. Business Applications
6. Games and 3D Graphics
7. Network Programming
8. Database Access

Which Version ???

Python 2.7

Python 3.X (Latest : 3.7.3)

Lets Start

Installing Python

- Goto www.python.org/downloads
- Download **Version 3.5** if your Operating System is (Windows 7 / XP)
- Download Latest Release if your Os in Windows 8 / 8.1 / 10
- In Linux / MacOS Version 2.7 is already installed

Getting Started with Python : Setting Path

To add the Python directory to the path for a particular session in Unix −

- In the csh shell − type setenv PATH "$PATH:/usr/local/bin/python" and press Enter.
- In the bash shell (Linux) − type export PATH="$PATH:/usr/local/bin/python" and press Enter.
- In the sh or ksh shell − type PATH="$PATH:/usr/local/bin/python" and press Enter.
- Note − /usr/local/bin/python is the path of the Python directory

Choose Your Editor

Visual Studio Code => http://code.visualstudio.com

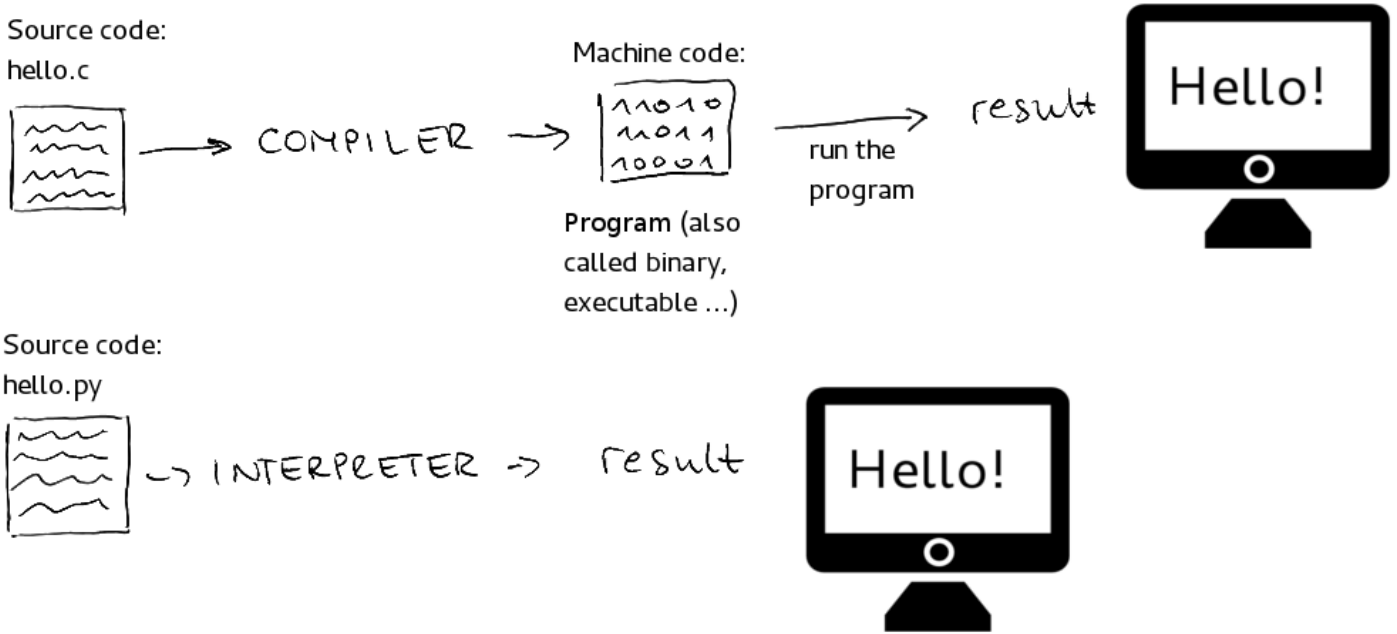
PyCharm => https://www.jetbrains.com/pycharm/

Python (IDLE Bundled with Python Installler)

Notepad + Console

Get Set Go

Interpreted vs Compiled



2 Ways to Interact with Python

Interactive Mode	Normal Mode
Take Single User Input, Evaluates them and returns to the User	Executes a Python script on Command Line

Interactive Mode

```
C:\Users\PC>python
Python 3.7.0 (v3.7.0:1bf9cc5093, Jun 27 2018, 04:59:51) [
Type "help", "copyright", "credits" or "license" for more information.
>>> print “Hello”
Hello
>>>
```

Normal Mode

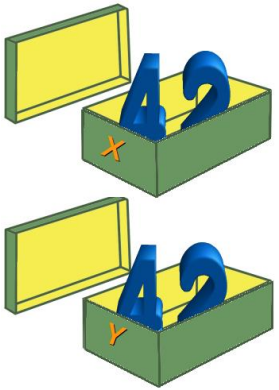
```
C:\Users\PC>python hello.py
Hello
```

Filename : hello.py

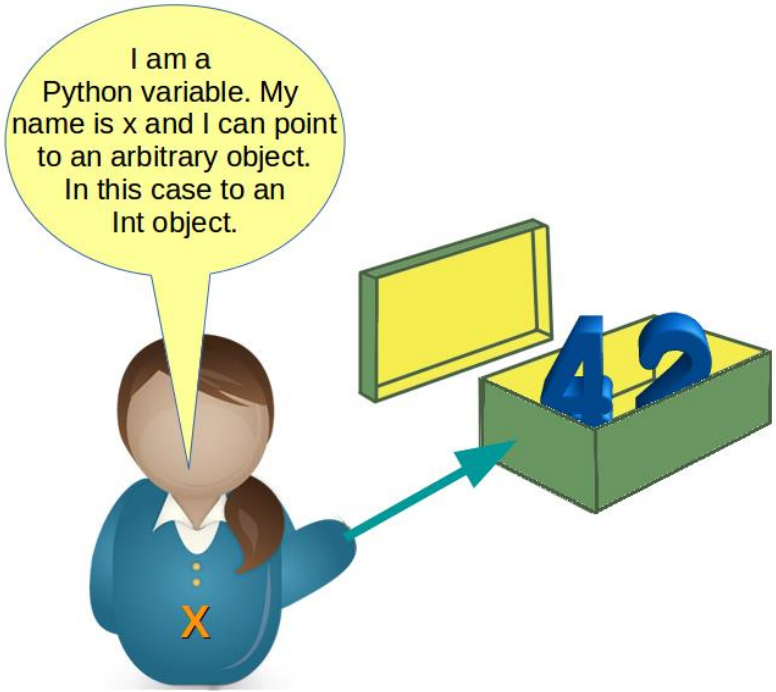
```
print “Hello”
```

Language Basics : Variables

Python Variables



- Variable is something which can change.
- A variable is a way of referring to a memory location used by a computer program.
- This memory location contains values, like numbers, text or more complicated types.
- A variable has a name, type, a scope, and above all a value.


I am a
Python variable. My
name is x and I can point
to an arbitrary object.
In this case to an
Int object.
42
X

Rules for Naming a Variable

A valid identifier is a non-empty sequence of characters of any length with: The start character can be the underscore "_" or a capital or lower case letter.

- The letters following the start character can be anything which is permitted as a start character plus the digits.
- Variable names are Case sensitive (Apple != apple)
- Python keywords are not allowed as identifier names! See list in next slide

Keywords = Reserved Names

- *and, as, assert, break, class, continue, def, del, elif, else, except, exec, finally, for, from, global, if, import, in, is, lambda, not, or, pass, print, raise, return, try, while, with, yield*

Creating a Variable

```
>>> x = 42
>>> print(x) 42
>>> x = "Now x references a string"
>>> print(x)
Now x references a string
```

Data Types

- A Data type Specifies the type of data stored inside the Variable

- Python's built-in core data types are in some cases also called object types. There are four built-in data types for numbers:
    Integer
    Long integers
    Floating-point numbers,
    ** Complex numbers are written as *<real part>* + *<imaginary part>*j

Complex Number Arithmetic

- examples:
  >>> x = 3 + 4j
  >>> y = 2 - 3j
  >>> z = x + y
  >>> print z
  (5+1j)