Python Training

Zartab Nakhwa
Corporate Trainer and Project Consulatant

Introduction

Python is a high-level, interpreted and general-purpose dynamic programming language that focuses on code readability.

Facts

- The language founded in the year 1991 by the developer Guido Van Rossum.

Facts

- The syntax in Python helps the programmers to do coding in fewer steps as compared to Java or C++.
- The Python is widely used in bigger organizations because of its multiple programming paradigms.
- They usually involve imperative and object-oriented functional programming.
- It has a comprehensive and large standard library that has automatic memory management and dynamic features.

Why Python?

- The syntax in Python helps the programmers to do coding in fewer steps as compared to Java or C++.
- Python has top the charts in the recent years over other programming languages like C, C++ and Java and is widely used by the programmers.
- The language has undergone a drastic change since its release 25 years ago as many add-on features are introduced.

Python Releases

- The Python 1.0 had the module system of Modula-3 and interacted with Amoeba Operating System with varied functioning tools.
- Python 2.0 introduced in the year 2000 had features of garbage collector and Unicode Support.
- Python 3.0 introduced in the year 2008 had a constructive design that avoids duplicate modules and constructs.
- With the added features, now the companies are using Python 3.5.
- We will use Python 3.7 in this training.

Features of Python

Interactive

Interpreted

Modular

Dynamic

Object-oriented

Portable

High level

Extensible in C++ & C

Advantages of Python

Extensive Support Libraries

It provides large standard libraries that include the areas like string operations, Internet, web service tools, operating system interfaces and protocols.
Most of the highly used programming tasks are already scripted into it that limits the length of the codes to be written in Python.

Integration Feature

Python integrates the Enterprise Application Integration that makes it easy to develop Web services by invoking COM or COBRA components.
It has powerful control capabilities as it calls directly through C, C++ or Java via Jython.
Python also processes XML and other markup languages as it can run on all modern operating systems through same byte code.

Advantages of Python

Improved Programmer's Productivity

The language has extensive support libraries and clean object-oriented designs that increase two to ten fold of programmer's productivity while using the languages like Java, VB, Perl, C, C++ and C#.

Productivity

With its strong process integration features, unit testing framework and enhanced control capabilities contribute towards the increased speed for most applications and productivity of applications. It is a great option for building scalable multi-protocol network applications.

Disadvantages of Python

Difficulty in Using Other Languages

The Python lovers become so accustomed to its features and its extensive libraries, so they face problem in learning or working on other programming languages. Python experts may see the declaring of cast “values” or variable “types”, syntactic requirements of adding curly braces or semi colons as an onerous task.

Weak in Mobile Computing

Python has made its presence on many desktop and server platforms, but it is seen as a weak language for mobile computing. This is the reason very few mobile applications are built in it like Carbonnelle.

Disadvantages of Python

Gets Slow in Speed

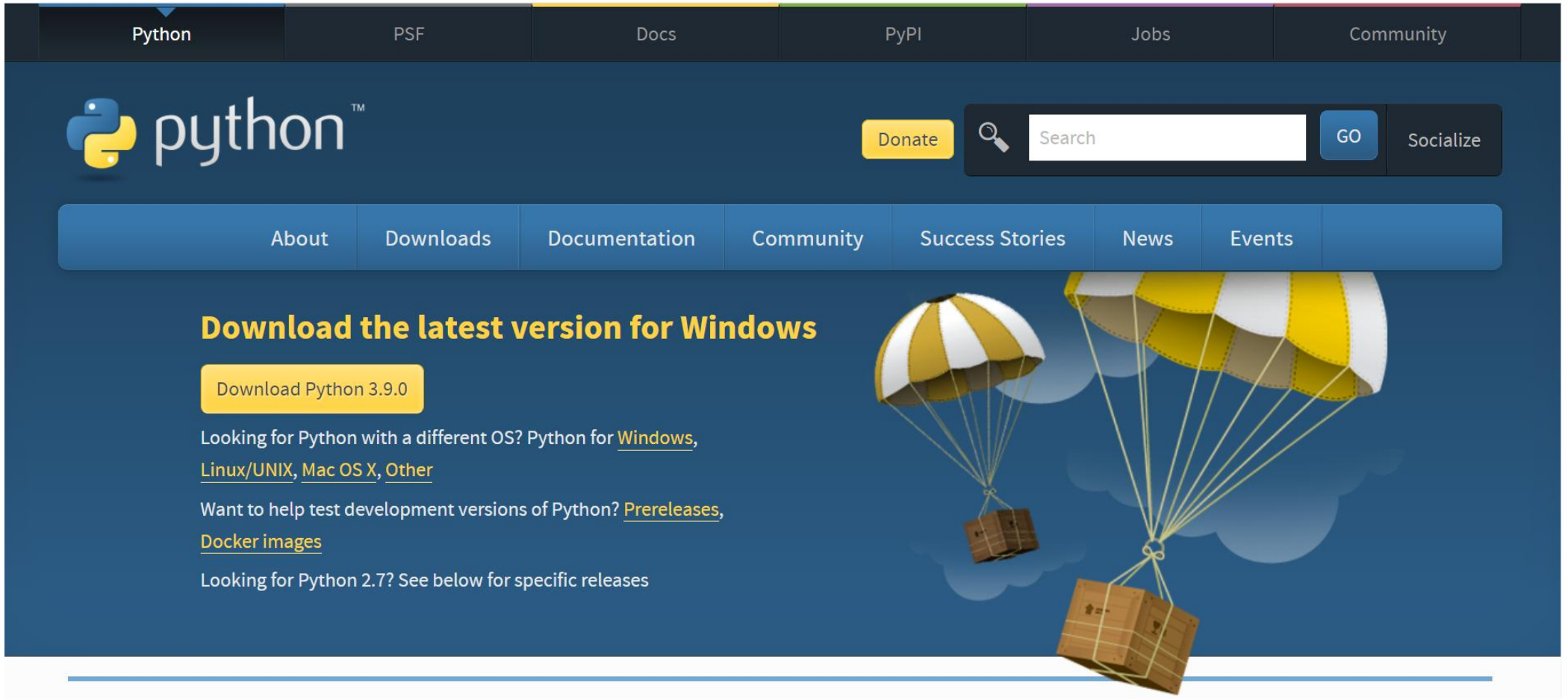
Python executes with the help of an interpreter instead of the compiler, which causes it to slow down because compilation and execution help it to work normally. On the other hand, it can be seen that it is fast for many web applications too.

Run-time Errors

The Python language is dynamically typed so it has many design restrictions that are reported by some Python developers. It is even seen that it requires more testing time, and the errors show up when the applications are finally run.

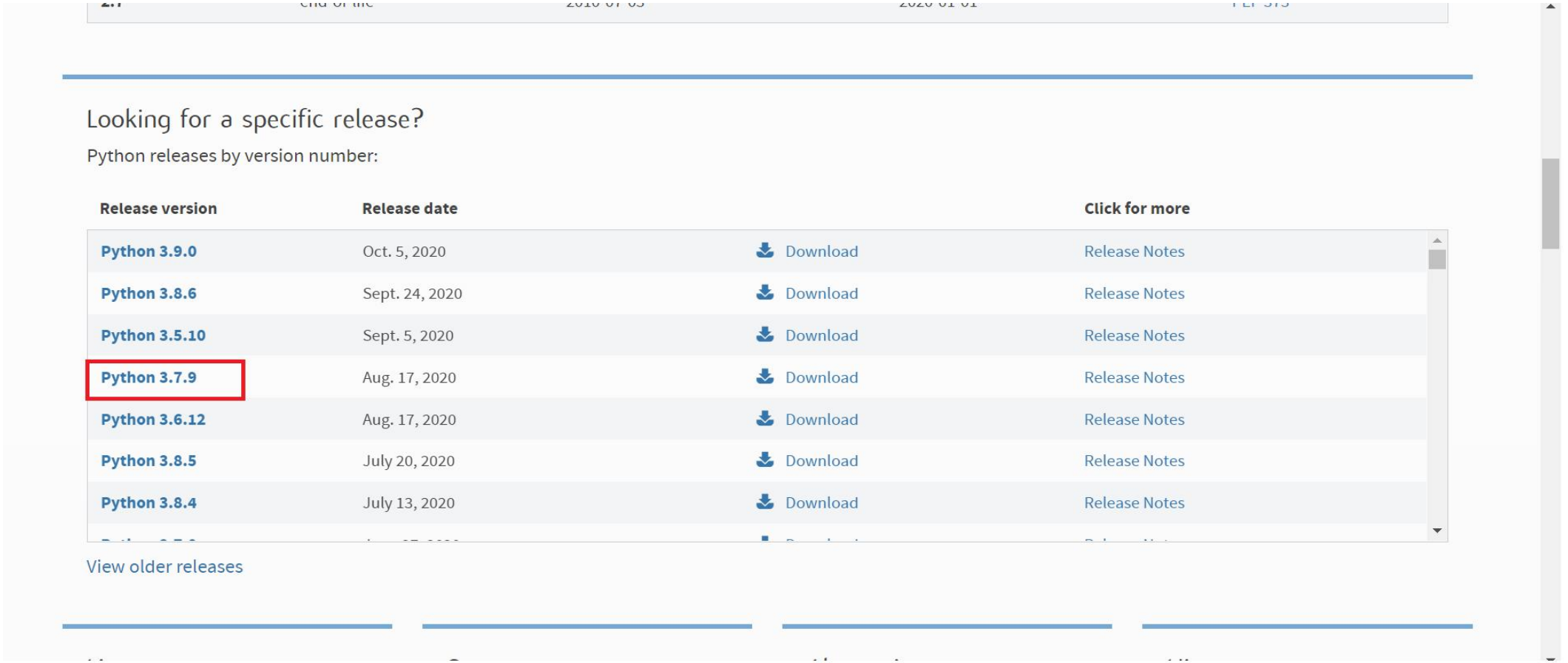
Where to get python?

www.python.org/downloads



Where to get python?

Download version 3.7



Looking for a specific release?

Python releases by version number:

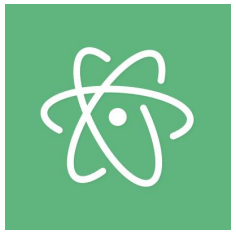
Release version	Release date		Click for more
Python 3.9.0	Oct. 5, 2020	Download	Release Notes
Python 3.8.6	Sept. 24, 2020	Download	Release Notes
Python 3.5.10	Sept. 5, 2020	Download	Release Notes
Python 3.7.9	Aug. 17, 2020	Download	Release Notes
Python 3.6.12	Aug. 17, 2020	Download	Release Notes
Python 3.8.5	July 20, 2020	Download	Release Notes
Python 3.8.4	July 13, 2020	Download	Release Notes

View older releases

Installation

IDE's and Editors

IDLE



Data Types in Python

Type	Data-Type
Text Type:	str
Numeric Types:	int, float, complex
Sequence Types:	list, tuple, range
Mapping Type:	dict
Set Types:	set, frozenset
Boolean Type:	bool
Binary Types:	bytes, bytearray, memoryview

Keywords in Python

Keyword	Description
and	A logical operator
as	To create an alias
assert	For debugging
break	To break out of a loop
class	To define a class
continue	To continue to the next iteration of a loop
def	To define a function
del	To delete an object
elif	Used in conditional statements, same as else if
else	Used in conditional statements
except	Used with exceptions, what to do when an exception occurs

Keywords in Python

Keywords	Description
false	Boolean value, result of comparison operations
finally	Used with exceptions, a block of code that will be executed no matter if there is an exception or not
for	To create a for loop
from	To import specific parts of a module
global	To declare a global variable
if	To make a conditional statement
import	To import a module
in	To check if a value is present in a list, tuple, etc.
is	To test if two variables are equal
lambda	To create an anonymous function

Keywords in Python

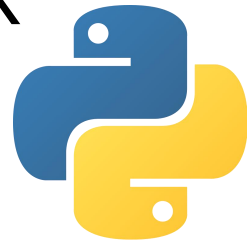
Keyword	Description
None	Represents a null value
nonlocal	To declare a non-local variable
not	A logical operator
or	A logical operator
pass	A null statement, a statement that will do nothing
raise	To raise an exception
return	To exit a function and return a value
True	Boolean value, result of comparison operations
try	To make a try...except statement
while	To create a while loop
with	Used to simplify exception handling
yield	To end a function, returns a generator

Variable and Rules for Variabes

Variables are the containers for holding data values.

Rules for Variables in Python

- A variable name must start with a letter or the underscore character
- A variable name cannot start with a number
- A variable name can only contain alpha-numeric, characters and underscores (A-Z,a-z, 0-9, and _)
- Variable names are case-sensitive (max, Max and MAX are three different variables)



Let's Code