Introduction

WHAT IS PYTHON ?

Python is a dynamically typed general purpose interpreted, object-oriented, high-level programming Language .

HISTORY OF PYTHON :

- ✓ The *Python programming language* was conceived in the late 1980s and was named after the *BBC TV show Monty Python's Flying Circus*.
- ✓ Guido van Rossum started implementing Python at Centrum Wiskunde & Informatica (CWI) in the Netherlands in December of 1989.
- ✓ This was a successor to the ABC programming language

The Python version release dates are as follows:

Python 1.0 - Jan 1994
Python 1.5 - 31 Dec 1997
Python 1.5.2 - April 1999
Python 1.6 - 05 Sep 2000
Python 2.0 - 16 Oct 2000
Python 2.0.1 - 22 Jun 2001
Python 2.1 - 17 Apr 2001
Python 2.2 - 21 Dec 2001
Python 2.3 - 29 Jul 2003
Python 2.4 - 30 Nov 2004
Python 2.5 - 19 Sep 2006
Python 2.6 - 01 Oct 2008
Python 2.7 - 03 Jul 2010
Python 3.0 - 03 Dec 2008
Python 3.1 - 27 Jun 2009
Python 3.2 - 20 Feb 2011
Python 3.3 - 29 Sep 2012
Python 3.4 - 16 Mar 2014
Python 3.5 - 13 Sep 2015
Python 3.6 - 23 Dec 2016
Python 3.7 - 27 Jun 2018
Python 3.8 - 14 Oct 2019

Python Architecture : Python Virtual Machine -PVM

i. Parser

It uses the source code to generate an abstract syntax tree.

ii. Compiler

It turns the abstract syntax tree into Python bytecode.

iii. Interpreter

It executes the code line by line in a REPL (Read-Evaluate-Print-Loop) fashion

The normal extension for a Python source file : .py

Features of Python :

i. Easy

Python is very easy to learn and understand

ii. Interpreted

It is interpreted(executed) line by line. This makes it easy to test and debug.

iii. Object-Oriented

The Python programming language supports classes and objects.

iv. Free and Open Source

The language and its source code are available to the public for free; there is no need to buy a costly license.

v. Portable

Since it is open-source, you can run Python on Windows, Mac, Linux or any other platform. Your programs will work without needing to the changed for every machine.

vi. GUI Programming

You can use it to develop a GUI (Graphical User Interface). One way to do this is through **Tkinter.**

vii. Large Library

Python provides you with a large standard library. You can use it to implement a variety of functions without needing to reinvent the wheel every time. Just pick the code you need and continue. This lets you focus on other important tasks.

Python Applications :

- Build a website
- Develop a game
- Perform Computer Vision (Facilities like face-detection and color-detection)
- Implement Machine Learning (Give a computer the ability to learn)
- Enable Robotics
- Perform Web Scraping (Harvest data from websites)
- Perform Data Analysis
- Automate a web browser
- Perform Scientific Computing
- Build Artificial Intelligence

Brands like **YouTube, Dropbox, and Netflix , Google** are built using Python

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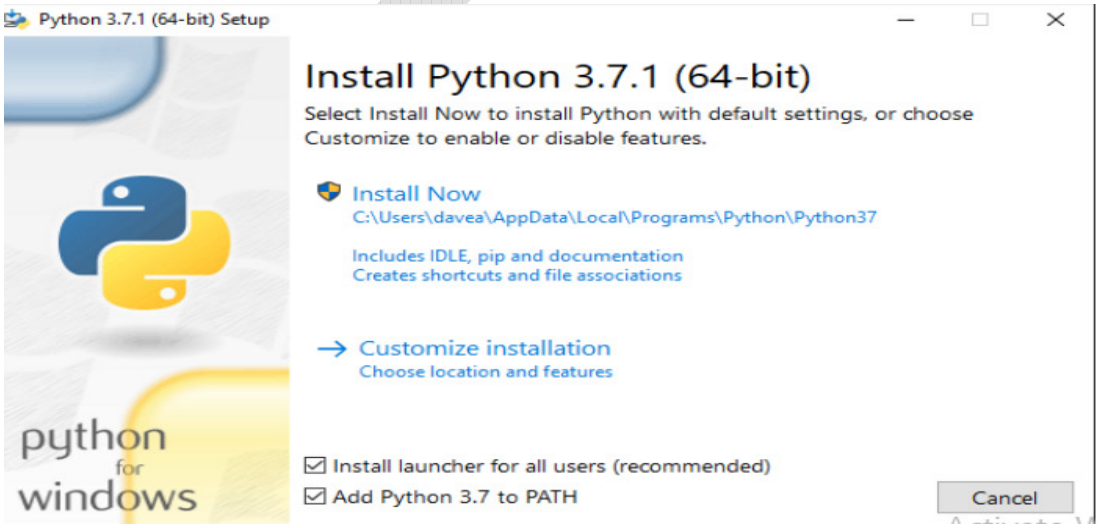
Python 3 Installation & Setup :

Step 1: Download the Python 3 Installer

Python can be obtained from the **Python Software Foundation** website at https://www.python.org/downloads/

Step 2 : Run the Installer



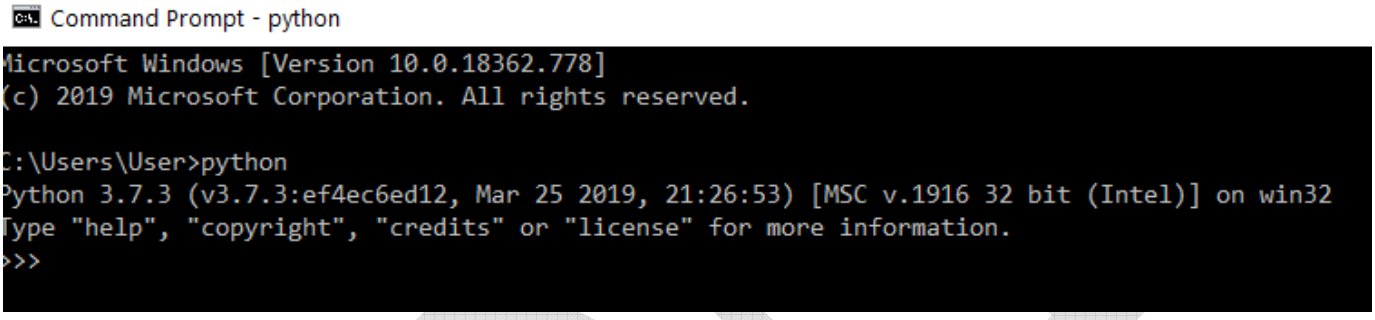
Important: You need to be sure to check the box that says Add Python 3.x to PATH as shown to ensure that the interpreter will be placed in your execution path.

Then Click Install and Wait Until Installation Is Complete

Checking Of Python Installation

1. Go To Command Prompt

2. Type Python if it is installed it will show the version installed as shown below



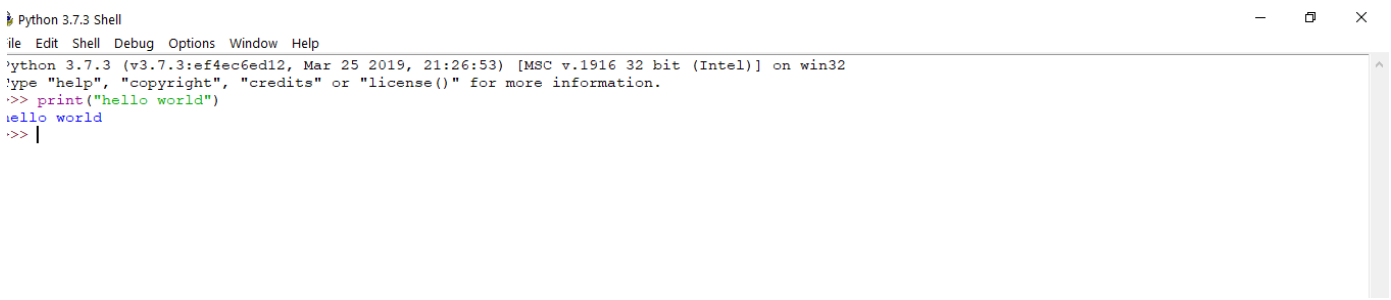
Open IDLE You can open IDLE in two steps:

1. Click on the start menu and locate the Python 3.7 folder.

2. Open the folder and select IDLE (Python 3.7).

IDLE opens a Python shell in a new window.

The Python shell is an interactive environment that allows you to type in some Python code and execute it immediately



Integrated Development and Learning Environment

Default IDLE is a decent IDE for learning as it's lightweight and simple to use.
However, it's not for optimum for larger projects.So we will go another IDE . Most commonly used IDE's for Python are :

1. Visual Studio Code
2. Atom
3. Sublime Text
4. Pycharm
5. Jupyter (Mostly used for Data Science)

Visual Studio Code

- ✓ Visual Studio Code (VS Code) is a free and open-source IDE created by Microsoft that can be used for Python development.
- ✓ You can add extensions to create a Python development environment as per your need in VS code.
- ✓ It provides features such as intelligent code completion, linting for potential errors, debugging, unit testing and so on.
- ✓ If you open a Jupyter notebook file (.ipynb) in VS Code, you can use the Jupyter Notebook Editor to directly view, modify, and run code cells.
- ✓ VS Code is lightweight and packed with powerful features. This is the reason why it becoming popular among Python developers.

Download VS Studio From : https://code.visualstudio.com/Download

and install the extension from the VS Code marketplace.

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