Python is a general purpose high level programming language.

General purpose means:

We can use Python to implement any kind of applications like

* Web applications
* Data Science applications
* Machine learning applications
* Desktop applications
* Database applications
* Networking applications
* Games
* Data Analysis
* AI
* IOT applications

Python is Dynamically Typed Language

Python was developed by integrating lot of features from other languages

* Functional programming features from C
* OOPs from C++
* Scripting language features from Perl and Shell
* Modular programming from Modula-3

Features of Python

1. Simple and easy to learn
2. Freeware and Open source
3. High level programming language
4. Platform independent
5. Portability
6. Dynamically typed
7. Both Procedure oriented and Object oriented
8. Interpreted
9. Extensible (We can integrate code written in other languages with Python)
10. Embedded (Python programs can be embedded in any language or anywhere)
11. Extensive library

Limitations of Python:

1. Performance
2. Mobile applications

Flavors of Python:

1. **CPython** (Standard flavor of Python, It is used to work with C language applications)
2. **Jython** or **JPython** (This is for JAVA applications)
3. **IronPython** (This is developed to work with C# applications)
4. **Pypy** (If high performance is needed we can go for this flavor: Inside Python Virtual Machine there is JIT compiler)
5. **RubyPython** (Can be used for Ruby platform)
6. **AnacondaPython** (To handle large volume of data processing)
7. **Stackless** (Python for concurrency (multithreading) )

Python Versions:

* Python 1.0 @1994
* Python 2.0 @2000
* Python 3.0 @2008
  + Python 3.6 @2016

Python new versions will not provide a backward compatibility to previous versions of Python.

Identifiers:

Any thing which has a name is called an identifier

Ex: Variable names, function names class names etc.

Rules to define identifiers in Python:

1. Alphabet symbols (both uppercase and lowercase) and underscores also
2. Identifier should not start with digits
3. Identifiers are case sensitive
4. Keywords are not allowed to use to define variables
5. If identifier starts with underscore then it indicates it is Private
6. If identifier starts with two underscore then it indicates it is strongly Private
7. If identifier starts with two underscores and ends with two underscores then it indicates it is language specific identifier (special identifier)

Reserved Words:

33 Reserved words are there in Python

* True, False, None
* and, or, not, is
* if, else, elif
* while, for, break, continue, return, in, yield
* try, except, finally, raise, assert
* import, from, as, class, def, pass, global, nonlocal, lambda, del, with

All Reserved words contain only alphabets

Except first 3 remaining reserved words are in lowercase.

Following syntax can print all the keywords:

1. Import keyword
2. keyword.kwlist

Data Types:

1. int
2. float
3. complex
4. bool
5. str
6. bytes
7. bytearray
8. range
9. list
10. tuple
11. set
12. frozenset
13. dict
14. None

Out of these the first 5 data types are inbuilt data types or Fundamental Data types.

Python considers any data type as an object

Following are the generally used inbuilt functions in Python:

print(), type(). Id()

Strings:

In Python for stings there will be positive as well as negative indexes will exist

For example:

Str = “sachin”

Str[0] will print s

Str[-1] will print n