History of Python

- The Python programming language was conceived in the late 1980s and its implementation was started in December 1989 by Guido van Rossum at CWI in the Netherlands.
- Python 2.0 was released on October 16, 2000, with many major new features, including garbage collector for memory management and support for Unicode.
- Python 3.0, a major, backwards-incompatible release, was released on December 3, 2008.
- It has a large and comprehensive standard library.
- The syntax that allows programmers to express concepts in fewer lines of code than might be used in languages such as C++ or Java.
- Python interpreters are available for many operating systems, allowing Python code to run on a wide variety of systems.
- ABC is an imperative general-purpose programming language and programming environment developed at CWI, Netherlands by Leo Geurts, Lambert Meertens, and Steven Pemberton. It is **interactive**, **structured**, high-level, and intended to be used instead of **BASIC**, Pascal, or AWK.
- Python has come to stand as one of the most important and most popular open source programming languages being used today.
- Python was born out of the ABC language, a terminated project of the Dutch CWI research institute that van Rossum worked for, and the Amoeba distributed operating system. When Amoeba needed a scripting language, van Rossum created Python.

Compiler-

A compiler is a special program that processes statements written in a particular programming language and turns them into machine language or "code" that a computer's processor uses.

Python — Strings

Strings are the collection of characters.

Python strings can be declared in single quotes or double quotes.

Python does not support character type.

Declaration of python strings-

str1 = 'Hello World‘;

str2 = "Python Programming“;

print() Function

A function in Python is a tool developer’s use to save time and make their programs more efficient.

The print() function is used whenever you want to print text to the screen.

Ex-

print (“Hello World!”)

Example of Python Codes Using Strings

Example-1 ->

```
str1 = 'Hello World'
str2 = "Python Programming"
print "var1[0]: ", str1[0]
print "var2[1:5]: ", str2[1:5]
```

Example-2 ->

```
var1 = 'Hello World'
print "Updated String :- ", var1[:6] + 'Python'
```

Data Types of Python –

Python supports four different numerical types −

int (signed integers):It is used to define integer values that can be positive or negative whole numbers with no decimal point.

Ex- x=100

b) long (long integers): They are used to store integers of unlimited size, written like integers.

The long data type is defined by using uppercase or lowercase L.

Ex-

y=212525242525L

3) **float (floating point real values)** : They represent real numbers and are written with a decimal point dividing the integer and fractional parts. Floats may also be in scientific notation, with E or e.

Ex-

a= 120.25

b= 32.3e2

4) C**omplex (complex numbers)** : A **complex number** is a **number** that can be expressed in the form a + bi, where a and b are real numbers and i is the imaginary unit, satisfying the equation $i^2 = -1$. In this expression, a is called the real part and b is the imaginary part.

Ex-

a= 3e+26J

Conjugate complex number

- The complex conjugate of a complex number is the number with equal real part and imaginary part equal in magnitude but opposite in sign.
- For example, the complex conjugate of 3 + 4i is 3 − 4i

Example-

z=2+3j

y=z.conjugate()

print(y);

Rules for declaring the python variable

a) Must begin with a letter (a - z, A - B) or underscore (_)

b) It is Case Sensitive

c) It can be any (reasonable) length

d) There are some reserved words which you cannot use as a variable name.

Declaration of variables

Python Assignment Statements

The assignment statement creates new variables and gives them values:

Syntax

<variable> = <expr>

Where the equal sign (=) is used to assign value (right side) to a variable name (left side).

Multiple Assignment

The multiple variables can be initialized once.

Syntax

var1=var2=var3...varn= = <expr>

Example :

x = y = z = 1

Reserved Keywords

- The following words are reserved by Python and can ' t be used as the names for data:

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