Introduction to Python :-

Python is a interpreted, Object oriented, high level programming language.

We can use Python for any type of application happily like desktop application, web application (gmail application), any type of software development, data Science applications, AI, machine learning application etc. for these reason Python is known as General Purpose Language.

Why Python is famous :-

As it is high-level, so it is programmer friendly means the program is very easy to understand.

It is most easy and simple in compared to C, C++ and JAVA.

| What about the name Python :-

Python is not a snake. The name 'Python' originated from the famous Comedy Serial ~~Python~~ "Monty Python flying Circus"

Actually Guido Van Rossum the originator of Python Language was ~~crazy~~ a fan of British Commedy (BBC) TV Serial "The complete Monty Python's Circus" (1969-1971) "Monty Python flying Circus". So he kept the name [Python] when he finished writing the code.

In 1989 Python was developed by Guido Van Rossum when he was working at National Research Institute (NRI) in Netherland. But the official release date of Python is on 20th Feb 1991.

whereas JAVA was released on 1995 and officially released in 1996.

So Python was developed before JAVA.

Why Python become popular?

For current market requirement it is most suitable language.

1. Simple Language & easy to understand.
2. Very less code / concise code.
3. AI, ML, DL, Neutral Network (NN), Data Science.
4. IOT Application.
5. Desktop Application (calculer program)
6. Web applications (Gmail applications, ecommerce (Amazon-com flipcart.com etc))
7. Client - Server application related Network application.
8. Games Development

Companies - using Python

Google, Youtube, Dropbox, Facebook, instagram, Netflex, Nokia, IBM etc.

Python is a All rounder progmming Language

Python supports all features of
1. Functional programming langulage like (c)
2. Object Oriented programming Language like (C++, JAVA)
3. Scripting Language (perl, shell script)
4. Modular programming features from Modular3.

Python support or enjoy all the progamming paradigm

Python Features

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.
10. Embeded.
11. Extensive library.

Limitations of Python :-

0. Python Library supports

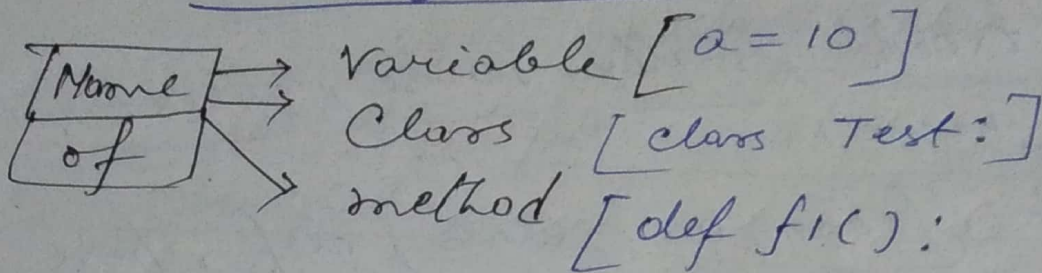(ML) Machine Learning → [numpy, Pandas, matplotlib ──── ─

But

1. Mobile application → (worst choice)
   Library doesnot support much more.
   (Android, losskiing etc)

2. Enterprise application :- (worst choice)
   Banking applications, msg services,
   Telecom application, fund transfer etc
   (Library does not support much more)

3. Performance is low (It is interpreted language)
   [PyPy] → (JIT compiler + PVM) → Python for speed.

Python Identifiers :-

Name of token.

Name of → Variable [$a = 10$]

→ Class [class Test:]

→ method [def f1():

$$\overline{f1()}$$]

① **Rules :- (Variable)**

$\left. \begin{array}{l} a - z \\ A - Z \\ 0 - 9 \end{array} \right\}$ Special Symbol (_) underscore

② We can not use diget as ferst Character. of a variable

③ Identifiers are case sensitive.

④ No length limit for Python Identifier.
[but not recommended as readability will be down].

⑤ We can not use keyword. as identifier.

[$x = 10,$
$y = 20 x$]

Reserved words:- / keyWords (33)

. Three upper case [True, False, None]
    first letter

and, or, not, is
if, elif, else
while, for, break, continue, return, in, yield
try, except, finally, raise, assert
    (like catch)
import, from, as, Class, def, pass
global, nonlocal, lambda, del, with.

Notes) switch-case } x not in   ⓧⓧ
    Ⓐ do-while } x python   import keyword
                              keyword. kwlast
    Ⓐ int, char, float } x
        bool, -------
as it is dynamically typed

Datatypes:- (Dynamically Typed programming language)

Java Statically typed Prg. Lang.

int a = 10;
float f = 12.75f;

10 → (int)
17.57 → (float)
True → (boolean)

```
a = 10
type (a)
class <int>
```

For **Python** type concept is applicable, but we are not required to declare explicitely.

Inbuild Datatype:- (14 data types)

int
float
(boolean)
bool
complex
str
} 5

list
tuple
set
frozenset
dict
(dictionary)
} 5

} 14 Datatypes

byte
byte array
} 2

range
None
} 2

Everything In Python is Object

a = 10
① type (a)
   class <int>
② id (a)
   address of object a
③ print (a)
   print the value 10

type (a)
id (a)
print (a)
} Three in built function used in python

a → (10)
object