**python**

**Introduction:**

* It is a dynamically typed programming language.
* Programming means it is a code for building something.
* There are 3types of scripts in programming.

1. Client side scripting
2. Server side scripting
3. Os level scriping

* Pyhton can be used in server side and os level scripting.
* Python was developed by rossum in 1991.
* After 2005 python becomes very popular.
* In python every thing is stored as a object.

**Features of python:**

* Python is a dynamically typed language.
* It follows strictly oops concept.
* If follows srictly intendation rules.
* It can be used for both frontend and backend.
* It is an inerpreted language.
* The syntax’s of python is very easy.
* Syntax means grammer of code.
* In python intendation and : are used for controlling the code.

**Applications/usecases of python:**

1. Web application development
2. Scripting os
3. Gui application development
4. Scientific computing
5. Networking

**Web applications:**

* Real time applications of python are

Youtube

Torent

Google

Dropbox

Instagram

Flicker etc

* Youtube takes 0.16 sec min time and 0.23 secs max for openning home page.
* Around 10 billions of people using youtube.
* In banking applications java and .net are used.
* The speed is dependent on security.
* Python code can’t run applications with single file.
* Python requires a frame work i.e.,web framework to run an application.

**Examples for web framework**:

Django

Flask

Rails

Bottle

* Django uses MVT architecture and it is a top 1 web framework.
* Flask uses MVC architecture and it is a top 7 architecture.
* Rails are used in multi purpose.
* Now a days worlds best framework is Django.
* Python has its language for frontend i.e, tkinter.

**Scripting os:**

* By using modules we can script os.
* The modules are

Os

Sys

Shutil

**Gui:**

* The best example for gui is ms.paint.
* For building gui applications python has one library i.e.,pyQt4.
* Network is doesnot required for gui applications.
* In gui applications the data is stored in local memory.

**Scientific computing**:

* Anything which involves lot of algorithms is comes under scientific computing.
* For this we are having different languages like R,MATLAB,SAIS.
* R is open source and MATLAB,SAIS requires license.
* Python is used in datascience.
* Datascience works by using libraries.
* The libraries are

Numpy

Pandas

Sns

Plt

Cv2

* Frameworks for datascience are

Tensorflow

Nlp

Keras

**Versions of python:**

* There are many versions in python,python 2.7.10 is mostly used version.
* The latest version is python 3.6.4

**Installation procedure for python:**

* For linux,mac and unix operating systems python 2.7 is prebuilted.
* For windows we need to install from [www.python.org](http://www.python.org) website.
* For installation in RHEL/CENTOS🡪yum install python.
* In ubunt/lite🡪apt-get install python.
* If we set path locally it works only on that location.
* If u want to set path globally set path variables.
* >>> is interpreter.
* In windows os we get interpreter and idle(integrated development and learner environment).

**Writing of python code:**

* We can write the python code in an command prompt or editor.
* In command prompt we can store code.
* Editors are notepad,sublime text3 etc
* Python programs are saved with .py,.pyb extensions.

**Running python programs:**

* we can run the python programs by typing the following command in prompt

c:python programname.py

* pycharm is an atom for python.
* It is an heavy weight application.
* It contains 2 windows.

1.editor

2.console

* Only architecture is changed from version to version.

**Number system**

* there are 4 number systems in python.

1.binary(0/1) base is 2

2.decimal(0-9) base is 10

3.hexadecimal(0-f) base is 16

4. octal(0-7) base is 8.

**Variables:**

Variables are used to identify type of the data/value.

Variable is an entity.

Eg:a=10.

Here a is variable and 10 is value.

**Data types:**

* There are 2 types of data types.

1.primitive

2.non primitive

**Primitive data types:**

* + - Int
    - Float
    - String
    - Complex
* python is developed by using c and c++.
* Python doesnot create duplicates.

**Strings**

* a string is a collection of characters.
* Sting contains

1. A-Z
2. a-z
3. 0-9
4. Space and tabspace
5. Special characters

* To know the ascii number of a character we use a method i.e.,ord().
* To know the type of a variable we use type().
* To know the address of a variable we use id()

**Ways of declaring a variable:**

* Variables can be declared in 3ways.
* There are

digitallync

DIGITALLYNC

DigitalLync

**Keywords:**Reserved words .

It has 33 keywords(in 3.6) and 31 keywords in 2.7 version.

**String declaration:**

Strings can be declared in 3 ways.

1.’hello’

2.”hello”

3.”’hello”’

“’🡪multiline comment

# 🡪 single line comment

* Length of the string is ‘n’.
* Max characters in string is n-1
* It has 2 indexes.

1.forward index ,it starts with 0

2.backward index,it starts with -1.

**String operators:**

There are 8 operators in python.

1.arithmetic(+,-,\*,/,%,//)

2.logical(and,or,not)

3.relational(<,>,≤,≥,=,!=)

4.assignment operators(=,+=,-=,\*=,/=)

5.bitwise operators(&,|,^)

6.conditional operators

7.special operators

8.boolean operators

**Operations on strings**:

**Slicing**:it can be done by using colon operator(:).

Eg:

X=[‘digitallync’]

Print(x[2:4])

* Reverse of a string can be determined by [::-1].
* Length of a string can be determined by len().
* We can convert a string into lowercase by using lower().

Eg:c.lower().

* We can convert a string into uppercase by using upper().

Eg:c.upper().

* If we want to take input from user use input().

Eg:a=input(‘enter a value’)

**String conversions:**

Int()

Float()

Str()

Complex()

* If we want to print keywords follow the below code.

Import keywords

Print(keyword kwlist)

**String functions:**

* String functions are 2 types.

1.attribute fetching functions(.).

Eg:c.len()

2.parametrized functions(dont use .)

Eg:len(‘tech)

* String functions are

.**capitalize():**to capitalize the string.

Eg:s.capitalize()

**Upper():**

To convert the string into upper letters.

x.upper()

**lower():**

to convert the string in lower case letters.

x.lower()

**swapcase():**

to swap lower case letters with uppercase and vice versa

eg:x.swapcase()

**find():**

it returns the position of particular character.

Eg:s.find(‘a’)

If the element is not present in that string it returns -1.

It works only in forward index.

**Zfill:**

Used to maintain uniformity.

Eg:char=’a’

Char.zfill(4)

The output is 000a.

**Finding biggest possible integer in python:**

Import sys

Print(sys.maxint)for 2.7 version

Print(sys.maxsize)for 3.6 version

* In 2.7 version if we increment biggest integer it returns o/p with L.
* In 3.6 version it returns only incremented value.

**Split():**

to split a string

eg:ab=[‘i am in python session’]

ab.split()

the o/p is [‘i’,’am’,’in’,’python’,’session’]

* by defaultly it splits upto space.
* It takes delimeter for splitting a string.

Eg:ab.split(‘i’)

* it splits the string based on given delimeter.
* The delimeter maybe anything like number,symbol etc.
* Split is used in text analytics and NLP.

**Join():**

It can be used to add a given element inb/w all the characters in a string.

Eg:

s=”anusha”

‘\*’.join(s)

The o/p is ‘a\*n\*u\*s\*h\*a’

Join() Is used in excel.

**Count():**

It returns how many times that a particular element present in the given string.

Eg:s.count(‘a’)

**Strip():**

Used to remove white spaces.

Eg:

a=” digital lync “

Print(a.strip)

* It removes spaces from both left andright parts.
* We can remove anything by using strip.
* Lstrip() removes spaces on left side and rstrip removes spaces on right side.

**Replace():**

It can be used to replace an existing value with new value.

Eg:a.replace(‘l’,’L’)

**Rawstring:**

It doesnot add benifits to the output.

It can be used in routing paths.

**Unicode strings:**

Used to retrieve ascii codes.

Eg:if we want to know the ascii value of ∑ follow as

Special=u” ∑”.

Chr() method is used to covert ascii to char and ord() is used to covert char to ascii.