**Day 1**

* It is interpreted language does not require compilation like c , C++
* Directly we can start writing
* Java is completely Object Oriented language
* Applications that can be developed – desktop applications , app(for framework) , database , raspberry pi , internet scripting , games , art and music , GUI , system utilities
* It has huge library , powerful , portable , object oriented
* It is since 1990 by Guido van
* No brackets are used like c & C++
* No data type declaration they are automatically declared just use variable name
* Python dynamically allocates value to variable
* **Type** is a function in python identifies which **data type** a variable belongs
* Everything in code is in the form of object in python
* String can be given in single double and triple quotes
* 2 memory areas – **stack(LIFO) and heap(dynamic allocation)**
* Variables are stored in stack referred to as reference variables
* Values assigned to variables are stored in heap memory area
* For example a=10 and b=20
* Stack memory variables are linked to values in heap memory area
* **Id** is used to **print address of variable** – this can be used to check address of variables with same value(they have same address) but in other languages they are stored at different address. Example : a=10 b=5 c=a-b c=5 b and c will have same address
* The default memory management in python is built on **c python**(contradicting statement)
* There is one structure in python called **py object(parent object to all other objects in python)** inside c python it keeps the track(reference counting) it looks for memory allocation and deallocation
* Variable are alive till the time the reference count is not zero or it is not used for longer time
* Operator – identity(is and not is) , membership(in and not in) , arithmetic(additional operator - \*\*(exponential) , //(floor division)) , assignment operators ( 3+=5 = 3+5) assignment operator can be performed for all arithmetic operators , logical operator ( and , or , not) – no symbols directly spelling.
* For single if else

if(condition):

//code

else:

//code

* For multiple if else

if(condition):

//code

elif(condition):

//code

elif(condition):

//code

* Shell can also used to run one line code
* Every input from user will be considered as string so we need to type cast it to integer

Method of type casting

First way : a=int(input(“enter value for a”))

Second way : a=(“enter value for a”) second line type int(a)

* Some in built functions

For length of string - len(“hello”)

For power – pow(2,3)

Absolute function (negative to positive) – abs(-3)

To find maximum value – max(a,b,c)

* You cannot use python keywords as variables some of them are – in , not in , and , or and not
* Identifiers cannot start with digits , it is case sensitive
* Boolean **T**rue , **F**alse
* No range of values for int , float as there in c and C++ or java
* Comments single line - # multiple lines – ‘’’ or “””
* Multiple variables can be declared sequentially

**a,b,c = 10 , “ABC” , True**

* Loops

while(condition):

statements(s)

3 control statements – break , continue , pass

* We have a range function to define range of values for a variable – by default step count will be 1 for example **for count in range(0,5) – in this it will work only till 4 it mean 1st index is inclusive and last index is inclusive we can define count +2 , -2, +1, -1 or anything else.**
* We can define **range(5) –** it will work only till 4
* data structure – way in which data are organized in python – string , list , tuple
* mutable – list , dictionary and immutable - string , tuple , set are data structure in python
* we can traverse in both positive and negative direction 01234 -1-2-3-4
* we can also create list within list