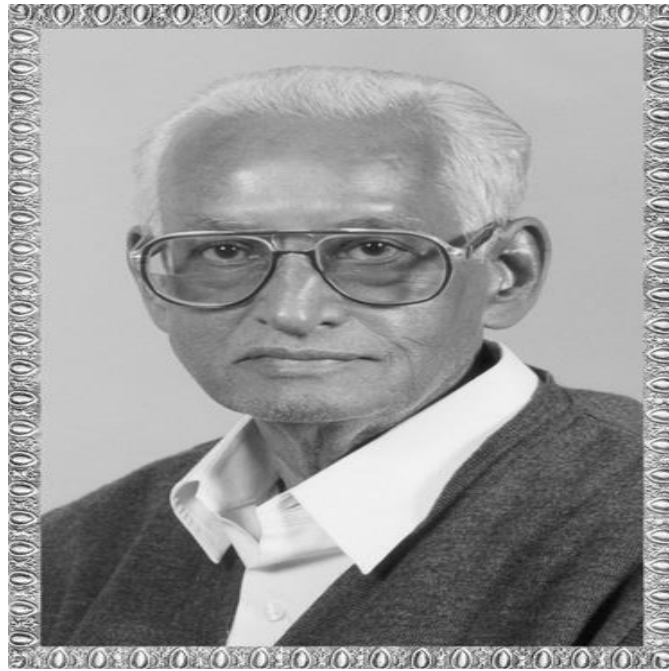


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Lt. Shree Chimmanbhai Shukla

B.C.A.&B.Sc.I.T.– SEMESTER - 5

SUB :- CS – 33 :- PROGRAMMING IN PYTHON

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CS – 33 : Programming in Python –B.C.A. & B.Sc.I.T. –SEM -5

Sr.No.	Topic	Detail
1	Introduction to Python	<ul style="list-style-type: none">• Basic Element of Python• Branching Programs• String and Input• Iteration• Function and Scoping• Specifications• Recursion• Global Variables• Modules• Files• Tuples• List & Mutability• Functions as Object• Strings• Dictionaries

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2	OOP using Python	<ul style="list-style-type: none"><input type="checkbox"/> Handling Exception<input type="checkbox"/> Exception as Control Flow<input type="checkbox"/> Assertion<input type="checkbox"/> Abstract Data Type<input type="checkbox"/> Class<input type="checkbox"/> Inheritance<input type="checkbox"/> Encapsulation<input type="checkbox"/> Information hiding<input type="checkbox"/> Search Algorithm<input type="checkbox"/> Sorting Algorithm<input type="checkbox"/> Hash table
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3	Plotting using PyLab	<ul style="list-style-type: none"> • Plotting using PyLab • Plotting Mortgages • Extended Example • Fibonacci Sequence Revisited • Dynamic Programming • 0/1 Knapsack Algorithm • Dynamic Programming with Divide and Conquer
4	Network Programmin g and GUI usingPython	<ul style="list-style-type: none"> • Network Programming: • Protocol, Sockets, • Knowing IP Address, • URL, Reading the Source Code of a Web Page, • Downloading a Web Page from Internet, • Downloading an Image from Internet, • A TCP/IP Server, A TCP/IP Client, • A UDP Server, A UDP Client, • File Server, File Client, • Two-Way Communication between Server and Client, • Sending a Simple Mail. • GUI Programming: • Event-driven programming paradigm; • creating simple GUI; • buttons, labels, entry fields, dialogs; • o widget attributes - sizes, fonts, colors ,layouts, nested frames

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5	Connecting with Database	<ul style="list-style-type: none">• Verifying the MySQL dB Interface Installation,• Working with MySQL Database,• Using MySQL from Python,• Retrieving All Rows from a Table,• Inserting Rows into a Table,• Deleting Rows from a Table,• Updating Rows in a Table,• Creating Database Tables through Python
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CHAPTER-1

Introduction to Python

- **Basic Element of Python**
- **Branching Programs**
- **String and Input**
- **Iteration**
- **Function**
- **Scoping**
- **Specifications**
- **Recursion**
- **Global Variables**
- **Modules**
- **Files**
- **Tuples**
- **List & Mutability**
- **Functions as Object**
- **Strings**
- **Dictionaries**

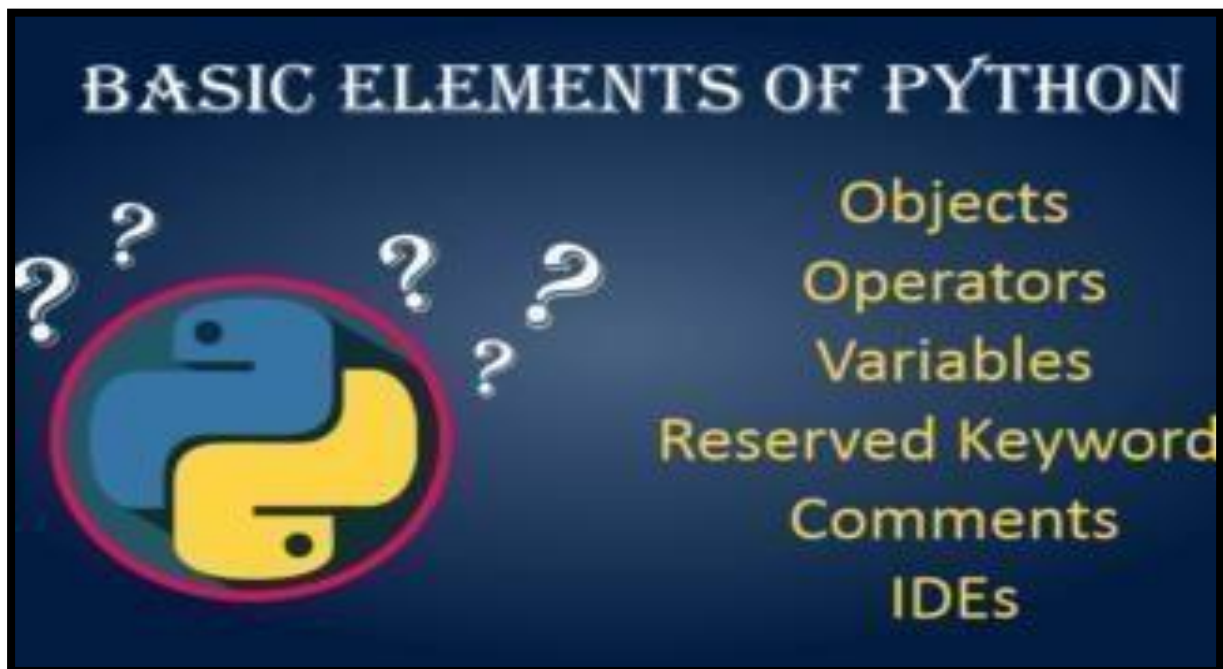
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Q-1 What is Python ? Explain Basic Elements of Python :



Detail :-

- Python is popular programming language.
- It was created in 1991 by **Guido Van Rossum**.
- It is used for :
 - Web Development (server side)
 - Software Development
 - System Scripting
 - Mathematics
- Python support following elements to perform perfect programming:

1. Data Type :

- ✓ Python support integer and float data type to hold numbers.
- ✓ Python interpreter can produce the result of numeric values.

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2. Variable :

- ✓ Unlike other programming language , python have no command for declaring variable.
- ✓ You can create variable by assigning value directly to it.

o **EX :- x = 50**
Name = “hello”

3. Syntax :

- ✓ Python syntax can be executed by writing directly at the command line like,
- ✓ **>>> print (“hello”)**

4. String :-

- ✓ String is a collection of different characters.
- ✓ You can write string in single quotes(‘ ’) as well as in doublequotes (“ ”).

o **EX :- a=**
‘hello’b=” “

5. Tuples :-

- ✓ In the case of tuples , it is collection of different elements and values supported by python data types.
- ✓ Tuples are enclosed in round brackets ().

o **EX :- a = (‘abc’ , ‘jkl’ , ‘xyz’,18)**
o

6. List :-

- ✓ In the case of , It is collection of element or values supported by python data types.
- ✓ List are enclosed in square brackets ().

o **EX :- a = [1,2,3,4,5]**

7. Dictionary :-

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- ✓ A Dictionary is a collection which is unordered , changeable and indexed.
- ✓ Dictionary can be enclosed in curly brackets { } with key & valuepair.
 - **EX :- dict = {name = “snehal” , surname = “pandya”}**

8. Operators :-

- ✓ An operators are used to perform operations on variable or value.
- ✓ Python support following operators :
 - Arithmetic
 - Assignment
 - Comparison
 - Logical
 - Membership
 - Bitwise
 - Identity

1 Word Question – Answer

SR. NO.	QUESTION	ANSWER
1	Python was developed by_____	Guido Van Rossum
2	Python is _____ language.	Open source

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Q-2 How to input and output value in the python:

```
>>>
Enter your house number: 55
Enter your street name: Frankland Close
Enter your town/city: Wakefield
Enter your county: West Yorkshire
Enter your postcode: WF1 2PF

Address Details:
Street: 55 Frankland Close
Town/City: Wakefield
County: West Yorkshire
Postcode: WF1 2PF
>>>
```

Detail :-

- In python programming user can input the data as well as get the output as a result of data.

How to input value :

- ✓ To input value python provide one of the built – in function named input().
- ✓ You can ask user to input particular value from userside.
- ✓ You can call input () and wait for user to enter the data.
- ✓ In python2 you can use raw_input() to get value from userside , while in python3 you have input() to get value from user.
 - EX :- num = input (“enter number”)
name = input(“enter name”)

How to ouput / print value :

- ✓ Python provide print() to get output to the file.

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✓ Print() support message of the user as well as value of variable they want to print.

- EX :- a=5
 >>> print (a)
 Output :- 5
- EX :- b=10

 >>> print (“value of b is =” ,b)
 Output :- value of b is = 10

1 Word Question – Answer

SR. NO.	QUESTION	ANSWER
1	To input value in the python _____ function can be used.	Input()
2	To print output on the screen _____ function can be used.	Databse Access
3	Python prompt can be represented by _____	>>>

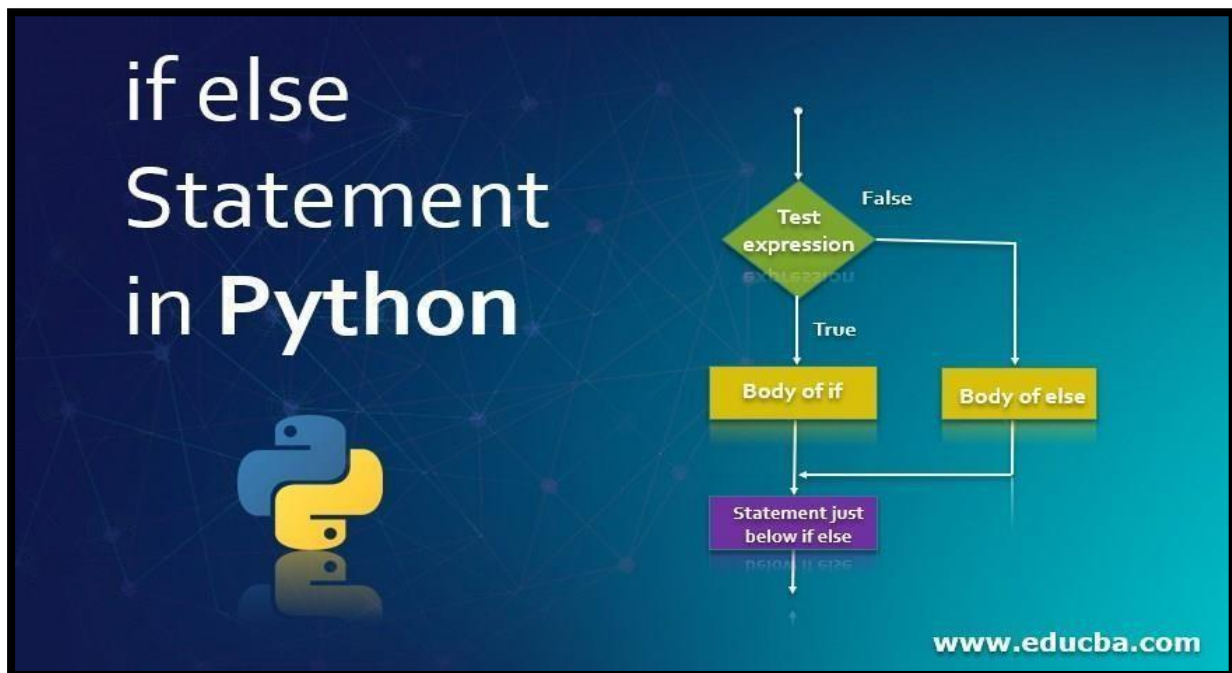
Q-3Expalin Braching Statements in python:

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Detail :-

- If statement support generally the logical expression.
- In this statement first of all we have to give condition.
- If condition become true then statement following if will be execute otherwise condition will be terminated.

✓ **Syntax :-**

If (<condition>):
<statement>

✓ **Example :-**

A=10
If(A>0):
Print('yes')

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If Else :-

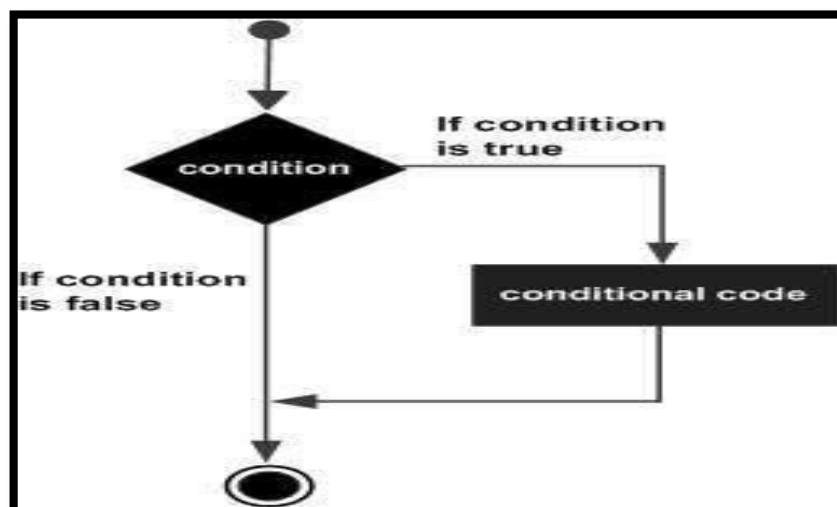
- In this statement first of all condition will be check.
- If condition become true then statement following if will be execute.
- But if condition become false then statement following else will be execute.

✓ Syntax :-

```
If (<condition>):  
    <statement>  
Else:  
    <statement>
```

✓ Example :-

```
A=10  
If(A>0):  
    Print('yes')  
Else:  
    Print('no')
```



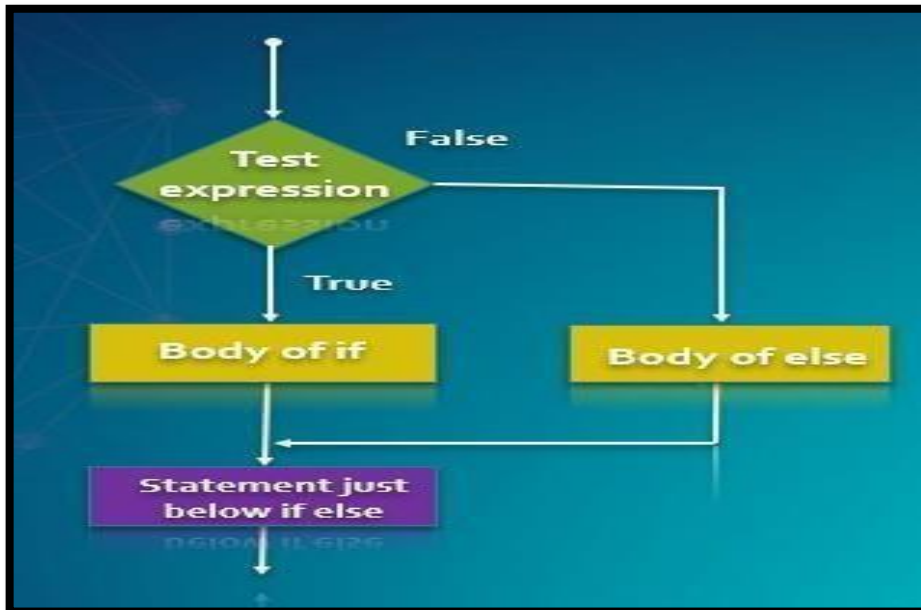
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Elif :-

- The elif statement is used to support multiple conditions at the same time.
- At a time only one condition will become true.
- In this case if no any condition become true then finally the statement following else will be execute.

✓ **Syntax :-**

If (<condition>):

<statement>

Elif(<condition>):

<statement>

Elif(<condition>):

<statement>

Else:

<statement>

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✓ **Example :-**

a=10,b=20,c=30

```
if(a>b and a>c):  
    print('a is max')  
elif(b>a and b>c):  
    print('b is max')  
else:  
    print('c is max')
```

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	Python provide one of the important branching statement that is_____.	If statement
2	In if statement the condition is followed by _____.	Colon(:)
3	If condition become false then statement followed by_____ will be execute.	Else :
4	_____ statement can be used to support multiple conditions at the same time.	elif

Q-4 Explain String in Python.

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```
76 hello.py - C:/hello.py
File Edit Format Run Options Windows Help
# This program says hello and asks for my name.
print('Hello world!')
print('What is your name?')
myName = input()
print('It is good to meet you, ' + myName)
Ln: 5 Col: 42
```

Detail :-

- Python does not support character type.
- String is most popular datatype in python.
- String is a collection of different character and symbols.
- We can create or declare a string by enclosing “ “ (Double Quotes) as well as ‘ ‘ (Single Quotes) for the statements.
- Let's see, how to declare a string value in python:

- Example:- var1 = "hello"

How to Access Characters from particular String :-

- ✓ We can access different characters from given string using indexing.
- ✓ In python string index will start from 0 (zero).
- ✓ We can not delete or remove the characters from the string but deleting entire string is possible using **del** keyword.

- Example:- var1 = "helloworld"

Var2 = "pythonprogramming"

Print("var1[0]:", var1[0]) output:- h

Print("var2[1:5]", var2[1:5]) output:- ytho

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How to Concatenate (join) two strings :-

- ✓ To join or concatenate two strings in python , (+) plus operator can be used.
 - Example:- var1 = "hello "
Var2 = " pythonprogramming"
Print(var1 + var2) output:- hellopythonprogramming

How to update existing string :-

- ✓ You can "update" an existing string by (re)assigning a variable to another string.
- ✓ The new value can be related to its previous value or to a completely different string altogether.
 - Example :- var1 = 'hello world'
Print ('updated string:-' , var1[:6] + 'python')
output :hello python

1 Word Question – Answer

SR.N O.	QUESTION	ANSWER
1	In python ,String can be represented by	Single quotes & double quotes
2	To access substring ,we have to use index number with ___ Operator.	: (Colon)

Q-5 Explain String Operators in Python.

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STRING OPERATIONS

- + allows for concatenation, * performs repetition

```
>>> 'string' + 'one' >>> 'string' * 3  
'stringone'          'stringstringstring'
```

- Strings are indexed from the left AND right

```
>>>word='Python' >>>word[0] >>>word[-2]  
'P'              'o'
```

- Use [n:m] to slice strings

```
>>>word[2:4] >>>word[:2]  
'th'        'Py'
```

- Use len() to return the length of a string

```
>>>len(word)  
6
```

TIP: Strings are immutable:
Word[3] = 'z' will NOT work.

String Operators

- "hello"+"world" "helloworld" # concatenation
- "hello"*3 "hellohellohello" # repetition
- "hello"[0] "h" # indexing
- "hello"[-1] "o" # (from end)
- "hello"[1:4] "ello" # slicing
- len("hello") 5 # size
- "hello" < "jello" 1 # comparison
- "e" in "hello" 1 # search
- String Formatting: "a %s parrot" % 'dead'
- Iteration: for char in str

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Assume string variable a holds 'Hello' and variable b holds 'Python', then –

Operator	Description	Example
+	Concatenation - Adds values on either side of the operator	a + b will give HelloPython
*	Repetition - Creates new strings, concatenating multiple copies of the same string	a*2 will give -HelloHello
[]	Slice - Gives the character from the given index	a[1] will give e
[:]	Range Slice - Gives the characters from the given range	a[1:4] will give ell
in	Membership - Returns true if a character exists in the given string	H in a will give 1
not in	Membership - Returns true if a character does not exist in the given string	M not in a will give 1

Detail :-

- The string operators can be used to perform different types of operations on the string.
- There are three types of string operators supported by python.
 - Basic Operator
 - Membership Operator

Basic Operator:-

- ✓ String operator support two types of basic operators :
 - (i) **Concatenate Operator :-**
 - The concatenate operator can be used to combines two two or more string Values.

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- Plus(+) operator can be used as concatenate operator inpython.

- Example :-

```
>>> "hello" + "hi"
```

Output :- Hellohi

(ii) Replication Operator :-

- The Replication operator (*) is used to repeat particular string , character or symbol for given number of time .
- In this operator we have to give one integer paramter and string value.

- Example :-

```
>>> 5 * "hi "
```

Output :- hi hi hi hi hi

Membership Operator:-

- ✓ Membership operator is used to indicate possibilities of available members.
- ✓ There are two types of membership operators:

(i) in Operator :-

- The in operator returns true if particular character or string available in the given string otherwise false.

(ii) Not in Operator :-

- This operator returns true if particular character or string does not exist in given string otherwise returnfalse.

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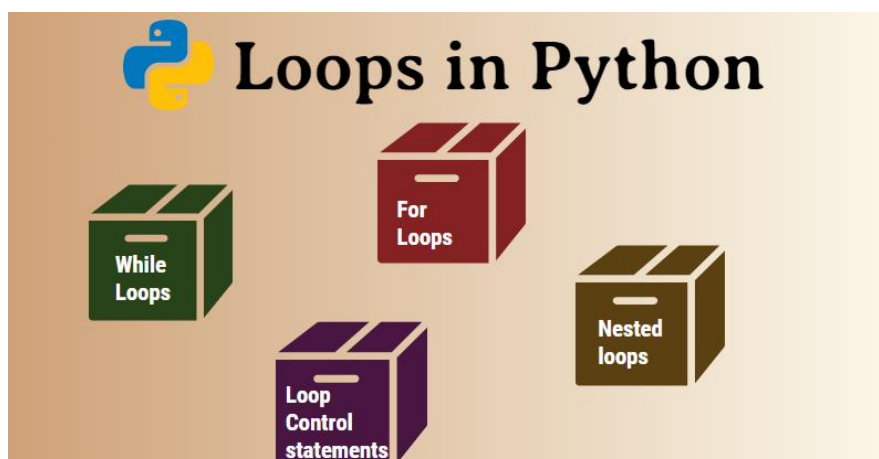
```

○ Example :-
>>> str1 = "java programming"
>>> str2 = "HNS IT"
>>> str3 = "SEO Material"
>>> str4 = "java"
>>> str5 = "IT"
>>> str4 in str1           Output :-      True
>>> str5 in str2         Output :-      False
>>> str4 not in str1     Output :-      False
    
```

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	_____string operator can be used for concatenation of multiple strings or words	+
2	_____string operator can be used for repetition of multiple strings or characters	*
3	_____string operator can be used to return characters from given range.	:
4	_____&_____are known as membership operators.	In & not in

Q- 6 Write note on Iteration OR Looping Statements.



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Detail :-

- Generally the statements are executed sequentially.
- When user want to execute group of the statements at that time looping statements are used.
- The main use of loop is to repeat the statements for number of times.
- Python programming support following types of looping statements:
 - While Loop
 - For Loop

Loop Type	Description
while loop	Repeats a statement or group of statements while a given condition is TRUE. It tests the condition before executing the loop body.
for loop	Executes a sequence of statements multiple times and abbreviates the code that manages the loop variable.

While Loop :-

- While loop is known as entry – control loop.
- In this loop first of all condition will be checked and then after statement will be execute.
- If condition become true then the statement following while will be execute otherwise loop will be terminated.

- **Syntax :-**

```
<initialization>  
While(<condition>):  
    <statement>  
    <increment / decrement>
```

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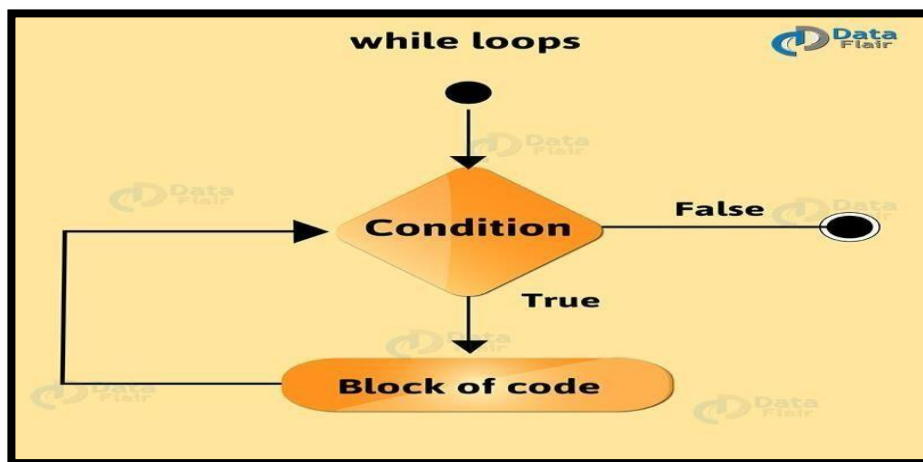


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- Example :-
i=1

```
while(i<=10):  
    Print(i)  
    i=i+1
```



✓ **For Loop :-**

- For loop is used to execute block of the code for given number of times.
- First of all condition will be check and then after statement will be execute.
- For loop will iterate for the particular collection or list items.

- Syntax :-

```
For <variable> in <sequence>:  
    <statement>
```

- Example

```
:-i=1  
fruits = ['apple', 'banana', 'mango']
```

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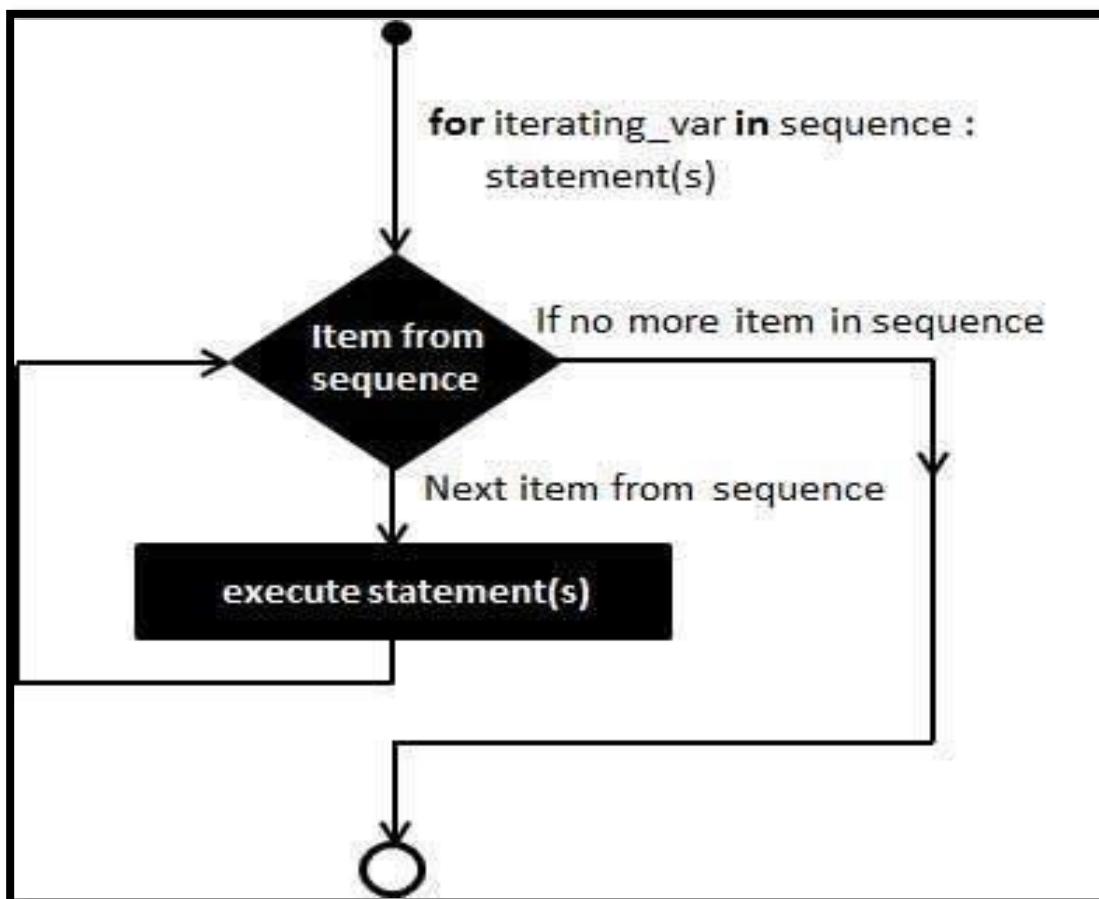


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```
for i in fruits:  
    print(i)
```

- If a sequence contains an expression list, it is evaluated first.
- Then, the first item in the sequence is assigned to the iterating variable *iterating_var*.
- Next, the statements block is executed.
- Each item in the list is assigned to *iterating_var*, and the statement(s) block is executed until the entire sequence is exhausted.



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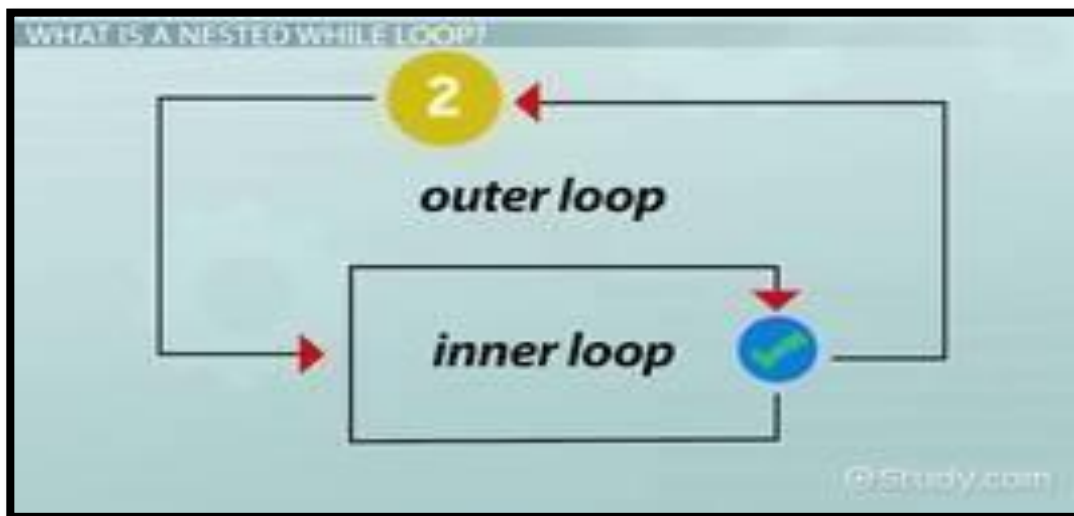
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✓ **Nested Loop :-**



Nested Loops

- A nested loop is a loop inside the body of another loop
- Inner (inside), outer (outside) loops:

```
for row in range(1, 3, 1) //outer
    for col in range(1, 3, 1)//inner
        print(row * col)
```

- Inner loop goes through all repetitions for each repetition of outer loop
- Inner loop repetitions complete sooner than outer loop
- Total number of repetitions for inner loop is product of number of repetitions of the two loops.
- Can nest different styles of loops together

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- If you want to create one loop inside another loop then it is called nested loop or nesting of loop.
- First of all outer loop will be execute first and then after inner loop will be execute.

o **Syntax :-**

```
For <variable> in <sequence>:  
    <statements>  
<statements>
```

o **Example :-**

```
i=1  
for I in range(1,10):  
    for j in range(1,10):  
        print (j)  
        print()
```

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	Python support _____ & _____ looping statements.	While & for
2	_____ is loop inside body of another loop	Nested loop
3	In looping statement , the expression or condition must be followed by _____.	: (Colon)
4	Looping statements are also known as _____ statements	Iterative
5	The loop inside another loop is called _____ loop	Inner loop

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Q-7 What is Scoping ? Explain.

Detail :-

- Variable is a container that use to store different values.
- Variable can only reach the area in which they are defined, which is called scope.
- Python support two types of variable scopes:
 - Local scope of variable
 - Global scope of variable
- The scope of variable is used to decide place where you can access variable.
- If you define variable at the top level of your script or module then it is always global variable.

✓ **Local scope of variable :-**

- If you declare variable inside the function then it is called local scope.
- Local variable have limited scope, it can be accessed by only the function in which it is declared.

○ **Example :-**

```
def
    my_function()
    a=10
    print("a=" , a)
    return
>>>my_func()
>>>print(a) # name error : name 'a' is not defined
```

✓ **Global scope of variable :-**

- If you declare variable at the top of your script or module then it is always global.

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➤ Global variable can be easily access anywhere within your script.

o Example :-

```
My_var = 20
def my_function()
    print("a=" , a)
    return
>>>print(a)
>>>my_function()
```

1 **Word Question – Answer**

SR.NO	QUESTION	ANSWER
1	In python , scope of variable can be _____ & _____.	Local & Global
2	The variable that declare inside function block and can be access within function is called _____.	Local scope
3	The variable that declare outside the function and can be access anywhere in the script is called _____	Global scope

Q-7 What is Recursion ? Explain with example.

Detail :-

- Pythonprogramming supportrecursion as programmingconcept.
- Whenthefunctioncall itself againand again then it is calledrecursion.
- Recursionworklikealoop, you canconvert any loo to recursion.

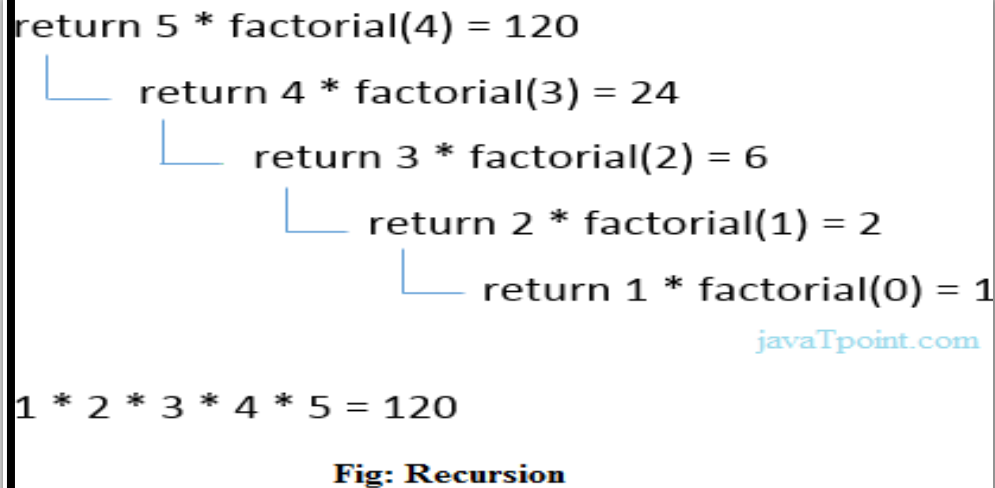
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✓ **Recursive Function :-**



- Recursive function is called by external code.
- If the base condition is available then the program do something meaningful otherwise exit.
- Function have to do some required processing and then call itself to continue recursion.

o **Example :-**

```
#Factorial using recursion
def fact(n):
    if(n==0):
        return 1
    else:
        return n*fact(n-1)
#calling function
Print(fact(0))
Print(fact(5))
```

- Now try to execute above function like a following:-

o **Example:-**

```
Print (fact(2000))
```

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- You will get following error at runtime:-
 - o Runtime error:- Maximum recursion depth exceeded in comparison.
- The above error is available because python stop calling recursive function after 1000 calls by default.
- To change it you need to add following lines to starting of code.

```
import sys  
sys.setrecursionlimit(3000)
```

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	When the function call itself again and again then it is called _____.	recursion
2	_____ function is called by external	recursive

Q-8 What is Module ? Explain

The infographic features the Python logo and the text 'Python Modules' on the left, with 'gcreddy.com' at the bottom. On the right, eight numbered points are listed in colorful speech bubbles:

1. Creating a module
2. Importing Modules
3. More on Modules and Importing
4. Executing Modules as Scripts
5. The Module Search Path
6. Compiled Python Files
7. Standard Modules
8. The dir() Function

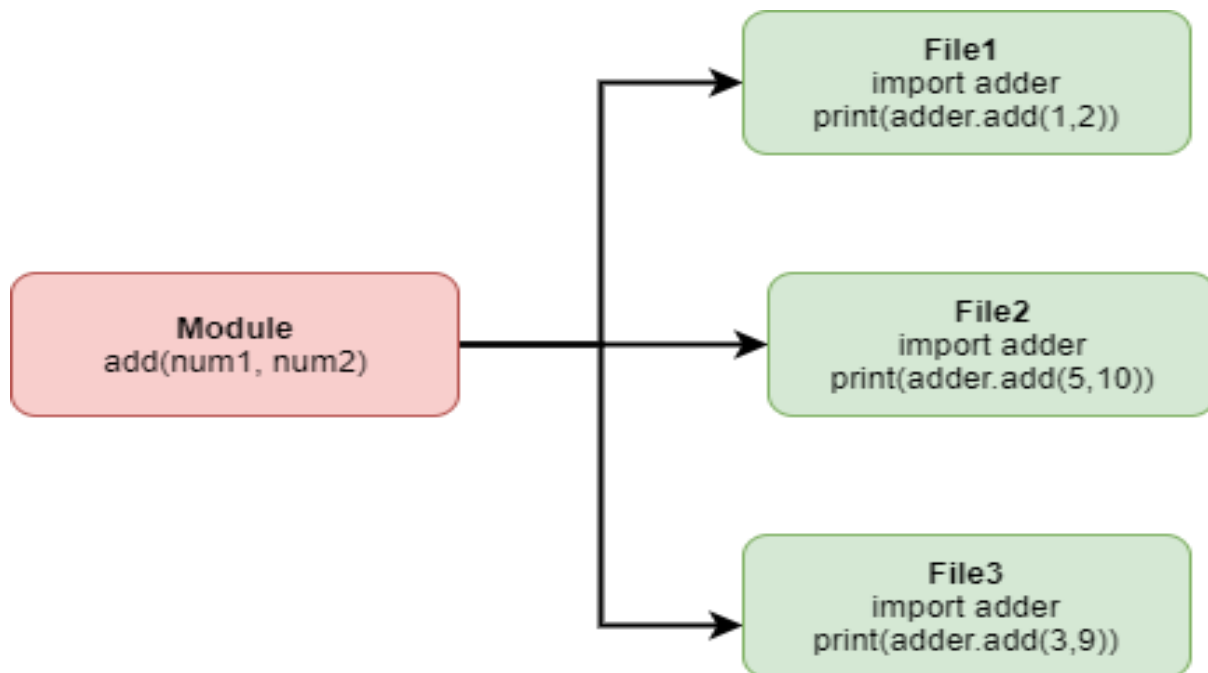
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Detail :-

- Module allow you to logically organize your python code.
- To group related code into the module makes the code easier to understand and use.
- Simply module is a file having the python code.
- Module can define function, variable and class.
- Module can also include runnable code.

○ Example:-

[module – support.py]

```
Def print_func(x):  
Print("hello:",x)
```

- Python provides two types of statements to load module:

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□ **Import statement :-**

- You can use any python file as a module by executing import statement in other python file.
 - **Syntax :- import module 1 [,module 2 [,module N]]**
- When interpreter find out import statement it import the module if module is available.
 - **Example :- import module support**
import support
Support.print_func(“zara”)
- Module is loaded only once , but number of times it will be imported.
- The module search the path which is stored in system module as Sys.path.

✓ **From.....import statement :-**

- Python's from statement lets you import specific attributes from a module into the current namespace.
- The from...import has the following syntax –
 - **Syntax :- from modname import name1[, name2[, ... nameN]]**
- For example, to import the function fibonacci from the module fib, use the following statement –
 - **Example :- from fib import Fibonacci**
- This statement does not import the entire module fib into the current namespace;
- it just introduces the item fibonacci from the module fib into the global symbol table of the importing module.

▪ **The from...import * Statement:-**

- It is also possible to import all names from a module into the current namespace by using the following import statement –

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from modname import *

- This provides an easy way to import all the items from a module into the current namespace.

Using the dir() Function

- There is a built-in function to list all the function names (or variable names) in a module. The dir() function:
 - module: import platform

○ **Example :-**

```
x = dir(platform)
print(x)
```

- **Note:** The dir() function can be used on all modules, also the ones you create yourself.

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	Module is a _____ having python code.	file
2	_____ statement can be used to import code from the given module.	import
3	To import all the files from the particular module we can use _____	Import *

Q-9 What is file? Explain How to open , read , write and close the file –[file handling]

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Detail :-

- File is used to store related information permanently.
- When we want to read from or write to a file , we need to open it first.
- There are following file operations available:
 - Open a file
 - Read a file
 - Write a file
 - Close a file

□ Open a



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- Python provide open() to open particular file.
- We have to provide file mode which can be read – ‘r’ , write – ‘r’ or append – ‘a’.
- The default mode is reading mode.
- **File Modes :-**
 - (1) **‘R’ :-** This file mode is used to open any file for reading purpose.
 - (2) **‘w :-** This file mode is used to open any file for writing purpose.
 - (3) **‘a’ :-** This file mode is used to open any file for appending data.

Example :- f = open (“text1.txt”)
f = open (“text2.txt”, ”w”)

□ **Write data to the file :-**

- To write data from the file , we need to open it into write mode.
- To write data into file , write() can be used.

Example :- f = open (“text1.txt”, “w”)
f.write(“hello”)
print(“written successfully”)
f.close()

□ **Read data from the file :-**

- To read data from the file , we need too pen it into read mode.
- To read data from the file , read() is used.

Example :- f = open (“text1.txt”, “r”)
print (f.read())
f.close()

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□ **How to close file :-**

- When we complete all the related operations the new need to close it properly.
- To close any file , close() is used.

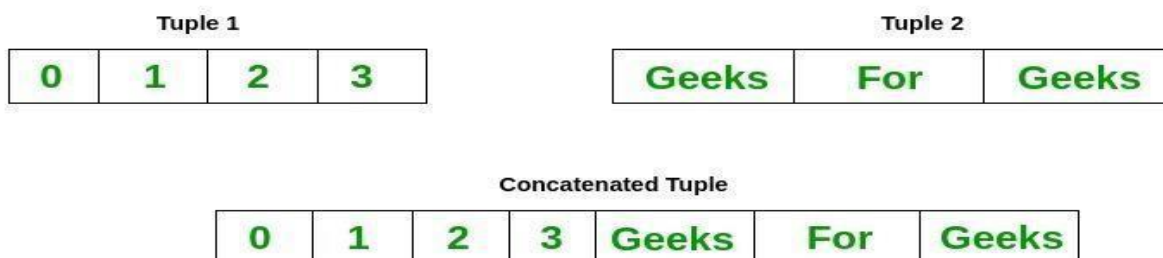
Example :-

```
f = open ("text1.txt", "r")  
print (f.read())  
f.close()
```

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	_____is used to store related imformations permanently.	file
2	_____can be used to open particular file	Open()
3	_____can be used to read data from particular file.	Read()
4	_____can be used to write data to the particular file.	Write()
5	_____ can be used to close particular file.	Close()

Q-10 Write note on tuple .



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```
# Initialize tuple
tup1 = ('Python', 'SQL')
# Initialize another Tuple
tup2 = ('R',)

# Create new tuple based on existing tuples
new_tuple = tup1 + tup2;
print(new_tuple)

('Python', 'SQL', 'R')
```

tuple = ('a', 1, 'e', 12.5, 'i', 'o', 9)

REVERSE INDEX	-7	-6	-5	-4	-3	-2	-1
	a	1	e	12.5	i	o	9
FORWARD INDEX	0	1	2	3	4	5	6

Accessing Elements

```
tuple[0] = 'a'
tuple[4] = 'i'
tuple[-2] = 'o'
tuple[-6] = 1
```

While accessing tuple elements, if you pass a negative index, Python adds the length of the tuple to the index to get element's forward index.

```
tuple[-5+6] = tuple[1] = 1
```

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Detail :-

- Tuple is a sequence of immutable python object.
- Tuple is very similar to the list but there may be following difference between list and tuple.
 - Tuple can not be change or update during execution.
 - We have to use round brackets() to represent tuple.
 - User can create empty tuple by representing empty brackets ().
 - Creating tuple is as simple as representing different values supported by comma (,).

➤ **Example :-**

T1=('a','b','c','d','e')

T2=(1,2,3,4,5)

T3=(17,25,"hi","how",4)

✓ **How to access value from the tuple :-**

- To access value from the tuple use square bracket [] with particular index number or range.

➤ **Example :-**

T1=('a','b','c','d','e')

Print ("t1[2]:" , t1[2])

o/p:- c

✓ **How to update value in the tuple :-**

- In tuple it is not possible to change the value during execution.
- But it is possible to merge more than one tuples at the same time.

➤ **Example :-**

T1=('a','b','c','d','

e')T2=(1,2,3,4,5)

T3= T1 + T2

Print (T3) o/p :- a,b,c,d,e,1,2,3,4,5

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✓ **How to delete tuple :-**

- To remove particular value of the tuple is not possible.
- So that we have to delete or remove entire tuple using **del** statement.

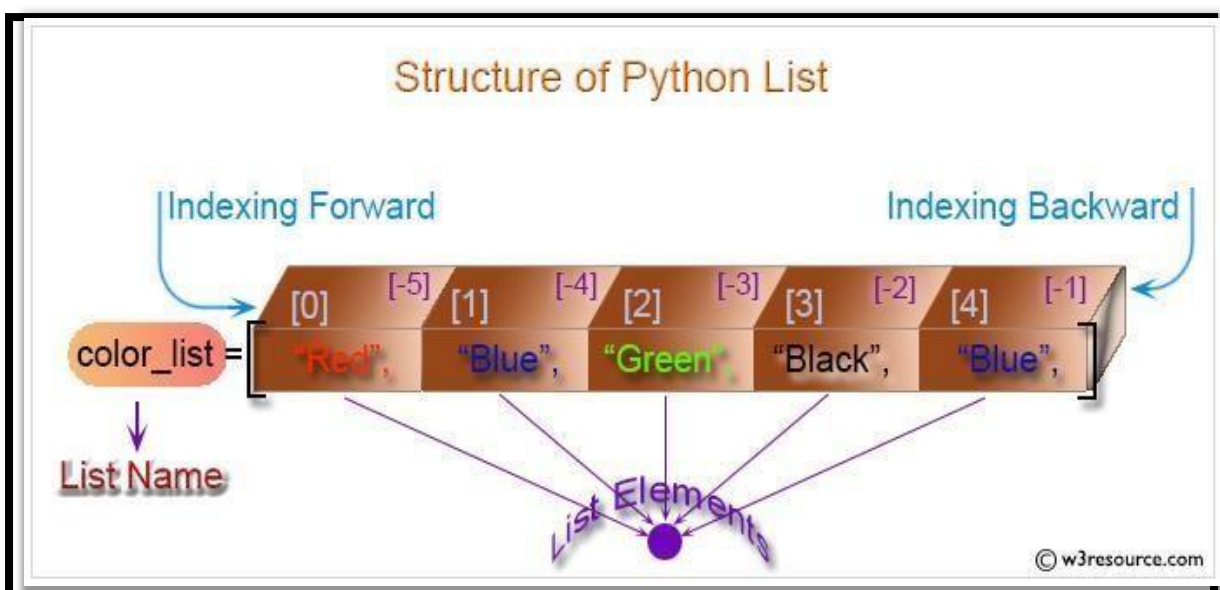
➤ **Example :-**

```
T1=('a','b','c','d','e')  
del (T1)  
Print (T1)
```

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	Tuple is _____ object in python.	immutable
2	Tuple can be represented by _____ brackets.	() (round)
3	_____ statement can be used to remove entire tuple.	del

Q-11 Write note on List.



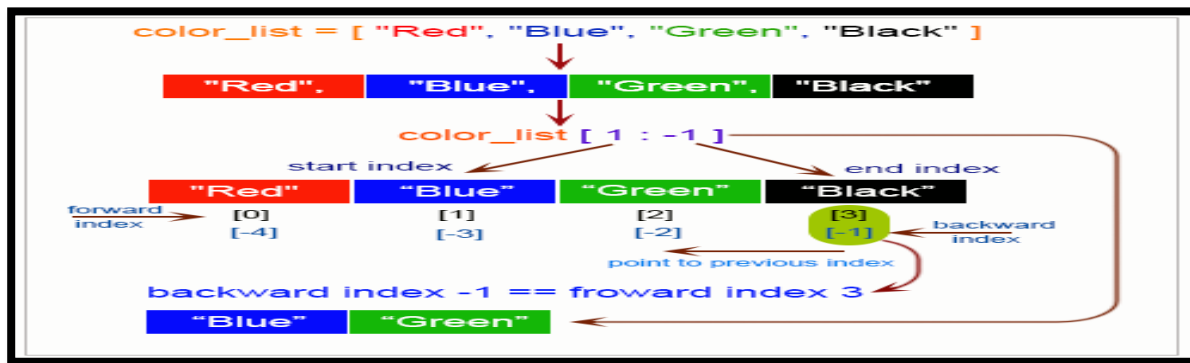
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Detail:-

- The list is most versatile datatype in Python.
- List can be represented by square bracket [], separated by comma (,).
- In Python you can create simple list like following:

➤ Example :-

L1 = ["abc" , "xyz" , 2000 , 1999]

L2 = [1,2,3,4,5,6,7]

✓ How to access value from the List :-

- To access value from the List , use square bracket [] with particular index number or range.

➤ Example :-

L1 = ["abc" , "xyz" , 2000 , 1999]

L2 = [1,2,3,4,5,6,7]

Print ("list1[0]:" , L1[0])

Print ("list2[1:5]:" , L2[1:5])

o/p :- abc

o/p :- 2,3,4,5

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✓ How to update value in the List :-

- You can update single or multiple elements of list by assigning new value from right to left.

Example :- L1 = ["abc" , "xyz" , 2000 ,1999]

Print (L1[2]) o/p :- 2000

L1[2] = 2005

Print (L1[2]) o/p :- 2005

✓ How to delete value in the List :-

- To remove list element , you can use **del** statement , if you know which element you are going to delete.
- You can also use remove() , if you do not know which element you are going to delete.

➤ Example :-

L1 = ["abc" , "xyz" , 2000 ,1999]

Print (L1[2])

del (L1[2])

Print (L1)

Del (L1)

Print(L1)

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	List is _____ object in python.	mutable
2	List can be represented by _____ brackets.	[] (square)
3	To remove particular element from the list _____ statement can be used.	del

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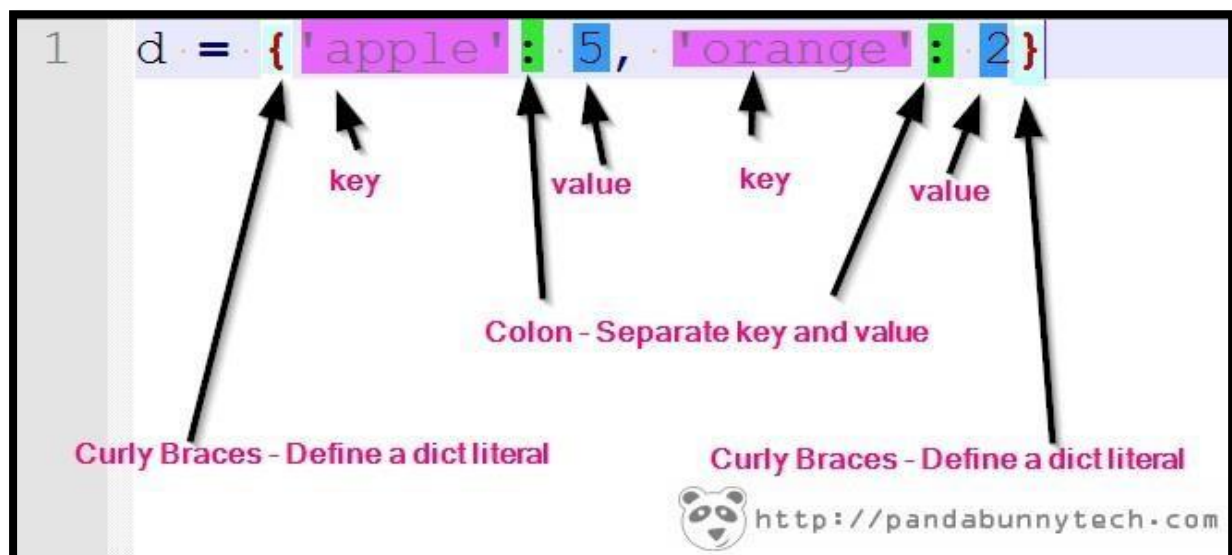
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Q-12 Write note on Dictionary.



Detail:-

- In dictionary we have to manage our data by key and value pair.
- In dictionary each key is separated from its value using colon (:).
- In dictionary the key and value pairs are separated by comma (,).
- The keys are always unique but values cannot be.
- We can create our dictionary using curly brackets { }.

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➤ Example :-

D1 = {'name' : 'zara' , 'city' : 'rajkot' , 'age' : 5}

✓ How to access value from dictionary :-

- To access value from the dictionary , we have to use square bracket with particular key.

➤ Example :-

D1 = {'name' : 'zara' , 'city' : 'rajkot' , 'age' : 5}

Print (“D1[‘name’]:” , D1[‘name’]) o/p :- zara

✓ How to update value in dictionary :-

- You can update dictionary by adding new entry or by modifying existing entry.

➤ Example :-

D1 = {'name' : 'zara' , 'city' : 'rajkot' , 'age' : 5}

D1[‘school’] = ‘G.T. Girls’ # adding new entry

Print (D1)

D1[‘age’] = 1 #modifying existingentry

Print(D1)

✓ How to delete value in the dictionary :-

- You can remove particular element from dictionary as well as you can clear entire dictionary.
➤ To remove all the entries from dictionary , clear() is used.

➤ Example :-

➤ D1 = {'name' : 'zara' , 'city' : 'rajkot' , 'age' : 5}

del (D1 [‘name’]) # removing single entry

print(D1)

del (D1) # deleting entire dictionary

print(D1)

D1.clear() # remove all entries in dictionaryPrint(D1)

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1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	Dictionay can be represented by _____ brackets.	{ } (curly)
2	In dictionary ,each key is separated from its values by_____.	: (colon)
3	Keys are always _____ within dictionary.	Unique
4	To remove an entire dictionary _____ statement can be used.	del

Q-13 How to define function ? Explain.

```
def add(x, y):  
    print(f'arguments are {x} and {y}')  
    return x + y
```

1. def keyword

2. function name

3. function arguments inside ()

4. colon ends the function definition

5. function code

6. function return statement

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```
Python10.1.py x
1  #define a function
2  def func1():
3      print("I am learning Python Function")
4
5  func1()
6  #print func1()
7  #print func1
8
9
```

Function definition

Function Call

Run Python10.1

```
"C:\Users\DK\Desktop\Python code\Python Test\Python 10\Python10
10\Python10 Code\Python10.1.py"
I am learning Python Function
```

Function output

Defining and calling a user defined function in Python (EasyCodeBook.com)

```
# to define and call a function.
# Author : www.EasyCodebook.com (c)

# define the function
def say_hello( ):
    print('Hello World')

# call the function
say_hello( )
```

Function definition

Function call

```
Python 3.7.4 Shell
File Edit Shell Debug Options Window Help
Python 3.7.4 (tags/v3.7.4:e09359112e, Jul 8 2019, 19:29:2
(Intel)] on win32
Type "help", "copyright", "credits" or "license()" for mor
>>>
== RESTART: C:/Users/h/AppData/Local/Programs/Python/Pyth
Hello World
```

Output

Detail:-

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✓ **Defining a Function :-**

- Function blocks begin with the keyword **def** followed by the function name and parentheses (()).
- You can place any number of arguments inside the brackets().
- The code block of every function must start with colon(:).
- The statement of the block must be exit with 'return' keyword.

○ **Syntax :-**

```
def <function name> (parameters):  
<block of code>  
    Return
```

Example :-

```
def sp():  
    Print(“hello sp”)  
    return
```

✓ **Calling a Function :-**

- If you create your own function , then you can execute it by calling the function with its name.
- You have to take care about name of the function and argument of the function.

○ **Syntax :-**

```
<function name> (parameters):
```

○ **Example :-**

```
Sp()
```

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Passing parameters to function :-

```
Python10.2.py x
1  def multiply(x,y):
2      print(x*y)
3
4  multiply(2,8)
5
6
Run Python10.2
"C:\Users\DK\Desktop\Python code\Python Test\Python
16
```

o You can pass multiple arguments by separating it with comma (,) .
o While passing multiple arguments always take care about number of arguments and types of arguments.

o Syntax :-

```
def <function name> (p1,p2,p3,.....,pn):
    <block of code>
```

Print Return

Example :-

```
def sp(str1 ,str2):
    ("hello      sp")
    Print(str1)
    Print(str2)
```

Return

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1 Word Question – Answer

1	_____keyword can be used to define function.	def
2	The code block within every function starts with_____ & followed by_____.	Function name & colon(:)
3	Function can be called by just providing_____.	Function name
4	User can pass some values with function which known as_____	Parameters
5	To return some values by function_____ statement can be used.	return

Q-14 Explain Mutability in brief.

```
>>> x=10
>>> print(x)
10
>>> x=x+5
>>> print(x)
15
```

Immutable Vs Mutable in Python

Here x changes value from 10 to 15

How integer is Immutable type ???

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Class	Description	Immutable?
bool	Boolean value	✓
int	integer (arbitrary magnitude)	✓
float	floating-point number	✓
list	mutable sequence of objects	
tuple	immutable sequence of objects	✓
str	character string	✓
set	unordered set of distinct objects	
frozenset	immutable form of set class	✓
dict	associative mapping (aka dictionary)	

Detail :-

- Everything in python is an object.
- Python represent all it's data as object.
- The mutability of object decided by its type.
- Some of the object like list and dictionary are mutable.
- Mutable means you can change the content without changing their identity.
- Some other objects like tuple and string are immutable means that can not be change.
- Variable in a python also support mutability , means if you call same method with same variable can be muted anytime by other method.
- List object support mutability like following :

Example :-

```
My_list= [10,20,30]
Print (my_list)
My_list[0]=40
Print(my_list)
```

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- Unlike tuple , the list is mutable it means we can change the value by assigning new value directly.

1 Word Question – Answer

SR.NO	QUESTION	ANSWER
1	_____is mutable object in python.	List
2	_____is immutable object in python	Tuple
3	_____means you can change the content without changing their identity.	Mutability