PYTHON INTERVIEW QUESTIONS

What are the key features of Python?

Python is an interpreted language. Other interpreted languages include PHP and Ruby.

Python is dynamically typed, this means that you don’t need to state the types of variables when you declare them or anything like that.

Python is well suited to object orientated programming.

In Python, functions are first-class objects.

Writing Python code is quick but running it is often slower than compiled languages.

Python finds use in many spheres.

What is pep 8?

PEP stands for Python Enhancement Proposal. It is a set of rules that specify how to format Python code for maximum readability.

How is memory managed in Python?

Memory management in python is managed by Python private heap space. All Python objects and data structures are located in a private heap.

The allocation of heap space for Python objects is done by Python’s memory manager.

PYTHON INTERVIEW QUESTIONS

What is namespace in Python?

A namespace is a naming system used to make sure that names are unique to avoid naming conflicts.

What is PYTHONPATH?

It is an environment variable which is used when a module is imported. Whenever a module is imported, PYTHONPATH is also looked up to check for the presence of the imported modules in various directories.

What are python modules? Name some commonly used built-in modules in Python?

Python modules are files containing Python code. This code can either be functions classes or variables.

os

sys

math

random

data time

JSON

PYTHON INTERVIEW QUESTIONS

What are local variables and global variables in Python?

Global Variables:

Variables declared outside a function or in global space are called global variables. These variables can be accessed by any function in the program.

Any variable declared inside a function is known as a local variable. This variable is present in the local space and not in the global space.

```
a=2
def add():
b=3
c=a+b
print(c)
add()
```

PYTHON INTERVIEW QUESTIONS

Is python case sensitive?

Yes. Python is a case sensitive language.

What is type conversion in Python?

Type conversion refers to the conversion of one data type iinto another.

int()

float()

ord()

hex()

oct()

tuple()

set()

list()

dict()

str()

complex(real,imag)

PYTHON INTERVIEW QUESTIONS

Is indentation required in python?

Indentation is necessary for Python. It specifies a block of code. All code within loops, classes, functions, etc is specified within an indented block. It is usually done using four space characters. If your code is not indented necessarily, it will not execute accurately and will throw errors as well.

What is the difference between Python Arrays and lists?

Arrays and lists, in Python, have the same way of storing data. But, arrays can hold only a single data type elements whereas lists can hold any data type elements.

```
import array as arr
My_Array=arr.array('A',[1,2,3,4])
My_list=[1,'ABC',1.20]
print(My_Array)
print(My_list)
```

Output:

array(‘A’, [1, 2, 3, 4]) [1, ‘ABC’, 1.2]

Uplatz

PYTHON INTERVIEW QUESTIONS

What are functions in Python?

A function is a block of code which is executed only when it is called. To define a Python function, the def keyword is used.

```
def Newfunc():
        print("Hi, Welcome to PROGRAMMING")

Newfunc(); #calling the function
```

Output: Hi, Welcome to PROGRAMMING

What is self in Python?

Ans: Self is an instance or an object of a class. In Python, this is explicitly included as the first parameter. However, this is not the case in Java where it's optional. It helps to differentiate between the methods and attributes of a class with local variables.

PYTHON INTERVIEW QUESTIONS

What is __init__?

__init__ is a method or constructor in Python. This method is automatically called to allocate memory when a new object/ instance of a class is created.

```
class Emp:
        def __init__(self, name, age,salary):
        self.name = name
        self.age = age
        self.salary = 20000
E1 = Emp("XYZ", 23, 20000)
print(E1.name)
print(E1.age)
print(E1.salary)
```

Output:

XYZ

23

20000

PYTHON INTERVIEW QUESTIONS

How does break, continue and pass work?

Break: Allows loop termination when some condition is met and the control is transferred to the next statement.

Continue: Allows skipping some part of a loop when some specific condition is met and the control is transferred to the beginning of the loop.

What does [::-1} do?

[::-1] is used to reverse the order of an array or a sequence.

For example:

```
import array as arr
My_Array=arr.array('i',[5,4,3,2,1])
My_Array[::-1]
```

Output: array(‘i’, [1,2,3,4,5])

PYTHON INTERVIEW QUESTIONS

How can you randomize the items of a list in place in Python?

```
from random import shuffle
x = [1,2,3,4,5,6]
shuffle(x)
print(x)
```

The output of the following code is as below.

[4,2,5,1,3,6]

What are python iterators?

Iterators are objects which can be traversed though or iterated upon.

How can you generate random numbers in Python?

```
import random
random.random
```

PYTHON INTERVIEW QUESTIONS

What is the purpose of is, not and in operators?

is: returns true when 2 operands are true (Example: “a” is ‘a’)

not: returns the inverse of the boolean value

in: checks if some element is present in some sequence

What is a dictionary in Python?

Dictionaries contain pair of keys and their corresponding values. Dictionaries are indexed by keys.

```
dict={'Country':'India','Capital':'Delhi','PM':'Modi'}
print dict[Country]
India
print dict[Capital]
Delhi
print dict[PM]
Modi
```

PYTHON INTERVIEW QUESTIONS

What are negative indexes and why are they used?

The index for the negative number starts from ‘-1’ that represents the last index in the sequence and ‘-2’ as the penultimate index and the sequence carries forward like the positive number.

The negative index is used to remove any new-line spaces from the string and allow the string to except the last character that is given as S[:-1].

What are Python packages?

Python packages are namespaces containing multiple modules.

How can files be deleted in Python?

```
import os
os.remove("abc.txt")
```

PYTHON INTERVIEW QUESTIONS

How to remove values to a python array?

Array elements can be removed using pop() or remove() method. The difference between these two functions is that the former returns the deleted value whereas the latter does not.

```
a=arr.array('d', [1.1, 2.2, 3.8, 3.1, 3.7, 1.2, 4.6])
print(a.pop())
print(a.pop(3))
a.remove(1.1)
print(a)
```

Output:

```
4.6
3.1
array(‘d’, [2.2, 3.8, 3.7, 1.2])
```

Does Python have OOps concepts?

Python is an object-oriented programming language. This means that any program can be solved in python by creating an object model. However, Python can be treated as procedural as well as structural language.

PYTHON INTERVIEW QUESTIONS

What is the difference between deep and shallow copy?

Shallow copy is used when a new instance type gets created and it keeps the values that are copied in the new instance. Shallow copy is used to copy the reference pointers just like it copies the values. Shallow copy allows faster execution of the program and it depends on the size of the data that is used.

Deep copy is used to store the values that are already copied. Deep copy doesn't copy the reference pointers to the objects. It makes the reference to an object and the new object that is pointed by some other object gets stored.

How is Multithreading achieved in Python?

Python has a multi-threading package but if you want to multi-thread to speed your code up, then it's usually not a good idea to use it.

All this GIL passing adds overhead to execution. This means that if you want to make your code run faster then using the threading package often isn't a good idea.

PYTHON INTERVIEW QUESTIONS

What are Python libraries?

Python libraries are a collection of Python packages. Numpy, Pandas, Matplotlib, Scikit-learn and many more.

What is split used for?

The split() method is used to separate a given string in Python.

```
a="hello python"
print(a.split())
```

Output: [‘hello’, ‘python’]

How to import modules in python?

Modules can be imported using the import keyword. You can import modules in three ways-

```
import array
import array as arr
from array import *
```

PYTHON INTERVIEW QUESTIONS

Suppose list1 is [2, 33, 222, 14, 25], What is list1[-1] ?

a) Error

b) None

c) 25

d) 2

Which of the following is an invalid statement?

a) abc = 1,000,000

b) a b c = 1000 2000 3000

c) a,b,c = 1000, 2000, 3000

d) a_b_c = 1,000,000

Which one of these is floor division?

a) /

b) //

c) %

d) None of the mentioned

Uplatz

PYTHON INTERVIEW QUESTIONS

What is the difference between NumPy and SciPy?

- All numerical code would reside in SciPy. However, one of NumPy's important goals is compatibility, so NumPy tries to retain all features supported by either of its predecessors.
- Thus NumPy contains some linear algebra functions, even though these more properly belong in SciPy.
- If you are doing scientific computing with python, you should probably install both NumPy and SciPy. Most new features belong in SciPy rather than NumPy.

Is python numpy better than lists?

Less Memory

Fast

Convenient

PYTHON INTERVIEW QUESTIONS

What are the applications of Python?

Web and Internet Development

Games

Scientific and computational applications

Enterprise and business applications development

Operating systems

GUI based desktop applications

list the operators in python:

Arithmetic operators

Comparison operators

Assignment Operators

Logical Operators

Bitwise Operators

Membership Operators

Identity Operators

PYTHON INTERVIEW QUESTIONS

Explain tuples in Python.

Python Tuple is used to store the sequence of immutable Python objects. The tuple is similar to lists since the value of the items stored in the list can be changed, whereas the tuple is immutable, and the value of the items stored in the tuple cannot be changed.

T1 = (101, "Peter", 22)

Tuple = (0, 1, 2, 3, 4, 5)

0	1	2	3	4	5

Tuple[0] = 0

Tuple[1] = 1

Tuple[2] = 2

Tuple[3] = 3

Tuple[4] = 4

Tuple[5] = 5

Tuple[0:] = (0, 1, 2, 3, 4, 5)

Tuple[:] = (0, 1, 2, 3, 4, 5)

Tuple[2:4] = (2, 3)

Tuple[1:3] = (1, 2)

Tuple[:4] = (0, 1, 2, 3)

Uplatz

PYTHON INTERVIEW QUESTIONS

Basic Tuple operations

Repetition T1*2 = (1, 2, 3, 4, 5, 1, 2, 3, 4, 5)

Concatenation T1+T2 = (1, 2, 3, 4, 5, 6, 7, 8, 9)

Membership print (2 in T1) prints True.

Iteration for i in T1:

print(i)

Output

1

2

3

4

5

PYTHON INTERVIEW QUESTIONS

Python Tuple inbuilt functions

cmp(tuple1, tuple2)	It compares two tuples and returns true if tuple1 is greater than tuple2 otherwise false.
len(tuple)	It calculates the length of the tuple.
max(tuple)	It returns the maximum element of the tuple
min(tuple)	It returns the minimum element of the tuple.
tuple(seq)	It converts the specified sequence to the tuple.

Where use tuple?

Tuple can simulate a dictionary without keys. Consider the following nested structure, which can be used as a dictionary.

PYTHON INTERVIEW QUESTIONS

List vs. Tuple

The literal syntax of list is shown by the [].	The literal syntax of the tuple is shown by the ().
The List is mutable.	The tuple is immutable.
The List has the a variable length.	The tuple has the fixed length.
The list provides more functionality than a tuple.	The tuple provides less functionality than the list.
The list is used in the scenario in which we need to store the simple collections with no constraints where the value of the items can be changed.	The tuple is used in the cases where we need to store the read-only collections i.e., the value of the items cannot be changed. It can be used as the key inside the dictionary.
The lists are less memory efficient than a tuple.	The tuples are more memory efficient because of its immutability.

PYTHON INTERVIEW QUESTIONS

Python List

A list in Python is used to store the sequence of various types of data. Python lists are mutable type its mean we can modify its element after it created. However, Python consists of six data-types that are capable to store the sequences, but the most common and reliable type is the list.

```
L1 = ["John", 102, "USA"]
print(type(L1))
```

Characteristics of Lists:

The lists are ordered.

The element of the list can access by index.

The lists are the mutable type.

The lists are mutable types.

A list can store the number of various elements.

PYTHON INTERVIEW QUESTIONS

```
emp = ["John", 102, "USA"]
Dep1 = ["CS",10]
Dep2 = ["IT",11]
HOD_CS = [10,"Mr. Holding"]
HOD_IT = [11, "Mr. Bewon"]
print("printing employee data...")
print("Name : %s, ID: %d, Country: %s"%(emp[0],emp[1],emp[2]))
print("printing departments...")
print("Department 1:\nName: %s, ID: %d\nDepartment 2:\nName: %s, ID: %s"%(Dep1[0],Dep2[1],Dep2[0],Dep2[1]))
print("HOD Details ....")
print("CS HOD Name: %s, Id: %d"%(HOD_CS[1],HOD_CS[0]))
print("IT HOD Name: %s, Id: %d"%(HOD_IT[1],HOD_IT[0]))
print(type(emp),type(Dep1),type(Dep2),type(HOD_CS),type(HOD_IT))
```

PYTHON INTERVIEW QUESTIONS

List indexing and splitting

List = [0, 1, 2, 3, 4, 5]

0	1	2	3	4	5

List[0] = 0

List[1] = 1

List[2] = 2

List[3] = 3

List[4] = 4

List[5] = 5

List[0:] = [0,1,2,3,4,5]

List[:] = [0,1,2,3,4,5]

List[2:4] = [2, 3]

List[1:3] = [1, 2]

List[:4] = [0, 1, 2, 3]

PYTHON INTERVIEW QUESTIONS

list_varible(start:stop:step)

```
list = [1,2,3,4,5,6,7]
print(list[0])
print(list[1])
print(list[2])
print(list[3])
print(list[0:6])
print(list[:])
print(list[2:5])
print(list[1:6:2])
```

Output:

```
1 2 3 4
[1, 2, 3, 4, 5, 6]
[1, 2, 3, 4, 5, 6, 7]
[3, 4, 5]
[2, 4, 6]
```

Uplatz

PYTHON INTERVIEW QUESTIONS

Python List Operations

Consider a Lists l1 = [1, 2, 3, 4], and l2 = [5, 6, 7, 8] to perform operation.

Repetition	L1*2 = [1, 2, 3, 4, 1, 2, 3, 4]
Concatenation	l1+l2 = [1, 2, 3, 4, 5, 6, 7, 8]
Membership	print(2 in l1) prints True.
Iteration	for i in l1: print(i)

Output

1

2

3

4

Length	len(l1) = 4

Uplatz