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Python

Interview Questions

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Q1. What are the built-in types provided by Python?
Ans- Mutable built-in types:

Lists
Sets
Dictionaries
Immutable built-in types:

Strings
Tuples
Numbers

Q2. What are Python modules?
Ans- A file containing Python code, like functions and variables, is a Python module. A Python module is an executable file with a .py extension. Some built-in modules are:

os
sys
math
random
data time
JSON

Q3. What is the // operator? What is its use?
The // is a floor division operator used for dividing two operands with the result as a quotient displaying digits before the decimal point. For instance, 10//5 = 2 and 10.0//5.0 = 2.0.

Q4. What is the split function used for?
The split function breaks the string into shorter strings using the defined separator. It returns the list of all the words present in the string.

Q5. Explain the Dogpile effect.
The dogpile effect is when the cache expires, and websites are hit by multiple requests made by the client at the same time. Using a semaphore lock prevents the Dogpile effect. In this system, when a value expires, the first process acquires the lock and starts generating a new value.

Q6. What is a pass in Python?
Ans- The no-operation Python statement refers to a pass. It is a placeholder in the compound statement, where there should have a blank left or nothing written there.

Q7. What is [::-1} used for?
Ans- [::-1} reverses the order of an array or a sequence. However, the original array or the list remains unchanged.

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

Q8. How do you capitalize the first letter of string?
Ans- The capitalize() method capitalizes the first letter of the string, and if the letter is already capitalized it returns the original string

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Q9. What are the is, not, and in operators?
Ans- Operators are functions that take two or more values and return the corresponding result.

is: returns true when two operands are true
not: returns inverse of a boolean value
in: checks if some element is present in some sequence.

Q10. How are modules imported in Python?
Ans- Modules are imported using the import keyword in either of the following three ways:

import array
import array as arr
from array import *

Q11.How would you convert a list to an array?
Ans- During programming, there will be instances when you will need to convert existing lists to arrays in order to perform certain operations on them (arrays enable mathematical operations to be performed on them in ways that lists do not).

Here we'll be using numpy.array(). This function of the numpy library takes a list as an argument and returns an array that contains all the elements of the list.

Q12. How is memory managed in Python?
Ans- Memory management in python is managed by Python private heap space. All Python objects and data structures are located in a

private heap. The programmer does not have access to this private heap. The python interpreter takes care of this instead.

The allocation of heap space for Python objects is done by Python's memory manager. The core API gives access to some tools for the programmer to code.

Python also has an inbuilt garbage collector, which recycles all the unused memory and so that it can be made available to the heap space.

Q13. How do you achieve multithreading in Python?

Ans- 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.

Python has a construct called the Global Interpreter Lock (GIL). The GIL makes sure that only one of your 'threads' can execute at any one time. A thread acquires the GIL, does a little work, then passes the GIL onto the next thread.

This happens very quickly so to the human eye it may seem like your threads are executing in parallel, but they are really just taking turns using the same CPU core.

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.

Q14. What is monkey patching?

Ans- In Python, the term monkey patch only refers to dynamic modifications of a class or module at run-time.

Q15. What is pickling and unpickling?

Ans- Pickle module accepts any Python object and converts it into a string representation and dumps it into a file by using dump function, this process is called pickling. While the process of retrieving original Python objects from the stored string representation is called unpickling.

Q16. What advantages do NumPy arrays offer over (nested) Python lists?

Ans- Python's lists are efficient general-purpose containers. They support (fairly) efficient insertion, deletion, appending, and concatenation, and Python's list comprehensions make them easy to construct and manipulate.

They have certain limitations: they don't support "vectorized" operations like elementwise addition and multiplication, and the fact that they can contain objects of differing types mean that Python must store type information for every element, and must execute type dispatching code when operating on each element.

NumPy is not just more efficient; it is also more convenient. You get a lot of vector and matrix operations for free, which sometimes allow one to avoid unnecessary work. And they are also efficiently implemented.

NumPy array is faster and You get a lot built in with NumPy, FFTs, convolutions, fast searching, basic statistics, linear algebra, histograms, etc.

Q17. How would you make a deep copy in Python?

Ans- A deep copy refers to cloning an object. When we use the = operator, we are not cloning the object; instead, we reference our variable to the same object (a.k.a. shallow copy).

This means that changing one variable's value affects the other variable's value because they are referring (or pointing) to the same object. This difference between a shallow and a deep copy is only applicable to objects that contain other objects, like lists and instances of a class.

Q18. What is a Python Docstring?
Ans- The Python docstrings provide a suitable way of associating documentation with:

Python modules
Python functions
Python classes
It is a specified document for the written code. Unlike conventional code comments, the doctoring should describe what a function does, not how it works.

Q19. What is defaultdict in Python?
Ans- The Python dictionary, dict, contains words and meanings as well as key-value pairs of any data type. The defaultdict is another subdivision of the built-in dict class.

How is defaultdict different?

The defaultdict is a subdivision of the dict class. Its importance lies in the fact that it allows each new key to be given a default value based on the type of dictionary being created.

A defaultdict can be created by giving its declaration, an argument that can have three values; list, set or int. According to the specified

data type, the dictionary is created and when any key, that does not exist in the defaultdict is added or accessed, it is assigned a default value as opposed to giving a Key Error.

Q20. What is Flask?

Ans. Flask (source code) is a Python micro web framework and it does not require particular tools or libraries. It is used for deploying python code into web apps.