SKILL<S/ASH>

Interview Question
Python Programming

1. **Is python case sensitive?**
   Yes, python is a case sensitive language.

2. **Who created python?**
   Python was created by Guido van Rossum

3. **When was python created?**
   Python was conceived in the late 1980s as a successor to the ABC language
   The first version was releases in 1991
   Python 2.0 was released in 2000
   Python 3.0 was released in 2008

4. **What is a lambda function in python?**
   An anonymous function is known as a lambda function. This function can have any number of parameters but can have just one statement.

5. **What type of language is python? Programming or scripting?**
   Python is capable of scripting, but in general sense, it is considered as a general-purpose programming language.

6. **What are docstrings in python?**
   Docstrings are not actually comments, but they are documentation strings. These docstrings are within triple quotes. They are not assigned to any variable and therefore, at times, serve the purpose of comments as well.

7. **Whenever Python exits, why isn't all the memory deallocated?**
   Whenever Python exits, especially those Python modules which are having circular references to other objects or the objects that are referenced from the global namespaces are not always de-allocated or freed. It is impossible to de-allocate those portions of memory that are reserved by the C library. On exit, because of having its own efficient clean up mechanism, Python would try to de-allocate/destroy every other object.

8. **How to run a jupyter notebook from the command line?**
   >>> jupyter nbconvert --to python nb.ipynb

9. **Give an example of BODMAS in python?**
   Operator precedence (8–3) * (2 — (1 + 1))
   The output is 0

10. **What is the difference between range and xrange in python?**
    xrange and range are the exact same in terms of functionality.The only difference is that range returns a Python list object and x range returns an xrange object.

11. **What does this mean: *args, **kwargs? And why would we use it?**
    We use *args when we aren't sure how many arguments are going to be passed to a function, or if we want to pass a stored list or tuple of arguments to a function. **kwargs is used when we don't know how many keyword arguments will be passed to a function, or it can be used to pass the values of a dictionary as keyword arguments.

12. **Define encapsulation in Python?**
    Encapsulation means binding the code and the data together. A Python class in an example of encapsulation.

13. **How do we interchange the values of two lists?**
    a = [1, 2, 3]
    b = [3, 2, 1]
    b,a = a,b

14. **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.
    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.

15. **What is the main use of a Jupyter notebook?**
    Jupyter Notebook is an open-source web application that allows us to create and share codes and documents. It provides an environment, where you can document your code, run it, look at the outcome, visualize data and see the results without leaving the environment.

16. **How do I convert an IPython Notebook into a Python file via command line?**
    >>> jupyter nbconvert --to script [YOUR_NOTEBOOK].ipynb

17. **What are the generators in Python?**
    Generators are a way of implementing iterators. A generator function is a normal function except that it contains yield expression in the function definition making it a generator function.

18. **How do we extract values from list?**
    lst = [“Ramesh”, “Suresh”, “Iyer”]
    lst[0] → Ramesh
    lst[-1] → Iyer

19. **How will you remove the duplicate elements from the given list?**
    The set is another type available in Python. It doesn’t allow copies and provides some good functions to perform set operations like union, difference etc.
    >>> list(set(lst_variable))

20. **What is the default formatting option in jupyter notebook?**
    Default formatting option is markdown

21. **How do we perform operations on Boolean?**

OR Operations	AND Operations
True or True: **True**	True and True: **True**
True or False: **True**	True and False: **False**
False or False: **False**	False and False: **False**

22. **What are function in python?**
    A function is a block of organized, reusable code that is used to perform a single, related action.

23. **What is slicing in Python?**
    Slicing in Python is a mechanism to select a range of items from Sequence types like strings, list, tuple, etc.

24. **What is negative index in Python?**

    Python sequences can be index in positive and negative numbers.
    For positive index, 0 is the first index, 1 is the second index and so forth.
    For negative index, (-1) is the last index and (-2) is the second last index and so forth.

25. **What is PEP8 and why is it important?**
    PEP stands for Python Enhancement Proposal. A PEP is an official design document providing information to the Python Community, or describing a new feature for Python or its processes. PEP 8 is especially important since it documents the style guidelines for Python Code. Apparently contributing in the Python open-source community requires you to follow these style guidelines sincerely and strictly.

26. **What is the difference between / and // operator in Python?**
    // is a Floor Division operator that is used for dividing two operands with the result as quotient showing only digits before the decimal point.
    10 / 3 = 3.33333
    10 // 3 = 3

27. **What are alternatives to jupyter notebook?**
    PyCharm interact, VS Code Python Interactive etc.

28. **Why is the "pass" keyword used in Python?**
    The "pass" keyword is a no-operation statement in Python. It signals that no action is required. It works as a placeholder in compound statements which are intentionally left blank.

29. **What are decorators in Python?**
    Decorators in Python are essentially functions that add functionality to an existing function in Python without changing the structure of the function itself. They are represented by the @decorator_name in Python and are called in bottom-up fashion

30. **What is the key difference between lists and tuples in python?**
    The key difference between the two is that while lists are mutable, tuples on the other hand are immutable objects.

31. **What are the advantages of NumPy arrays over Python lists?**
    NumPy is more convenient as you get a lot of vector and matrix operations, which sometimes allow one to avoid unnecessary work. Also with Numpy you get built in functions for fast searching, basic statistics, linear algebra, etc.

32. **What is the difference between .py and .pyc files?**
    .py files contain the source code of a program. Whereas, .pyc file contains the bytecode of your program. We get bytecode after compilation of .py file (source code). .pyc files are not created for all the files that you run. It is only created for the files that you import.

33. What is pickling and unpickling?

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

34. How is Python interpreted?

Python language is an interpreted language. The Python program runs directly from the source code. It converts the source code that is written by the programmer into an intermediate language, which is again translated into machine language that has to be executed.

35. How do you reverse a string in Python?

stringname = 'python'
stringname[::-1]
The output is 'nohtyp'

36. Describe the map function in Python?

map function executes the function given as the first argument on all the elements of the iterable given as the second argument.

37. What is the meaning of axis=0 and axis=1?

Axis = 0 is meant for reading rows, Axis = 1 is meant for reading columns

38. How to remove from one array those items that exist in another?

```
>>> a = np.array([5, 4, 3, 2, 1])
>>> b = np.array([4, 8, 9, 10, 1])
# We remove all duplicate elements present in 'a' that are also in 'b'
>>> np.setdiff1d(a,b)
# Output:
>>> array([5, 3, 2])
```

39. What Is The Difference Between Matrices And Arrays?

Matrices can only be two-dimensional, whereas arrays can have any number of dimensions

40. If you are gives the first and last names of employees, which data type in Python will you use to store them?

You can use a list that has first name and last name included in an element or use Dictionary.

HAPPY LEARNING!!