

Python Interview Questions for Freshers

1. 1. What is Python? List some popular applications of Python in the world of technology.

Answer: Python is a widely-used general-purpose, high-level programming language. It was created by Guido van Rossum in 1991 and further developed by the Python Software Foundation. It was designed with an emphasis on code readability, and its syntax allows programmers to express their concepts in fewer lines of code. It is used for:

2. 2. What are the benefits of using Python language as a tool in the present scenario?

Answer: The following are the benefits of using Python language:

3. 3. Is Python a compiled language or an interpreted language?

Answer: Actually, Python is a partially compiled language and partially interpreted language. The compilation part is done first when we execute our code and this will generate byte code internally. This byte code gets converted by the Python virtual machine (p.v.m) according to the underlying platform (machine + operating system).

4. 4. What does the '#' symbol do in Python?

Answer: '#' is used to comment on everything that comes after on the line.

5. 5. What is the difference between a Mutable datatype and an Immutable data type?

Answer: Mutable data types can be edited i.e., they can change at runtime. Eg - List, Dictionary, etc. Immutable data types can not be edited i.e., they can not change at runtime. Eg - String, Tuple, etc.

6. 6. How are arguments passed by value or by reference in Python?

Answer: In Python, arguments are passed by object reference (also called "pass by assignment"). This means that functions receive references to the same objects:

7. 7. What is the difference between a Set and Dictionary?

Answer: The set is unordered collection of unique items that is iterable and mutable. A dictionary in Python is an ordered collection of data values, used to store data values like a map.

8. 8. What is List Comprehension? Give an Example.

Answer: List comprehension is a syntax construction to ease the creation of a list based on existing iterable.

9. 9. What is a lambda function?

Answer: A lambda function is an anonymous function. This function can have any number of parameters but, can have just one statement. For Example:

10. 10. What is a pass in Python?

Answer: Pass means performing no operation or in other words, it is a placeholder in the compound statement, where there should be a blank left and nothing has to be written there.

11. 11. What is the difference between / and // in Python?

Answer: / represents precise division (result is a floating point number) whereas // represents floor division (result is an integer). For Example:

12. 12. How is Exceptional handling done in Python?

Answer: There are 3 main keywords i.e. try, except, and finally which are used to catch exceptions and handle the recovering mechanism accordingly. Try is the block of a code that is monitored for errors. Except block gets executed when an error occurs.

13. 13. What is swapcase function in Python?

Answer: It is a string's function that converts all uppercase characters into lowercase and vice versa. It is used to alter the existing case of the string. This method creates a copy of the string which contains all the characters in the swap case. For Example:

14. 14. Difference between for loop and while loop in Python

Answer: The "for" Loop is generally used to iterate through the elements of various collection types such as List, Tuple, Set, and Dictionary. Developers use a "for" loop where they have both the conditions start and the end. Whereas, the "while" loop is the actual looping feature that is used in any other programming language. Programmers use a Python while loop where they just have the end conditions.

15. 15. Can we Pass a function as an argument in Python?

Answer: Yes, Several arguments can be passed to a function, including objects, variables (of the same or distinct data types), and functions. Functions can be passed as parameters to other functions because they are objects. Higher-order functions are functions that can take other functions as arguments.

16. 16. What are *args and **kwargs?

Answer: To pass a variable number of arguments to a function in Python, use the special syntax *args and **kwargs in the function specification. Both are to send a variable-length argument list. The syntax *args is used to pass a non-keyworded, variable-length argument list.

17. 17. Is Indentation Required in Python?

Answer: Yes, indentation is required in Python. A Python interpreter can be informed that a group of statements belongs to a specific block of code by using Python indentation. Indentations make the code easy to read for developers in all programming languages but in Python, it is very important to indent the code in a specific order.

18. 18. What is Scope in Python?

Answer: The location where we can find a variable and also access it if required is called the scope of a variable.

19. 19. What is docstring in Python?

Answer: Python documentation strings (or docstrings) provide a convenient way of associating documentation with Python modules, functions, classes, and methods.

20. 20. What is a dynamically typed language?

Answer: Typed languages are the languages in which we define the type of data type and it will be known by the machine at the compile-time or at runtime. Typed languages can be classified into two categories:

21. 21. What is a break, continue, and pass in Python?

Answer: The `break` statement is used to terminate the loop or statement in which it is present. After that, the control will pass to the statements that are present after the `break` statement, if available.

22. 22. What are Built-in data types in Python?

Answer: The following are the standard or built-in data types in Python:

23. 23. How do you floor a number in Python?

Answer: The Python `math` module includes a method that can be used to calculate the floor of a number.

24. 42. What is PIP?

Answer: PIP is an acronym for Python Installer Package which provides a seamless interface to install various Python modules. It is a command-line tool that can search for packages over the internet and install them without any user interaction.

25. 43. What is a zip function?

Answer: Python `zip()` function returns a zip object, which maps a similar index of multiple containers. It takes an iterable, converts it into an iterator and aggregates the elements based on iterables passed. It returns an iterator of tuples.

26. 44. What are Pickling and Unpickling?

Answer: The 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.

27. 45. What is monkey patching in Python?

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

28. 46. What is `__init__()` in Python?

Answer: The `__init__()` method in Python is equivalent to constructors in OOP terminology. It is a reserved method in Python classes and is called automatically whenever a new object is instantiated. This method is used to initialize the object's attributes with values. While `__init__()` initializes the object, it does not allocate memory. Memory allocation for a new object is handled by the `__new__()` method, which is called before `__init__()`.

29. 48. What are Access Specifiers in Python?

Answer: Python uses the `'_'` symbol to determine the access control for a specific data member or a member function of a class. A Class in Python has three types of Python access modifiers:

30. 49. What are unit tests in Python?

Answer: Unit Testing is the first level of software testing where the smallest testable parts of the software are tested. This is used to validate that each unit of the software performs as designed. The unit test framework is Python's xUnit style framework. The White Box Testing method is used for Unit testing.

31. 50. Python Global Interpreter Lock (GIL)?

Answer: Python Global Interpreter Lock(GIL) is a type of process lock that is used by Python whenever it deals with processes. Generally, Python only uses only one thread to execute the set of written statements. The performance of the single-threaded process and the multi-threaded process will be the same in Python and this is because of GIL in Python. We can not achieve multithreading

in Python because we have a global interpreter lock that restricts the threads and works as a single thread.

32. 51. What are Function Annotations in Python?

Answer: Function Annotation is a feature that allows you to add metadata to function parameters and return values. This way you can specify the input type of the function parameters and the return type of the value the function returns.

33. 52. What are Exception Groups in Python?

Answer: The latest feature of Python 3.11, Exception Groups. The `ExceptionGroup` can be handled using a new `except*` syntax. The `*` symbol indicates that multiple exceptions can be handled by each `except*` clause.

34. 53. What is Python Switch Statement

Answer: From version 3.10 upward, Python has implemented a switch case feature called "structural pattern matching". You can implement this feature with the `match` and `case` keywords. Note that the underscore symbol is what you use to define a default case for the switch statement in Python.

35. 54. What is Walrus Operator?

Answer: The Walrus Operator allows you to assign a value to a variable within an expression. This can be useful when you need to use a value multiple times in a loop, but don't want to repeat the calculation.