75+ Python Interview Questions And Answers

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Python Interview Questions
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Python is one of the most popular programming languages widely used in different industries. As a result, there is a high demand for Python developers. So, if you're planning to appear for a Python interview, it is essential to prepare well. In this blog, we will cover a range of Python interview questions and answers to help you prepare for your next interview.

Basic-Level Python Interview Questions for Freshers

Here is a list of basic Python interview questions for freshers.

Q1. What is Python?

Python is an interpreted, high-level, general-purpose programming language.

Q2. What is PEP 8?

PEP 8 is a coding convention for Python code. It is a set of guidelines for writing clear, readable code.

Q3. What is a Python module?

A Python module is a file containing Python definitions and statements. It can be imported and used in other Python codes.

Q4. What is a Python package?

A Python package is a collection of modules. It can be imported and used in other Python codes.

Q5. What is the difference between a list and a tuple in Python?

A list is mutable, whereas a tuple is immutable.

Q6. What is the difference between Python 2 and Python 3?

Python 2 is the legacy, while Python 3 is the present and future of the language. Python 3 has better support for Unicode and is more consistent in syntax.

A lambda function is an anonymous function in Python. It can take any number of arguments but can only have one expression.

Q8. What is a decorator in Python?

Python allows a user to add new functionality to an existing object without modifying its structure. This is known as a decorator. It is a design pattern.

Q9. What is the use of the “yield” keyword in Python?

The “yield” keyword is used to create a generator function in Python. It returns a generator object that can be iterated over.

Q10. What is the use of the “if name == ‘main’:” statement in Python?

The “if name == ‘main’:” statement ensures that the code inside the block is only executed if the script is run as the main program and not when it is imported as a module.

Q11. What is a virtual environment in Python?

A virtual environment is an isolated Python environment that allows you to work on a specific project with its dependencies and configurations without interfering with other projects on the same machine.

Q12. What is the difference between a module and a package in Python?

A module is a single file containing Python code, whereas a package is a directory containing multiple modules.

Q13. What is the difference between “is” and “==” in Python?

“is” checks if two objects refer to the same memory location, whereas “==” checks if the values of the two objects are equal.

Q14. What are OOPs in Python?

It is a programming paradigm that uses objects and classes to organize and structure code.

Q15. What is a class in Python?

A class is a blueprint for creating objects in Python. It defines a set of attributes and methods that the objects will have.

Q16. What is inheritance in Python?

Inheritance is a feature of OOPs in Python. It allows a new class to be based on an existing class, inheriting all its attributes and methods.

Q17. What are the benefits of using OOPs in Python?

OOPs provides a way to organize code into reusable modules that can be used across multiple projects. It also promotes modularity, making code easier to maintain and update. Additionally, OOPs provide encapsulation, allowing data to be hidden and protected, and abstraction, allowing developers to focus on the interface of an object rather than its implementation details.

Q18. What is encapsulation in Python?

Encapsulation is a feature of OOPs that allows data to be hidden and protected from the outside world. In Python, encapsulation is achieved through the use of private and protected attributes and methods.

Q19. What is polymorphism in Python?

Polymorphism is a feature of OOPs that allows objects to take on different forms. In Python, polymorphism can be achieved through method overloading or method overriding.

Q20. What is method overloading in Python?

Method overloading is a feature of OOPs that allows a class to have multiple methods with the same name but different parameters. In Python, method overloading can be achieved through the use of default arguments.

Q21. What is method overriding in Python?

Method overriding is a feature of OOPs that allows a subclass to provide its implementation of a method that is already defined in its superclass. In Python, method overriding is achieved by defining a method in the subclass with the same name as the method in the superclass.

Q22. What is a try/catch block?

The “try” and “catch” blocks are used to deal with exceptions that are thrown while the program is running. It happens due to coding or data mistakes. The “Try” block is the section of code where an exception occurs. These exceptions are then caught and handled by the “catch” block.

Finally block is used to specify the code th[illegible] be always executed before the meth[illegible]ished. It is used after the Try and Catch blocks and is executed regardless of whether an exception is thrown or caught.

Advanced Python Interview Questions for Experienced Professionals

Here is a list of Python advanced interview questions:

Q24. What is a metaclass in Python?

A metaclass is a class that defines the behavior of other classes. It can be used to customize the creation and behavior of classes.

Q25. What is closure in Python?

A closure is a nested function that has access to the variables of its enclosing function, even after the enclosing function has returned.

Q26. Explain split() and join() functions in Python.

The split() function is used to split a single string into a list of strings using a delimiter. The join() function is used to join a list of strings based on a delimiter to give a single string.

Q27. What is compile-time and run-time code checking in Python?

During compile-time, the code is converted into executable code, and during run-time, the executable code runs. A portion of code is checked during compile-time while other checks such as name and type happen during execution. A non-existent function in the code will not affect the compilation process but it will lead to errors in tests during execution or run-time.

Q28. Explain different types of Literals in Python.

A literal is a fixed value for primitive data types. There are five types of literals- String, Character, Numeric, Boolean, and Literal collection.

A string literal is a text enclosed in single or double quotes and assigned to a variable.

A character literal is a single character enclosed in double quotes and assigned to a variable.

A numeric literal is a numeric value that can be an integer or a complex number or a floating point number and assigned to a variable.

Boolean literals are two values true and false assigned to a variable.

Literal collections are of four types- list, tuple, dictionary, and set.

Q29. Is indentation required in Python?

Indentation is a block of code within which code in loops, classes and functions, etc. are specified. It is specified using four space characters. Indentation is important for Python because if it is not specified, the code will not execute properly and throw an error.

Q30. How can we write comments in Python?

Comments in Python are written while starting with a “#” character. But we can also use docstrings or strings enclosed within triple quotes.

Q31. Explain the function of the ‘is’, ‘not’, and ‘in’ operators.

The ‘is’ operator returns true when two operands are true. The ‘not’ operator returns the inverse of the boolean value. The ‘in’ operator is used to check if some element is present in any sequence.

Q32. Explain the ‘break’ and ‘continue’ keywords in Python.

The “break” is used to allow loop termination when a condition is met and the control is passed on to the next statement. With ‘continue’ we can allow some part of the loop to be skipped when a condition is met and the control is passed on to the beginning of the loop.

Q33. What is the difference between range and xrange?

Although same in their function, it is the result or the output that differs in range and xrange. The range function returns a Python list object, whereas the xrange function returns an xrange object. Instead of creating a static list, xrange creates the values as you need them.

Q34. What is a generator in Python?

A generator is a type of iterable in Python that generates values on the fly. It saves memory as it generates values one at a time rather than storing them all in memory at once. You can learn Python programming online to understand the subject matter better and to ace all your interviews.

Monkey patching is a technique in Python a programmer modifies or extends th of an existing module, class, or function at runtime.

Q36. What is docstring in Python?

Docstrings in Python are the string literals that are enclosed in triple quotes. They are used for describing the functionality of a function, method, class, or module. To access them, we can use the "__doc__" attribute.

Q37. What are pickling and unpickling?

Pickling, also known as serialisation, is a process where a Python object hierarchy is converted into a byte stream to store it in a database. In unpickling, the byte stream is converted back into the object hierarchy.

Q38. What is slicing in Python?

In Python, slicing means accessing parts of a sequence. The sequence can be any mutable and iterable object. We use the slice() function for slicing or dividing the sequence into required sections.

Q39. What is the difference between .py and .pyc files?

The .py files are the source code files that are interpreted by the Python interpreter whereas the .pyc files are compiled files that are bytecodes generated by the Python compiler.

Q40. What are Python namespaces?

Namespaces in Python ensure that the object names in the program are unique and can be used without any conflict. They are implemented as dictionaries, where 'name as key' corresponds to 'object as value'. It helps in multiple namespaces to use the same name and map it to separate objects.

Q41. What is a PYTHONPATH in Python?

PYTHONPATH is an environment variable that can be used to add additional directories where Python will look for modules and packages.

Q42. Explain dir() function in Python.

The dir() function in Python is used to return a list of attributes and methods of an object. Since the aim of this function is to return relevant information instead of complete information, its behavior varies from object to object.

Q43. How can we delete a file in Python?

We can delete a file in Python by using the following command.

os.remove(file_name)

Python Interview Questions for Technical Round

Here is a list of technical Python interview questions:

Q44. What is the GIL in Python?

The GIL (Global Interpreter Lock) is a mechanism in Python that ensures that only one thread executes Python bytecode at a time. It can cause performance issues in multithreaded applications.

Q45. What is the difference between a list and a set in Python?

A list is an ordered collection of items, while a set is an unordered collection of unique items.

Q46. What is the purpose of the "init" method in Python classes?

The "init" method is special in Python classes that are used to initialize the object's attributes when an instance of the class is created. It is called automatically when a new object is created and takes the instance as its first parameter.

Q47. What is the purpose of the "pass" keyword in Python?

The "pass" keyword in Python is used as a placeholder to indicate that no code needs to be executed in a certain block. It is often used to write empty functions or classes that will be filled in later.

Q48. What is the purpose of the "map" function in Python?

The "map" function in Python is used to apply a function to each element of an iterable and return a new iterable with the results. It is often used to transform one sequence into another.

The “filter” function in Python is used to create a new iterable by filtering out elements from an existing iterable that do not meet a certain condition. It is often used to select a subset of items from a sequence.

Q50. What is the purpose of the “reduce” function in Python?

The “reduce” function in Python is used to apply a function to each element of an iterable in succession, reducing the sequence to a single value. It is often used to calculate a cumulative result over a sequence of values.

Q51. What is the purpose of the “zip” function in Python?

The “zip” function in Python is used to combine two or more iterables into a single iterable by creating a tuple of corresponding elements from each iterable. It is often used to iterate over multiple sequences simultaneously.

Q52. What is the purpose of the “super” function in Python?

The “super” function in Python is used to call a method in a parent class from a subclass. It is often used to extend the behavior of a parent class without modifying its code directly.

Python Interview Questions for Developers

Here is a list of Python developer interview questions:

Q53. What are the different data types in Python?

Some of the data types in Python are integers, floats, strings, lists, tuples, and dictionaries.

Q54. What is the use of “self” in Python?

“Self” is a reference to the instance of the class in Python. It is used to access the attributes and methods of the class within the class itself.

Q55. What is the difference between a shallow copy and a deep copy in Python?

A shallow copy creates a new object that points to the same memory location as the original object, whereas a deep copy creates a new object with its own memory space.

Q56. Explain various components of Django architecture.

The Django architecture consists of the following three components.

- **Model:** It is the logical data structure that manages the whole program and is represented by a database.
- **View:** It is the user interface or the website that we access in the browser. HTML/CSS/Javascript files represent them.
- **Controller:** It acts as the link between the model and the view by transferring data between them.

Q57. Give some examples of scope in Python.

Scope in Python is a block of code that can contain many objects and still, all of them remain relevant. Some examples of scope are:

- **Local Scope:** A variable created inside a function and used within that function only is local scope.
- **Global Scope:** A variable created inside the main body of the Python code and accessible within any part of the code is known as a global scope.

Q58. Explain different types of attributes in Python.

The following are the three types of attributes in Python.

- **Public Attribute:** It makes a variable accessible everywhere, be it inside the class or outside it.
- **Private Attribute:** It makes a variable accessible only within the current class.
- **Protected Attribute:** It makes a variable accessible only within the current package.

Q59. What is ‘Pandas’?

Pandas is an open-source Python library consisting of a rich set of data structures to perform data-based operations.

Q60. What is a Pandas Series?

It is a one-dimensional data structure of Pandas which can store any type of data. It looks like an Excel column.

If the data that we want to merge consists ilar fields then it is merged along axis rwise they are merged along axis 1.

Q62. What is the difference between NumPy and SciPy?

NumPy or Numerical Python is a basic library for defining arrays and simple mathematical problems. SciPy or Scientific Python is used for more complex problems, such as machine learning, numerical integration, optimization, etc.

Coding-Based Python Interview Questions

Here is a list of Python coding interview questions.

Q63. Write a Python function to reverse a string.

```
def reverse_string(string):
return string[::-1]
```

Q64. Write a Python function to find the factorial of a number.

```
def factorial(number):
  if number == 0:
    return 1
  else:
     return number * factorial(number-1)
```

Q65. Write a Python function to check if a string is a palindrome.

```
def is_palindrome(string):
    return string == string[::-1]
```

Q66. Write a code to convert a string to all lower cases.

```
A: stg='XYZ'
print(stg.lower())
```

Q67. Write a code to convert a list into a tuple.

```
my_list = [1, 2, 3, 4, 5]  # Example list
my_tuple = tuple(my_list)  # Converting the list to a tuple
print(my_tuple)
```

Q68. Write a code to create a global variable in Python.

```
global_var = 10
def my_function():
   global global_var
   global_var += 10
my_function()
print(global_var)
```

Q69. Write a code in Python to reverse a number.

```
def reverse_number(number):
    reverse = 0
    while number > 0:
        remainder = number % 10
        number = number // 10
    return reverse
# Test the function
number = 12345
reversed_number = reverse_number(number)
print(“Original number:”, number)
print(“Reversed number:”, reversed_number)
```

Q70. Write a code in Python to check if a given number is a prime number.

```
def is_prime(number):
    if number <= 1:
        return False
    for i in range(2, int(number ** 0.5) + 1):
        if number % i == 0:
            return False
    return True
# Test the function
number = 17
if is_prime(number):
    print(number, “is a prime number”)
else:
    print(number, “is not a prime number”)
```

Q71. Write the code to calculate the HCF of given numbers in Python.

```
def calculate_hcf(number1, number2):
    while number2 != 0:
        number1, number2 = number2, number1 % number2
    return number1
# Test the function
num1 = 48
num2 = 60
hcf_result = calculate_hcf(num1, num2)
print(“HCF of”, num1, “and”, num2, “is:”, hcf_result)
```

Q72. Write the code to randomize the elements of the list while it’s running.

```
import random
my_list = [1, 2, 3, 4, 5]
while True:
    random.shuffle(my_list)
    print(“Randomized list:”, my_list)
    if user_input == ‘exit’:
        break
```

Q73. Write a code to check if there are unique characters in a string in Python.

```
def has_unique_characters(string):
    char_set = set()
    for char in string:
        if char in char_set:
            return False
        char_set.add(char)
    return True
# Test the function
string = “Hello World”
if has_unique_characters(string):
    print(“The string”, string, “contains unique characters.”)
else:
    print(“The string”, string, “does not contain unique characters.”)
```

Q74. Write a Python program to find the sum of all the even numbers in a list.

```
def sum_of_evens(lst):
      return sum (num for num in lst if num % 2 == 0)
```

Q75. Write a Python program to find the nth Fibonacci number.

```
def Fibonacci(n):
    if n <= 1:
       return n
     else:
         return fibonacci(n-1) + fibonacci(n-2)
```

Q76. Write a Python program to reverse a linked list.

```
class Node:
    def __init__(self, data):
        self.data = data
        self.next = None
def reverse_list(head):
    prev = None
    current = head
    while current is not None:
        next = current.next
        current.next = prev
        prev = current
```

Conclusion

This blog has covered a range of Python interview questions and answers, including basic concepts, data structures, object-oriented programming, technical topics, and programming problems. We hope that this will help you prepare for your next Python interview and feel more confident in your Python skills. Remember to always practice and keep learning to improve your skills and stay up-to-date with the latest trends and developments in Python.

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Kriti heads the content team at Internshala. She got her first writing job when she was 17 and has 8+ years of experience in the field. She has a passion for crafting engaging and impactful narratives. With a background in writing and digital marketing, Kriti excels at creating compelling content strategies and optimizing online platforms. Her expertise lies in driving audience engagement and brand awareness through powerful storytelling.

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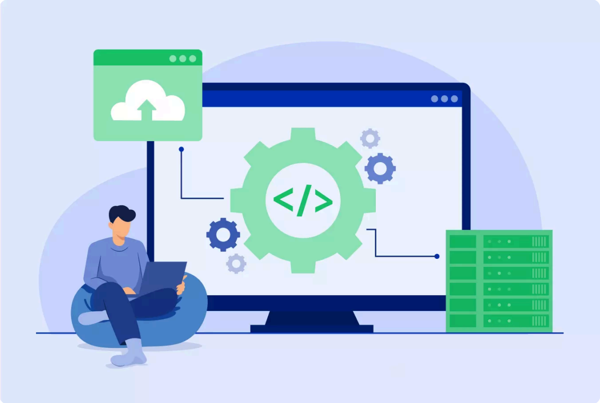

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