Python Interview Questions Pdf – 2019 Updated

Python Interview Questions / By Admin

1. What is the purpose pass statement in python?

Answer: The pass statement in Python is used when a statement is required syntactically but you do not want any command or code to execute.

2. What Is %S In Python?

Answer: Python has support for formatting any value into a string. It may contain quite complex expressions.

One of the common usages is to push values into a string with the %s format specifier. The formatting operation in Python has the comparable syntax as the C function printf() has.

3. What Is A Function Call Or A Callable Object In Python?

Answer: A function in Python gets treated as a callable object. It can allow some arguments and also return a value or multiple values in the form of a tuple. Apart from the function, Python has other constructs, such as classes or the class instances which fits in the same category.

4. What Does The Continue Do In Python?

Answer: The continue is a jump statement in Python which moves the control to execute the next iteration in a loop leaving all the remaining instructions in the block unexecuted.

The continue statement is applicable for both the “while” and “for” loops.

5. Does Python Have A-Main() Method?

Answer: The main() is the entry point function which happens to be called first in most programming languages.

Since Python is interpreter-based, so it sequentially executes the lines of the code one-by-one.

Python also does have a Main() method. But it gets executed whenever we run our Python script either by directly clicking it or starts it from the command line.

We can also override the Python default main() function using the Python if statement. Please see the below code.

6. When Should You Use The “Break” In Python?

Answer: Python provides a break statement to exit from a loop. Whenever the break hits in the code, the control of the program immediately exits from the body of the loop.

The break statement in a nested loop causes the control to exit from the inner iterative block.

7. What Is A Dictionary In Python Programming?

Answer: A dictionary is a data structure known as an associative array in Python which stores a collection of objects.

The collection is a set of keys having a single associated value. We can call it a hash, a map, or a hashmap as it gets called in other programming languages.

8. What Is Class In Python?

Answer: Python supports object-oriented programming and provides almost all OOP features to use in programs.

A Python class is a blueprint for creating the objects. It defines member variables and gets their behavior associated with them.

We can make it by using the keyword “class.” An object gets created from the constructor. This object represents the instance of the class.

9. What Is Composition In Python?

Answer: The composition is also a type of inheritance in Python. It intends to inherit from the base class but a little differently, i.e., by using an instance variable of the base class acting as a member of the derived class.

10. How Do You Handle Exceptions With Try/Except/Finally In Python?

Answer: Python lay down Try, Except, Finally constructs to handle errors as well as Exceptions. We enclose the unsafe code indented under the try block. And we can keep our fall-back code inside the except block. Any instructions intended for execution last should come under the finally block.

11. What Do You Know About The Python Enumerate?

Answer: While using the iterators, sometimes we might have a use case to store the count of iterations. Python gets this task quite easy for us by giving a built-in method known as the enumerate().

The enumerate() function attaches a counter variable to an iterable and returns it as the “enumerated” object.

We can use this object directly in the “for” loops or transform it into a list of tuples by calling the list() method.

12. What Is The Use Of Globals() Function In Python?
Answer: The globals() function in Python returns the current global symbol table as a dictionary object.
Python maintains a symbol table to keep all necessary information about a program. This info includes the names of variables, methods, and classes used by the program.

All the information in this table remains in the global scope of the program and Python allows us to retrieve it using the globals() method.

13. How Do You Monitor The Code Flow Of A Program In Python?
Answer: In Python, we can use the sys module’s settrace() method to set up trace hooks and monitor the functions inside a program.
You need to define a trace callback method and pass it to the set trace() function. The callback should specify three arguments as shown below.

14. What Does The Yield Keyword Do In Python?
Answer: The yield keyword can turn any function into a generator. It works like a standard return keyword. But it’ll always return a generator object. Also, a method can have multiple calls to the yield keyword.
15. What is the purpose of the Pythonpath environment variable?
Answer: The yield keyword can turn any function into a generator. It works like a standard return keyword. But it’ll always return a generator object. Also, a method can have multiple calls to the yield keyword.
16. What is pickling and unpickling?
Answer: 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.
17. Explain the use of session in Django framework?
Answer: Django provides a session that lets you store and retrieve data on a per-site-visitor basis. Django abstracts the process of sending and receiving cookies, by placing a session ID cookie on the client side and storing all the related data on the server side.

18. What advantages do NumPy arrays offer over (nested) Python lists?
Answer: 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.
19. What Do You Think Is The Output Of The Following Code Fragment?
Answer: The result of the above lines of code is. There won't be any error like an IndexError.
You should know that trying to fetch a member from the list using an index that exceeds the member count (for example, attempting to access list[10] as given in the question) would yield an IndexError. By the way, retrieving only a slice at the starting index that surpasses the no. of items in the list won't result in an IndexError. It will just return an empty list.

20. What Is The Purpose Of "End" In Python?
Answer: Python's print() function always prints a newline in the end. The print() function accepts an optional parameter known as the 'end.' Its value is '\n' by default. We can change the end character in a print statement with the value of our choice using this parameter.
21. What Is Whitespace In Python?
Answer: Whitespace represents the characters that we use for spacing and separation.
They possess an "empty" representation. In Python, it could be a tab or space. (python interview questions pdf)

22. What Are Attributes And Methods In A Python Class?
Answer: A class is useless if it has not defined any functionality. We can do so

by adding attributes. They work as containers for data and functions. We can add an attribute directly specifying inside the class body.

23. What Are Closures In Python?

Answer: Python closures are function objects returned by another function. We use them to eliminate code redundancy.

24. What Is The Syntax For Dictionary Comprehension In Python?

Answer: A dictionary has the same syntax as was for the list comprehension but the difference is that it uses curly braces

25. Which Python Function Will You Use To Convert A Number To A String?

Answer: For converting a number into a string, you can use the built-in function str(). If you want an octal or hexadecimal representation, use the inbuilt function oct() or hex().

26. Explain the use of with statement?

Answer: In python generally “with” statement is used to open a file, process the data present in the file, and also to close the file without calling a close() method. “with” statement makes the exception handling simpler by providing cleanup activities.

27. Name few Python modules for Statistical, Numerical and scientific computations?

Answer: numPy – this module provides an array/matrix type, and it is useful for doing computations on arrays. scipy – this module provides methods for doing numeric integrals, solving differential equations, etc pylab – is a module for generating and saving plots.

28. How do you get the last value in a list or a tuple?

Answer: When we pass -1 to the index operator of the list or tuple, it returns the last value. If -2 is passed, it returns the last but one value. (python interview questions pdf)

29. What happens if an error occurs that is not handled in the except block?

Answer: The program terminates. and an execution trace is sent to sys.stder.

30. What is the lambda operator?

Answer: The lambda operator is used to create anonymous functions. It is mostly used in cases where one wishes to pass functions as parameters. or assign them to variable names.

31. Under what circumstances would von use a while statement rather than for?

Answer: The while statement is used for simple repetitive looping and the for statement is used when one wishes to iterate through a list of items, such as database records, characters in a string, etc.

32. When would you use a break statement in a for loop?

Answer: When the loop has served its purpose. As an example. after finding the item in a list searched for, there is no need to keep looping. The break statement says, I'm done in this loop; move on to the next block of code." (Interview Questions on Python – Best 47 Freshers and Experienced)

33. What is the structure of a while loop?

Answer: The ellipsis represents a code block to be executed. until the condition becomes false. The condition is an expression that is considered true unless it evaluates to o, null or false.

34. Control flow statements?

Answer: By default, python program execution starts from the first line, execute each and every statement only once and transactions the program if the last statement of the program execution is over.

Control flow statements are used to disturb the normal flow of the execution of the program.

35. What is File Handling?

Answer: File is a named location on the disk, which stores the data in a permanent manner.

Python language provides various functions and methods to provide communication between python programs and files.

Python programs can open the file, perform the read or write operations on the file and close the file

We can open the files by calling the open function of built-in-modules

At the time of opening the file, we have to specify the mode of the file

Mode of the file indicates for what purpose the file is going to be opened(r,w, a,b)… (python interview questions pdf)

36. What is Try Block?

Answer: A block which is preceded by the try keyword is known as a try block

Syntax:

statements that may cause an exception

The statements which cause runtime errors and other statements which depends on the execution of runtime errors statements are recommended to represent in a try block

While executing try block statement if any exception is raised then immediately

try block identifies that exception, receive that exception and forward that exception to except block without executing remaining statements to try block.

37. What is Encapsulation?

Answer: The concept of binding or grouping related data members along with its related functionalities is known as an Encapsulation.

38. Executing DML Commands Through Python Programs?

Answer: DML Commands are used to modify the data of the database objects
Whenever we execute DML Commands the records are going to be modified temporarily
Whenever we run “rollback” command the modified records will come back to its original state
To modify the records of the database objects permanently we use “commit” command
After executing the commit command even though we execute “rollback” command, the modified records will not come back to its original state
Create the emp1 table in the database by using the following command
Create table emp1 as select * from emp;
Whenever we run the DML commands through the python program, then the no.of records which are modified because of that command will be stored into the rowcount attribute of the cursor object
After executing the DML Command through the python program we have to call the commit method of cursor object.

39. What is scheduling?

Answer: Among multiple threads which thread as to start the execution first, how much time the thread as to execute after allocated time is over, which thread, as to continue the execution next this, comes under scheduling Scheduling is highly dynamic. (python interview questions pdf)

40. What is OS Module?

Answer: OS Module is a predefined module and which provides various functions and methods to perform the operating system related activities, such as creating the files, removing the files, creating the directories removing the directories, executing the operating system related commands, etc.

1. What is Pass in Python?

Answer: Pass specifies a Python statement without operations. It is a

placeholder in a compound statement. If we want to create an empty class or functions, this pass keyword helps to pass the control without error.

2. Draw a comparison between the range and xrange in Python?

Answer: In terms of functionality, both range and xrange are identical. Both allow for generating a list of integers. The main difference between the two is that while range returns a Python list object, xrange returns an xrange object.

Xrange is not able to generate a static list at runtime the way range does. On the contrary, it creates values along with the requirements via a special technique called yielding. It is used with a type of object known as generators.

If you have a very enormous range for which you need to generate a list, then xrange is the function to opt for. This is especially relevant for scenarios dealing with a memory-sensitive system, such as a smartphone.

The range is a memory beast. Using it requires much more memory, especially if the requirement is gigantic. Hence, in creating an array of integers to suit the needs, it can result in a Memory Error and ultimately lead to crashing the program.

3. Explain the use of try: except raise, and finally?

Answer: Try, except and finally blocks are used in Python error handling. Code is executed in the try block until an error occurs. One can use a generic except block, which will receive control after all errors, or one can use specific exception handling blocks for various error types. Control is transferred to the appropriate except block. In all cases, the final block is executed. Raise may be used to raise your own exceptions. (SVR Technologies)

4. How does Lambda function differ from a normal function in Python?

Answer: Lambda is similar to the inline function in C programming. It returns a function object. It contains only one expression and can accept any number of arguments.

In case of a normal function, you can define a function name, pass the parameter and mandatorily have a return statement. The Lambda function can be typically used for simple operations without the use of function names. It can also be used in the place of a variable.

5. What Is A String In Python?

Answer: A string in Python is a sequence of alphanumeric characters. They are

immutable objects. It means that they don't allow modification once they get assigned a value. Python provides several methods, such as join(), replace(), or split() to alter strings. But none of these change the original object.

6. What is the difference between locals() and globals ()?

Answer: locals() is accessed within the function and it returns all names that can be accessed locally from that function.

globals() returns all names that can be accessed globally from that function.

7. How many Keywords are there in Python? And why should we know them?

Answer: There are 33 keywords in Python. We should know them to know about their use so that in our work we can utilize them. Another thing is while naming a variable, the variable name cannot be matched with the keywords. So, we should know about all the keywords.

8. What do you mean by the dictionary in Python?

Answer: The built-in data types of Python known as Dictionary. For e.g. "Country".

9. Explain Python Functions?

Answer: A function is a section of the program or a block of code that is written once and can be executed whenever required in the program. A function is a block of self-contained statements which has a valid name, parameters list, and body. Functions make programming more functional and modular to perform modular tasks. Python provides several built-in functions to complete tasks and also allows a user to create new functions as well.

10. Does the same Python code work on multiple platforms without any changes?

Answer: Yes. As long as you have the Python environment on your target platform (Linux, Windows, Mac), you can run the same code. (python interview questions and answers)

11. What do you understand by monkey patching in Python?

Answer: The dynamic modifications made to a class or module at runtime are termed as monkey patching in Python. Consider the following code snippet.

12. What Is Python, What Are The Benefits Of Using It, And What Do You Understand Of PEP 8?

Answer: Python is one of the most successful interpreted languages. When you write a Python script, it doesn't need to get compiled before execution. Few other interpreted languages are PHP and Javascript.

Benefits Of Python Programming
Python is a dynamic-typed language. It means that you don’t need to mention the data type of variables during their declaration. It allows to set variables like var1=101 and var2 =” You are an engineer.” without any error.
Python supports object-orientated programming as you can define classes along with the composition and inheritance. It doesn’t use access specifiers like public or private).
Functions in Python are like first-class objects. It suggests you can assign them to variables, return from other methods and pass as arguments.
Developing using Python is quick but running it is often slower than compiled languages. Luckily, Python enables to include the “C” language extensions so you can optimize your scripts.
Python has several usages like web-based applications, test automation, data modeling, big data analytics and much more. Alternatively, you can utilize it as a “glue” layer to work with other languages.
PEP 8.
PEP 8 is the latest Python coding standard, a set of coding recommendations. It guides to deliver more readable Python code.

You may erroneously expect list1 to be equal to [10] and list3 to match with [‘a’], thinking that the list argument will initialize to its default value of [] every time there is a call to the extendList.

However, the flow is like that a new list gets created once after the function is defined. And the same get used whenever someone calls the extendList method without a list argument. It works like this because the calculation of expressions (in default arguments) occurs at the time of function definition, not during its invocation.

The list1 and list3 are hence operating on the same default list, whereas list2 is running on a separate object that it has created on its own (bypassing an empty list as the value of the list parameter).

13. What is the use of break statement?
Answer: It is used to terminate the execution of the current loop. A break always breaks the current execution and transfer control outside the current block. If the

block is in a loop, it exits from the loop, and if the break is in a nested loop, it exits from the innermost loop. (interview questions on python)

14. What is the difference between 'match' and 'search' in Python?

Answer: Match checks for the match at the beginning of the string whereas search checks for the match anywhere in the string.

15. How to create a Unicode string in Python?

Answer: In Python 3, the old Unicode type has replaced by "str" type, and the string is treated as Unicode by default. We can make a string in Unicode by using art.title.encode("utf-8") function.

16. What are the differences between Python 2.x and Python 3.x?

Answer: Python 2.x is an older version of Python while Python 3.x is newer. Python 2.x is legacy now but Python 3.x is the present and future of this language. The most visible difference between them is in print statement. In Python 2 it is print "Hello" and in Python 3, it is print ("Hello"). (Python Programming Interview Questions – Top 55 Updated For Beginners)

17. What Are Class Or Static Variables In Python Programming?

Answer: In Python, all the objects share common class or static variables. But the instance or non-static variables are altogether different for different objects.

The programming languages like C++ and Java need to use the static keyword to make a variable as the class variable. However, Python has a unique way to declare a static variable.

All names initialized with a value in the class declaration becomes the class variables. And those which get assigned values in the class methods becomes the instance variables.

18. When would you use triple quotes as a delimiter?

Answer: APEX syntax has different features such as variable declaration to store the different values in the memory. The queries will be like SOQL which will be used to execute the queries, loop statements to perform the iterations in performing the operations, flow control statements can be used to control the flow execution whether to start or stop the execution process, DML statements can be used to manipulate the data by executing the queries. (interview questions on python)

19. What happens in the background when you run a Python file?
Answer: When we run a .py file, it undergoes two phases. In the first phase, it checks the syntax and in the second phase, it compiles to bytecode (.pyc file is generated) using Python virtual machine, loads the bytecode into memory and runs.
20. Explain the difference between local and global namespaces?
Answer:
Local namespaces are created within a function. when that function is called.
Global namespaces are created when the program starts.
21. What is Python?
Answer: Python is a high-level, interpreted, interactive and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently whereas other languages use punctuation, and it has fewer syntactical constructions than other languages.
22. How to save an image when you know the URL?
Answer: To save an image locally, you would use this type of a code:
import urllib.request
urllib.request.urlretrieve("URL", "image-name.jpg")
23. What is the Python decorator?
Answer: Python decorator is a concept which allows to call or declare a function inside a function, pass a function as an argument, return a function from the function. The decorator provides extra facility to the function. It also helps to organize a piece of code within a function.
24. What Is A Function In Python Programming?
Answer: A function is an object which represents a block of code and is a reusable entity. It brings modularity to a program and a higher degree of code reusability.
Python has given us many built-in functions such as print() and provides the ability to create user-defined functions. (interview questions on python)

25. How do you execute a Python Script?
Answer: From the command line, type python .py or python.y.py where the x.y is the version of the Python interpreter desired.
Learn how to use Python, from beginner basics to advanced techniques, with online video tutorials taught by industry experts. Enroll for Free Python Training Demo!

26. Give a detailed explanation about setting up the database in Django?

Answer: The process of setting up a database is initiated by using the command edit mysite/setting.py. This is a normal Python module with a module-level representation of Django settings. Django relies on SQLite by default, which is easy to be used as it doesn't require any other installation.

SQLite stores data as a single file in the filesystem. Now, you need to tell Django how to use the database. For this, the project's setting.py file needs to be used. Following code must be added to the file for making the database workable with the Django project:

27. How does For loop and While loop differ in Python and when do you choose to use them?

Answer: For loop is generally used to iterate through the elements of various collection types such as List, Tuple, Set, and Dictionary.

While loop is the actual looping feature that is used in any other programming language. This is how Python differs in handling loops from the other programming languages.

28. What is Threads Life Cycle?

Answer: Threads Life Cycle

Creating the object of a class which is overwriting run method of thread class is known as a creating thread

Whenever a thread is created then we call thread is in new state or birth state thread.

Whenever we call the start method on the new state threads then those threads will be forwarded for scheduling

The threads which are forwarded for scheduling are known as ready state threads

Whenever scheduling time occurs, ready state thread starts execution

The threads which are executing are known as running state threads

Whenever sleep fun or join methods are called on the running state threads then immediately those threads will wait.

The threads which are waiting are known as waiting state threads

Whenever waiting time is over or specified thread execution is over then immediately waiting state threads are forwarded for scheduling.

If running state threads execution is over then immediately those threads execution will be terminated

The threads which execution is terminated are known as dead state threads.

29. What do you understand by the process of compilation and linking in Python?

Answer: In order to compile new extensions without any error, compiling and linking is used in Python. Linking initiates only and only when the compilation is complete.

In the case of dynamic loading, the process of compilation and linking depends on the style that is provided with the concerned system. In order to provide dynamic loading of the configuration setup files and rebuilding the interpreter, the Python interpreter is used.

30. What is a Python module?

Answer: A module is a Python script that generally contains import statements, functions, classes and variable definitions, and Python runnable code and it "lives" file with a '.py' extension. zip files and DLL files can also be modules. Inside the module, you can refer to the module name as a string that is stored in the global variable name. (interview questions on python)

31. Explain List, Tuple, Set, and Dictionary and provide at least one instance where each of these collection types can be used?

Answer: List: Collection of items of different data types which can be changed at run time.

Tuple: Collection of items of different data types which cannot be changed. It only has read-only access to the collection. This can be used when you want to secure your data collection set and does not need any modification.

Set: Collection of items of a similar data type.

Dictionary: Collection of items with key-value pairs.

Generally, List and Dictionary are extensively used by programmers as both of them provide flexibility in data collection.

32. Give an example of shuffle() method?

Answer: This method shuffles the given string or an array. It randomizes the items in the array. This method is present in the random module. So, we need to import it and then we can call the function. It shuffles elements each time when the function calls and produces different output.

33. Does Python allow you to program in a structured style?

Answer: Yes. It does allow to code is a structured as well as Object-oriented style. It offers excellent flexibility to design and implement your application code depending on the requirements of your application.

34. What is a decorator?

Answer: APEX syntax has different features such as variable declaration to store the different values in the memory. The queries will be like SOQL which will be used to execute the queries, loop statements to perform the iterations in performing the operations, flow control statements can be used to control the flow execution whether to start or stop the execution process, DML statements can be used to manipulate the data by executing the queries. (python interview questions and answers)

35. What is Abnormal Termination?

Answer: The concept of terminating the program in the middle of its execution without executing the last statement of the main module is known as an abnormal termination

Abnormal termination is an undesirable situation in programming languages. (interview questions on python)

36. How will you distinguish between NumPy and SciPy?

Answer: Typically, NumPy contains nothing but the array data type and the most basic operations, such as basic element-wise functions, indexing, reshaping, and sorting. All the numerical code resides in SciPy.

As one of NumPy's most important goals is compatibility, the library tries to retain all features supported by either of its predecessors. Hence, NumPy contains a few linear algebra functions despite the fact that these more appropriately belong to the SciPy library.

SciPy contains fully-featured versions of the linear algebra modules available to NumPy in addition to several other numerical algorithms.

37. What happens when a function doesn't have a return statement? Is this valid?

Answer: Yes, this is valid. The function will then return a None object. The end of a function is defined by the block of code being executed (i.e., the indenting) not by any explicit keyword.

38. Describe how multithreading is achieved in Python?

Answer: Even though Python comes with a multi-threading package, if the motive behind multithreading is to speed the code then using the package is not the go-to option.

The package has something called the GIL or Global Interpreter Lock, which is a construct. It ensures that one and only one of the threads execute at any given

time. A thread acquires the GIL and then do some work before passing it to the next thread.

This happens so fast that to a user it seems that threads are executing in parallel. Obviously, this is not the case as they are just taking turns while using the same CPU core. Moreover, GIL passing adds to the overall overhead to the execution.

Hence, if you intend to use the threading package for speeding up the execution, using the package is not recommended.

39. How are data types defined in Python and how much bytes do integer and decimal data types hold?
Answer: In Python, there is no need to define a variable's data type explicitly. Based on the value assigned to a variable, Python stores the appropriate data type. In the case of numbers such as Integer, Float, etc, the length of data is unlimited.

40. What is swap case() function in the Python?
Answer: It is a string's function which 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. If the string is in lowercase, it generates a small case string and vice versa. It automatically ignores all the non-alphabetic characters. See an example below.
41. What is Multithreading?
Answer: Thread Is a functionality or logic which can execute simultaneously along with the other part of the program
Thread is a lightweight process
Any program which is under execution is known as process
We can define the threads in python by overwriting run method of the Thread class
Thread class is a predefined class which is defined in the threading module
Thread in the module is a predefined module
If we call the run method directly the logic of the run method will be executed as a normal method logic
In order to execute the logic of the run method as we use the start method of thread class.

42. What Packages in the Standard Library, Useful for Data Science Work, Do You Know?

Answer: When Guido van Rossum created Python in the 1990s, it wasn't built for data science. Yet, today, Python is the leading language for machine learning, predictive analytics, statistics, and simple data analytics.

This is because Python is a free and open-source language that data professionals could easily use to develop tools that would help them complete data tasks more efficiently.

The following packages in the Python Standard Library are very handy for data science projects:

NumPy

NumPy (or Numerical Python) is one of the principal packages for data science applications. It's often used to process large multidimensional arrays, extensive collections of high-level mathematical functions, and matrices. Implementation methods also make it easy to conduct multiple operations with these objects.

There have been many improvements made over the last year that have resolved several bugs and compatibility issues. NumPy is popular because it can be used as a highly efficient multi-dimensional container of generic data. It's also an excellent library as it makes data analysis simple by processing data faster while using a lot less code than lists. (Python Training Online)

Pandas

Pandas is a Python library that provides highly flexible and powerful tools and high-level data structures for analysis. Pandas is an excellent tool for data analytics because it can translate highly complex operations with data into just one or two commands.

Pandas comes with a variety of built-in methods for combining, filtering, and grouping data. It also boasts time-series functionality that is closely followed by remarkable speed indicators.

SciPy

SciPy is another outstanding library for scientific computing. It's based on NumPy and was created to extend its capabilities. Like NumPy, SciPy's data structure is also a multidimensional array that's implemented by NumPy.

The SciPy package contains powerful tools that help solve tasks related to integral calculus, linear algebra, probability theory, and much more.

Recently, this Python library went through some major build improvements in the form of continuous integration into multiple operating systems, methods, and new functions. Optimizers were also updated, and several new BLAS and LAPACK functions were wrapped.

43. Describe how to send email from a Python Script?
Answer: The smtplib module is used to defines an SMTP client session object that can be used to send email using Pythons Script. (interview questions on python)
44. What happens with the following function definition?
Answer: Here the issue is with function definition, it is a syntax error and the code will not run. The default argument is following the non-default argument, which is not right as per Python function definition rules. Non-default arguments should be placed first and then comes the default arguments in the function definition. Here is the right way of defining:
def welcome(city, name='guest'): print 'Hello', name, 'Welcome to', city
The order of passing values to a function is, first one has to pass non-default arguments, default arguments, variable arguments, and keyword arguments.

45. Mention at least 3-4 benefits of using Python over the other scripting languages such as Javascript?
Answer: Enlisted below are some of the benefits of using Python.
Application development is faster and easy.
Extensive support of modules for any kind of application development including data analytics/machine learning/math-intensive applications.
An excellent support community to get your answers.

46. Explain Python is one Line?
Answer: Python is a modern powerful interpreted language with threads,

objects, modules, exceptions and also have the property of automatic memory management.

47. Python has something called the dictionary. Explain using an example

Answer: A dictionary in Python programming language is an unordered collection of data values such as a map. Dictionary holds the key: value pair. It helps in defining a one-to-one relationship between keys and values. Indexed by keys, a typical dictionary contains a pair of keys and corresponding values.

01. How is Exception 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 which is monitored for errors. Except block gets executed when an error occurs.

The beauty of the final block is to execute the code after trying for error. This block gets executed irrespective of whether an error occurred or not. Finally block is used to do the required cleanup activities of objects/variables.

02. How will you differentiate between deep copy and shallow copy?

Answer: We use a shallow copy when a new instance type gets created. It keeps the values that are copied in the new instance. Just like it copies the values, the shallow copy also copies the reference pointers.

Reference points copied in the shallow copy reference to the original objects. Any changes made in any member of the class affects the original copy of the same. Shallow copy enables faster execution of the program.

Deep copy is used for storing values that are already copied. Unlike shallow copy, it doesn't copy the reference pointers to the objects. Deep copy makes the reference to an object in addition to storing the new object that is pointed by some other object.

Changes made to the original copy will not affect any other copy that makes use of the referenced or stored object. Contrary to the shallow copy, a deep copy makes the execution of a program slower. This is due to the fact that it makes some copies for each object that is called.

03. Why Is It Important?

Answer: Although this has nothing to do specifically with Python programming interview questions, there's a good chance that you will have to answer these types of questions. In any position, technical or not, the behavioral aspects of each individual also play a critical in the selection process. This is because even

if you're the best Python programmer in the marketplace, it won't mean much if you can't perform efficiently and effectively on the job.

04. What are python and name some key features of it?
Answer: Python is an interpreter-based programming language, interactive and object-oriented scripting language. Python is designed to be highly readable.
It is an interpreter based language which means that, unlike other languages like C and variants, the compilation doesn't require before running.
It's dynamically typed, which means you need not to define the datatypes of the declared variables and anything like that.
Eg: You can declare variable x=10 and then x=" Hello World" without error it will define the datatype by default depending on its value.

05. What is Python good for?
Answer: Python is a high-level general-purpose programming language that can be applied to many different classes of problems.
The language comes with a large standard library that covers areas such as string processing like regular expressions, Unicode, calculating differences between files, Internet protocols like HTTP, FTP, SMTP, XML-RPC, POP, IMAP, CGI programming, software engineering like unit testing, logging, profiling, parsing Python code, and operating system interfaces like system calls, file systems, TCP/IP sockets.

06. How Python does Compile-time and Run-time code checking?
Answer: In Python, some amount of coding is done at compile-time, but most of the checking such as type, name, etc. are postponed until code execution. Consequently, if the Python code references a user-defined function that does not exist, the code will compile successfully. The Python code will fail only with an exception when the code execution path does not exist.

07. How do you launch sub-processes within the main process of a Python application?
Answer: Python has a built-in module called sub-process. You can import this module and either use run() or Popen() function calls to launch a sub-process and get the control of its return code.

08. How do you invoke the Python interpreter for interactive use?
Answer: python or python.y where x.y is the version of the Python interpreter desired.

09. When Would You Use a List vs. a Tuple vs. a Set in Python?
Answer: A list is a common data type that is highly flexible. It can store a sequence of objects that are mutable, so it's ideal for projects that demand the storage of objects that can be changed later.

A tuple is similar to a list in Python, but the key difference between them is that tuples are immutable. They also use less space than lists and can only be used as a key in a dictionary. Tuples are a perfect choice when you want a list of constants.

Sets are a collection of unique elements that are used in Python. Sets are a good option when you want to avoid duplicate elements in your list. This means that whenever you have two lists with common elements between them, you can leverage sets to eliminate them.

10. What is slicing in Python?
Answer: Slicing is a mechanism used to select a range of items from sequence type like list, tuple, and string. It is beneficial and easy to get elements from a range by using slice way. It requires a : (colon) which separates the start and end index of the field. All the data collection types List or tuple allows us to use slicing to fetch elements. Although we can get elements by specifying an index, we get only single element whereas using slicing we can get a group of elements.

11. What is the difference between deep and shallow copy?
Answer: 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. These references point to the original objects and the changes made in any member of the class will also affect the original copy of it. 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. The 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. The changes made in the original copy won't affect any other copy that uses the object. Deep copy makes the execution of the program slower due to making certain copies for each object that is been called.

12. What is the difference between range() and xrange() functions in Python?
Answer: range() is a function that returns a list of numbers, which will be an overhead if the number is too large. Whereas, xrange() is a generator function that returns an iterator which returns a single generated value whenever it is called. (Interview Questions and Answers)

13. What is the difference between range & xrange? Explain?
Answer: For the most part, xrange and range are the exact same in terms of functionality. They both provide a way to generate a list of integers for you to use,

however you please. The only difference is that range returns a Python list object and x range returns an xrange object.
This means that xrange doesn't actually generate a static list at run-time as the range does. It creates the values as you need them with a special technique called yielding. This technique is used with a type of object known as generators. That means that if you have a really gigantic range you'd like to generate a list for, say one billion, xrange is the function to use.

This is especially true if you have a real memory sensitive system such as a cell phone that you are working with, as the range will use as much memory as it can to create your array of integers, which can result in a Memory Error and crash your program. It's a memory hungry beast.

14. How is memory managed in Python?
Answer: 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.

15. Why Is This Important?
Answer: When it comes to Python interview questions, this one may sound a little silly if you're a seasoned professional, but it's best to be ready for it with a comprehensive answer. However, if you're going for an interview straight after graduation, it will make perfect sense to be asked this question. In this scenario, it will also help your cause if you make some comparisons.

16. What are the generator functions in Python?
Answer: Any function that contains at least one yield statement is called a generator function instead of a return statement. The difference between return and yield is, return statement terminates the function, and yield statement saving all its states pauses and later continues from there on successive calls.

17. How Python supports encapsulation with respect to functions?
Answer: Python supports inner functions. A function defined inside a function is called an inner function, whose behavior is not hidden. This is how Python supports encapsulation with respect to functions.

18. How to overload constructors or methods in Python?
Answer: Python's constructor: _init__ () is the first method of a class. Whenever we try to instantiate an object __init__() is automatically invoked by python to

initialize members of an object. We can't overload constructors or methods in Python. It shows an error if we try to overload. (python programming interview questions)

19. How do you perform pattern matching in Python? Explain?
Answer: Regular Expressions/REs/ regexes enable us to specify expressions that can match specific "parts" of a given string. For instance, we can define a regular expression to match a single character or a digit, a telephone number, or an email address, etc. The Python's "re" module provides regular expression patterns and was introduce from later versions of Python 2.5. "re" module is providing methods for search text strings, or replacing text strings along with methods for splitting text strings based on the pattern defined.

20. What is a negative index in Python?
Answer: Python sequences are accessible using an index in positive and negative numbers. For example, 0 is the first positive index, 1 is the second positive index and so on. For negative indexes -1 is the last negative index, -2 is the second last negative index and so on.
Index traverses from left to right and increases by one until the end of the list.

Negative index traverse from right to left and iterate one by one till the start of the list. A negative index is used to traverse the elements into reverse order.

21. What Are Python Iterators?
Answer: Iterators in Python are array-like objects which allow moving on the next element. We use them in traversing a loop, for example, in a "for" loop. Python library has a no. of iterators. For example, a list is also an iterator and we can start a for loop over it.

22. How do you implement JSON given that Python is best suited for the server-side application?
Answer: Python has built-in support to handle JSON objects.
You just have to import the JSON module and use the functions such as loads and dumps to convert from JSON string to JSON object and vice versa. It is a straightforward way to handle and exchange JSON based data from the server-side.

23. What is the process of compilation and linking in python?
Answer: The compiling and linking allows the new extensions to be compiled properly without any error and the linking can be done only when it passes the compiled procedure. If the dynamic loading is used then it depends on the style that is being provided with the system. The python interpreter can be used to

provide the dynamic loading of the configuration setup files and will rebuild the interpreter.

The steps that are required in this as:

Create a file with any name and in any language that is supported by the compiler of your system. For example file.c or file.cpp

Place this file in the Modules/ directory of the distribution which is getting used.

Add a line in the file Setup.local that is present in the Modules/ directory.

Run the file using spam file.o

After successful run of this rebuild the interpreter by using the make command on the top-level directory.

If the file is changed then run rebuildMakefile by using the command as 'make Makefile'.

24. What is the Dictionary?

Answer:

- Dictionary objects can be created by using curly braces {} or by calling dictionary function
- Dictionary objects are mutable objects
- Dictionary represents a key-value base
- Each key-value pair of Dictionary is known as an item
- Dictionary keys must be immutable
- Dictionary values can be mutable or immutable
- Duplicate keys are not allowed but values can be duplicate
- Insertion order is not preserved
- Heterogeneous keys and heterogeneous values are allowed.

25. What is map function in Python?

Answer: map function executes the function given as the first argument on all the elements of the iterable given as the second argument. If the function given takes in more than 1 arguments, then many tables are given. #Follow the link to know more similar functions.

26. Explain the interpretation in Python?

Answer: Programs in python run directly from the source code.

27. What Are The Implementation In Python Program?

Answer: Python program can be implemented in two ways

1. Interactive Mode (Submit statement by statement explicitly)
2. Batch Mode (Writing all statements and submit all statements)

In Interactive mode, the python command shell is required. It is available in the installation of python cell.

In Interactive mode is not suitable for developing the projects & Applications

Interactive mode is used for predefined function and programs.

28. What is PIP software in the Python world?
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 which can search for packages over the internet and install them without any user interaction.

29. What is a dictionary in Python?
Answer: The Python dictionary is a built-in data type. It defines a one-to-one relationship between keys and values. Dictionaries contain a pair of keys and their corresponding values. It stores elements in key and value pairs. The keys are unique whereas values can be duplicate. The key accesses the dictionary elements.

30. What Is the Accomplishment You Are Most Proud Of?
Answer: This interview question is designed to test your storytelling skills in the context of a professional example. So it's important to start by setting the stage for your example. You can do this by talking about where you were working at the time, the project you were working on, the people you worked with, how you worked (tools, processes, the time is taken), and the specific results.
You will have to think on your feet as there may well be follow-up questions, so be prepared to dive in and get into the nitty-gritty details. It's essential to use a recent example here, so keep it fresh and give the recruiter a chance to imagine your future success based on your past work experience.

31. Can Python be used for web client and web server side programming? And which one is best suited to Python?
Answer: Python is best suited for web server-side application development due to its vast set of features for creating business logic, database interactions, web server hosting, etc.
However, Python can be used as a web client-side application which needs some conversions for a browser to interpret the client-side logic. Also, note that Python can be used to create desktop applications which can run as a standalone application such as utilities for test automation.

32. How many data types are there in Python?
Answer: One of the more common interview questions on Python – you might get asked to either say the number or actually name them.
Python has five different data types: string, list, number, dictionary, and tuple.

33. What are the Runtime Errors?
Answer: The errors which occur after starting the execution of the programs are known as runtime errors.
Runtime errors can occur because of

Invalid Input
Invalid Logic
Memory issues
Hardware failures and so on
With respect to every reason which causes to runtime error corresponding runtime error representation class is available

Runtime error representation classes technically we call as an exception class.
While executing the program if any runtime error occurs corresponding runtime error representation class object is created
Creating a runtime error representation class object is technically known as a rising exception
While executing the program if an exception is raised, then internally python interpreter verify any code is implemented to handle the raised exception or not
If a code is not implemented to handle raised exception then the program will be terminated abnormally

34. What is the difference between NumPy and SciPy?
Answer: In an ideal world, NumPy would contain nothing but the array data type and the most basic operations: indexing, sorting, reshaping, basic elementwise functions, et cetera.
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. In any case, SciPy contains more fully-featured versions of the linear algebra modules, as well as many other numerical algorithms.
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.

35. How is Python executed?
Answer: Python files are compiled to bytecode. which is then executed by the host.

36. What Is the Biggest Challenge Facing Your Current Job Right Now? What Is Your Biggest Failure?
Answer: This question comes up often regardless of the field because it helps the interviewer get an idea of your approach to problem-solving in your new potential role. The way you approach the answer will make you look awesome, or it will be a red flag. So it will be critical to think about this beforehand and answer the question without delay.

As a rule, don’t complain about the management at your current job or blame the people you’re working with. It’s also not a good idea to pretend like your career has been a walk in the park. Instead, tailor your answer to a project you worked on, but don’t get specific about why the challenge turned out to be difficult in the first place. Instead, concentrate on the problem-solving process to highlight your skills.

When it comes to your biggest failure, it’s critical that you don’t use this time to talk yourself down. If you can’t think of a specific scenario, think of a time when you were disappointed about something that didn’t work out. The primary objective is to show the interviewer how you managed to turn something negative into something positive.

37. What should be the typical build environment for Python-based application development?
Answer: You just need to install Python software and using PIP, you can install various Python modules from the open source community.
For IDE, Pycharm is highly recommended for any kind of application development with vast support for plugins. Another basic IDE is called a RIDE and is a part of the Python open source community.

38. How do you open an already existing file and add content to it?
Answer: In Python, open(,) is used to open a file in different modes. The open function returns a handle to the file, using which one can perform read, write and modify operations.

39. What is multithreading? Give an example?
Answer: It means running several different programs at the same time concurrently by invoking multiple threads. Multiple threads within a process refer the data space with the main thread and they can communicate with each other to share information more easily. Threads are light-weight processes and have less memory overhead. Threads can be used just for a quick task like calculating results and also running other processes in the background while the main program is running.

40. What is Python Tuples and how is it different from Lists?
Answer: Tuples is basically a sequence of elements which are separated by commas and are enclosed in parenthesis.
Lists whereas is a sequence of elements which are separated by commas and are enclosed in brackets. Also, Tuples cannot be updated whereas, in lists, elements can be updated along with their sizes.

41. What is an operator in Python?
Answer: An operator is a particular symbol which is used on some values and produces an output as a result. An operator works on operands. Operands are numeric literals or variables which hold some values. Operators can be unary, binary or ternary. An operator which require a single operand known as a unary operator, which require two operands known as a binary operator and which require three operands is called ternary operator.

42. How do I test a Python program or component?
Answer: Python comes with two testing frameworks:
The documentation test module finds examples in the documentation strings for a module and runs them, comparing the output with the expected output given in the documentation string.
The unit test module is a fancier testing framework modeled on Java and Smalltalk testing frameworks.

For testing, it helps to write the program so that it may be easily tested by using good modular design. Your program should have almost all functionality encapsulated in either functions or class methods. And this sometimes has the surprising and delightful effect of making the program run faster because local variable accesses are faster than global accesses.

Furthermore, the program should avoid depending on mutating global variables, since this makes testing much more difficult to do.
The “global main logic” of your program may be as simple as.

43. Explain what Flask is and its benefits?
Answer: Flask is a web microframework for Python based on “Werkzeug, Jinja2 and good intentions” BSD license. Werkzeug and Jinja2 are two of its dependencies. This means it will have little to no dependencies on external libraries. It makes the framework light while there is a little dependency to update and fewer security bugs.
A session basically allows you to remember information from one request to another. In a flask, a session uses a signed cookie so the user can look at the session contents and modify. The user can modify the session if only it has the secret key Flask.secret_key.

44. What Is The Statement That Can Be Used In Python If The Program Requires No Action But Requires It Syntactically?
Answer: The pass statement is a null operation. Nothing happens when it executes. You should use “pass” keyword in lowercase. If you write “Pass,” you’ll face an error like “NameError: name Pass is not defined.” Python statements are case sensitive.

45. Why do you need to make your code more readable?
Answer: We need to make our code more readable so that other programmer can understand our code. Basically, for a large project, many programmers work together. So, if the readability of the code is poor, it will be difficult for others to improve the code later.

46. How will you convert an integer to a hexadecimal string in python?
Answer: Converts an integer to a hexadecimal string.

47. What is the namespace in Python?
Answer: In Python, every name has a place where it lives. It is known as a namespace. It is like a box where a variable name maps to the object placed. Whenever the variable is searched out, this box will be searched, to get the corresponding object.

48. How can you organize your code to make it easier to change the base class?
Answer: You have to define an alias for the base class, assign the real base class to it before your class definition, and use the alias throughout your class. You can also use this method if you want to decide dynamically (e.g., depending on the availability of resources) which base class to use. (Python training online)

49. What are the different file processing modes supported by Python?
Answer: Python provides three modes to open files. The read-only, write-only, read-write and append mode. 'r' is used to open a file in read-only mode, 'w' is used to open a file in write-only mode, 'rw' is used to open in reading and write mode, 'a' is used to open a file in append mode. If the mode is not specified, by default file opens in read-only mode.

50. What's the Difference Between a List and a Dictionary?
Answer: A list and a dictionary in Python are essentially different types of data structures. Lists are the most common data types that boast significant flexibility. Lists can be used to store a sequence of objects that are mutable (so they can be modified after they are created).
In Python, you can't use a list as a "key" for the dictionary (technically you can hash the list first via your own custom hash functions and use that as a key). A Python dictionary is fundamentally an unordered collection of key-value pairs. It's a perfect tool to work with an enormous amount of data since dictionaries are optimized for retrieving data (but you have to know the key to retrieve its value).

It can also be described as the implementation of a hashtable and as a key-value store. In this scenario, you can quickly look up anything by its key, but since it's unordered, it will demand that keys are hashes. When you work with Python, dictionaries are defined within curly braces {} where each item will be a pair in the form key: value.

51. When do you choose a list over a tuple?
Answer: When there is an immutable ordered list of elements we choose tuple. Because we cannot add/remove an element from the tuple. On the other hand, we can add elements to a list using append () or extend() or insert(), etc., and delete elements from a list using remove() or pop().
Simple tuples are immutable, and lists are not. Based on these properties one can decide what to choose in their programming context.

52. What is the purpose of the PYTHONSTARTUP environment variable?
Answer: PYTHONSTARTUP – It contains the path of an initialization file containing Python source code. It is executed every time you start the interpreter. It is named as .pythonrc.py in Unix and it contains commands that load utilities or modify PYTHONPATH.

53. What are the rules for a local and global variable in Python?
Answer: In Python, variables that are only referenced inside a function are called implicitly global. If a variable is assigned a new value anywhere within the function's body, it's assumed to be a local. If a variable is ever assigned a new value inside the function, the variable is implicitly local, and we need to declare it as 'global' explicitly. To make a variable globally, we need to declare it by using the global keyword. Local variables are accessible within the local body only. Global variables are accessible anywhere in the program, and any function can access and modify its value.

54. As Python is more suitable for the server-side application, it is very important to have threading implemented in your server code. How can you achieve that in Python?
Answer: We should use the threading module to implement, control and destroy threads for parallel execution of the server code. Locks and Semaphores are available as synchronization objects to manage data between different threads.

55. How to remove leading whitespaces from a string in the Python?
Answer: To remove leading characters from a string, we can use strip() function. It is Python string function which takes an optional char type parameter. If a parameter is provided, it removes the character. Otherwise, it removes all the leading spaces from the string.