**PYTHON INTERVIEW QUESTIONS**

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

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:

* System Scripting
* Web Development
* Game Development
* Software Development
* Complex Mathematics

**2.Python an interpreted language. Explain.**

An interpreted language is any programming language which is not in machine-level code before runtime. Therefore, Python is an interpreted language.

3.**What are local variables and global variables in Python?**

**Global Variables:**

Variables declared outside a function or in global space are called global variables. These variables can be accessed by any function in the program.

**Local Variables:**

Any variable declared inside a function is known as a local variable. This variable is present in the local space and not in the global space.

### ****4. Is indentation required in python?****

Indentation is necessary for Python. It specifies a block of code. All code within loops, classes, functions, etc is specified within an indented block. It is usually done using four space characters. If your code is not indented necessarily, it will not execute accurately and will throw errors as well.

**5.What is a lambda function?**

The anonymous function in python is a function that is defined without a name. The normal functions are defined using a keyword "def", whereas, the anonymous functions are defined using the lambda function. **The anonymous functions are also called as lambda functions**.

### 6. ****How does break, continue and pass work?****

### ****Break:**** Allows loop termination when some condition is met and the control is transferred to the next statement.

### Continue: Allows skipping some part of a loop when some specific condition is met and the control is transferred to the beginning of the loop

### Pass: Allows skipping some part of a loop when some specific condition is met and the control is transferred to the beginning of the loop

### 7. ****What is the usage of help() and dir() function in Python?****

 Help() and dir() both functions are accessible from the Python interpreter and used for viewing a consolidated dump of built-in functions.

1. **Help() function**: The help() function is used to display the documentation string and also facilitates you to see the help related to modules, keywords, attributes, etc.
2. **Dir() function**: The dir() function is used to display the defined symbols.

### **8**. ****How can the ternary operators be used in python?****

 The Ternary operator is the operator that is used to show the conditional statements. This consists of the true or false values with a statement that has to be evaluated for it.

**Syntax**:

TheTernaryoperatorwillbegivenas:  
[on\_true] if [expression] else [on\_false]x, y = 25, 50big = x if x < y else y

**9.Explain split(), sub(), subn() methods of “re” module in Python.**

To modify the strings, Python’s “re” module is providing 3 methods. They are:

* **split()** – uses a regex pattern to “split” a given string into a list.
* **sub()** – finds all substrings where the regex pattern matches and then replace them with a different string
* **subn()** – it is similar to sub() and also returns the new string along with the no. of replacements.

**10.Explain Inheritance in Python with an example.**

 Inheritance allows One class to gain all the members(say attributes and methods) of another class. Inheritance provides code reusability, makes it easier to create and maintain an application. The class from which we are inheriting is called super-class and the class that is inherited is called a derived / child class.

They are different types of inheritance supported by Python:

1. **Single Inheritance** – where a derived class acquires the members of a single super class.
2. **Multi-level inheritance** – a derived class d1 in inherited from base class base1, and d2 are inherited from base2.
3. **Hierarchical inheritance** – from one base class you can inherit any number of child classes
4. **Multiple inheritance** – a derived class is inherited from more than one base class.

### ****11.What is Polymorphism in Python?****

Polymorphism means the ability to take multiple forms. So, for instance, if the parent class has a method named ABC then the child class also can have a method with the same name ABC having its own parameters and variables. Python allows polymorphism.

### ****12. Define encapsulation in Python?****

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

### ****13. How do you do data abstraction in Python?****

Data Abstraction is providing only the required details and hiding the implementation from the world. It can be achieved in Python by using interfaces and abstract classes.

### ****14.Does python make use of access specifiers?****

Python does not deprive access to an instance variable or function. Python lays down the concept of prefixing the name of the variable, function or method with a single or double underscore to imitate the behavior of protected and private access specifiers.

**15. How to create an empty class in Python?**

An empty class is a class that does not have any code defined within its block. It can be created using the *pass*keyword. However, you can create objects of this class outside the class itself. IN PYTHON THE PASS command does nothing when its executed. it’s a null statement.

**16.Mention the differences between Django, Pyramid and Flask.**

* Flask is a “microframework” primarily build for a small application with simpler requirements. In flask, you have to use external libraries. Flask is ready to use.
* Pyramid is built for larger applications. It provides flexibility and lets the developer use the right tools for their project. The developer can choose the database, URL structure, templating style and more. Pyramid is heavy configurable.
* Django can also be used for larger applications just like Pyramid. It includes an ORM.

**17.Is python numpy better than lists?**

 We use python numpy array instead of a list because of the below three reasons:

1. Less Memory
2. Fast
3. Convenient

### ****18.What are Python libraries? Name a few of them.**** Python libraries are a collection of Python packages. Some of the majorly used python libraries are – [Numpy](https://www.edureka.co/blog/python-numpy-tutorial/" \t "_blank), [Pandas](https://www.edureka.co/blog/python-pandas-tutorial/), [Matplotlib](https://www.edureka.co/blog/python-matplotlib-tutorial/), [Scikit-learn](https://www.edureka.co/blog/scikit-learn-machine-learning/) and many more.

**19.How is Multithreading achieved in Python?**

1. Python has a multi-threading package but if you want to multi-thread to speed your code up, then it’s usually not a good idea to use it.
2. Python has a construct called the Global Interpreter Lock (GIL). The GIL makes sure that only one of your ‘threads’ can execute at any one time. A thread acquires the GIL, does a little work, then passes the GIL onto the next thread.
3. This happens very quickly so to the human eye it may seem like your threads are executing in parallel, but they are really just taking turns using the same CPU core.

**20.Differentiate between List and Tuple?**

**List:** Lists are Mutable datatype.

* Lists consume more memory
* The list is better for performing operations, such as insertion and deletion.
* Implication of iterations is Time-consuming

**Tuple**

* Tuples are Immutable datatype.
* Tuple consume less memory as compared to the list
* Tuple data type is appropriate for accessing the elements
* Implication of iterations is comparatively Faster

**21.How to delete a file using Python?**

We can delete a file using Python by following approaches:

* os.remove()
* os.unlink()

**22.What is the difference between Set and Dictionary?**

* Set is an unordered collection of data type that is iterable, mutable, and has no duplicate elements.
* Dictionary in Python is an unordered collection of data values, used to store data values like a map.

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

Everything in Python is an object and all variables hold references to the objects. The reference values are according to the functions; as a result, you cannot change the value of the references. However, you can change the objects if it is mutable.

**24.What does ‘#’ symbol do in Python?**

‘#’ is used to comment out everything that comes after on the line.

**25.  What is the difference between a shallow copy and deep copy?**

Shallow copy is used when a new instance type gets created and it keeps values that are copied whereas deep copy stores values that are already copied.A shallow copy has faster program execution whereas deep coy makes it slow.

### 26. What are the applications of Python?

Python is used in various software domains some application areas are given below.

* Web and Internet Development
* Games
* Scientific and computational applications
* Language development
* Image processing and graphic design applications
* Enterprise and business applications development
* Operating systems
* GUI based desktop application

### 27. How Python does Compile-time and Run-time code checking?

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.

### 28. What is the usage of enumerate () function in Python?

The enumerate() function is used to iterate through the sequence and retrieve the index position and its corresponding value at the same time.

### 29. How is try/except used in Python?

An exception is an error that occurs while the program is executing. When this error occurs, the program will stop and generate an exception which then gets handled in order to prevent the program from crashing.

The exceptions generated by a program are caught in the try block and handled in the except block.

* Try: Lets you test a block of code for errors.
* Except: Lets you handle the error.

### 30. What is the difference between Python Arrays and lists?

Arrays and lists, in Python, have the same way of storing data. But, arrays can hold only a single data type elements whereas lists can hold any data type elements.

### ****31.**** What are python modules? Name some commonly used built-in modules in Python?

Python modules are files containing Python code. This code can either be functions classes or variables. A Python module is a .py file containing executable code.

Some of the commonly used built-in modules are:

* os
* sys
* math
* random
* data time
* JSON

### 32. Is Python a dynamically-typed language or statically-typed?

Python is a dynamically-typed language. In a weakly typed language, variables can be implicitly coerced to unrelated types, whereas in a strongly typed language they cannot, and an explicit conversion is required.

#### 3**3**. **What are the limitations of Python?**

There are certain limitations of Python, which include the following:

1. It has design restrictions.
2. It is slower when compared with C and C++ or Java.
3. It is inefficient in mobile computing.
4. It consists of an underdeveloped database access layer.

#### **34**. **How many ways can be applied for applying reverse string?**

There are five ways in which the reverse string can be applied which include the following.

1. Loop
2. Recursion
3. Stack
4. Extended Slice Syntax
5. Reversed

35. **What is slicing?**

In Python, slicing is a feature that enables accessing parts of sequences like lists, tuples, and strings. You can also use slicing to delete or modify the items of mutable sequences such as lists.

**36. What exactly are pandas?**

Pandas is a Python package that provides a large number of data structures for data-driven activities.

Pandas fit in any function of data operation, whether it's academics or tackling complicated corporate challenges, thanks to their interesting characteristics.

Pandas is one of the most important programs to master because it can handle a wide range of files.

37. **What types of joins can Panda provide?**

A left join, an inner join, a right join, and an outside join are all present in Pandas.

38. **What is recursion?**

A recursive function is one that calls itself one or more times within its body. One of the most significant requirements for using a recursive function in a program is that it must end, otherwise, an infinite loop would occur.

39. **What is the purpose of the bytes() function?**

A bytes object is returned by the bytes() function. It's used to convert things to bytes objects or to produce empty bytes objects of a given size.

40. **In Python, how do you copy an object?**

Although not all objects can be duplicated in Python, the majority of them can. To copy an object to a variable, we can use the "=" operator.

41. **How do we interpret Python?**

When a python program is written, it converts the source code written by the developer into an intermediate language, which is then converted into machine language that needs to be executed.

42. **How do you create an empty class in Python?**

To create an empty class we can use the pass command after the definition of the class object. A pass is a statement in Python that does nothing.

#### **43. What is the main difference between an interpreter and a compiler?**

The interpreter translates one statement at a time into machine code, whereas the compiler translates the entire code at a time into machine code.

#### **44. What are the parameters and arguments?**

Parameters are the names listed in the function definition.

Arguments are the values passed to the function while invoking.

#### **45. What is the \_\_init\_\_ method?**

The \_\_init\_\_ is the constructor method similar to the constructors in other OOP languages. It executes immediately when we create an object for the class. It’s used to initialize the initial data for the instance.

#### **46. How to access parent class inside child class in Python?**

We can use the super() which refers to the parent class inside the child class. And we can access attributes and methods with it.

#### **47. How to use single-line and multi-line comments in Python?**

We use hash (#) for single-line comments. And triple single quotes (”’comment”’) or triple double quotes (“””comment”””) for multi-line comments.

48. **Will the do-while loop work if you don’t end it with a semicolon?**

Python does not support an intrinsic do-while loop. Secondly, to terminate do-while loops is a necessity for languages like C++.

49. **How is Python different from Java?**

* Java is faster than Python
* Python mandates indentation. Java needs braces.
* Python is dynamically-typed; Java is statically typed.
* Python is simple and concise; Java is verbose
* Python is interpreted
* Java is platform-independent
* Java has stronger database-access with JDBC

50. **How is a .pyc file different from a .py file?**

.pyc is the compiled version of a Python file. It has platform-independent bytecode. Hence, we can execute it on any platform that supports the .pyc format. Python automatically generates it to improve performance.

51. **What makes Python object-oriented?**

Python is object-oriented because it follows the Object-Oriented programming paradigm. This is a paradigm that revolves around classes and their instances (objects). With this kind of programming, we have the following features:

* Encapsulation
* Abstraction
* Inheritance
* Polymorphism
* Data hiding

52. **How many types of objects does Python support?**

**Immutable objects-** Those which do not let us modify their contents. Examples of these will be tuples, booleans, strings, integers, floats, and complexes. Iterations on such objects are faster.

**Mutable objects –** Those that let you modify their contents. Examples of these are lists, sets, and dicts. Iterations on such objects are slower.

53. **How do you change the data type of a list?**

To change a list into a tuple, we use the tuple() function

To change it into a set, we use the set() function

To change it into a dictionary, we use the dict() function

To change it into a string, we use the .join() method

54. **Is Python case-sensitive?**

A programming language is deemed to be case-sensitive if it distinguishes between identifiers like “myname” and “Myname.” In simple words, it cares about the case – lowercase or uppercase.

55. **What are “docstrings” in Python?**

Docstrings or documentation strings are multiline strings used to document a specific code segment. Docstrings usually come within triple quotes and should ideally describe what a function or method does. Although they are not comments, docstrings sometimes serve the purpose of comments since they are not assigned to any variable.

**56.What is an Expression?**

An expression Can be defined as a combination of variables, values operators a call to functions. It is a sequence of operands or operators like a + B – 5 is called an expression. Python supports many such operators for combining data object into an express.

### 57. ****What do you mean by Python literals?****

Literals refer to the data which will be provided to a given in a variable or constant.

**String Literals**

These literals are formed by enclosing text in the single or double quotes.

For Example:

“Intellipat”

‘45879’

**Numeric Literals**

Python numeric literals support three types of literals

Integer:I=10

Float: i=5.2

Complex:1.73j

**Boolean Literals**

Boolean literals help to denote boolean values. It contains either True or False.

x=True

### 58. ****What is pickling and unpickling?****

The Pickle module accepts the Python object and converts it into a string representation and stores it into a file by using the dump function. This process is called pickling. On the other hand, the process of retrieving the original Python objects from the string representation is called unpickling.

### 59.What is the difference between append() and extend() methods?

Both append() and extend() methods are methods used to add elements at the end of a list.

* append(element): Adds the given element at the end of the list that called this append() method
* extend(another-list): Adds the elements of another list at the end of the list that called this extend() method

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