# **PYTHON INTERVIEW QUESTIONS**

### **1. What is Python? What are the benefits of using Python**

Python is a high-level, interpreted, general-purpose programming language. Being a general-purpose language, it can be used to build almost any type of application with the right tools/libraries. Additionally, python supports objects, modules, threads, exception-handling, and automatic memory management which help in modelling real-world problems and building applications to solve these problems.

**Benefits of using Python:**

* Python is a general-purpose programming language that has a simple, easy-to-learn syntax that emphasizes readability and therefore reduces the cost of program maintenance. Moreover, the language is capable of scripting, is completely open-source, and supports third-party packages encouraging modularity and code reuse.
* Its high-level data structures, combined with dynamic typing and dynamic binding, attract a huge community of [developers](https://www.interviewbit.com/blog/python-developer-salary-in-india/) for Rapid Application Development and deployment.

### **2.What is \_\_init\_\_?**

\_\_init\_\_ is a constructor method in Python and is automatically called to allocate memory when a new object/instance is created. All classes have a **\_\_init\_\_** method associated with them. It helps in distinguishing methods and attributes of a class from local variables.

### **3.What are unit tests in Python?**

* Unit test is a unit testing framework of Python.
* Unit testing means testing different components of software separately. Can you think about why unit testing is important? Imagine a scenario, you are building software that uses three components namely A, B, and C. Now, suppose your software breaks at a point time. How will you find which component was responsible for breaking the software? Maybe it was component A that failed, which in turn failed component B, and this actually failed the software. There can be many such combinations.
* This is why it is necessary to test each and every component properly so that we know which component might be highly responsible for the failure of the software.

### **4. What is docstring in Python?**

* Documentation string or docstring is a multiline string used to document a specific code segment.
* The docstring should describe what the function or method does.

### **5. What is slicing in Python?**

* As the name suggests, ‘slicing’ is taking parts of.
* Syntax for slicing is **[start : stop : step]**
* **start** is the starting index from where to slice a list or tuple
* **stop** is the ending index or where to sop.
* **step** is the number of steps to jump.
* Default value for **start** is 0, **stop** is number of items, **step** is 1.
* Slicing can be done on **strings, arrays, lists**, and **tuples**.

### **6.What is lambda in Python? Why is it used?**

Lambda is an anonymous function in Python, that can accept any number of arguments, but can only have a single expression. It is generally used in situations requiring an anonymous function for a short time period. Lambda functions can be used in either of the two ways:

* Assigning lambda functions to a variable:
* Wrapping lambda functions inside another function:

### **7.What is the use of help() and dir() functions?**

**help()** function in Python is used to display the documentation of modules, classes, functions, keywords, etc. If no parameter is passed to the help() function, then an interactive **help utility** is launched on the console.  
**dir()** function tries to return a valid list of attributes and methods of the object it is called upon. It behaves differently with different objects, as it aims to produce the most relevant data, rather than the complete information.

* For Modules/Library objects, it returns a list of all attributes, contained in that module.
* For Class Objects, it returns a list of all valid attributes and base attributes.
* With no arguments passed, it returns a list of attributes in the current scope.

### **8.What is a dictionary in Python?**

Python dictionary is one of the supported [data types in Python](https://intellipaat.com/blog/tutorial/python-tutorial/python-datatypes/). It is an unordered collection of elements. The elements in dictionaries are stored as key-value pairs. Dictionaries are indexed by keys.

For example, below we have a dictionary named ‘dict’. It contains two keys, Country and Capital, along with their corresponding values, India and New Delhi.

**Syntax:**

dict={‘Country’:’India’,’Capital’:’New Delhi’, }

### **9.What are the common built-in data types in Python?**

Python supports the below-mentioned built-in data types:

**Immutable data types:**

* Number
* String
* Tuple

**Mutable data types:**

* List
* Dictionary
* set

### **10.** **Is indentation required in Python?**

Indentation in Python is compulsory and is part of its syntax.

All programming languages have some way of defining the scope and extent of the block of codes. In Python, it is indentation. Indentation provides better readability to the code, which is probably why Python has made it compulsory.

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

These statements help to change the phase of execution from the normal flow that is why they are termed loop control statements.

**Python break**: This statement helps terminate the loop or the statement and pass the control to the next statement.

**Python** **continue**: This statement helps force the execution of the next iteration when a specific condition meets, instead of terminating it.

**Python** **pass**: This statement helps write the code syntactically and wants to skip the execution. It is also considered a null operation as nothing happens when you execute the pass statement.

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

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

Literals supported by python are listed below:

**String Literals**

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

For Example:

“Intellipaat”

‘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

### **13.What is a map function in Python?**

The map() function in Python has two parameters, function and iterable. The map() function takes a function as an argument and then applies that function to all the elements of an iterable, passed to it as another argument. It returns an object list of results.

### **14.Do we need to declare variables with data types in Python?**

No. Python is a dynamically typed language, I.E., Python Interpreter automatically identifies the data type of a variable based on the type of value assigned to the variable.

### **15. What are Dict and List comprehensions?**

[Python comprehensions](https://intellipaat.com/blog/tutorial/python-tutorial/python-list-comprehension/) are like decorators, that help to build altered and filtered lists, dictionaries, or sets from a given list, dictionary, or set. Comprehension saves a lot of time and code that might be considerably more complex and time-consuming.

Comprehensions are beneficial in the following scenarios:

* Performing mathematical operations on the entire list
* Performing conditional filtering operations on the entire list
* Combining multiple lists into one
* Flattening a multi-dimensional list

### **16.What is the lambda function in Python?**

A lambda function is an anonymous function (a function that does not have a name) in Python. To define anonymous functions, we use the ‘lambda’ keyword instead of the ‘def’ keyword, hence the name ‘lambda function’. Lambda functions can have any number of arguments but only one statement.

### **17.What is self in Python?**

Self is an object or an instance of a class. This is explicitly included as the first parameter in Python. On the other hand, in Java it is optional. It helps differentiate between the methods and attributes of a class with local variables.

The self variable in the init method refers to the newly created object, while in other methods, it refers to the object whose method was called

### **18.How is an empty class created in python?**

An empty class does not have any members defined in it. It is created by using the pass keyword (the pass command does nothing in python). We can create objects for this class outside the class.

### **19.What is the bytes() function?**

The bytes() function returns a bytes object. It is used to convert objects into bytes objects, or create empty bytes object of the specified size.

### **20.What is the difference between tuple and dictionary?**

One major difference between a tuple and a dictionary is that dictionary is mutable while a tuple is not. Meaning the content of a dictionary can be changed without changing it’s identity, but in tuple that’s not possible.