1. **What are the data types used in Python?**

 Ans: Python has numbers, strings, tuples, lists, sets, and dictionaries in which numbers, strings, and tuples are immutable which means they cannot be modified during runtime. Lists, sets, and dictionaries are just opposite to that which means they are mutable as they can be modified during runtime.

### ****What is a Python dictionary?****

**Ans:** Dictionary is one of the data types of Python which means an unordered mapping of unique keys to values. It falls under the category mutable which means it can be modified. A dictionary is built with curly braces.

### ****What are the differences between lists and tuples?****

Ans: The basic difference between lists and tuples is that lists are mutable whereas tuples are immutable.Lists are slower than tuples.Lists are built with square brackets while tuples are enclosed in parentheses.

### What is PEP 8 and why is it important?

Ans: PEP stands for Python Enhancement Proposal. A PEP is an official design document providing information to the Python Community, or describing a new feature for Python or its processes. PEP 8 is especially important since it documents the style guidelines for Python Code. Apparently contributing in the Python open-source community requires you to follow these style guidelines sincerely and strictly.

### What are Python namespaces? Why are they used?

Ans: A namespace in Python ensures that object names in a program are unique and can be used without any conflict. Python implements these namespaces as dictionaries with 'name as key' mapped to a corresponding 'object as value'. This allows for multiple namespaces to use the same name and map it to a separate object. A few examples of namespaces are as follows:

* Local Namespace includes local names inside a function. the namespace is temporarily created for a function call and gets cleared when the function returns.
* Global Namespace includes names from various imported packages/ modules that is being used in the current project. This namespace is created when the package is imported in the script and lasts until the execution of the script.
* Built-in Namespace includes built-in functions of core Python and built-in names for various types of exceptions.

### What are decorators in Python?

And: Decorators in Python are essentially functions that add functionality to an existing function in Python without changing the structure of the function itself. They are represented by the @decorator\_name in Python and are called in bottom-up fashion. They can even accept arguments for functions and can further modify those arguments before passing it to the function itself.

### What are Dict and List comprehensions?

Ans: Python comprehensions are  constructs that helps to build altered and filtered lists, dictionaries or sets from a given list, dictionary or set. Using comprehensions, saves a lot of time and code that might be considerably more verbose (containing more lines of code).

### What is lambda in Python? Why is it used?

Ans: 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 and Wrapping lambda functions inside another function.

### What is pass in Python?

Ans: The pass keyword represents a null operation in Python. It is generally used for the purpose of filling up empty blocks of code which may execute during runtime but has yet to be written. Without the pass statement in the following code, we may run into some errors during code execution.

1. **What are modules and packages in Python?**

### Ans: Python packages and Python modules are two mechanisms that allow for modular programming in Python.

### Modules, in general, are simply Python files with a .py extension and can have a set of functions, classes or variables defined and implemented. They can be imported and initialized once using the import statement. If partial functionality is needed, import the requisite classes or functions using from foo import bar.

### Packages allow for hierarchial structuring of the module namespace using dot notation. As, modules help avoid clashes between global variable names, in a similary manner, packages help avoid clashes between module names. Creating a package is easy since it makes use of the system's inherent file structure. So just stuff the modules into a folder and there you have it, the folder name as the package name. Importing a module or its contents from this package requires the package name as prefix to the module name joined by a dot.

### What is break and continue in Python?

Ans: Break: The break statement terminates the loop immediately and the control flows to the statement after the body of the loop.

Continue: It terminates the current iteration of the statement, skips the rest of the code in the current iteration and the control flows to the next iteration of the loop.

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

Ans: 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.

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

Ans: .py files contain the source code of a program. Whereas, .pyc file contains the bytecode of your program. We get bytecode after compilation of .py file (source code). .pyc files are not created for all the files that you run. It is only created for the files that you import. Before executing a python program python interpreter checks for the compiled files. If the file is present, the virtual machine executes it. If not found, it checks for .py file. If found, compiles it to .pyc file and then python virtual machine executes it. Having .pyc file saves you the compilation time.

### What is slicing in Python?

Ans: 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.

### Explain split() and join() functions in Python?

Ans: You can use split() function to split a string based on a delimiter to a list of strings. You can use join() function to join a list of strings based on a delimiter to give a single string.

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

Ans: Arrays in python can only contain elements of same data types i.e., data type of array should be homogeneous. It is a thin wrapper around C language arrays and consumes far less memory than lists.

Lists in python can contain elements of different data types i.e., data type of lists can be heterogeneous. It has the disadvantage of consuming large memory.

### What does \*args and \*\*kwargs mean?

Ans: \*args is a special syntax used in function definition to pass variable-length argument.

“\*” means variable length and “args” is the name used by convention. You can use any other.

\*\*kwargs is a special syntax used in function definition to pass variable-length keyworded argument.Here, also, “kwargs” is used just by convention. You can use any other name.

Keyworded argument means a variable which has a name when passed to a function.It is actually a dictionary of variable name and its value.

### ****What are functions in Python?****

**Ans:**A function is a block of code which is executed only when it is called. To define a [Python function](https://www.edureka.co/blog/python-functions), the **def** keyword is used.

1. **What is \_\_init\_\_?**

**Ans:**\_\_init\_\_ is a method or constructor in [Python](https://www.edureka.co/blog/python-programming-language). This method is automatically called to allocate memory when a new object/ instance of a class is created. All classes have the \_\_init\_\_ method.

1. **What is self in Python?**

Ans: Self is a keyword in Python used to define an instance or an object of a class. In Python, it is explicitly used as the first parameter, unlike in Java where it is optional. It helps in distinguishing between the methods and attributes of a class from its local variables.