Python is dynamically typed language

A dynamically typed language is a programming language where the type of a variable is not explicitly declared at compile time but is instead determined at runtime.

# Example in Python (dynamically typed language)

variable = 10 # variable is initially an integer

print(type(variable)) # <class 'int'>

variable = "Hello" # variable is now a string

print(type(variable)) # <class 'str'>

In this example, the variable **variable** changes its type from **int** to **str** without the need for explicit type declarations.

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

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

## **Key Difference Between List and Tuple**

The main difference between tuples and lists is that tuples can't be changed after they're created, but lists can be modified. Tuples use less memory than lists. They are also a bit faster, especially when you're just looking up values

### 11. What is the use of self in Python?

**Self**is used to represent the instance of the class. With this keyword, you can access the attributes and methods of the class in python. It binds the attributes with the given arguments. self is used in different places and often thought to be a keyword. But unlike in C++, self is not a keyword in Python.

### What is \_\_init\_\_?

\_\_init\_\_ is a contructor 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

**5. 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

Is Python a compiled language or an interpreted language?

Actually, Python is a partially compiled language and partially interpreted language. The compilation part is done first when we execute our code and this will generate byte code internally this byte code gets converted by the Python virtual machine(p.v.m)

The compiled bytecode is then executed by the Python interpreter. The interpreter reads and executes the bytecode line by line.

**7. What is the difference between a Set and Dictionary?**

The set is an unordered collection of data types that is iterable, mutable and has no duplicate elements.  
A dictionary in Python is an ordered collection of data values, used to store data values like a map.

**8. What is List Comprehension? Give an Example.**

List comprehension is a syntax construction to ease the creation of a list based on existing iterable.

For Example:

my\_list = [i for i in range(1, 10)]

### ****9. What is a lambda function?****

A lambda function is an anonymous function. This function can have any number of parameters

### ****10. What is a pass in Python?****

Pass means performing no operation or in other words, it is a placeholder in the compound statement, where there should be a blank left and nothing has to be written there.

### ****11. What is the difference between / and // in Python?****

// represents floor division whereas / represents precise division. For Example:

5//2 = 2

5/2 = 2.5

**How is memory managed in Python?**

* Memory management in Python is handled by the **Python Memory Manager**. The memory allocated by the manager is in form of a **private heap space** dedicated to Python. All Python objects are stored in this heap and being private, it is inaccessible to the programmer. Though, python does provide some core API functions to work upon the private heap space.
* Additionally, Python has an in-built garbage collection to recycle the unused memory for the private heap space.

### How do you copy an object in Python?

In Python, the assignment statement (= operator) does not copy objects. Instead, it creates a binding between the existing object and the target variable name. To create copies of an object in Python, we need to use the **copy** module. Moreover, there are two ways of creating copies for the given object using the **copy** module -

**13. What is the difference between .py and .pyc files?**

* .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.