Python

Sample Viva Questions:

1. What is the difference between a list and a tuple?

List	Tuple
• A list consists of mutable objects. (Objects which can be changed after creation) • List is stored in two blocks of memory (One is fixed sized and the other is variable sized for storing data) • An element in a list can be removed or replaced	• A tuple consists of immutable objects. (Objects which cannot change after creation) • Tuple is stored in a single block of memory. • An element in a tuple cannot be removed or replaced.

2. What is the difference between an array and a list?

List	Array
• Python lists are very flexible and can hold arbitrary data • Lists are a part of Python's syntax, so they do not need to be declared first. • Lists can hold heterogeneous data. • Mathematical functions cannot be directly applied to lists. Instead, they have to be individually applied to each element.	• Python arrays are just a thin wrapper on C arrays. • Arrays need to first be imported, or declared, from other libraries (i.e. numpy). • Arrays can only store homogenous data. • Arrays are specially optimized for arithmetic computations.

3. What is pickling and unpickling?

Pickle module accepts any Python object and converts it into a string representation and dumps it into a file by using dump function, this process is called pickling. While the process of retrieving original Python objects from the stored string representation is called unpickling

4. How is memory management performed in Python?

Python makes use of a Python memory manager to ensure that the memory management is handled efficiently. The memory will be allocated by the manager which is represented in the form of private heap space that is only possible in Python. the Python objects will be stored which are privately secured and are inaccessible to the programmer. Apart from this, Python also includes a built-in garbage collection which helps in recycling the unused memory for the private heap space

5. What is the Lambda function in Python?

The Lambda function is referred to as an anonymous function that can have any number of parameters but only includes one statement.

6. Explain the differences between the functions remove() and del statement?

The remove() function is specifically used to delete the specific object in the list. You can use the del or pop function or statement to delete the object based on the index that consists of the specific location in the list.

7. Briefly describe lists and tuples? Also, explain the main difference between them?

Lists and tuples in Python are referred to as the sequence data types that are capable of storing the collection of the objects in Python. The objects that are stored can have different data types. The lists are usually represented in square brackets. Example: list1 =['kavya', 1, 2, 0.34]. The tuples are usually represented within parentheses. Example : tuple = ('Kavya', 1, 2, 0.34). The primary difference between the lists and tuples is that the lists are mutable while the tuples are immutable. The lists can be modified while the tuples will remain constant always.

8. Can you explain how to break, continue and pass work in Python?

Break: Whenever the condition is met, the break is responsible for terminating the loop, and also ensures that the control is transferred to the next statement.

Continue: Whenever the condition is met, the continue is used to ensure that some part of the loop is skipped and also ensures that the control is transferred to the beginning of the loop.

Pass: Pass is used whenever you are in need of some part of the code and would not like to perform the execution. It is usually referred to as the null operation and there will not be any changes when the pass is executed.

9. What is meant by a dictionary in Python?

The dictionary in Python is the repository of the built-in datatypes. It defines the relationships that exist between the keys and values. The dictionaries consist of the keys and their corresponding values and are indexed by the keys.

10. What's a negative index?

Python programming language supports negative indexing of arrays, something which is not available in arrays in most other programming languages. This means that the index value of -1

gives the last element, and -2 gives the second last element of an array. The negative indexing starts from where the array ends.

11. What Are *args and **kwargs?

*args

It is used in a function prototype to accept a varying number of arguments.
It's an iterable object.
Usage - def fun(*args)

*kwargs

It is used in a function prototype to accept the varying number of keyworded arguments.
It's an iterable object
Usage - def fun(**kwargs)

12. What are mutable and immutable data types?

Mutable data types can be changed after creating them. Some of the mutable objects in Python are list, set, dict.
Immutable data types can’t be changed after creating them. Some of the immutable objects in Python are str, tuple.

13. What’s the difference between normal function and lambda function?

The functionality of both normal functions and lambda functions are similar. But, we need to write some extra code in normal functions compared to lambda functions for the same functionality.

Lambda functions come in handy when there is a single expression.

14. What is a map() function in Python?

The map() function in Python is used for applying a function on all elements of a specified iterable. It consists of two parameters, function and iterable. The function is taken as an argument and

then applied to all the elements of an iterable(passed as the second argument). An object list is returned as a result.

15. 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.

16. Explain split() and join() functions in Python?

split() function - to split a string based on a delimiter to a list of strings.
join() function - to join a list of strings based on a delimiter to give a single string.

17. What do you understand by reindexing in pandas?

Reindexing is the process of conforming a dataframe to a new index with optional filling logic. If the values are missing in the previous index, then NaN/NA is placed in the location. A new object is returned unless a new index is produced that is equivalent to the current one. The copy value is set to False. This is also used for changing the index of rows and columns in the dataframe.

18. What is zip() function in Python?

Python zip() function returns a zip object, which maps a similar index of multiple containers. It takes an iterable, convert into iterator and aggregates the elements based on iterables passed. It returns an iterator of tuples.

19. What is self in Python?

Self is an instance or an object of a class. In Python, this is explicitly included as the first parameter. However, this is not the case in Java where it's optional. It helps to 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.