1. What exactly is []?

Ans: The empty list value, which is a list value that contains no items. This is similar to how '' is the empty string value.

1. In a list of values stored in a variable called spam, how would you assign the value 'hello' as the third value? (Assume [2, 4, 6, 8, 10] are in spam.)

Ans: To assign the value 'hello' as the third value in a list stored in a variable called spam, you can use the index of the list to access the desired position and assign the new value. Here's an example:

Python

spam = [2, 4, 6, 8, 10]

spam[2] = 'hello'

In this case, spam[2] refers to the third element of the list (remember that indexing starts from 0), and we assign the value 'hello' to it. After executing these statements, the spam list will be updated as [2, 4, 'hello', 8, 10].

1. What is the value of spam[int(int('3' \* 2) / 11)]?

Ans: Let's break down the expression step by step:

int('3' \* 2) multiplies the string '3' by 2, resulting in the string '33'.

int('33') converts the string '33' to an integer, resulting in the value 33.

33 / 11 performs the division operation, resulting in the float value 3.0.

Finally, spam[int(3.0)] is equivalent to spam[3], which accesses the fourth element in the list (remembering that indexing starts from 0).

Assuming the original spam list is [2, 4, 6, 8, 10], the value of spam[int(int('3' \* 2) / 11)] would be the value at the fourth position, which is 8.

1. What is the value of spam[-1]?

Ans: In Python, negative indices are used to access elements from the end of a list. Therefore, spam[-1] refers to the last element in the list.

Assuming the spam list is [2, 4, 6, 8, 10], the value of spam[-1] would be 10.

1. What is the value of spam[:2]?

Ans: The expression spam[:2] is called slicing in Python. It retrieves a sublist of spam from the beginning up to, but not including, the element at index 2.

Given the spam list as [2, 4, 6, 8, 10], slicing spam[:2] would return a new list containing the elements at indices 0 and 1, which are 2 and 4.

Therefore, the value of spam[:2] would be [2, 4].

.6. What is the value of bacon.index('cat')?

Ans: bacon contains the list [3.14, 'cat', 11, 'cat', True].

7. How does bacon.append(99) change the look of the list value in bacon?

Ans: The append() method in Python is used to add an element to the end of a list. When you call bacon.append(99), the value 99 will be appended to the bacon list.

Here's an example to illustrate the change:

python

bacon = [2, 4, 6, 8, 10]

bacon.append(99)

After executing these statements, the bacon list will be modified, and its new contents will be [2, 4, 6, 8, 10, 99]. The append() method modifies the list in place by adding the specified element as the last item.

8. How does bacon.remove('cat') change the look of the list in bacon?

Ans: The remove() method in Python is used to remove the first occurrence of a specified element from a list. When you call bacon.remove('cat'), it will attempt to remove the value 'cat' from the bacon list.

However, if the value 'cat' is not present in the list, a ValueError will be raised. So, the effect of bacon.remove('cat') depends on whether 'cat' is present in the list or not.

If 'cat' is present in the bacon list, it will be removed and the list will be modified. Here's an example:

python

bacon = ['cat', 'dog', 'cat', 'hamster']

bacon.remove('cat')

After executing these statements, the bacon list will be modified, and its new contents will be ['dog', 'cat', 'hamster']. Only the first occurrence of 'cat' is removed from the list.

On the other hand, if 'cat' is not present in the bacon list, a ValueError will be raised, and the list will remain unchanged.

9. What are the list concatenation and list replication operators?

Ans: n Python, the list concatenation operator is the plus symbol (+), and the list replication operator is the asterisk symbol (\*).

List Concatenation Operator (+):

The list concatenation operator allows you to combine two or more lists into a single list by using the + symbol. When you use the + operator between two lists, it creates a new list that contains all the elements from the operand lists in the order they appear.

Here's an example of list concatenation:

python

list1 = [1, 2, 3]

list2 = [4, 5, 6]

result = list1 + list2

In this example, result will be [1, 2, 3, 4, 5, 6], which is the concatenation of list1 and list2.

List Replication Operator (\*):

The list replication operator allows you to create a new list by repeating the elements of an existing list multiple times. It uses the \* symbol. When you use the \* operator with a list and an integer, it creates a new list by repeating the elements of the original list the specified number of times.

Here's an example of list replication:

python

list1 = [1, 2, 3]

result = list1 \* 3

In this example, result will be [1, 2, 3, 1, 2, 3, 1, 2, 3], which is list1 replicated three times.

Both list concatenation and list replication operators provide convenient ways to combine or repeat list elements in Python.

10. What is difference between the list methods append() and insert()?

Ans: append() adds an item to the end of a list, whereas . insert() inserts and item in a specified position in the list.

11. What are the two methods for removing items from a list?

Ans: The methods are remove(), pop() and clear(). It helps to remove the very first given element matching from the list. The pop() method removes an element from the list based on the index given. The clear() method will remove all the elements present in the list

12. Describe how list values and string values are identical.

Ans: The similarity between Lists and Strings in Python is that both are sequences. The differences between them are that firstly, Lists are mutable but Strings are immutable. Secondly, elements of a list can be of different types whereas a String only contains characters that are all of String type

13. What's the difference between tuples and lists?

Ans: The primary difference between tuples and lists is that tuples are immutable as opposed to lists which are mutable. Therefore, it is possible to change a list but not a tuple. The contents of a tuple cannot change once they have been created in Python due to the immutability of tuples.

s14. How do you type a tuple value that only contains the integer 42?

Ans: o create a tuple value that contains only the integer 42, you can use parentheses () and a comma , after the integer value. Here's how you can type it:

Python

tuple\_value = (42,)

In this example, (42,) represents a tuple with a single element, which is the integer value 42. The comma after the integer is necessary to distinguish it as a tuple rather than just an expression enclosed in parentheses.

15. How do you get a list value's tuple form? How do you get a tuple value's list form?

Ans: Using the tuple() built-in function

An iterable can be passed as an input to the tuple () function, which will convert it to a tuple object. If you want to convert a Python list to a tuple, you can use the tuple() function to pass the full list as an argument, and it will return the tuple data type as an output

16. Variables that "contain" list values are not necessarily lists themselves. Instead, what do they contain?

Ans: Variables will contain references to list values rather than list values themselves. But for strings and integer values, variables simply contain the string or integer value

17. How do you distinguish between copy.copy() and copy.deepcopy()?

Ans: copy() create reference to original object. If you change copied object - you change the original object. . deepcopy() creates new object and does real copying of original object to new one. Changing new deepcopied object doesn't affect original object.