1. What exactly is []?

In Python, [] represents an empty list. A list is a mutable (changeable) sequence that can store a collection of items. These items can be of any data type, including numbers, strings, other lists, and even custom objects. Lists are defined using square brackets, with items separated by commas.

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.) Let's pretend the spam includes the list ['a', 'b', 'c', 'd'] for the next three queries.

Let's assume we have both [2, 4, 6, 8, 10] and ['a', 'b', 'c', 'd'] in the list spam. Here's how you can assign 'hello' as the third value in each part of spam.

For the first part [2, 4, 6, 8, 10]:

For the second part ['a', 'b', 'c', 'd']

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

the value of spam[int(int('3' \* 2) / 11)] is 8.

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

The value of spam[-1] is 10

1. What is the value of spam[:2]? Let's pretend bacon has the list [3.14, 'cat,' 11, 'cat,' True] for

the next three questions.

The notation spam[:2] is called slicing. It selects elements from the beginning of the list up to, but not including, the index 2. So, it grabs the first two elements. The value of spam[:2] would be [2, 4]. Here’s the slicing in action

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

The value of bacon.index('cat') will be 1, since 'cat' first appears at index 1.

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

The append() method in Python adds an item to the end of a list. When you use bacon.append(99), the value 99 is added as the last element of the bacon list.

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

the first occurrence of 'cat' is removed, and the list now is [3.14, 11, 'cat', True].

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

List replication is the process of repeating the elements of a list a specified number of times. This can be done using the \* operator. When you replicate a list, you create a new list that consists of multiple copies of the original list.

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

The append() and insert() methods are both used to add elements to a list in Python, but they operate in different ways:

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

In Python, there are several methods to remove items from a list, but the two commonly used ones are remove() and pop().

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

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

L**ists**: Typically used for collections of items that may change over time.

**Tuples**: Often used for fixed collections of items, such as coordinates, RGB color values, or other data that should not be modified.

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

To create a tuple that contains only the integer 42, you need to include a comma after the value inside the parentheses. This comma is what differentiates a tuple from a regular integer inside parentheses.

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

To convert a list to a tuple and vice versa, you can use Python’s built-in tuple() and list()

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

Variables that "contain" list values actually contain references to the lists, not the lists themselves. In Python, variables are names that point to objects stored in memory. When you assign a list to a variable, you’re assigning a reference to that list.

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

The copy module in Python provides two ways to create copies of objects: copy.copy() and copy.deepcopy(). They differ in how they handle nested objects (like lists within lists).