1. What exactly is []?

**Answer:**

[] represents an empty list in the python. A list is a data structure that can store collection of items, and [] denotes an empty list with no elements.

2. 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.)

**Answer:**

As the indexing in the python starts with the ‘0’ we can assign the ‘hello’ as the 3rd value by

spam[2] = 'hello'

**=================================================================**

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

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

**Answer**: ‘d’

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

**Answer**: ‘d’

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

**Answer**:['a', 'b']

**=================================================================**

Let's pretend bacon has the list [3.14, 'cat,' 11, 'cat,' True] for the next three questions.

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

**Answer**: bacon.index('cat') = 1

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

**Answer**: bacon= [3.14, 'cat', 11, 'cat', True, 99]

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

**Answer**: bacon= [3.14, 11, 'cat', True, 99]

**=================================================================**

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

**Answer:**

Concatenation: ‘+’ operator use to apply the concatenation operation where we can use that to add or combine two lists together.

Replication: ‘\*’ operator is use to apply the replication operation, which is used to replicate a list by a specified number of times, resulting in a new list that contains multiple copies of the original list.

**=================================================================**

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

**Answer:**

Both append and inserts are used to add the element to the list, the append() function will add the element at the end of the list. Where as the insert() function can be used to add the element at the specific location or index in the list.

**=================================================================**

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

**Answer:**

The remove() function is used to remove the first occurrence of a given value from a list.

The pop() function is used to remove an element from a list at a given index.

**=================================================================**

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

**Answer:**

We can access the values from the list and string using the indexing method also we can use the slicing on both of them. We can also iterate the value from list and string using loops this are some of the similarities in the string and the list values.

**=================================================================**

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

**Answer:**

The main difference between tuples and lists is the tuple is immutable while list is mutable also the syntax of the tuple is ‘()’ and the list is ‘[]’. This is the main difference between tuple and the list.

**=================================================================**

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

**Answer:**

The tuple with 42: The\_tuple= (42,)

**=================================================================**

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

**Answer:**

We have the build in functions in the python which can convert the list into the tuple and tuple in the list as follows.

**List to tuple:** the\_list=[1,2,3,4]

The\_tuple=tuple(the\_list)

this will convert the list into the tuple: (1,2,3,4)

**Tuple to List:** the\_tuple=(1,2,3,4)

The\_list=list(the\_tuple)

This will convert the tuple into the list: [1,2,3,4]

**=================================================================**

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

**Answer:**

The variables that contains the list value actually contains the address of that list.

**=================================================================**

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

**Answer:**

The copy.copt() create the shallow copy of the object that contains the same reference which means both refer to the same object and change in one object cause the change in the copy as well.

The copy.deepcopy () create the the totally different copy of the value the reference of the values are also different. The changes can be done independently to the original value and copy.

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