**Basic Python Assignment - 4**

**1. What exactly is []?**

- Empty List is denoted by [].

**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.)**

**-** spam = [2,4,6,8,10], for the index value 2 we need to change the value, we will do spam [2] = ‘hello’ and the list will be updated as spam = [2,4, ‘hello’, 8, 10]

**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)]?**

- ‘d’

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

- ‘d’

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

- [‘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')?**

**-** 1

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

**-** 99 will get appended to the list and will look as follows [3.14, 'cat', 11, 'cat', True, 99]

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

**-** [3.14, 11, 'cat', True, 99]

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

**-** To join two lists, we can use **‘+’** or append or extend operators. To replicate the list, we can use **‘\*’** or copy operators.

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

**-** Append operation will append the values given to the list at the end of the list. Insert operation will take two values (index, object) where we need to specify where do we want to insert the object without deleting the existing value. E.g;

L = [1,2,3,4,5,6]

L.append(22) will give L = [1,2,3,4,5,6,22]

L.insert(2,22) will give L = [1,2,22,3,4,5,6]

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

**-** Remove() to remove the element given in the braces and Pop() to remove the element on the index mentioned in the braces. We can even use “Del” to remove items given in index number from the list. del list[2] will delete the item from the 2nd index.

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

**-** They both can be called using the index values. They both have a length.

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

**-** A list is mutable whereas a tuple is not. A list takes more space than the tuples. There are more built in functions in a list than a tuple. Tuples are written within braces () and list in brackets [].

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

**-** (42,) – The comma is necessary here otherwise it will give an error that int is not iterable.

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

**-** tuple() will help get list value’s in tuple form and similarly list() will get the vice-versa form.

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

**-** They contain references.

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

**-** copy.copy() means a shallow copy will be made which means reference of an object is copied to another object. It means that **any changes** made to a copy of an object will **reflect** in the original object. Whereas, in deepcopy, the reference changes and changes made n the copy will not be reflecting on the original object.

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