**Assignment-4**

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1. What exactly is []?

Answer:- It is an empty list. It is empty list which contains no value.

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.)

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

Answer:- It will be done as per assignment operations in the list:-

The index value of the list starts with the 0 and third value have index value is 2. Hence, the code will be:

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

spam[2]='hello'

spam

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

Answer:- The vlaue of spam[int(int('3' \* 2) / 11)] is **‘d’.** .

Code will be work as:-

spam=['a', 'b', 'c', 'd']

spam[int(int('3' \* 2) / 11)] #'3'\*2 then it will be working on typecasting operation int('33')/11

#then index operation spam[3]

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

Answer:- The value of spam[-1] is ‘d’. As per indexing rule, the indexing of last value in the list starts with the -1 such as:

|  |  |  |  |
| --- | --- | --- | --- |
| -4 or 0 | -3 or 1 | -2 or 2 | -1 or 3 |
| ‘a’ | ‘b’ | ‘c’ | ‘d’ |

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

Answer:- The spam[:2] is slicing operation which is similar to spam[0:2]. The output is :-

['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=[3.14,'cat',11, 'cat',True]

Bacon

bacon.index('cat')

It will give output 1. Which is index value of ‘cat’ of first occurence.

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

Answer:- bacon.append(99) will add the value 99 at the end of the list. The updated list will be

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

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

Answer:- It will remove the cat value from the list and found to be following changes:-

bacon=[3.14,'cat',11, 'cat',True]

bacon.remove('cat')

bacon

O/P:- [3.14, 11, 'cat', True]

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

Answer:- The concatenation of list + operator is used where as for list replication \* operator is used.

Example:-

spam+bacon #list concatenation

O/P:- ['a', 'b', 'c', 'd', 3.14, 11, 'cat', True]

bacon\*2 #list replication

O/P:- [3.14, 11, 'cat', True, 3.14, 11, 'cat', True]

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

Answer:- The following are the differeence between append() and insert() methods in the strings:-

|  |  |
| --- | --- |
| append() | Insert() |
| It will insert the value or add the value to list at the end only. e.g.,  Bacon.append(88) | It will insert the value in the list anywhere based on the index value specified. e.g.,  bacon.insert(1,'Shivam') |

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

Answer:- There are two methods mostly used for removing item from the lis are **del and remove methods.**

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

Answer:- There are some similarties between lists and string on generic operations and methods such as both are passed through len() function, have indexing and slicing operations. Along with this, both can be passed through loop as an interable and can be replicated or concatenated. Fruthermore, **in** and **not in** can be used with these both data structure.

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

Answer:- There are following difference between tuples and lists:-

|  |  |
| --- | --- |
| lists | tuples |
| It is ordered collection of mutable objects represented by square brackets [].  It supports indexing and slicing and values can be added, removed or can be changed. | Iit is an immutable collection of objects as it does not support value chnaged, added and removed from the tuple collection.  It is represented by parenthesis (). |

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

Answer:- It will be written as (42,). The comma is meendatory otherwise, it will be understand it as int data type.

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

Answer:- The tuple() method to form lists value. On the other hand, list() method can be used to form tuple to list form. It is also known as type castring method.

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

Answer:- They actually contains the references to the list value.

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

Answer:- The difference between copy.copy() and copy.deepcopy() are as follows:-

|  |  |
| --- | --- |
| copy.copy() | copy.deepcopy() |
| * It will do the shallow copy operations on the lists. * It is not much error prone. * Efficient use of memory. * Shares child object references between copies. * It will reflects the changes is in nested and copies. | * It will do the deep copy operations on the lists. * It is error prone. * Not efficient in memory usage. * There is no sharing of object as it creates two independent copies. * Changes to the copies will not reflect in the original and changes to the original will not reflect in the copies. |