

## Python Basic Assignment-04

1. What exactly is []?

[] is an empty list in python programming.

List is used to store multiple items/data in a single variable. Lists are one of the built-in data types in Python used to store collections of data.

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]
```

```
Spam.insert(3, "hello") #run      #list.insert(index, value)
```

*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?

Append operation will add the given value at the end of list

List will be after execution is:

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

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

Remove operation will remove the specific value

After execution of `bacon.remove('cat')`, 'cat' value will be removed from the list and new list will be :

```
[3.14, 11, True, 99]
```

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

The '+' operator concatenates lists

The '\*' operator replicates the elements in the list

Example

```
Alpha = ["a", "b", "c", "d", "e"]
print(Alpha + [6, 7, 8, 9])
```

```
print([0] * 4)
print([1, 2, ["abc", "efg"]] * 2)
```

Output :

```
['a', 'b', 'c', 'd', 'e', 6, 7, 8, 9]
[0, 0, 0, 0]
[1, 2, ['abc', 'efg'], 1, 2, ['abc', 'efg']]
```

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

In list, `append()` commands add the value/items at the end of list

While `insert(index, new_value)` add the new value/desired value at the desired position

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

There are three methods to remove items from the list

`remove()`, `pop()` and `clear()`

- The `remove()` command removes the very first given existing element from 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.

List is a regular collection of data values, where each value is identified by an index same as string is also a collections of characters identified by an index. One simple difference is that the elements of a list can have any data type while strings can only hold a set of character

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

List	Tuples
Lists are mutable	Tuples are immutable
lists are homogeneous sequences	Tuples are heterogeneous data structures

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

(42,)

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

`tuple(list_name)` is used to convert list value in tuple form and we can use the built-in `list()` function to convert a list into a tuple

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

Variables technically contains references to list or dictionary

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

- A shallow copy(`copy.copy()`) constructs a new compound object and then (to the extent possible) inserts references into it to the objects found in the original.
- A deep copy (`copy.deepcopy()`) constructs a new compound object and then, recursively, inserts copies into it of the objects found in the original.