**Assignment 4**

1. What exactly is []?

**Ans**:- [] is an empty list

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.)

**Ans**:- spam[2] = 'hello'

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

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

**Ans**:- spam[3] = ‘d’

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

**Ans**:- ‘d’

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

Ans:- [‘a’, ‘b’]

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

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

**Ans**:- 1

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

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

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

Ans:- [3.14, 11, 'cat,' True, 99]

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

**Ans**:- list concatenation: +

List replication: \*

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

**Ans**:- append() always insert element at the last of a list

Insert(): inserts at the specific index of a list

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

**Ans**:- remove() and pop()

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

Ans:- String values are taken as list of characters.

Eg. string\_val = “hello”

List\_val = [“h”, “e”, “l”, “l”, “o”]

Elements can be called with similar indexing techniques.

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

Ans:- Tuples are immutable whereas lists are mutable. Values in tuple can not be changed, inserted or removed. Value in lists can be appended, inserted, popped, removed or replaced.

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

Ans:- tup = (42)

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

Ans:- To get list values in tuple form:- tup\_form = tuple(list\_of\_values)

To get tuple values in list form:- list\_form = list(tuple\_values)

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

Ans:- When we assign a list to a variable, the variable doesn't store the actual list data directly. Instead, it stores a reference (or pointer) to the memory location where the list is stored. This reference allows we to access and manipulate the list through the variable.

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

Ans:-

**copy.copy()** creates a shallow copy where nested objects are still referenced.

**copy.deepcopy()** creates a deep copy where all objects, including nested objects, are recursively copied to ensure complete independence.