Python basics assignments-4

1. [] is an empty list in Python. It is a container that can hold a collection of items in a specific order.
2. To assign the value 'hello' as the third value in the list stored in the variable spam, you can use the following code: spam[2] = 'hello'
3. The value of spam[int(int('3' \* 2) / 11)] is 'd'. The expression inside the brackets is evaluated first, resulting in the index 3. The third element of the list ['a', 'b', 'c', 'd'] is 'd'.
4. The value of spam[-1] is 'd'. Negative indices are used to access elements from the end of the list, with -1 being the index of the last element.
5. The value of spam[:2] is ['a', 'b']. The colon operator is used to slice a list, and this code returns a new list with the elements from the start of the list (index 0) up to but not including the element at index 2.
6. The value of bacon.index('cat') is 1. The index() method returns the index of the first occurrence of a value in a list.
7. The call to bacon.append(99) will add the value 99 to the end of the list. The list will now be [3.14, 'cat', 11, 'cat', True, 99].
8. The call to bacon.remove('cat') will remove the first occurrence of the value 'cat' from the list. The list will now be [3.14, 11, 'cat', True].
9. The list concatenation operator is +, and the list replication operator is \*. The + operator is used to concatenate two lists, while the \* operator is used to create a new list that is a repetition of a given list a specified number of times.
10. The difference between the list methods append() and insert() is that append() adds an element to the end of a list, while insert() adds an element at a specific index in a list.
11. The two methods for removing items from a list are remove() and pop(). The remove() method removes the first occurrence of a value, while the pop() method removes and returns the element at a specific index.
12. List values and string values are identical in that they both represent a collection of items in a specific order. They can both be accessed using indices and sliced using the colon operator.
13. The main difference between tuples and lists is that tuples are immutable, meaning that once they are created, their elements cannot be changed. Lists are mutable, meaning that their elements can be modified.
14. To type a tuple value that only contains the integer 42, you can use the following syntax: (42,)
15. To get the tuple form of a list value, you can use the tuple() function. To get the list form of a tuple value, you can use the list() function. Example: my\_list = [1, 2, 3] my\_tuple = tuple(my\_list) # my\_tuple is now (1, 2, 3) my\_list2 = list(my\_tuple) # my\_list2 is now [1, 2, 3]
16. Variables that "contain" list values do not contain the list itself, but rather a reference to the list. This means that changing the value of the list through the reference will affect the original list.
17. The difference between copy.copy() and copy.deepcopy()