Module – 3 (Collections, functions and Modules)

Q.1->What is List? How will you reverse a list?

Ans: A **list** in Python is a collection of items that are ordered and changeable (mutable). Lists allow you to store multiple items in a single variable and can contain items of different data types, such as integers, strings, or even other lists

Python lists have access to a method, .reverse(), which allows you to reverse a list in place. This means that the list is reversed in a memory-efficient manner, without needing to create a new object.

Let’s see how we can reverse our Python list using the .reverse() method.

# Reverse a Python list with reverse()

original\_list = [1,2,3,4,5,6,7,8,9]

original\_list.reverse()

print(original\_list)

Returns: [9, 8, 7, 6, 5, 4, 3, 2, 1]

Q.2->How will you remove last object from a list?

Ans:- **Using**[**popitem()**](https://www.geeksforgeeks.org/python-dictionary-popitem-method/)**method**

Python dictionary popitem() method removes one key, value pair as a two-item tuple and modifies the removes the last key from the dictionary.

* Python3

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| --- |
| dic **=** {1: "one", 2: "two", 3: "three"}  dic.popitem()  print(dic) |

**Output:**

{1: 'one', 2: 'two'}

**Time complexity:**O(1) on average for the “popitem” method. This is because the “popitem” method retrieves and removes an arbitrary item from the dictionary in constant time.  
**Auxiliary space:** O(1), as removing an item from the dictionary only requires a constant amount of memory regardless of the size of the dictionary.

P2:Suppose list1 is [2, 33, 222, 14, and 25], what is list1 [-1]?

Ans: this list1= [2, 33, 222, 14, 25], the expression

List[-1] the element of the list.

Q.3->Differentiate between append () and extend () methods

Ans:-> The append() and extend() methods in Python are both used to add elements to a list, but they work in different ways:

**append()**

* **Functionality**: Adds a single element to the end of the list.
* **Input**: Takes one argument, which can be of any data type (including another list).
* **Behavior**: The entire argument is added as a single element, regardless of whether it's a list or another data type.

**extend()**

* **Functionality**: Adds each element of an iterable (like a list, tuple, or string) to the end of the list.
* **Input**: Takes one argument, which must be an iterable (like a list, string, or tuple).
* **Behavior**: The elements of the iterable are added individually to the list, not as a single element.

Q.4->Write a Python function to get the largest number, smallest num and sum of all from a list

Q.5->How will you compare two lists?

Ans: **1. Equality Comparison (==)**

* You can use the == operator to check if two lists are exactly the same, meaning they contain the same elements in the same order.

**2. Identity Comparison (is)**

* The is operator checks if two lists refer to the same object in memory.

**3. Using set() for Unordered Comparison**

* Convert the lists to sets to check if they contain the same elements, regardless of order. This ignores duplicates.

**4. Comparing Lengths and Elements Manually**

You can manually compare the lengths and elements of two lists if you need a custom comparison.

Q18. What is tuple? Difference between list and tuple

# Tuple

# Ans

A tuple in Python is an ordered and immutable collection of items.

Difference

tuple List

Tuple is immutable List is Mutable

Tuple not Allow Duplicates Value's List Allow Duplicates Value's

Tuple are using Round Brackets List are using square Brackets

Q43. Why Do You Use the Zip () Method in Python?

Ans:

The zip() function in Python is used to combine two or more iterable dictionaries into a single iterable,

where corresponding elements from the input iterable are paired together as tuples.

Q52. How Many Basic Types Of Functions Are Available In Python?

Ans. There are two type of Functions:

1.) built in Functions

2.) User Define Functions