**Module – 3 (Collections, functions and Modules)**

**1.What is List? How will you reverse a list?**

A list is a fundamental data structure in Python used to store collections of items. It is a versatile and ordered data type that allows you to store multiple elements in a single variable. Lists are defined using square brackets [] and can contain elements of different data types, including numbers, strings, or even other lists.

**2.Differentiate between append () and extend () methods?**

**Append():**

The append() function is one of the built-in functions used to add an element to a list. The main point about the append() function is that the element can only be added at last using it. As lists are heterogeneous, the input argument for append can also be of any data type.

**Extend():**

The extend() function is a built-in function that adds multiple elements to a list. The main point about the extend is that the input is an iterable such as strings, lists, etc. It iterates over its argument and appends every element to the specified list. In the case of append(), it appends the iterable as a single element; this is a significant difference between append and extend in Python. As lists can be heterogeneous, the input argument for extend can also be of any data type.

**3.What is tuple? Difference between list and tuple.**

**List:**

A list is an essential data structure in Python for organising and storing collections of objects. The Python programming language depends on lists and they are highly flexible. They are made by enclosing a list of objects inside of square brackets[]. You can access objects in lists using their indices because they are sorted, which means they keep a particular sequence. Python lists are highly adaptable for managing dynamic data since they may be modified, added to, or removed from. Lists provide the useful ability to contain items of several data types, making it simple to build composite data structures.

**Tuple:**

Tuples are used to store multiple items in a single variable. Tuple is one of 4 built-in data types in Python used to store collections of data, the other 3 are List, Set, and Dictionary, all with different qualities and usage. A tuple is a collection which is ordered and unchangeable.

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

**1.Built-in Functions or Pre-defined:**

**2.User-defined Functions:**

**1.Built-in Functions**:

Built-in functions are the functions that are already written or defined in python. We only need to remember the names of built-in functions and the parameters used in the functions. As these functions are already defined so we do not need to define these functions. Below are some built-in functions of Python.

**2.User-defined Functions:**

The functions defined by a programmer to reduce the complexity of big problems and to use that function according to their need. This type of functions is called user-defined functions.

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

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. When using zip() with dictionaries, it pairs the keys and values of the dictionaries based on their position in the dictionary

Python's zip() function is a built-in function that is used to combine two or more iterables into a single iterable. This function takes in any number of iterables (lists, tuples, sets, etc.) as arguments and returns an iterator that aggregates elements from each of the iterables into tuples. Each tuple contains the i-th element from each of the input iterables.