Module-2

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

Ans: A **list** in Python is a collection of items (elements) that are ordered, changeable (mutable), and allow duplicate values. Lists are defined using square brackets [], and the items can be of any data type (integers, floats, strings, or even other lists).

my_list = [10, 20.5, "Hello", True]

There are multiple ways to reverse a list in Python:

1. Using the reverse() Method

```
my_list = [1, 2, 3, 4, 5]

my_list.reverse()

print(my_list)
```

2. Using Slicing

```
my_list = [1, 2, 3, 4, 5]

reversed_list = my_list[::-1]

print(reversed_list)
```

3. Using the reversed() Function

```
my_list = [1, 2, 3, 4, 5]

reversed_list = list(reversed(my_list))

print(reversed_list)
```

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

Ans:

1.Using the pop() Method

```
my_list = [1, 2, 3, 4, 5]

my_list.pop()

print(my_list)
```

2. Using Slicing

```
my_list = [1, 2, 3, 4, 5]

my_list = my_list[:-1]

print(my_list)
```

3. Using the del Statement

```
my_list = [1, 2, 3, 4, 5]

del my_list[-1]

print(my_list)
```

Q-3 Differentiate between append () and extend () methods?

Ans: The append() and extend() methods are both used to add elements to a list, but they work differently

1. append() Method

- **Functionality**: Adds a single element to the end of the list.
- **Behavior**: The entire element (even if it's another list) is added as a single item.

  Example:

  ```
  my_list = [1, 2, 3]

  my_list.append([4, 5])

  print(my_list)
  ```

  Output: [1, 2, 3, [4, 5]]

2. extend() Method

- **Functionality:** Adds elements from an iterable (like a list, tuple, or set) to the end of the list.
- **Behavior:** Each element from the iterable is added individually to the list.

  Example:

  ```
  my_list = [1, 2, 3]

  my_list.extend([4, 5])

  print(my_list)
  ```

  Output: [1, 2, 3, 4, 5]

Q-5 How will you compare two lists?

Ans:

Direct Comparison Using == Operator

```
list1 = [1, 2, 3]

list2 = [1, 2, 3]

print(list1 == list2)
```

Q-6 What is tuple? Difference between list and tuple

Ans: A tuple in Python is a collection of ordered elements, similar to a list, but with a key difference: tuples are immutable. This means once a tuple is created, its elements cannot be changed, added, or removed.

Difference Between List and Tuple:

Feature	List	Tuple
Mutability	Mutable (elements can be changed)	Immutable (elements cannot be changed)
Syntax	Defined using square brackets []	Defined using parentheses ()
Performance	Slower due to flexibility	Faster due to immutability
Use Case	Suitable when data needs modification	Suitable for fixed data
Example	my_list = [1, 2, 3, "apple"]	my_tuple = (1, 2, 3, "apple")

Q- How will you create a dictionary using tuples in python?

Ans: The dict() function is used to convert the list of tuples into a dictionary.

Q-34 How Do You Traverse Through A Dictionary Object In Python?

Ans: To traverse through a dictionary in Python, you can use a for loop. There are several ways to iterate over a dictionary, depending on what you want to access: keys, values, or key-value pairs.

Q-35 How Do You Check The Presence Of A Key In A Dictionary?

Ans: Use the in keyword to check for a key's presence.

Alternatively, use the get() method to check if a key exists.

Q-50 How Many Basic Types Of Functions Are Available In Python?

Ans:

1.Built-in Functions

2. User-Defined Functions

3. Anonymous (Lambda) Functions

4. Recursion Functions

Q-51 How can you pick a random item from a list or tuple?

Ans: You can pick a random item from a list or tuple in Python using the random.choice() function from the random module.

```
import random

my_list = [1, 2, 3, 4, 5]

random_item = random.choice(my_list)

print(random_item)
```

Q-52 How can you pick a random item from a range?

1. Using random.randrange():

The randrange() function can be used to pick a random item from a range. It works like the built-in range() function but returns a randomly selected value.

```
import random

random_item = random.randrange(1, 10)

print(random_item)
```

Q-53 How can you get a random number in python?

Ans:

random.random(): Random float between 0 and 1.

random.randint(a, b): Random integer between a and b (inclusive).

random.randrange(start, stop): Random integer between start and stop-1.

random.uniform(a, b): Random float between a and b.

random.choice(sequence): Random element from a sequence.

Q-54 How will you set the starting value in generating random numbers?

Ans: To set the starting value (or seed) for generating random numbers in Python, you use the random.seed() function.

Q-55 How will you randomizes the items of a list in place?

Ans: To randomize the items of a list in place, you can use the random.shuffle() function from the random module. This function modifies the list in place by shuffling its elements randomly.