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Assignment Module 3 (Collections, Functions and Modules)

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

Ans.

- List is a data structure in Python that is a **changeable** and an **ordered sequence of elements**. Each element or value that is inside of a list is called an item. Just as strings are defined as characters between quotes, lists are defined by having values between square brackets [].
- Syntax to print list in reverse:
 1. Input a list - `list_1 = ['1','2','3']`
 2. Use the in-built reverse() function - `list_1.reverse()`
 3. Print the list. - `print(list_1)`

- How will you remove last object from a list?
Suppose list1 is [2, 33, 222, 14, and 25], what is list1 [-1]?

Ans.

- To remove the last object from the given list, two functions can be used:
 1. **list_1.pop()** - removes the last object from the list
 2. **list_1.remove(list_1[-1])** - removes the object whose index is mentioned
- If list_1 = ['2','33','222','14','25'], then **list_1[-1] = 25** because -1 is the index of last object in the list.

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

Ans.

1. Append() = It is used to add an item at the end of the list.
For ex: - if list_1.append('4'), then list_1 = ['1','2','3','4']
2. Extend() = It is used to add/join the contents of one list to the other.
For ex: - if num = ['4','5','6'], then
list_1.extend(num) = ['1','2','3','4','5','6']

- How will you compare two lists?

Ans.

List can be compared using these following methods.

1. The set() function and == operator
2. The sort() function and == operator
3. The collection.counter() function

- What is tuple? Difference between list and tuple.

Ans.

A tuple is a collection of data that is ordered and unchangeable. Tuples store the data in a variable enclosed within round brackets(). Whereas, lists are changeable and store data within parentheses[].

- How will you create a dictionary using tuples of Python?

Ans.

This can be done using **zip()** and **dict()**. The zip() function is used for conversion of tuple to key-value pair with corresponding indices. The dict() function performs the task of conversion to dictionary.

- How do you traverse through a dictionary object in Python?

Ans.

There are multiple ways to iterate over a dictionary in Python.

1. Access key using the built .keys()
2. Access key without using a key()
3. Iterate through all values using .values()
4. Iterate through all key, and value pairs using items()
5. Access both key and value without using items()

- How do you check the presence of a key in a dictionary?

Ans.

With the Inbuilt method keys (), use if statement and the 'in' operator to check if the key is present in the dictionary or not. This method simply uses if statement to check whether the given key exist in the dictionary. The program returns true if a given key is available in the dictionary, otherwise it returns a false.

- Why do you use the zip () method in Python?

Ans.

1. It can be used to traverse across iterables parallelly and compare them.
2. It can be used to sort a list of items based on elements in their corresponding positions in the other list.
3. It can be used to perform operations in pairs.

- How many basic types of functions are available in Python?

Ans.

There are two types of functions available in python.

1. **Built-in Functions:** These 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.
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 are called user-defined functions.

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

Ans.

- Import random module using the import keyword.
- Give the **tuple** as static input and store it in a variable.
- Apply **random.choice()** method for the above-given tuple and store it in another variable.
- Print the random element from the above-given tuple

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

Ans.

- Import random module using the import keyword.
- Input a **range** and store it in a variable.
- Apply **random.choice()** method for the above-given range and store it in another variable.
- Print the random element from the above-given range.

- How can you get a random number in python?

Ans.

- Import random module using the import keyword.
- Apply **random.randint()** method with a range inside the brackets and store it in another variable.
- Print that variable in which randomized list is stored.

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

Ans.

The random number generator needs a number to start with (seed value), to be able to generate a random number. The **seed()** method is used to customize the start number of the random number generator.

- How will you randomize the items of a list in place?

Ans.

- Import random module using the import keyword.
- Give the **list** as static input and store it in a variable.
- Apply **random.shuffle()** method for the above-given list and store it in another variable.
- Print that variable in which randomized list is stored.