

PYTHON Assignment

MODULE: 2 (Collections, Functions and Modules)

1. What is List?

Ans. List is collection of multiple values of same/different data types.

2. 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 last object from the list we have to make use of negative index.

For given example, the program to remove last object is as follows:

```
print(list1.remove[-1])
```

In the given example, list[-1] is value 25.

3. Differentiate between append () and extend () methods.

	Append()	Extend()
1.	It adds single element at the end of the list	It adds multiple elements (from an iterable) to the end of the list
2.	Accepts a single element as an argument	Accepts an iterable (like a list, tuple, string) as an argument
3.	Syntax: list_name.append(element)	Syntax: list_name.extend(iterable)
4.	It is typically quicker and more efficient than extend, operating only one operation at a time.	It adds elements from iterable or with huge inputs that may take longer time.

4. How will you compare two lists?

Ans. To compare two lists we can use various methods depending on specific requirements of comparison, as follows:

- use `=` operator to check whether two lists are equal in terms of content and order.
- use `is` operator to check is two lists refer to the same object in memory
- use `sorted` function to compare lists element-wise

5. What is tuple? Difference between list and tuple.

Ans. Tuple is a collection data type, which is ordered and unchangeable. It allows to store duplicate elements.

	List	Tuple
1.	It is a collection data type that is ordered and changeable	It is a collection data type that is ordered but unchangeable
2.	It is defined using `[]` square brackets	It is defined using `()` round brackets

6. How will you create a dictionary using tuples in python?

Ans. In python, dict() function is used to convert a tuple to a dictionary. A dictionary object is created using this function, which takes tuple of tuples as an argument. A key-value pair is contained in each tuple.

7. How do you traverse through a Dictionary object in python?

Ans. In python, we can traverse through a Dictionary object using various methods depending on whether we want to iterate over items, keys or values, which are as follows:

- use ``my_dict.items()`` method to iterate over the key-value pairs of a dictionary
- use ``my_dict.keys()`` method to iterate over keys of a dictionary
- use ``my_dict.values()`` method to iterate over values of a dictionary

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

Ans. In python, we can check the presence of a key in a dictionary using following methods:

- use ``in`` keyword to check if a key is present in the dictionary
- use ``get()`` method to check if a key is present or not and retrieve its value

9. Why do you use Zip () method in python?

Ans. Zip is an in-built function in python used to iterate over multiple iterables. It is used to combine elements from two or more iterables (as list, tuple or string) into tuples.

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

Ans. In python, primarily there are 3 basic types of functions:

a) Built-in Functions:

- These functions are pre-defined in python and are always available for use.
- For example: `print()`, `input()`, `len()`, etc.

b) User-defined Functions:

- These functions are created by user to perform a specific task or set of tasks.
- Defined using the ``def`` keyword.
- Syntax: `def function_name():`
 statement
 body
 return [expression]

c) Anonymous Function:

- It is also termed as `lambda` function
- it is used for short term operations
- It can take any number of arguments but can only have one expression
- For example:
add=lambda x,y:x+y

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

Ans. in python, we can pick random item from a list or tuple using `random` module. The `random` module provides `choice()` function, which returns a randomly selected element from a non-empty sequence.

For example:

```
import random
mylist=[1,2,3,4,5]
random_item=random.choice(mylist)
print("Randomly selected item:",random_item)
```

12. How can you pick a random item from a range?

Ans. To pick a random item from a range in Python, we can use the `random.choice()` function from the `random` module. However, since range objects are not directly subscriptable, you need to convert the range to a list or another iterable first.

For example:

```
import random
my_range = range(1, 11) # Range from 1 to 10 (inclusive)
random_item = random.choice(list(my_range))
print("Randomly selected item:", random_item)
```

13. How can you get a random number in python?

Ans. In Python, you can use the random module to generate random numbers. Here are some common methods for generating random numbers:

a) random() function:

The random() function returns a floating-point number in the range [0.0, 1.0]. It generates random values with uniform distribution.

For example:

```
import random
x= random.random()
print("Random number:", x)
```

b) randint() function:

The randint() function returns a random integer from the specified range.

For example:

```
import random
x= random.randint(1, 10) # Range from 1 to 10 (inclusive)
print("Random integer:", x)
```

c) randrange(start, stop, step) function:

The randrange() function returns a randomly selected element from the specified range. It is similar to range() but returns a random element rather than generating the entire range.

For example:

```
import random
x = random.randrange(1, 101, 2) # Random odd number between 1 and 100
print("Random number:", x)
```

d) shuffle() function:

The shuffle() function is used to shuffle items in list.

For example:

```
import random
captcha=['hj8W','KJcl','Ocp8','Ocm4','0ghW','Nws8','Lq6c','Jc7a','Lndw','Kc2l']
random.shuffle(captcha)
print(captcha)
```

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

Ans. In Python, if you want to set the starting value when generating random numbers, you can use the random.seed() function from the random module.

For example:

```
import random
# Set the seed to a specific value (e.g., 50)
random.seed(50)
```

```
# To generate some random numbers
random_number_1 = random.random()
random_number_2 = random.randint(1, 10)

print("Random number 1:", random_number_1)
print("Random number 2:", random_number_2)
```

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

Ans. To randomize the items of a list in place in Python, you can use the `random.shuffle()` function from the `random` module. This function shuffles the elements of a list randomly.

For example:

```
import random
my_list = [1, 2, 3, 4, 5]
# Shuffle the list in place
random.shuffle(my_list)
print("Shuffled list:", my_list)
```