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1)

=> The key difference between the two is that while list are mutable, tuple on the other hand are inmutable object
- this means that list can be modified appended or sliced but tuple remain constant and cannot be modified.
- python provide us with a number of in built - data structure such as are lists, tuple and set dictornaries to store and organize the data effcient manner.

e)

→ A set is a built-in data types used to store a collection of unique element.

1) Mathematical set operation :-
set support operation like union, intersection and difference and symmetric difference, making them useful collection of items.

2) Mutable :- sets are mutable, meaning you can add or remove element after creating them.

3) Iterablity :- you can iterate over element in a set.

Example :-

```
L = {"apple", "banana", "mango"}
print(L)
```

output :- {"apple", "banana", "Mango"}

3)

→ Integer are used to represent whole numbers without any decimal points, float or floating-point number, with the decimal place.

- Integer is a numeric data types representing whole numbers without any decimal point.
- Float is a numeric data types Representing decimal number. Float are used in the calculation of Mathematical operations

4)

→

Integer
e.g x = 5
Infinite precision

Float
e.g :- y = 3.14
Limited precision.

4)

→ Dictionary (dict) :-
purpose :- used to store key-value pairs where each key is unique within the dictionary.
Mutability :- Mutable (can be changed after creation).
syntax :- Defined using curly braces {}, with key value separted by a colon (:).
List :-
purpose :- used to sequential data storage where element can be added, removed, or modified.
Mutability :- Mutable
syntax :- within the square brackets [] element separted by comma (,)
Tuple :- used to immutuble of the tuple
mutablity :- Immutable
syntax :- Defined using paranthess ()

5)

→ doc string (documentation string) is a string literal that occurs as the first statement in a ~~mutable~~, module, function, class and method.
Docstring are accessing through the __doc__ attributes of the object that document.

6)

→ The // operator are used for integer division or floor division.

(1) It divides the left operand by the right operand and return the largest integer less than or equal to quotient.

operators are special symbols. combines of symbol or keyword that designate some type of computation.

7)

→ i) To compare the object based on their value python equality operator (==) employed.

The == are used in python in checked if the value of two operands are equal.

(2) ii) is operator :- compaire the identities of two object.

It check is both variable point to the same object in memory.

Ex :- a = [1, 2, 3]
b = [1, 2, 3]
print [a == b]
o/p :- True

8)

→ The plus-equal operator += provides a convenient way to add a value to an existing variable and assign the new value back to the same variable.

(2) Ex :- x = 5
x += 3
print (x)

output : 8

- += operator is used for argumented assignment.

g)

→ The in operator is used to check for the membership in sequence like string, lists, tuple, or dictionaries.

- String membership :- In string the substracting exists within the string.

Example

```
if 'world' in "hello world":
    print ("substring found")
```

e)

→ if statement is used to make decision based on conditions. It allows you to execute a block of code only if a certain condition is true

```
if condition :
    // code is execute if condition is
       true
```

Example :-

```
x = 10
if x > 5 :
print ("x is greater than 5")
```

12)

→ condition :-
while loop requires a condition that when false, terminate the loop. Whereas for loop iterate over a sequence until the sqvence is ex housted.

Initilization :-
While loop require explict initilization of variables outside the loop whearas loop iterate over a sequence until the sequence is exhausted.

while loop :- Example

```
count=0
while count <5 :
    print (count)
    count +=1
```

for loop
Example

```
fruit = ["apple", "mango"]
    for fruits in fruits:
        print (fruit)
```