

1. Given a tuple `my_tuple = (5, 10, 15, 20, 25)`, how can you access the element 15 using positive indexing? Write a Python program to achieve this.

```
#Access the element 15 using the positive indexing
my_tuple = (5, 10, 15, 20, 25)
my_tuple[2]
```

15

2. Given a tuple `my_tuple = (100, 200, 300, 400, 500)`, how can you access the element 300 using negative indexing? Write a Python program to achieve this.

```
#Access the element 300 using the negative indexing
my_tuple = (100, 200, 300, 400, 500)
my_tuple[-3]
```

300

3. Given a tuple `my_tuple = (1, 2, 3, (4, 5, 6))`, how can you access the element 6 from the nested tuple using indexing? Write a Python program to achieve this.

```
my_tuple = (1, 2, 3, (4, 5, 6))
my_tuple[-1][-1]
```

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4. Given a tuple `my_tuple = (5, 10, 15, 20, 25)`, how can you slice it to obtain `(10, 15, 20)`? Write a Python program to achieve this.

```
my_tuple = (5, 10, 15, 20, 25)
my_tuple[1:4]
```

(10, 15, 20)

5. Given a tuple `my_tuple = ('Python', 'Java', 'C++', 'JavaScript')`, how can you access the last element without knowing its index? Write a Python program to achieve this.

```
t= ('Python', 'Java', 'C++', 'JavaScript')
print("Last element:",t[len(t)-1])
```

Last element: JavaScript

6. Given two tuples `tuple1 = (1, 2, 3)` and `tuple2 = (4, 5, 6)`, how can you concatenate them into a single tuple? Write a Python program to achieve this.

```
t1 = (1, 2, 3)
t2 = (4, 5, 6)
t1+t2
```

(1, 2, 3, 4, 5, 6)

7. Given a tuple `my_tuple = ('x', 'y', 'z', 'a')`, how can you check if the element 'y' exists in the tuple? Write a Python program to achieve this.

```
t= ('x', 'y', 'z', 'a')
# num="y"
# if num in t:
#   print("Exists")
# else:
#   print("Not Exists")
print('Exists','y' in t)
```

Exists True

8. Given a tuple my\_tuple = ('apple', 'banana', 'apple', 'cherry', 'apple'), how can you count the number of occurrences of 'apple'? Write a Python program to achieve this.

```
t=('apple', 'banana', 'apple', 'cherry', 'apple')
t.count("apple")
```

3

9. Given a tuple my\_tuple = (True, False, True, False), how can you find the number of True values in the tuple? Write a Python program to achieve this.

```
t=(True, False, True, False)
t.count(True)
```

2

10. Given a tuple my\_tuple = ('Python', 3.8, True, (1, 2, 3)), how can you access the nested tuple (1, 2, 3)? Write a Python program to achieve this.

```
my_tuple = ('Python', 3.8, True, (1, 2, 3))
my_tuple[3]
```

(1, 2, 3)

11. Given a tuple my\_tuple = (10, 20, 30), how can you convert it into a list? Write a Python program to achieve this.

```
my_tuple = (10, 20, 30)
l=list(my_tuple)
print(l)
```

[10, 20, 30]

12. Given a tuple my\_tuple = (7, 14, 21, 28, 35), how can you find the smallest and largest elements? Write a Python program to achieve this.

```
my_tuple = (7, 14, 21, 28, 35)
print("smallest Element:",min(my_tuple))
print("Largest Element:",max(my_tuple))
```

smallest Element: 7  
Largest Element: 35

13. Given a tuple my\_tuple = (2, 4, 6, 8, 10), how can you find the sum of all elements? Write a Python program to achieve this.

```
my_tuple = (2, 4, 6, 8, 10)
sum(my_tuple)
```

30

14. Given a tuple my\_tuple = ('a', 'b', 'c', 'd'), how can you reverse the order of elements? Write a Python program to achieve this.

```
my_tuple = ('a', 'b', 'c', 'd')
```

15. Given two tuples tuple1 = (1, 2, 3) and tuple2 = (1, 2, 3), how can you check if they are equal? Write a Python program to achieve this.

```
t1=(1,2,3)
t2=(1,2,3)
print(t1==t2)
```

False

16. Given a tuple my\_tuple = (10, 20, 30, 40), how can you unpack its values into separate variables? Write a Python program to achieve this.

```
t= (10, 20, 30, 40)
a,b,c,d=t
print(a,b,c,d)
```

```
10 20 30 40
```

17. Given a tuple my\_tuple = (3, 6, 9, 12, 15), how can you convert it into a string? Write a Python program to achieve this.

```
t=(3, 6, 9, 12, 15)
str(t)
```

```
'(3, 6, 9, 12, 15)'
```

18. Given a tuple my\_tuple = (1, 2, 3, 4, 5), how can you iterate through it using a for loop? Write a Python program to achieve this.

```
t= (1, 2, 3, 4, 5)
for i in t:
    print(i)
```

```
1
2
3
4
5
```

19. Given a tuple my\_tuple = (100, 200, 300, 400), how can you convert it into a dictionary with keys as index positions? Write a Python program to achieve this.

```
t=(100, 200, 300, 400)
dict(enumerate(t))
```

```
{0: 100, 1: 200, 2: 300, 3: 400}
```

20. Given a tuple my\_tuple = (1, 2, 3, 4, 5), how can you delete the entire tuple? Write a Python program to achieve this.

```
t=(1, 2, 3, 4, 5)
del t
```

## ▼ Set Interview Questions

Question 1: Given a set my\_set = {10, 20, 30, 40, 50}, how can you check if the number 30 exists in the set? Write a Python program to achieve this.

```
s={10, 20, 30, 40, 50}
i=30
if i in s:
    print('Exists')
else:
    print("Not Exists")
```

```
Exists
```

Question 2: Suppose you have a set my\_set = {1, 2, 3, 4, 5}. How can you add the element 6 to this set? Write a Python program to achieve this.

```
s={1, 2, 3, 4, 5}
s.add(6)
print(s)
```

```
{1, 2, 3, 4, 5, 6}
```

Question 3: Given a set my\_set = {10, 20, 30, 40, 50}, how can you remove the element 30 from the set? Write a Python program to achieve this.

```
s={10, 20, 30, 40, 50}
s.remove(30)
print(s)

{50, 20, 40, 10}
```

Question 4: Suppose you have two sets: set1 = {1, 2, 3} and set2 = {3, 4, 5}. How can you find their union? Write a Python program to achieve this.

```
#Uniqu values from both Sets
set1 = {1, 2, 3}
set2 = {3, 4, 5}
set1.union(set2)

{1, 2, 3, 4, 5}
```

Question 5: Given two sets set1 = {10, 20, 30} and set2 = {30, 40, 50}, how can you find their intersection? Write a Python program to achieve this.

```
#find the commen element
s1= {10, 20, 30}
s2= {30, 40, 50}
s1.intersection(s2)

{30}
```

Question 6: Suppose you have two sets: set1 = {10, 20, 30} and set2 = {30, 40, 50}. How can you find elements that are in set1 but not in set2? Write a Python program to achieve this.

```
#Remove Commomn element
s1={10, 20, 30}
s2={30, 40, 50}
s1.symmetric_difference(s2)

{10, 20, 40, 50}
```

Question 7: Given a set my\_set = {1, 2, 3}, how can you remove an element randomly from the set? Write a Python program to achieve this.

```
s={1,2,3}
s.remove(2)
print(s)

{1, 3}
```

Question 8: Suppose you have a set my\_set = {1, 2, 3, 4, 5}, how can you clear all elements from this set? Write a Python program to achieve this.

```
s={1, 2, 3, 4, 5}
s.clear()
print(s)

set()
```

Question 9: Given two sets set1 = {1, 2, 3} and set2 = {3, 4, 5}, how can you find the symmetric difference? Write a Python program to achieve this.

```
#Remove comman element
s1={1,2,3}
s2={3,4,5}
s1.symmetric_difference(s2)

{1, 2, 4, 5}
```

Question 10: Suppose you have a set my\_set = {10, 20, 30, 40, 50}, how can you find the length of the set? Write a Python program to achieve this.

```
#Length of set
s={10, 20, 30, 40, 50}
len(s)
```

5

Question 11: Given a set set1 = {10, 20, 30} and a frozen set set2 = frozenset({30, 40, 50}), can you modify set2? Write a Python program to explain why.

```
s1={10,20,30}
s2=frozenset({30, 40, 50})
print(s1,s2)
#frozenset' object has no attribute 'add'
#Its immutable/unchangeable/Cannot be changed

{10, 20, 30} frozenset({30, 40, 50})
```

Question 12: Suppose you have a set my\_set = {1, 2, 3}. How can you update it with another set {4, 5, 6}? Write a Python program to achieve this.

```
my_set = {1, 2, 3}
my_set.update({4,5,6})
print(my_set)

{1, 2, 3, 4, 5, 6}
```

Question 13: Given a set my\_set = {'apple', 'banana', 'cherry'}, how can you check if it is a subset of another set { 'apple', 'banana', 'cherry', 'date'}? Write a Python program to achieve this.

```
# Check the subset
s1={'apple', 'banana', 'cherry'}
s2= { 'apple', 'banana', 'cherry', 'date'}
s1.issubset(s2)

True
```

Question 14: Suppose you have two sets set1 = {1, 2, 3, 4} and set2 = {3, 4}, how can you check if set2 is a subset of set1? Write a Python program to achieve this.

```
# Check the subset
s1 = {1, 2, 3, 4}
s2 = {3, 4}
s2.issubset(s1)

True
```

Question 15: Given a set set1 = {1, 2, 3, 4, 5}, how can you convert it into a list? Write a Python program to achieve this.

```
s={1, 2, 3, 4, 5}
s=list(s)
print(s)

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

Question 16: Suppose you have a list my\_list = [10, 20, 30, 40, 50, 10, 20], how can you remove duplicates and convert it into a set? Write a Python program to achieve this.

```
l=[10, 20, 30, 40, 50, 10, 20]
print(set(l))

{40, 10, 50, 20, 30}
```

Question 17: Given two sets set1 = {1, 2, 3} and set2 = {3, 4, 5}, how can you check if they are disjoint? Write a Python program to achieve this.

```
#isdisjoint
s1={1, 2, 3}
s2={3, 4, 5}
s1.isdisjoint(s2)
```

```
False
```

Question 18: Suppose you have a set `my_set = {10, 20, 30}`, how can you iterate over its elements and print them? Write a Python program to achieve this.

```
s={10, 20, 30}
for i in s:
    print(i)

10
20
30
```

Question 19: Given a set `my_set = {10, 20, 30, 40, 50}`, how can you find the minimum and maximum values? Write a Python program to achieve this.

```
s={10, 20, 30, 40, 50}
print("Maximum:",max(s),"Minimum:",min(s))

Maximum: 50 Minimum: 10
```

Question 20: Suppose you have two sets `set1 = {1, 2, 3}` and `set2 = {4, 5, 6}`, how can you merge them into a single set? Write a Python program to achieve this.

```
s1={1, 2, 3}
s2={4, 5, 6}
merged_sets=s1|s2
print(merged_sets)

{1, 2, 3, 4, 5, 6}
```

## ▼ Dictionary Interview Questions

Question 1: Given a dictionary `my_dict = {'a': 10, 'b': 20, 'c': 30}`, how can you access the value associated with key 'b'? Write a Python program to achieve this.

```
d={'a': 10, 'b': 20, 'c': 30}
d.get('b')

20
```

Question 2: Suppose you have a dictionary `my_dict = {'name': 'John', 'age': 25, 'city': 'New York'}`, how can you update the value of 'age' to 30? Write a Python program to achieve this.

```
d= {'name': 'John', 'age': 25, 'city': 'New York'}
d.update({'age':30})
print(d)

{'name': 'John', 'age': 30, 'city': 'New York'}
```

Question 3: Given a dictionary `my_dict = {'a': 10, 'b': 20, 'c': 30}`, how can you remove the key 'b'? Write a Python program to achieve this.

```
d={'a': 10, 'b': 20, 'c': 30}
d.pop("b")
print(d)

{'a': 10, 'c': 30}
```

Question 4: Suppose you have a dictionary `my_dict = {'name': 'Alice', 'age': 30}`, how can you add a new key-value pair 'city': 'London'? Write a Python program to achieve this.

```
d={'name': 'Alice', 'age': 30}
d.update({'city':'London'})
d

{'name': 'Alice', 'age': 30, 'city': 'London'}
```

Question 5: Given a dictionary `my_dict = {'x': 1, 'y': 2, 'z': 3}`, how can you get a list of all keys? Write a Python program to achieve this.

```
d={'x': 1, 'y': 2, 'z': 3}
list_keys=list(d.keys())
list_keys

['x', 'y', 'z']
```

Question 6: Suppose you have a dictionary `my_dict = {'x': 1, 'y': 2, 'z': 3}`, how can you get a list of all values? Write a Python program to achieve this.

```
d= {'x': 1, 'y': 2, 'z': 3}
list_values=list(d.values())
list_values

[1, 2, 3]
```

Question 7: Given a dictionary `my_dict = {'a': 10, 'b': 20, 'c': 30}`, how can you check if key 'b' exists? Write a Python program to achieve this.

```
d={'a': 10, 'b': 20, 'c': 30}
key="b"
if key in d:
    print("Exists")
else:
    print("Not Exists")
```

Exists

Question 8: Suppose you have a dictionary `my_dict = {'a': 10, 'b': 20, 'c': 30}`, how can you iterate over its key-value pairs? Write a Python program to achieve this.

```
#Iterate the key- value pairs for loop
d= {'a': 10, 'b': 20, 'c': 30}
for key,value in d.items():
    print("Keys:",key,"Values:",value)

Keys: a Values: 10
Keys: b Values: 20
Keys: c Values: 30
```

Question 9: Given a dictionary `my_dict = {'x': 1, 'y': 2, 'z': 3}`, how can you clear all elements from the dictionary? Write a Python program to achieve this.

```
d={'x': 1, 'y': 2, 'z': 3}
d.clear()
print(d)

{}
```

Question 10: Suppose you have a dictionary `my_dict = {'name': 'Alice', 'age': 30}`, how can you find its length? Write a Python program to achieve this.

```
d= {'name': 'Alice', 'age': 30}
len(d)

2
```

Question 11: Given two dictionaries `dict1 = {'a': 1, 'b': 2}` and `dict2 = {'c': 3, 'd': 4}`, how can you merge them? Write a Python program to achieve this.

```
d1= {'a': 1, 'b': 2}
d2={'c': 3, 'd': 4}
merged_dict=d1|d2
merged_dict

{'a': 1, 'b': 2, 'c': 3, 'd': 4}
```

Question 12: Suppose you have a dictionary my\_dict = {'name': 'John', 'age': 25}, how can you copy it to another dictionary? Write a Python program to achieve this.

```
d={'name': 'John', 'age': 25}
d2=d.copy()
d2

{'name': 'John', 'age': 25}
```

Question 13: Given a dictionary my\_dict = {'a': 10, 'b': 20, 'c': 30}, how can you get a default value when accessing a missing key? Write a Python program to achieve this.

```
d={'a': 10, 'b': 20, 'c': 30}
# d.get("missing value","Invalid Value")
d.get("a","Invalid Value")

10
```

Question 14: Suppose you have a dictionary my\_dict = {'name': 'Alice', 'age': 30}, how can you convert it into a list of tuples? Write a Python program to achieve this.

```
d= {'name': 'Alice', 'age': 30}
list_dict=tuple(d.items())
list_dict

 (('name', 'Alice'), ('age', 30))
```

Question 15: Given a dictionary my\_dict = {'a': 10, 'b': 20, 'c': 30}, how can you sort it by keys? Write a Python program to achieve this.

```
d= {'a': 10, 'b': 20, 'c': 30}
sorted(d)

['a', 'b', 'c']
```

Question 16: Suppose you have a dictionary my\_dict = {'name': 'Alice', 'age': 30}, how can you delete the 'age' key using the pop() method? Write a Python program to achieve this.

```
d={'name': 'Alice', 'age': 30}
d.pop("age")
d

{'name': 'Alice'}
```

Question 17: Given a dictionary my\_dict = {'x': 10, 'y': 20}, how can you check if it is empty? Write a Python program to achieve this.

```
d={'x': 10, 'y': 20}
d={}
if not d:
    print('Empty')
else:
    print("Non Empty")

Empty
```

Question 18: Suppose you have a dictionary my\_dict = {'a': 10, 'b': 20}, how can you update it with another dictionary {'c': 30, 'd': 40}? Write a Python program to achieve this.

```
d1={'a': 10, 'b': 20}
d1.update({'c': 30, 'd': 40})
```

```
def update(l, v, u, d):
    d1 = {v: l}
    d1[u] = d
    return d1

{'a': 10, 'b': 20, 'c': 30, 'd': 40}
```

Question 19: Given a dictionary `my_dict = {'apple': 3, 'banana': 5}`, how can you get the key associated with the maximum value? Write a Python program to achieve this.

```
d={'apple': 3, 'banana': 5}
print('Maximum value is: ',max(d))

Maximum value is: banana
```

Question 20: Suppose you have a dictionary `my_dict = {'a': 1, 'b': 2, 'c': 3}`, how can you reverse its key-value pairs? Write a Python program to achieve this.

```
d={'a': 1, 'b': 2, 'c': 3}
reversed_dict = {value: key for key, value in d.items()}

{1: 'a', 2: 'b', 3: 'c'}
```