

ASSIGNMENT

PROG 301: Advanced Programming with Python and Scripting

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1. List Questions

[] #1
my_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
my_list[4]

⇒ [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

[] #2
my_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
25 in my_list

⇒ False

▶ #3
a=[1, 2, 3, 4, 5]
b=[6, 7, 8, 9, 10]
c=a+b
c

[] #4
my_list = [15, 25, 35, 45, 55, 65, 75, 85, 95, 105]
len(my_list)

⇒ 10

[] #5
my_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
my_list.append(110)
my_list

⇒ [10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110]

2.

```
[ ] #6
    my_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
    my_list.remove(50)
    my_list
```

```
⇒ [10, 20, 30, 40, 60, 70, 80, 90, 100]
```

```
▶ #7
    my_list = [50, 40, 30, 20, 10, 60, 70, 80, 90, 100]
    my_list.sort()
    my_list
```

```
⇒ [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
```

```
[ ] #8
    my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
    my_list[3:9]
```

```
⇒ [4, 5, 6, 7, 8, 9]
```

```
▶ #9
    my_list = [12, 14, 16, 18, 20, 22, 24, 26, 28, 30]
    sum_ = sum(my_list)
    n = len(my_list)
    avg = sum_/n
    print("sum=", sum_, "& average=", avg)
```

```
⇒ sum= 210 & average= 21.0
```

```
[ ] #10
my_list = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
cubes = [i**3 for i in my_list]
cubes
```

⇒ [1, 8, 27, 64, 125, 216, 343, 512, 729, 1000]

```
[3] #11
nested_list = [[1, 2], [3, 4]]
single_list = []
for i in range(2):
    for j in range(2):
        single_list.append(nested_list[i][j])

single_list
```

⇒ [1, 2, 3, 4]

2. Tuple Question:

```
[4] #1
    my_tuple = (10, 20, 30)
    my_tuple[0]
```

⇒ 10

```
[5] #2
    my_tuple = (5, 10, 15, 20)
    15 in my_tuple
```

⇒ True

```
[6] #3
    a=(1, 2)
    b=(3, 4)
    a+b
```

⇒ (1, 2, 3, 4)

```
[7] #4
    my_tuple = (100, 200, 300)
    len(my_tuple)
```

⇒ 3



#5

```
my_tuple=(1, 2, 3)
my_list=list(my_tuple)
my_list=(i+4 for i in my_list)
tuple(my_list)
```



(5, 6, 7)

[18] #6

```
a,b,c= (1, 2, 3)
print(a,b,c)
```



1 2 3

[24] #7

```
x={(1,2): "a"}
x
```



{(1, 2): 'a'}

3. Set Questions:

[] #1
my_set = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}
8 in my_set

⇒ True

[] #2
set1 = {1, 2, 3, 4, 5}
set2 = {6, 7, 8, 9, 10}
set.union(set1, set2)

⇒ {1, 2, 3, 4, 5, 6, 7, 8, 9, 10}

▶ #3
my_set = {11, 12, 13, 14, 15, 16, 17, 18, 19, 20}
len(my_set)

⇒ 10

```
[15] #4
my_set = {10, 20, 30, 40, 50, 60, 70, 80, 90, 100}
my_set.add(25)
my_set
```

⇒ {10, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100}

```
[16] #5
my_set = {10, 20, 30, 40, 50, 60, 70, 80, 90, 100}
my_set.remove(30)
my_set
```

⇒ {10, 20, 40, 50, 60, 70, 80, 90, 100}



```
#6
A = {1, 2, 3, 4, 5}
B = {4, 5, 6, 7, 8}
print(A.union(B))
print(A.intersection(B))
print(A.difference(B))
```

⇒ {1, 2, 3, 4, 5, 6, 7, 8}
{4, 5}
{1, 2, 3}

4. Dictionary Questions:

```
[19] #1
my_dict = {"key1": 1, "key2": 2, "key3": 3, "key4": 4, "key5": 5, "key6": 6, "key7": 7, "key8": 8, "key9": 9, "key10": 10}
my_dict["key5"]

5
```

```
[20] #2
my_dict = {"key1": 10, "key2": 20, "key3": 30, "key4": 40, "key5": 50, "key6": 60, "key7": 70, "key8": 80, "key9": 90, "key10": 100}
"key12" in my_dict

False
```

```
[23] #3
my_dict = {"key1": 10, "key2": 20, "key3": 30, "key4": 40, "key5": 50, "key6": 60, "key7": 70, "key8": 80, "key9": 90, "key10": 100}
my_dict.update({"key11": 110})
my_dict

{'key1': 10,
 'key2': 20,
 'key3': 30,
 'key4': 40,
 'key5': 50,
 'key6': 60,
 'key7': 70,
 'key8': 80,
 'key9': 90,
 'key10': 100,
 'key11': 110}
```

```
[25] #4
my_dict = {"key1": 10, "key2": 20, "key3": 30, "key4": 40, "key5": 50, "key6": 60, "key7": 70, "key8": 80, "key9": 90, "key10": 100}
my_dict.update({"key5": 500})
my_dict

{'key1': 10,
 'key2': 20,
 'key3': 30,
 'key4': 40,
 'key5': 500,
 'key6': 60,
 'key7': 70,
 'key8': 80,
 'key9': 90,
 'key10': 100}
```

```
[26] #5
my_dict = {"key1": "A", "key2": "B", "key3": "C", "key4": "D", "key5": "E", "key6": "F", "key7": "G", "key8": "H", "key9": "I", "key10": "J"}
for k,v in my_dict.items():
    print("key:",k," value:", v)

key: key1 value: A
key: key2 value: B
key: key3 value: C
key: key4 value: D
key: key5 value: E
key: key6 value: F
key: key7 value: G
key: key8 value: H
key: key9 value: I
key: key10 value: J
```