Unit - 10

Assignment

1) Write a Python program to create an intersection of sets.
   Input
   {'green', 'blue'}
   {'blue', 'yellow'}
   Output
   {'blue'}

2) Question 2 - Write a Python program to create a union of sets.
   Input
   {'blue', 'green'}
   {'blue', 'yellow'}
   Output
   {'blue', 'yellow', 'green'}

3) Write a Python program to remove all elements from a given set.
   Input
   {'Green', 'Black', 'Red', 'White'}
   Output
   set()

4) Python program to count number of vowels using sets in given string
   Input
   str = "helloeveryone"
   Output
   No. of vowels : 6

5) Find the elements in a given set that are not in another set
   Input
   {1, 2, 3, 4, 5}
   {4, 5, 6, 7, 8}

   Output
   Difference of sn1 and sn2 using difference():
   {1, 2, 3}
   Difference of sn2 and sn1 using difference():
   {8, 6, 7}
   Difference of sn1 and sn2 using - operator:
   {1, 2, 3}

Difference of sn2 and sn1 using - operator:
{8, 6, 7}

6) Write a Python program to add member(s) to a set.
Input
set()
Output
Add single element:
{'Red'}
Add multiple items:
{'Red', 'Green', 'Blue'}

7) Check if two given sets have no elements in common
Input
{1, 2, 3, 4}
{4, 5, 6, 7}
{8}
Output
Confirm two given sets have no element(s) in common:

Compare x and y:
False

Compare x and z:
True

Compare y and z:
True

8) Write a Python program to find the maximum and minimum values in a set.
Input
{2, 3, 20, 5, 10, 15}
Output
Maximum value of the said set:
20
Minimum value of the said set:
2

9) Define Set
10) What is the difference between List, Set, Tuple & Dictionary

Unit 10

Assignment Solution

In [ ]:
```
Question1 - Write a Python program to create an intersection of sets.
Input
{'green', 'blue'}
{'blue', 'yellow'}

Output
{'blue'}
```

Method 1

In [1]:
```
# Input sets
set1 = {'green', 'blue'}
set2 = {'blue', 'yellow'}

# Find the intersection of sets
intersection_set = set1.intersection(set2)

# Alternatively, you can use the & operator:
# intersection_set = set1 & set2

# Print the intersection set
print(intersection_set)
```

```
{'blue'}
```

Method 2

In [1]:
```
setx = set(["green", "blue"])
sety = set(["blue", "yellow"])
print("Original set elements:")
print(setx)
print(sety)
print("\nIntersection of two said sets:")
setz = setx & sety
print(setz)
```

```
Original set elements:
{'blue', 'green'}
{'blue', 'yellow'}

Intersection of two said sets:
{'blue'}
```

In [ ]:
```
Question 2 - Write a Python program to create a union of sets.
Input
{'blue', 'green'}
{'blue', 'yellow'}
Output
{'blue', 'yellow', 'green'}
```

Method 1

In [2]:
```
set1 = {'blue', 'green'}
set2 = {'blue', 'yellow'}

# Find the union of sets
union_set = set1.union(set2)

# Alternatively, you can use the | operator:
# union_set = set1 | set2

# Print the union set
print(union_set)
```

```
{'yellow', 'green', 'blue'}
```

Method 2

In [4]:
```
setc1 = set(["green", "blue"])
setc2 = set(["blue", "yellow"])
print("Original sets:")
print(setc1)
print(setc2)
setc = setc1.union(setc2)
print("\nUnion of above sets:")
print(setc)
```

```
Original sets:
{'green', 'blue'}
{'yellow', 'blue'}

Union of above sets:
{'yellow', 'green', 'blue'}
```

In [ ]:
```
Question 3 - Write a Python program to remove all elements from a given set.
Input
{'Green', 'Black', 'Red', 'White'}
Output
set()
```

In [3]:
```
setc = {"Red", "Green", "Black", "White"}
print("Original set elements:")
print(setc)
print("\nAfter removing all elements of the said set.")
setc.clear()
print(setc)
```

```
Original set elements:
{'Red', 'Green', 'White', 'Black'}

After removing all elements of the said set.
set()
```

In [ ]:
```
Question 4 - Python program to count number of vowels using sets in given string
Input
str = "helloeveryone"
Output
No. of vowels : 6
```

In [5]:
```
def vowel_count(str):

    # Initializing count variable to 0
    count = 0

    # Creating a set of vowels
    vowel = set("aeiouAEIOU")

    # Loop to traverse the alphabet
    # in the given string
    for alphabet in str:

        # If alphabet is present
        # in set vowel
        if alphabet in vowel:
            count = count + 1

    print("No. of vowels :", count)

# Driver code
str = "helloeveryone"

# Function Call
vowel_count(str)
```

```
No. of vowels : 6
```

In [ ]:
```
Question 5 - Find the elements in a given set that are not in another set
Input
{1, 2, 3, 4, 5}
{4, 5, 6, 7, 8}

Output
Difference of sn1 and sn2 using difference():
{1, 2, 3}
Difference of sn2 and sn1 using difference():
{8, 6, 7}
Difference of sn1 and sn2 using - operator:
{1, 2, 3}
Difference of sn2 and sn1 using - operator:
{8, 6, 7}
```

In [7]:
```
sn1 = {1,2,3,4,5}
sn2 = {4,5,6,7,8}
print("Original sets:")
print(sn1)
print(sn2)
print("Difference of sn1 and sn2 using difference():")
print(sn1.difference(sn2))
print("Difference of sn2 and sn1 using difference():")
print(sn2.difference(sn1))
print("Difference of sn1 and sn2 using - operator:")
print(sn1-sn2)
print("Difference of sn2 and sn1 using - operator:")
print(sn2-sn1)
```

```
Original sets:
{1, 2, 3, 4, 5}
{4, 5, 6, 7, 8}
Difference of sn1 and sn2 using difference():
{1, 2, 3}
Difference of sn2 and sn1 using difference():
{8, 6, 7}
Difference of sn1 and sn2 using - operator:
{1, 2, 3}
Difference of sn2 and sn1 using - operator:
{8, 6, 7}
```

In [ ]:
```
Question 6 - Write a Python program to add member(s) to a set.
Input
set()
Output
Add single element:
{'Red'}

Add multiple items:
{'Red', 'Green', 'Blue'}
```

In [8]:
```
#A new empty set
color_set = set()
print(color_set)
print("\nAdd single element:")
color_set.add("Red")
print(color_set)
print("\nAdd multiple items:")
color_set.update(["Blue", "Green"])
print(color_set)
```

```
set()

Add single element:
{'Red'}

Add multiple items:
{'Red', 'Green', 'Blue'}
```

In [ ]:
```
Question 7 - Check if two given sets have no elements in common
Input
{1, 2, 3, 4}
{4, 5, 6, 7}
{8}
Output
Confirm two given sets have no element(s) in common:

Compare x and y:
False

Compare x and z:
True

Compare y and z:
True
```

In [9]:
```
x = {1,2,3,4}
y = {4,5,6,7}
z = {8}
print("Original set elements:")
print(x)
print(y)
print(z)
print("\nConfirm two given sets have no element(s) in common:")
print("\nCompare x and y:")
print(x.isdisjoint(y))
print("\nCompare x and z:")
print(z.isdisjoint(x))
print("\nCompare y and z:")
print(y.isdisjoint(z))
```

```
Original set elements:
{1, 2, 3, 4}
{4, 5, 6, 7}
{8}

Confirm two given sets have no element(s) in common:

Compare x and y:
False

Compare x and z:
True

Compare y and z:
True
```

In [ ]:
```
Question 8 - Write a Python program to find the
maximum and minimum values in a set.
Input
{2, 3, 20, 5, 10, 15}
Output
Maximum value of the said set:
20
Minimum value of the said set:
2
```

In [10]:
```
setn = {5, 10, 3, 15, 2, 20}
print("Original set elements:")
print(setn)
print(type(setn))
print("\nMaximum value of the said set:")
print(max(setn))
print("\nMinimum value of the said set:")
print(min(setn))
```

```
Original set elements:
{2, 3, 20, 5, 10, 15}
<class 'set'>

Maximum value of the said set:
20

Minimum value of the said set:
2
```

In [ ]:
```

```