Home Work - Day 9

Python Set Datatype

1. Add a list of elements to a set

Given a Python list, write a program to add all its elements into a given set.

Given:
sample_set = {"Yellow", "Orange", "Black"}
sample_list = ["Blue", "Green", "Red"]

Expected output: **Note:** **Set is unordered.**

{'Green', 'Yellow', 'Black', 'Orange', 'Red', 'Blue'}

2. Return a new set of identical items from two sets

Given:
set1 = {10, 20, 30, 40, 50}
set2 = {30, 40, 50, 60, 70}

Expected output:
{40, 50, 30}

3. Get Only unique items from two sets

Write a Python program to return a new set with unique items from both sets by removing duplicates.

Given:
set1 = {10, 20, 30, 40, 50}
set2 = {30, 40, 50, 60, 70}

Expected output:
{70, 40, 10, 50, 20, 60, 30}

Note: set is unordered, so not necessary this will be the order of the item.

4. Update the first set with items that do not exist in the second set

Given two Python sets, write a Python program to update the first set with items that exist only in the first set and not in the second set.

Given:
set1 = {10, 20, 30}
set2 = {20, 40, 50}

Expected output:
set1 {10, 30}

5. Remove items from the set at once

Write a Python program to remove items 10, 20, 30 from the following set at once.

Given:
set1 = {10, 20, 30, 40, 50}

Expected output:
{40, 50}

6. Return a set of elements present in Set A or B, but not both

Given:
set1 = {10, 20, 30, 40, 50}
set2 = {30, 40, 50, 60, 70}

Expected output: {20, 70, 10, 60}

7. Check if two sets have any elements in common. If yes, display the common elements

Given:
set1 = {10, 20, 30, 40, 50}
set2 = {60, 70, 80, 90, 10}

Expected output:

Two sets have items in common {10}

8. Update set1 by adding items from set2, except common items

Given:
set1 = {10, 20, 30, 40, 50}
set2 = {30, 40, 50, 60, 70}

Expected output:
{70, 10, 20, 60}

9. Remove items from set1 that are not common to both set1 and set2

Given:
set1 = {10, 20, 30, 40, 50}
set2 = {30, 40, 50, 60, 70}

Expected output:
{40, 50, 30}

10. Write a Python program to create a set

11. Write a Python program to add member(s) in a set

12. Write a Python program to remove item(s) from a given set

13. Write a Python program to create an intersection of sets

Given:
a = {30,40,70,20}
b = {20,50,60,40}

Expected output:
Intersection of two Sets:
{40, 20}
{40, 20}

14. Write a Python program to create a union of sets

Given:
a = {30,40,70,20}
b = {20,50,60,40}

Expected output:
Union of two Sets: {70, 40, 50, 20, 60, 30}

15. Write a Python program to create set difference

Given:
a = {30,40,70,20,80,50}
b = {20,50,60,40,90,10}

Expected output:
Difference of a - b: {80, 70, 30}
Difference of b - a: {90, 10, 60}

16. Write a Python program to create a symmetric difference

Given:
a = {30,40,70,20,80,50}
b = {20,50,60,40,90,10}

Expected output:
Difference of a - b: {80, 70, 30}
Difference of b - a: {90, 10, 60}

17. Write a Python program to find the elements in a given set that are not in another set

Given:
X= {50, 20, 70, 40, 10, 60, 30}
Y= {80, 50, 100, 70, 90, 60}

Expected output:

First Method using difference ()
Difference of x and y: {40, 10, 20, 30}
Difference of y and x: {80, 90, 100}

Second Method Using operator (-)
Difference of x and y: {40, 10, 20, 30}
Difference of y and x: {80, 90, 100}

18. Write a Python program to check if two given sets have no elements in common

Given
a = {23,45,78,8,56}
b = {42,55,26,87}
z = {87,46}

Expected output:

Two given sets have no Elements in Common:

Compare A and B: True
Compare B and Z: False
Compare A and Z: True

19. Write a Python program to find maximum and the minimum value in a set

Given
a = {23,45,17,8,56,10}

Expected Output:
Set A: {17, 56, 23, 8, 10, 45}

Maximum of A: 56
Minimum of A: 8

20. Write a Python program to remove all elements from a given set

Given
color = {"Red","Green","Pink","White","Black","Yellow","Blue"}

Expected Output:
After Remove all Elements give Sets: set()

21. Write a Python program to Intersection of two lists

Given
a = [1,2,3,4,5,6,7,8]
b = [11,2,43,48,55,6,76,8]

Expected Output:
X: {1, 2, 3, 4, 5, 6, 7, 8}
Y: {2, 6, 8, 43, 11, 76, 48, 55}

Intersection of Two Lists: [8, 2, 6]

22. Write a Python program to Convert String to Set

Given
s = "QualityThought"

Expected Output:
String Value: QualityThought
String Convert to Set: {'Q', 'l', 'u', 'a', 't', 'y', 'i', 'T', 'h', 'o', 'u', 'g', 'h', 't'}

23. Write a Python program to Convert Set to String

Given
S= {'Q', 'i', 'u', 'a', 't', 'y', 'i', 'T', 'h', 'o', 'u', 'g', 'h', 't'}

Expected Output:
String Value: {'Q', 'i', 'u', 'a', 't', 'y', 'i', 'T', 'h', 'o', 'u', 'g', 'h', 't'}
Type of string: <class 'set'>

Set Convert to String: {'Q', 'i', 'u', 'a', 't', 'y', 'i', 'T', 'h', 'o', 'u', 'g', 'h', 't'}
Type of String: <class 'str'>

24. Write a Python program to Convert Set to List

Given
val = {‘A’, ‘P’, ‘P’, ‘L’, ‘E’}

Expected Output:
Convert Set into List [‘A’, ‘P’, ‘P’, ‘L’, ‘E’]

25. Write a Python program to Convert Set to Tuple

Given
val = {‘A’, ‘P’, ‘P’, ‘L’, ‘E’}

Expected Output:
Convert Set into List (‘A’, ‘P’, ‘P’, ‘L’, ‘E’)

26. Write a Python program to Convert Tuple to Set

Given
val = (‘A’, ‘P’, ‘P’, ‘L’, ‘E’)

Expected Output:
Convert Set into List {‘A’, ‘P’, ‘P’, ‘L’, ‘E’}

27. Write a program to add all its elements into a given set

Given
x = {10,20,30,40,50}
y = [60,70,80,90,100]

Expected Output:
X: {50, 20, 40, 10, 30}
Type of X: <class 'set'>

Y: [60, 70, 80, 90, 100]
Type of Y: <class 'list'>

Add all its Elements into a given set: {70, 10, 80, 20, 90, 30, 100, 40, 50, 60}

28. Write a Python program to return a new set with unique items from both sets by removing duplicates

Given
x = {10, 20, 30, 40, 50}
y = {40, 50, 60, 70,80}

Expected Output:
{70, 40, 10, 80, 50, 20, 60, 30}

29. Find the union, symmetric difference, and intersection of the two sets. Print the results of each operation

Given
Set 1: {5, 6, 7, 8, 9, 10, 11, 12, 13, 14}
Set 2: {20, ('Python', 'C'), 10, 11, ('J', 'O', 'E')}

Expected Output:
Union: {5, 6, 7, 8, 9, 10, 11, 12, 13, 14, ('Python', 'C'), 20, ('J', 'O', 'E')}
Symmetric Difference: {5, 6, 7, 8, 9, ('Python', 'C'), 12, 13, 14, 20, ('J', 'O', 'E')}
Intersection: {10, 11}

30. Write a Python program to Check if a specific value exists in a set

Given
s = {10,20,30,40,50}

Expected Output:

False
True