

Experiment 4.1.1

Aim:- Write a Python program to perform union, intersection and difference operations on Set A and Set B.

Algorithm:-

Step 1: Start

Step 2: Read set A

Step 3: Read set B

Step 4: Compute the **union** of sets

$$U = A \cup B$$

Step 5: Compute the **intersection** of sets

$$I = A \cap B$$

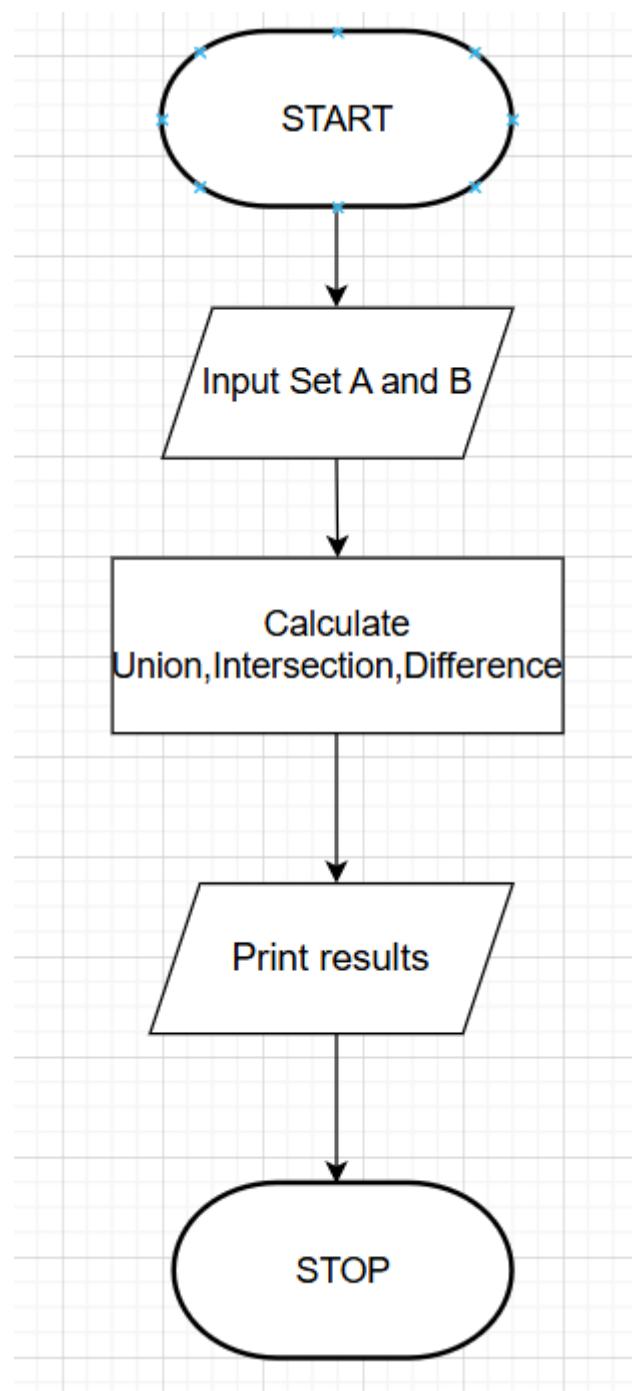
Step 6: Compute the **difference** of sets

$$D = A - B$$

Step 7: Display the results of union, intersection, and difference

Step 8: Stop

Flowchart:-



Code:-

The screenshot shows the CodeTantra IDE interface. On the left, there's a sidebar with sections for '4.1.1. Set Operations' and 'Sample Test Cases'. The main area has tabs for 'Editor', 'Terminal', and 'Test cases'. The code editor contains a Python script named 'setoperat...'. The script performs union, intersection, and difference operations on two sets, Set A and Set B. It includes comments explaining the input format, output format, and a note about empty sets. The code uses map(int, input().split()) to convert user input into sets of integers. The terminal tab shows the execution results: Average time 0.007 s, Maximum time 0.010 s, and 2 out of 2 test cases passed. The test cases tab shows expected and actual outputs for three test cases, all of which passed.

```
# Input sets
set_a = set(map(int, input("Set A: ").split()))
set_b = set(map(int, input("Set B: ").split()))

# Perform operations
union_set = set_a | set_b
intersection_set = set_a & set_b
difference_set = set_a - set_b

# Output results
print("Union:", union_set)
print("Intersection:", intersection_set)
print("Difference:", difference_set)
```

Input Format:

- First Line prompts "Set A: " followed by space-separated list of integers for Set A.
- The second input prompts "Set B: " followed by space-separated list of integers for Set B.

Output Format:

- The first line prints "Union: " followed by the union of Set A and Set B.
- The second line prints "Intersection: " followed by the intersection of Set A and Set B.
- The third line prints "Difference: " followed by the difference of Set A and Set B.

Note:

- If there is no intersection between the two sets, the program prints an empty set, which appears as "set()" in the output.
- Please refer to the visible test cases for better understanding.

Average time: 0.007 s Maximum time: 0.010 s
7.50 ms 10.00 ms 2 out of 2 shown test case(s) passed
2 out of 2 hidden test case(s) passed

Test case 1 1 ms

Expected output	Actual output
Set A: 0 2 4 5 8	Set A: 0 2 4 5 8
Set B: 1 2 3 4 5	Set B: 1 2 3 4 5
Union: {0, 1, 2, 3, 4, 5, 8}	Union: {0, 1, 2, 3, 4, 5, 8}
Intersection: {2, 4, 5}	Intersection: {2, 4, 5}
Difference: {0, 8}	Difference: {0, 8}

Terminal Test cases < Prev Reset Submit Next >