

4.1.1] Set Operations

ALGORITHM

Step 1: Start

Step 2: Input Set A

Step 3: Convert the input values into Set A

Step 4: Input Set B

Step 5: Convert the input values into Set B

Step 6: Find the Union of Set A and Set B

$$\text{Union} = A \cup B$$

Step 7: Find the Intersection of Set A and Set B

$$\text{Intersection} = A \cap B$$

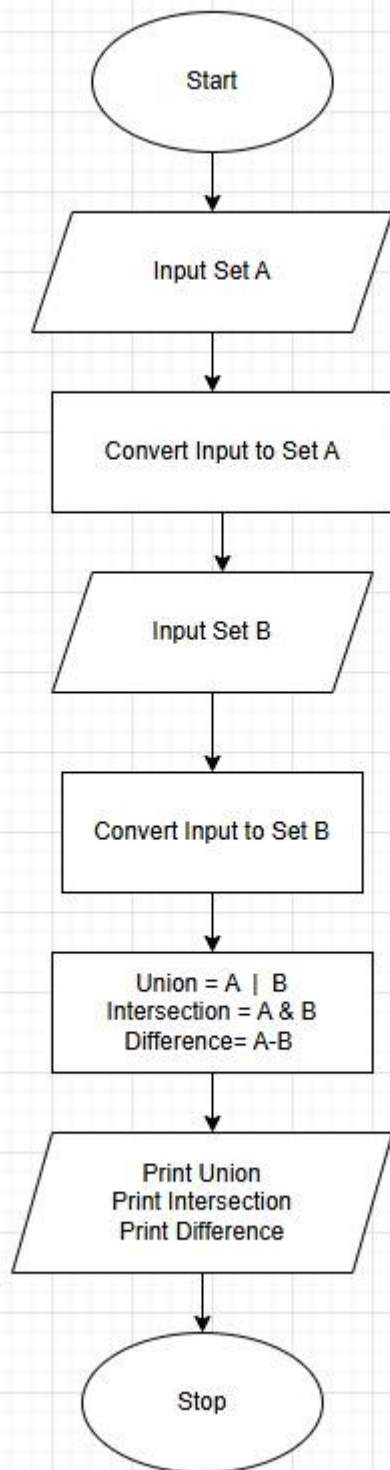
Step 8: Find the Difference of Set A and Set B

$$\text{Difference} = A - B$$

Step 9: Print Union, Intersection, and Difference

Step 10: Stop

FLOWCHART



PYTHON CODE

```
set_a = set(map(int, input("Set A: ").split()))
```

```
set_b = set(map(int, input("Set B: ").split()))
```

```
print("Union:", set_a | set_b)

print("Intersection:", set_a & set_b)

print("Difference:", set_a - set_b)
```

EXECUTION

The screenshot displays the CodeTANTRA IDE interface. On the left, the problem description for "4.1.1. Set Operations" is shown, including input and output formats and sample test cases. The main editor contains a Python script that reads two sets of integers and prints their union, intersection, and difference. The right sidebar shows the execution results, indicating that all test cases passed.

Problem Description:

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

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.

Sample Test Cases

Code:

```
1 set_a = set(map(int, input("Set A: ").split()))
2 set_b = set(map(int, input("Set B: ").split()))
3
4
5 print("Union:", set_a | set_b)
6 print("Intersection:", set_a & set_b)
7 print("Difference:", set_a - set_b)
8
```

Execution Results:

- Average time: 0.020 s (20.00 ms)
- Maximum time: 0.048 s (48.00 ms)
- 2 out of 2 shown test case(s) passed
- 2 out of 2 hidden test case(s) passed

Test case 1 (48 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}

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