

#### 4.1.1. Set Operations

##### ALGORITHM

### Algorithm: Set Operations (Union, Intersection, Difference)

**Step 1:** Start the program.

**Step 2:** Read elements of **Set A** from the user.

**Step 3:** Convert the input values into integers and store them as a set.

**Step 4:** Read elements of **Set B** from the user.

**Step 5:** Convert the input values into integers and store them as a set.

**Step 6:** Find the **Union** of Set A and Set B  
(Union means all elements from both sets without repetition).

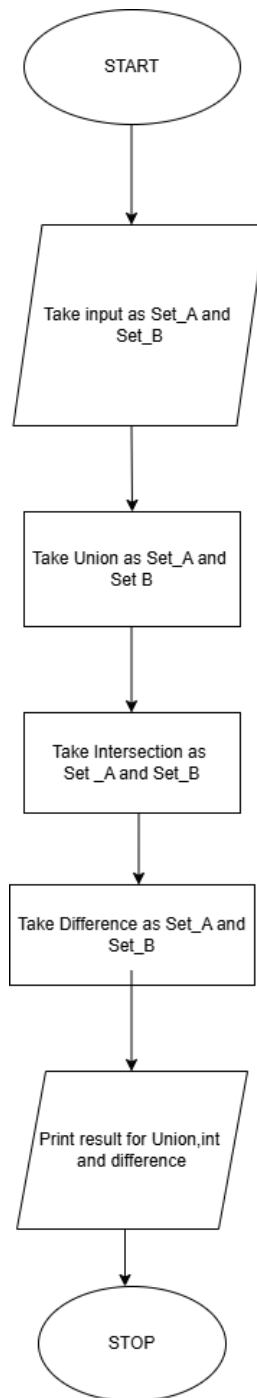
**Step 7:** Find the **Intersection** of Set A and Set B  
(Intersection means common elements in both sets).

**Step 8:** Find the **Difference** of Set A and Set B  
(Difference means elements present in Set A but not in Set B).

**Step 9:** Display the Union, Intersection, and Difference.

**Step 10:** Stop the program.

## Flowchart



CODETANTRA

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4.1.1. Set Operations

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

setoperat...

```
1 Set_A = set(map(int, input("Set A: ").split()))
2
3 Set_B = set(map(int, input("Set B: ").split()))
4 Union_set = Set_A | Set_B
5 Intersection_set = Set_A & Set_B
6 Difference_set = Set_A - Set_B
7
8 print("Union:", Union_set)
9 print("Intersection:", Intersection_set)
10 print("Difference:", Difference_set)
```

Average time0.009 s4.75 msMaximum time0.009 s9.00 ms

2 out of 2 shown test case(s) passed2 out of 2 hidden test case(s) passed

Test case 1

Expected output

Set A: {2,4,5,8}

Set B: {2,3,4,5}

Union: {0, 1, 2, 3, 4, 5, 8}

Intersection: {2, 4, 5}

Difference: {0, 8}

Actual output

Set A: {2,4,5,8}

Set B: {2,3,4,5}

Union: {0, 1, 2, 3, 4, 5, 8}

Intersection: {2, 4, 5}

Difference: {0, 8}

TerminalTest cases

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