

### **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

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

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

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

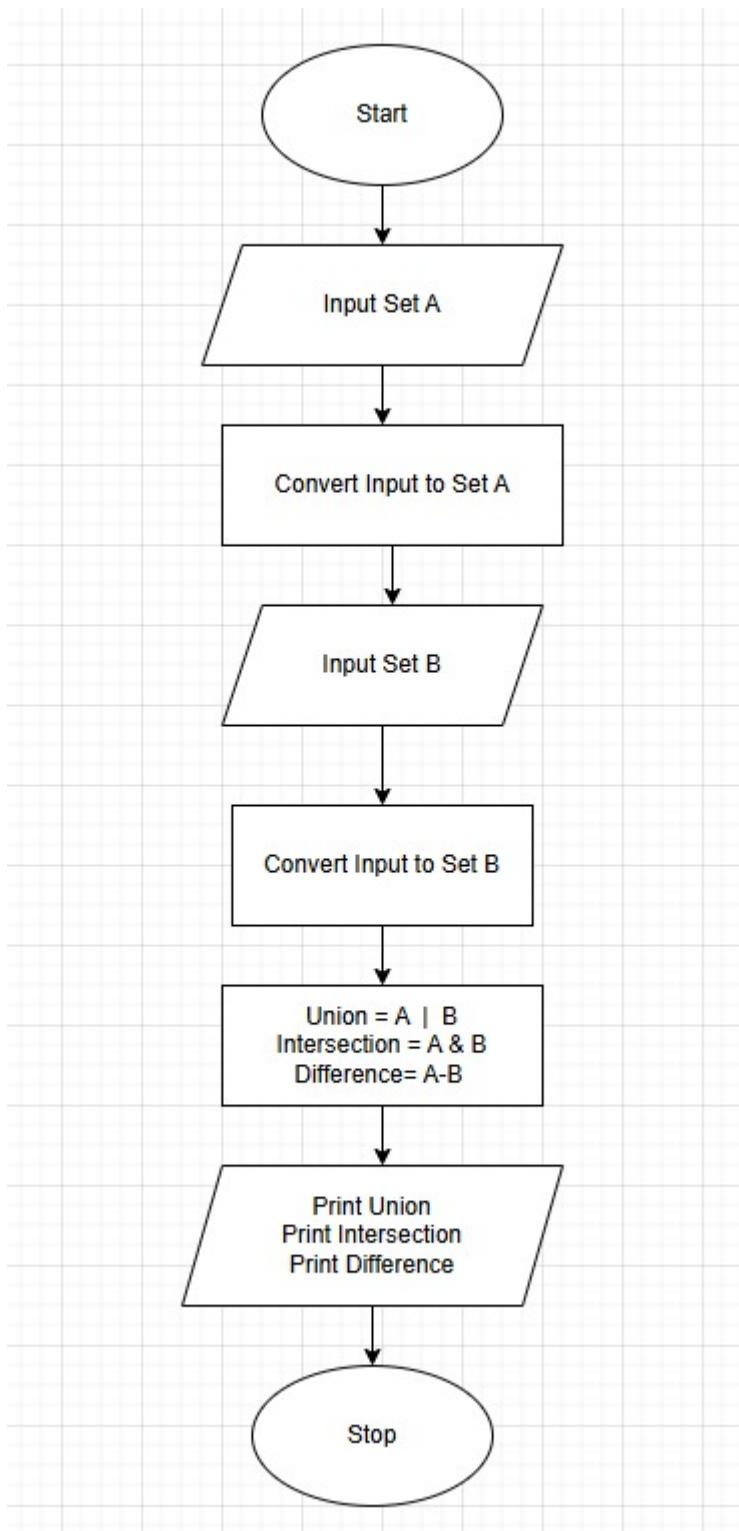
Step 8: Find the Difference of Set A and Set B

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

Step 9: Print Union, Intersection, and Difference

Step 10: Stop

#### **FLOWCHART**



### PYTHON CODE

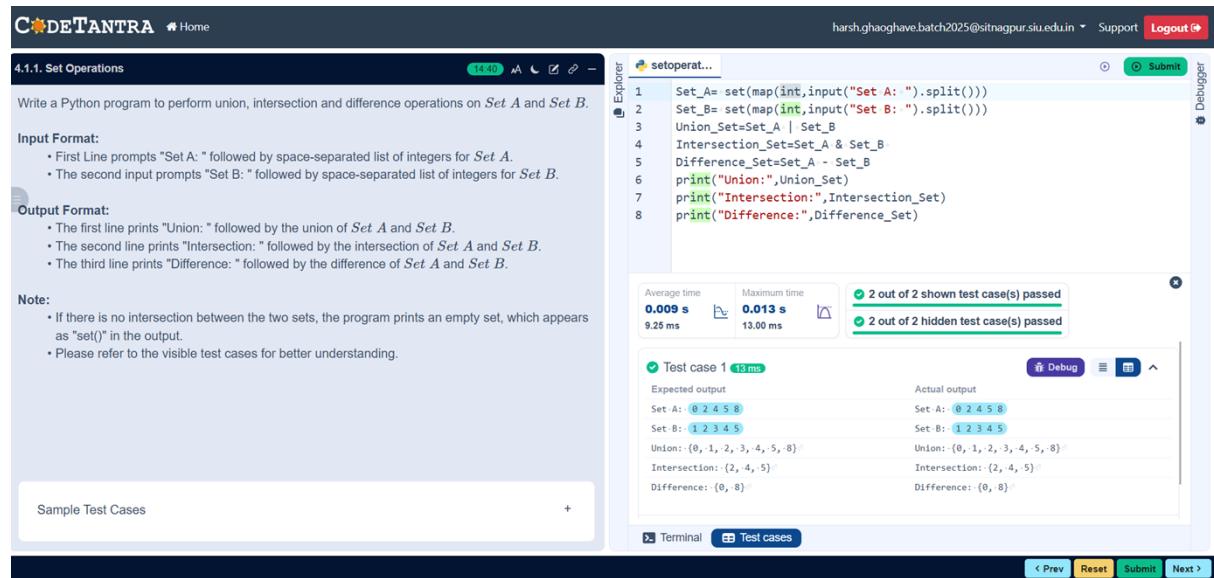
```
set_a = set(map(int, input("Set A: ").split()))
set_b = set(map(int, input("Set B: ").split()))
```

```

print("Union:", set_a | set_b)
print("Intersection:", set_a & set_b)
print("Difference:", set_a - set_b)

```

## EXECUTION



The screenshot 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 contains a code editor with the following Python script:

```

1 Set_A=set(map(int,input("Set A: ").split()))
2 Set_B=set(map(int,input("Set B: ").split()))
3 Union_Set=Set_A | Set_B
4 Intersection_Set=Set_A & Set_B
5 Difference_Set=Set_A - Set_B
6 print("Union:",Union_Set)
7 print("Intersection:",Intersection_Set)
8 print("Difference:",Difference_Set)

```

The code editor has tabs for 'setoperat...', 'Submit', and 'Debugger'. Below the code editor, a results panel shows test case statistics:

- Average time: 0.009 s
- Maximum time: 0.013 s
- 2 out of 2 shown test case(s) passed
- 2 out of 2 hidden test case(s) passed

Test case details for 'Test case 1' (13 ms) are shown:

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}

At the bottom of the interface are buttons for 'Terminal', 'Test cases', 'Prev', 'Reset', 'Submit', and 'Next'.