

4.1.1 Set Operations

Algorithm

Step 1 :- Start

Step 2 :- **Input Set A**

- Prompt the user to enter space-separated integers for Set A.
- Convert the input values into a set and store it as Set_A.

Step 3 :- **Input Set B**

- Prompt the user to enter space-separated integers for Set B.
- Convert the input values into a set and store it as Set_B.

Step 4:- **Perform Union Operation**

- Compute Union_Set = Set_A \cup Set_B.

Step 5 :- **Perform Intersection Operation**

- Compute Intersection_Set = Set_A \cap Set_B.

Step 6 :- **Perform Difference Operation**

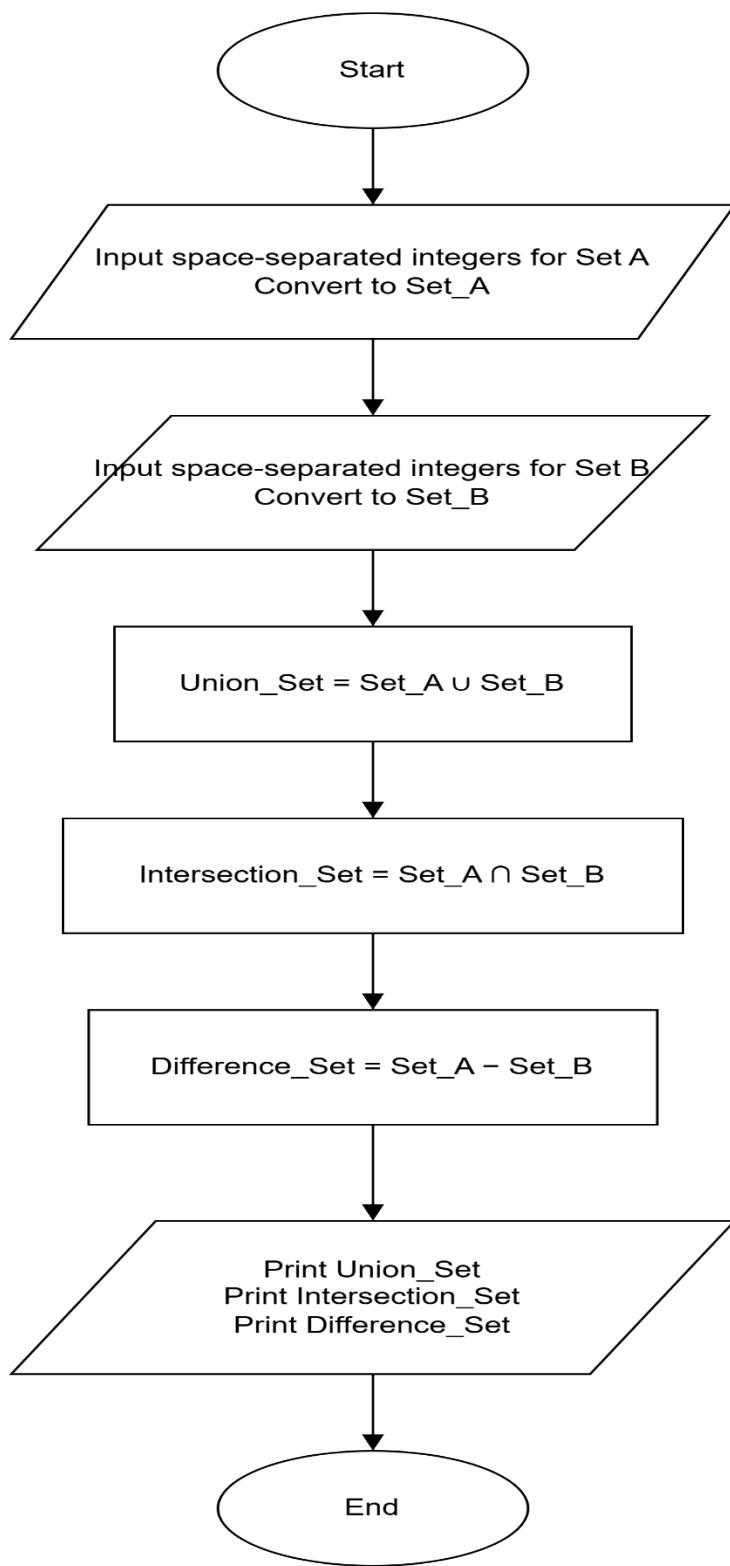
- Compute Difference_Set = Set_A - Set_B.

Step 7:-**Display Results**

- Print "Union:" followed by Union_Set.
- Print "Intersection:" followed by Intersection_Set.
- Print "Difference:" followed by Difference_Set.

Step8:- Stop

Flowchart



Python code

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

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

Union_Set=Set_A | Set_B

Intersection_Set=Set_A & Set_B

Difference_Set=Set_A - Set_B

print("Union:",Union_Set)

print("Intersection:",Intersection_Set)

print("Difference:",Difference_Set)

EXCECUTION

The screenshot shows the CodeTantra IDE interface. The top bar displays the user's name (harsh.ghaoghave.batch2025@sitnagpur.siu.edu.in) and various navigation links. The main workspace shows 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)
```

Below the code editor, a results panel displays performance metrics and test case results. The results show:

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

The results table for Test case 1 shows the following data:

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, there are buttons for Terminal, Test cases, Prev, Reset, Submit, and Next.