Experiment 01:-

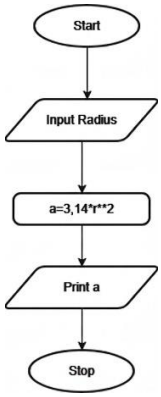
Problem Statement:-

Write a Python program that calculates the area of a circle when the radius is provided by the user. Use pi = 3.14 and display the area.

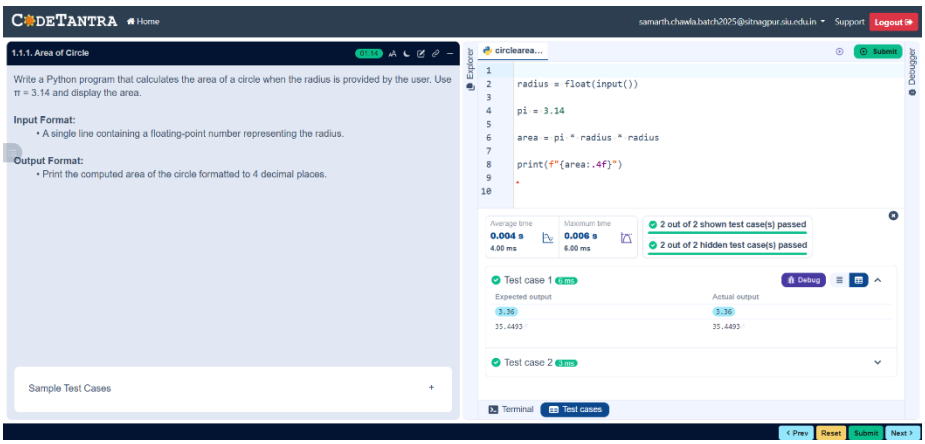
Algorithm:-

1. Start
2. Read the radius `r` from the user
3. Calculate the area using the formula:
   Area = 3.14 × r × r
4. Display the area
5. Stop.

Flowchart:-



Execution:-



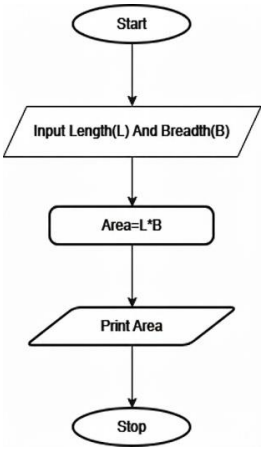
Problem Statement:-

Write a Python program to calculate the area of a rectangle given its length and width.

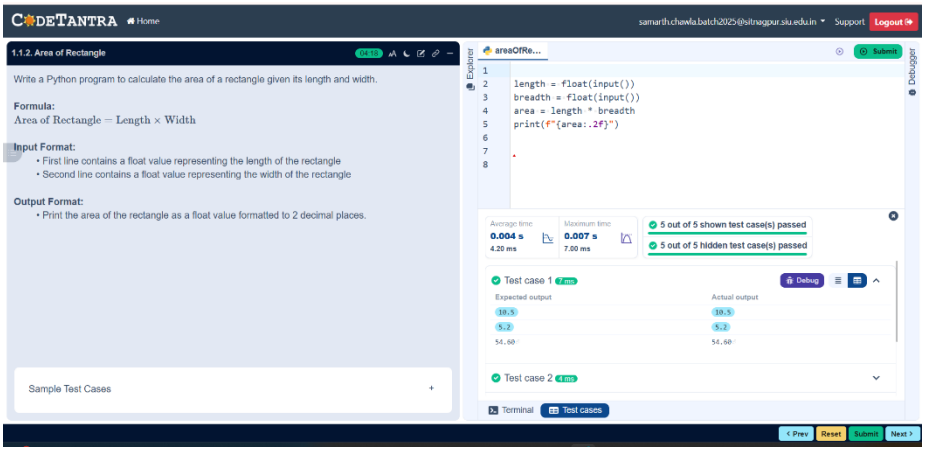
Algorithm:-

1. Start.
2. Read the length l and Width b from the user.
3. Calculate the area using the formula:
   Area = l*b.
4. Display the area.
5. Stop.

Flowchart:-



Execution:-



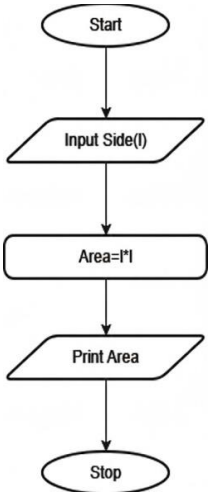
Problem Statement:-

Write a Python program that prompts the user to enter the Side Length of a square and computes the area of the square.

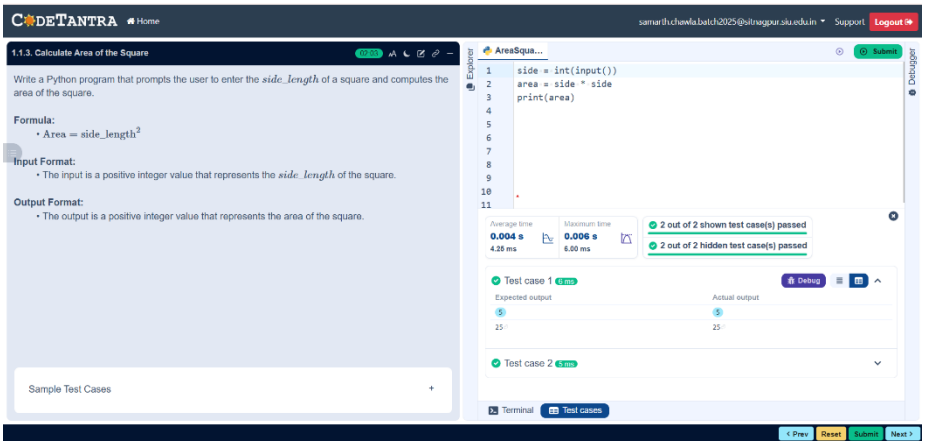
Algorithm:-

1. Start.
2. Read the side length s of the square.
3. Calculate the area using the formula: Area=$s \times s$.
4. Display the area
5. Stop.

Flowchart:-



Execution:-



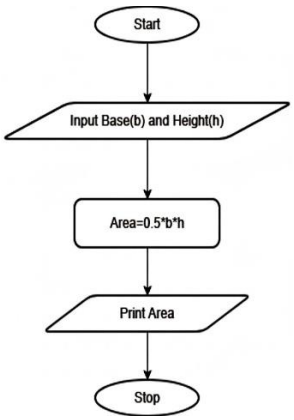
Problem Statement:-

Write a Python program that prompts the user to enter the triangle's base and height and computes the triangle's area.

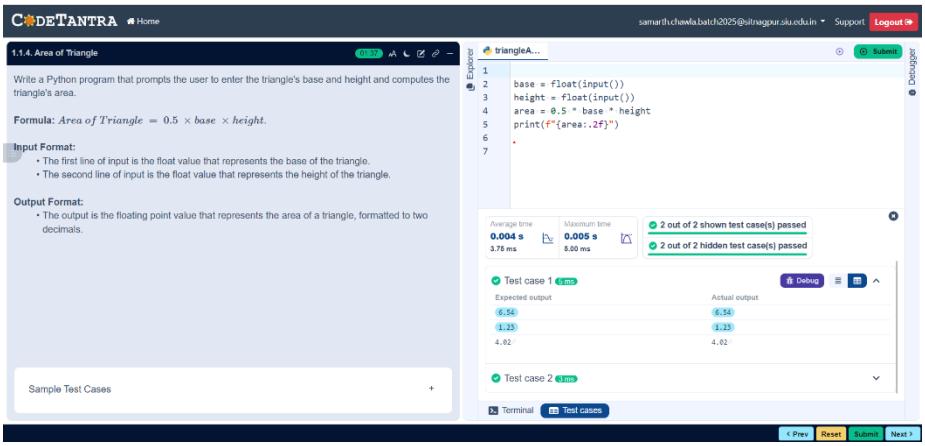
Algorithm:-

1. Start.
2. Read the base b and height h of the triangle.
3. Calculate the area using the formula: Area=$0.5 \times b \times h$.
4. Display the area.
5. Stop.

Flowchart:-



Execution:-



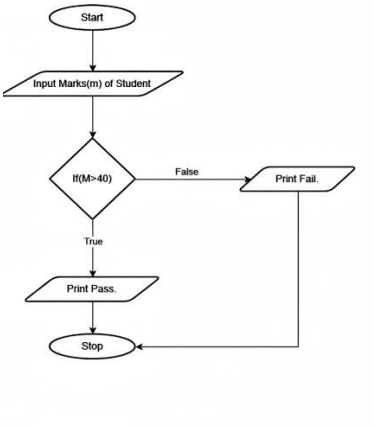
Problem Statement:-

Write a Python program to determine whether a student passed the exam or not based on their marks.

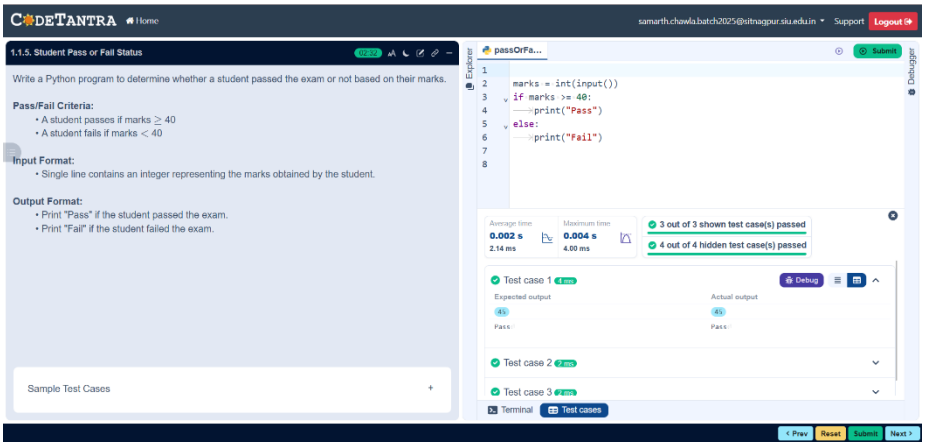
Algorithm:-

1. Start.
2. Read the marks obtained by the student.
3. If marks > 40 → Display “Pass”.
4. Else → Display “Fail”.
5. Stop.

Flowchart:-



Execution:-



Experiment 02:-

Problem Statement:-

Write a program to find the roots of a quadratic equation, given its coefficients a, b, and c. Use the quadratic formula: (-b+-root(b**2-4ac))/2a.

Algorithm:-

1. Start.

2. Read the coefficients a, b, and c.
3. Calculate the discriminant using:- $D=b\text{^}2-4ac$.

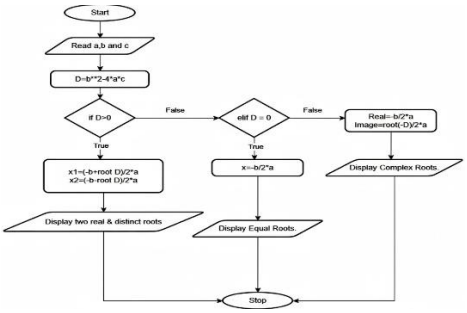
4. If D > 0 Compute:- $x1=(-b+\text{root}D)/2a$ and $x2=(-b-\text{root}D)/2a$ Display two real and distinct roots.

5. Else if D = 0 Compute:- $x=-b/2a$ Display equal real roots.

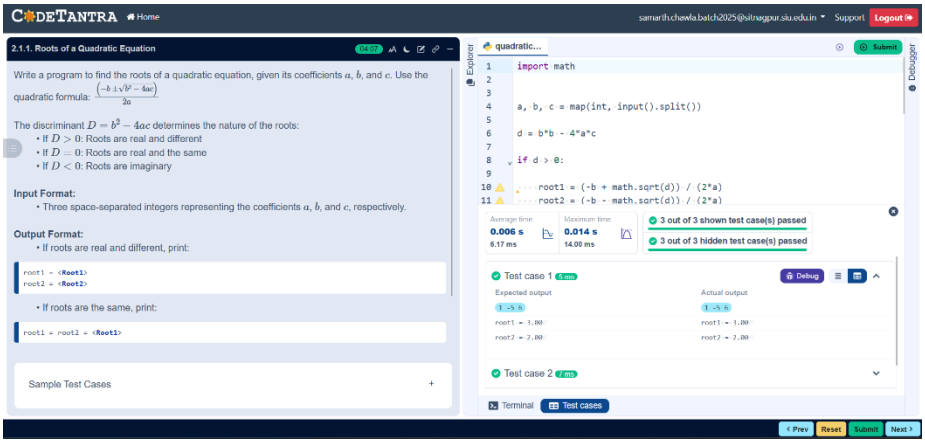
6. Else (D < 0) Compute:- Real part = $-b/2a$ Imaginary part = root(-D)/2a Display complex roots.

7. Stop.

Flowchart:-



Execution:-



Experiment 03:-

Problem Statement:-

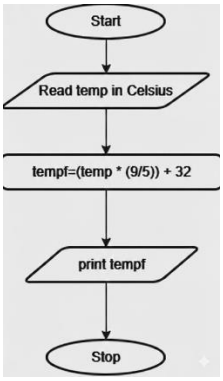
Write a Python program to convert temperature from Celsius to Fahrenheit.

Algorithm:-

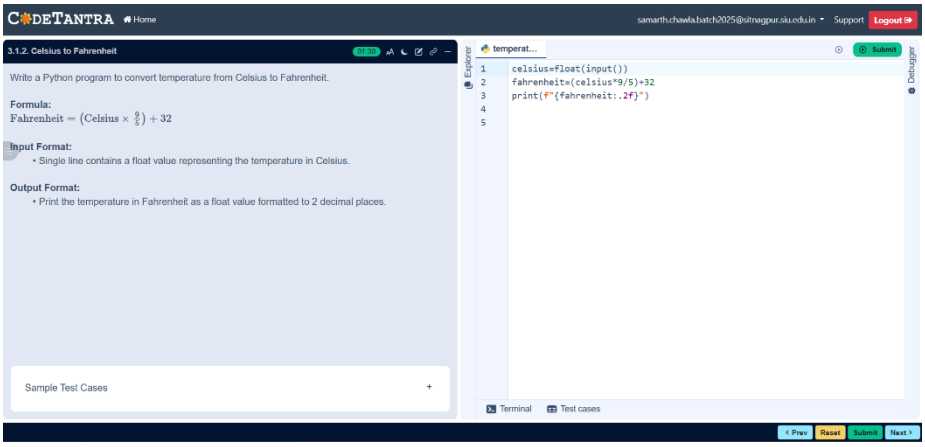
1. Start.
2. Input temperature in Celsius C.
3. Calculate Fahrenheit using the formula F = (C × 9/5) + 32.

4. Display the temperature in Fahrenheit.
5. Stop.

Flowchart:-



Execution:-



Problem Statement:-

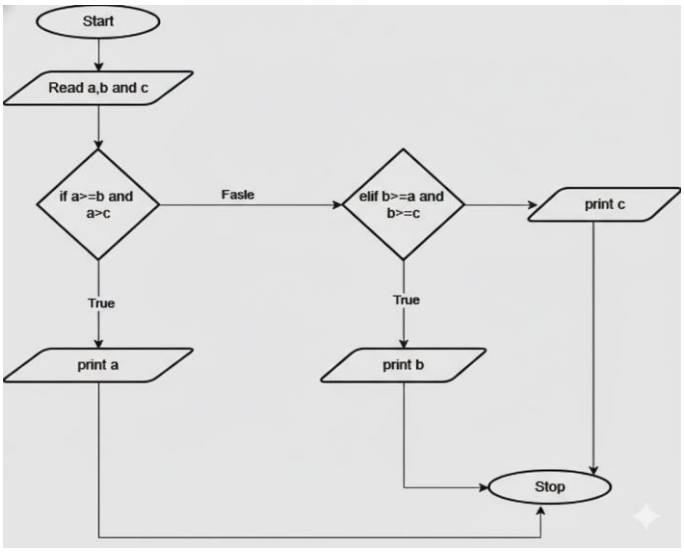
Write a Python program that prompts the user to enter three integers. Print the largest of the three integers.

Algorithm:-

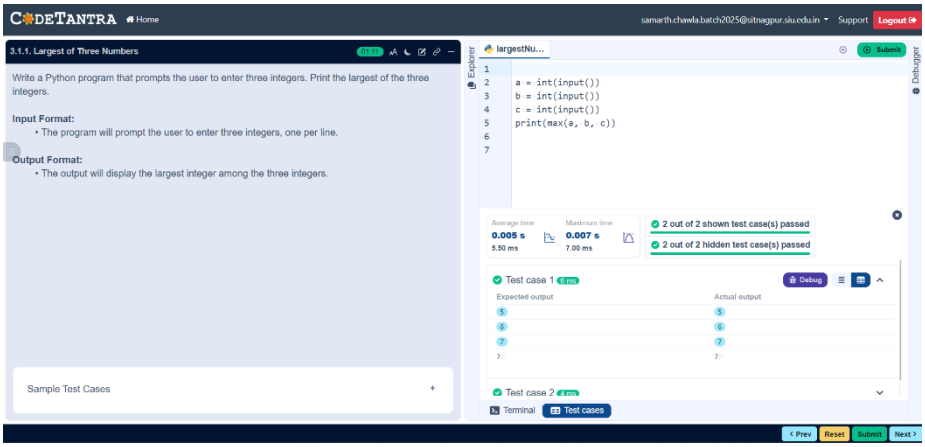
1. Start.

2. Input three integers a, b, and c.
3. If a ≥ b and a ≥ c → Print a as the largest number.
4. Else if b ≥ a and b ≥ c → Print b as the largest number.
5. Else → Print c as the largest number.
6. Stop

Flowchart:-



Execution:-



Experiment 04:-

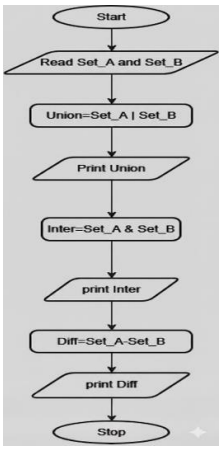
Problem Statement:-

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

Algorithm:-

1. Start.
2. Declare two sets A and B
3. Read elements of Set A from the user
4. Read elements of Set B from the user
5. Perform Union operation Union = A ∪ B.
6. Perform Intersection operation Intersection = A ∩ B.
7. Perform Difference operations
8. Difference1 = A − B.
9. Display Set A and Set B
10. Display Union, Intersection, and Difference results
11. Stop.

Flowchart:-



Execution:-