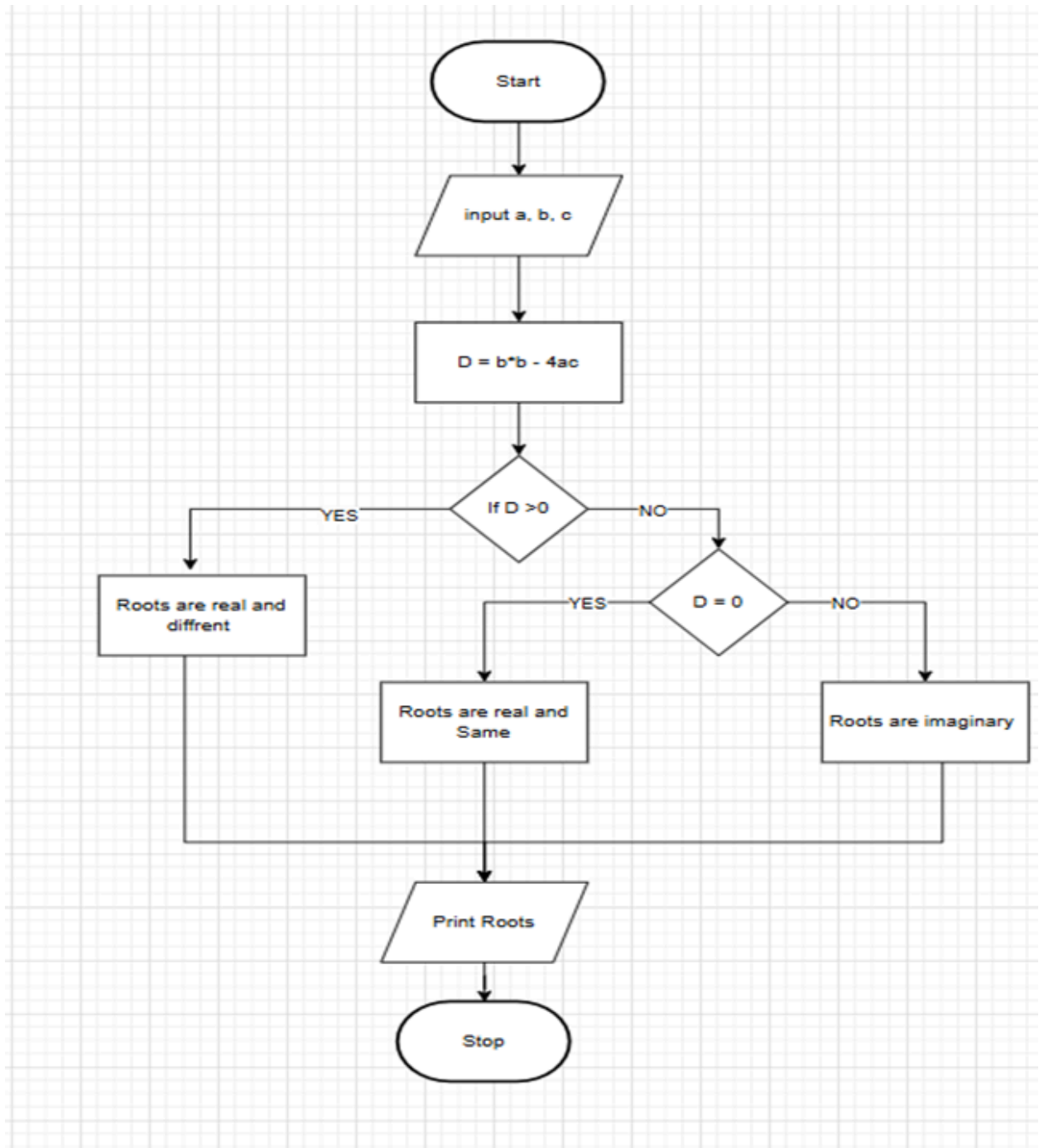


Algorithm:

1. Start
2. Input coefficients a , b , and c
3. Calculate the discriminant
 $D = b^2 - 4ac$
4. If $D > 0$
5. Roots are real and different
6. Else if $D = 0$
7. Roots are real and same
8. Else ($D < 0$)
9. Roots are imaginary
10. Print the nature of roots (and roots if required)
11. Stop

Flowchart:



CODE TANTRA EXECUTION:

CODETANTRA

Home

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2.1.1. Roots of a Quadratic Equation

Write a program to find the roots of a quadratic equation, given its coefficients a , b , and c . Use the quadratic formula:
$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

The discriminant $D = b^2 - 4ac$ determines the nature of the roots:

- If $D > 0$: Roots are real and different
- If $D = 0$: Roots are real and the same
- If $D < 0$: Roots are imaginary

Input Format:

- Three space-separated integers representing the coefficients a , b , and c , respectively.

Output Format:

- If roots are real and different, print:

```
root1 = <Root1>
root2 = <Root2>
```
- If roots are the same, print:

```
root1 = root2 = <Root1>
```
- If roots are imaginary, print:

```
root1 = <RealPart>+<ImaginaryPart>i
root2 = <RealPart>-<ImaginaryPart>i
```
- All values should be formatted to two decimal places.

Sample Test Cases

quadratic...

```
1 import math
2
3 a, b, c = map(int, input().split())
4
5 d = b*b - 4*a*c
6
7 if d > 0:
8     root1 = (-b + math.sqrt(d)) / (2*a)
9     root2 = (-b - math.sqrt(d)) / (2*a)
10    print(f"root1 = {root1:.2f}")
11    print(f"root2 = {root2:.2f}")
12 elif d == 0:
13     root = -b / (2*a)
14     print(f"root1 = root2 = {root:.2f}")
15 else:
16     real = -b / (2*a)
17     imag = math.sqrt(-d) / (2*a)
18     print(f"root1 = {real:.2f}+{imag:.2f}i")
19     print(f"root2 = {real:.2f}-{imag:.2f}i")
20
```

Average time0.006 s6.50 msMaximum time0.010 s10.00 ms

3 out of 3 shown test case(s) passed3 out of 3 hidden test case(s) passed

Test case 1

Expected output1 -5.00root1 = 3.00root2 = -2.00Actual output1 -5.00root1 = 3.00root2 = -2.00

Test case 2

TerminalTest Cases

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