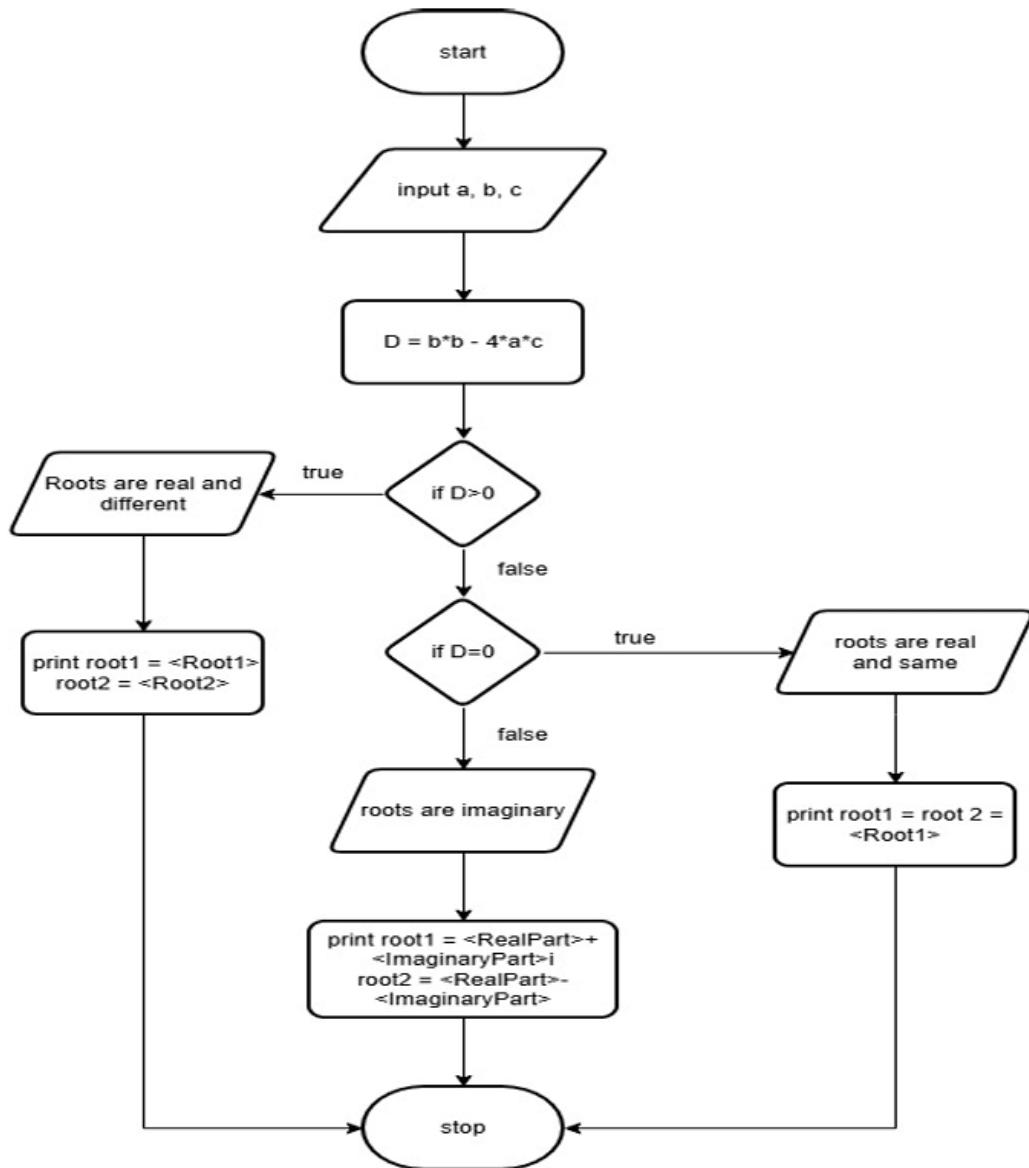


2.1.1 : Roots of a Quadratic Equation

Flow Chart :



Algorithm :

1. Start
2. Read values of a, b, and c
3. Calculate discriminant $D = b^2 - 4ac$

4. If $D > 0$

- Find two real roots using the quadratic formula
- Print both roots

5. If $D = 0$

- Find one real root
- Print the same root twice

6. If $D < 0$

- Find real and imaginary parts
- Print two imaginary roots

7. Stop

CODETANTRA Home

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.

quadratic...

```
1 # Write your code here...
2 a,b,c = map(float,input().split())
3 D = (b*b) - (4 * a * c)
4 sqrtD = D ** 0.5
5 root1=(-b+sqrtD)/(2*a)
6 root2=(-b-sqrtD)/(2*a)
7 v if D > 0:
8     --->print(f"root1 = {root1:.2f}")
9     --->print(f"root2 = {root2:.2f}")
10 v elif D == 0:
11     --->print(f"root1 = root2 = {root1:.2f}")
12 v else:
13     --->print(f"root1 = {root1.real:.2f}+{root1.imag:.2f}i")
14     --->print(f"root2 = {root2.real:.2f}-{root1.imag:.2f}i")
```

Average time: 0.004 s Maximum time: 0.011 s
4.17 ms 11.00 ms 3 out of 3 shown test case(s) passed
3 out of 3 hidden test case(s) passed

Test case 1 11 ms
Expected output: 1 -5 6
root1 = -3.00
root2 = -2.00
Actual output: 1 -5 6
root1 = -3.00
root2 = -2.00

Test case 2 4 ms

Terminal Test cases

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