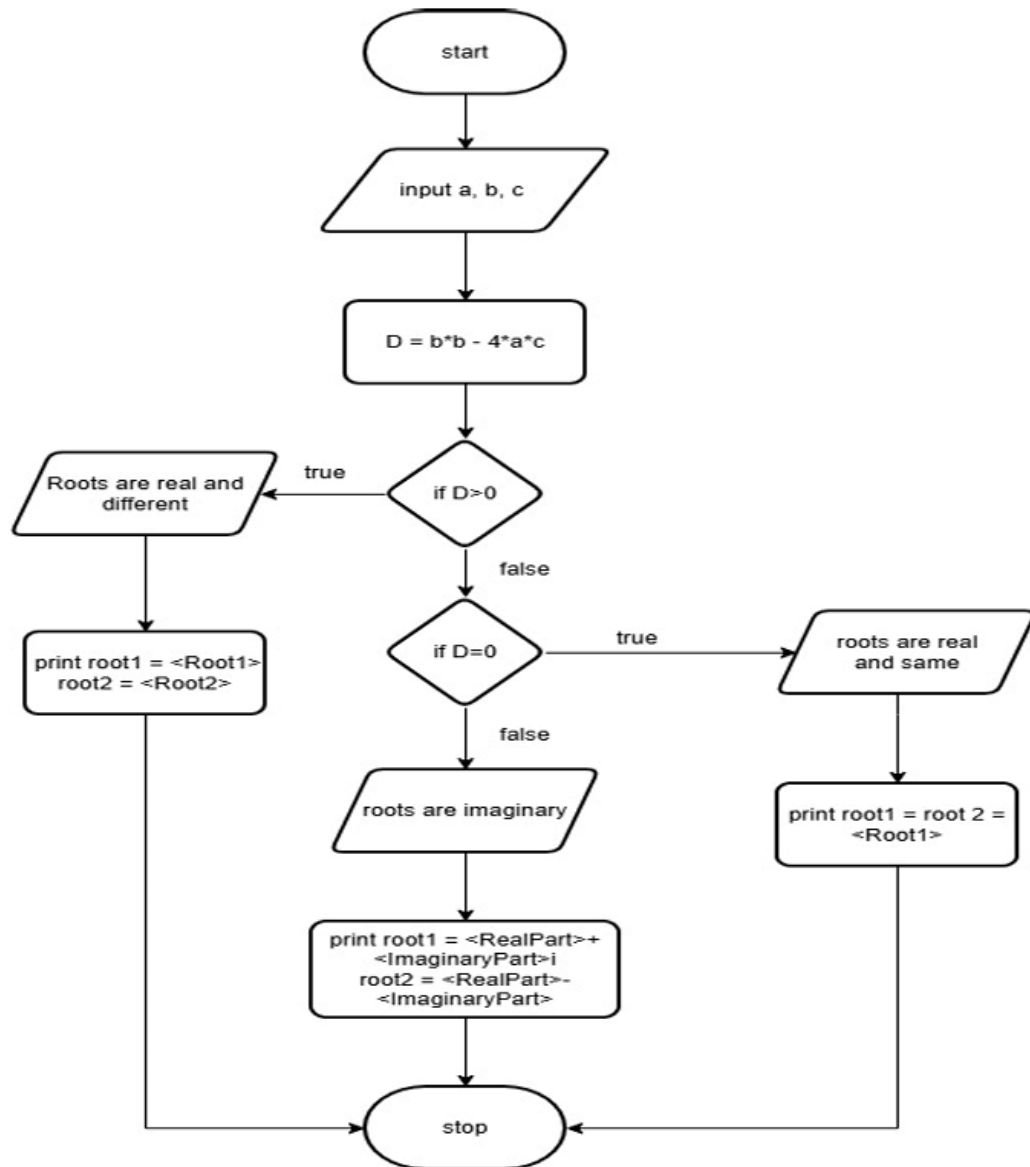


## 2.1.1 : Roots of a Quadratic Equation

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

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2.1.1. Roots of a Quadratic Equation18:41

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

Average time0.004 s4.17 msMaximum time0.011 s11.00 ms

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

Test case 111 ms

Expected output1 -5.6root1 = 3.00root2 = -2.00

Actual output1 -5.6root1 = 3.00root2 = -2.00

Test case 24 ms

TerminalTest cases

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