॥वसुधैव कुटुम्बकम॥

SYMBIOSIS INSTITUTE OF TECHNOLOGY, PUNE

Constituent of Symbiosis International (Deemed University), Pune

Assignment No.: 01	
Course Name	Programming in C Lab
Name of Student	Faheemuddin Sayyed
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Branch	CSE
Class	C-1
Academic Year & Semester	2023-2024 & Semester 2
Date of Performance	12/01/2024
Assignment Title (Full):	Design and develop a flowchart or an algorithm that takes three coefficients a, b and c of a quadratic equation (ax2+bx+c=0) as input and compute all possible roots.

Theory: (Note: According to the assignment title, please write the background information as an introduction, then write the steps/logic/process/algorithm of the C program in the Journal Notebook, and add its screenshot in the below theory response.)

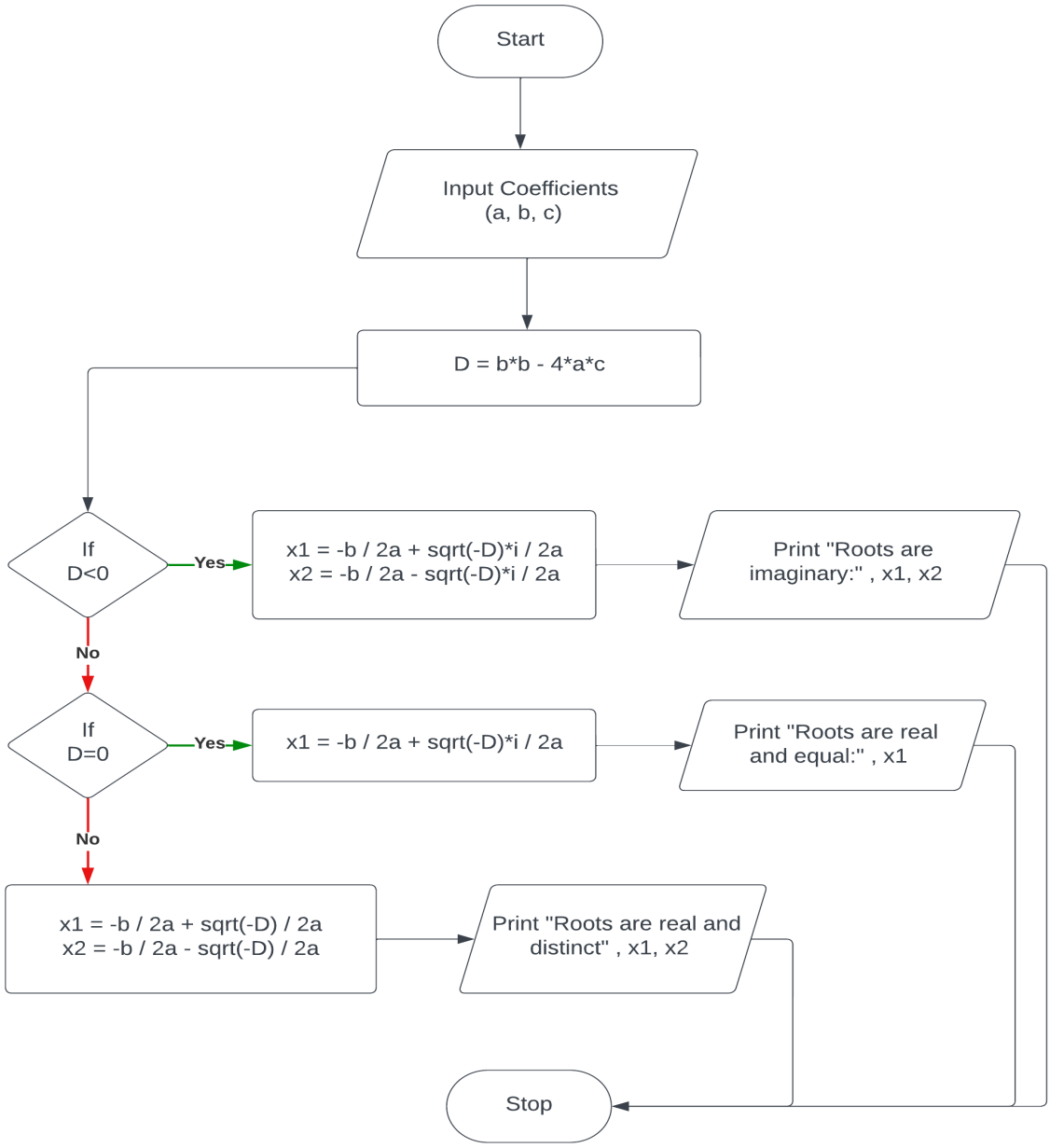
Theory Response:

1. Accept coefficients a, b, and c as input.
2. Calculate the discriminant (Δ) using the formula Δ = b^2 - 4ac.
3. Check the value of Δ:
    - If Δ is positive, calculate two roots using the quadratic formula:
        - root1 = (-b + sqrt(Δ)) / (2a)
        - root2 = (-b - sqrt(Δ)) / (2a)
    - If Δ is zero, calculate a single root using the formula:
        - root = -b / (2a)
    - If Δ is negative, the roots are imaginary and are calculated as:
        - root1 = (-b + sqrt(-Δ))*i / (2a)
        - root2 = (-b - sqrt(-Δ))*i / (2a)

    [Here, i is iota, i.e. sqrt(-1)]
4. Display the roots.

Output: (Note: Execute the C program as per the assignment title, take an input code and output result screenshot with the date and time from your computer, and add its screenshot in the below output response.)

Output Response:



Conclusion: (Note: Write the key findings or outcome from this assignment, enlist their potential real-world applications in Journal Notebook, and add its screenshot in the below conclusion response.)

Conclusion Response:

The flowchart calculates the roots of a quadratic equation based on the input coefficients. By considering the discriminant, the program determines the nature and number of roots and computes them accordingly.

Please note that assignment content can be readable.

Faculty Name:

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