

Introduction

The Development Process of a Program for Solving Quadratic Equations $a \cdot x^2 + b \cdot x + c = 0$. The output has been specifically made attractive by the use of attractive formatting in preparing the equation and its solution.

Development Process

1. Problem Analysis

The first step was understanding the problem requirement. The study showed that the coefficients a , b , and c , the discriminant, and the roots are key components. More so, the different cases were investigated in two distinct simple roots: one double-rooted that is real and a complex number of roots.

2. Design

The design phase focused on structuring the program and handling different cases effectively.

And declared int variables a , b , and c , which will be coefficients, and an int discriminant for discriminant.

I managed each case by using if/else for the value of the discriminant.

Quadratic Equations with Pretty Solutions

3. Implementation

Subsequently, it was converted from the design into C code. Key aspects of the implementation included:

I added the required header files, `stdio.h` and `math.h`, for I/O and mathematical operations.

It involved interactive inputs through print and scan.

calculated discriminants with the given coefficients.

Used 'if-else' condition to consider various cases before computing the roots.

4. Pretty Printing Strategies

In order to ensure the output was visually appealing, several strategies were implemented:

Printing the Quadratic Equation

I compared each coefficient (a, b, c), printed only the corresponding terms, which were non-zero.

Appropriate/managed signs and addressed special cases, e.g., when a coefficient is +1/ -1.

Correct spacing was considered in order to enhance readability.

Displaying the Roots

Types of Roots (Real, Repeated Real, Complex)

For every case, this was done by formatting the output message.

We used %.4lf for four decimal places to determine the consistency of the form in which root was presented.

Conclusion

In conclusion, the program was well developed to solve quadratic equations with specific focus on pretty- printed solutions. Careful attention to problem requirements made them implement wise design choices and pay much attention to visual formatting. This program offers a beautiful solution based on function and appearance to the complex problem of solving quadratic equations.