Write a Java program to solve a sequence of quadratic equations of the form:

\[ a \times x^2 + b \times x + c = 0 \]

following requirements of Assignment #3, with the following modifications to existing requirements, as previously outlined in the formulation of assignments #2 and #3:

6) This is a modification of previous Requirement #6. The method named `readCoeff()` to read coefficients from the keyboard shall be called only once per equation, prompting the operator as follows:

```
Please enter coefficient a: <operator enters a>
Please enter coefficient b: <operator enters b>
Please enter coefficient c: <operator enters c>
```

The method shall return an array of three `double` coefficients, taking no parameters.

7) The program shall handle a situation when coefficient \( a = 0 \); how to handle it is up to the programmer; however, the programmer has to make sure that such handling does not violate any other rules.

8) The program shall handle exceptions in data entry, that is, when no number or a non-number is entered from the command line or a non-number is entered in response to the program’s prompt, etc.

9) This is a modification of previous Requirement #9. Calculation of roots shall be done by a separate method, named `calcRoots()`, which shall take coefficients as a single 3-element `double` array, and return a `double` array with two roots and a possible indicator (flag) that the roots exist.

Note. An indicator would be the third element of this returned array, showing through its value only two events: that the roots do exist or not.

10) This is a modification of previous Requirement #10. Calculation of the discriminant \((b^2 - 4*a*c)\), shall be done via a method named `discr()`, taking coefficients as a single array parameter, and returning the discriminant’s `double` value.

11) This is a modification of previous Requirement #11. Method `outResults()` shall take two arrays as parameters, one with coefficients and another one with roots, and shall write to a file only, if the roots exist, and to the screen only, if there are no roots.

12) The program shall be structured in a way that the `main()` method calls all three methods in sequence: `readCoeff()` first, then `calcRoots()`, and finally `outResults()`.

Note. If there is a contradiction between requirements of Assignment #4 and the previous assignments, those of Assignment #4 take precedence.

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**Form of submission:** email an attachment (unzipped) with the source code to zalewski@fgcu.edu

**Deadline:** October 30 (Friday), Midnight

**Grade:** Max 10 pts (tardiness: 2 pts per day)