Create a java program which solves a system of 3 equations in 3 variables. Test your program using the following set of equations:

$$3.7x + 2y - 4.3z = 4.56$$

$$-0.32x - 3y + 2z = -3.0$$

$$-3z + 3y - 5.2 \cdot z = 1$$

which can be modeled:

$$\begin{pmatrix} 3.7 & 2 & -4.3 \\ -0.32 & -3 & 2 \\ -3 & 3 & -5.2 \end{pmatrix} \cdot \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 4.56 \\ -3.0 \\ 1 \end{pmatrix}$$

More generally: $A \cdot X = b$ where: $A := \begin{pmatrix} 3.7 & 2 & -4.3 \\ -0.32 & -3 & 2 \\ -3 & 3 & -5.2 \end{pmatrix}$ $b := \begin{pmatrix} 4.56 \\ -3.0 \\ 1 \end{pmatrix}$

Using the inverse method, this has a solution: $X := A^{-1} \cdot b = \begin{pmatrix} 0.672 \\ 0.88 \\ -0.073 \end{pmatrix}$ where: $A^{-1} = \begin{pmatrix} 0.152 & -0.04 & -0.141 \\ -0.122 & -0.51 & -0.096 \\ -0.158 & -0.271 & -0.166 \end{pmatrix}$

You must use the $a^{-1}$ method to solve for the solution array. You may ONLY use Gaussian reduction **as an alternative** for solving this system of equations. **Use of Cramer's rule is NOT permitted.**

**Specifics:**

Write a class named Solver which imports the A array (2D) and b array (1D) from the SolverApp and returns X (the 1D solution array to 3 decimal place accuracy) to the SolverApp.
Write a test (app) class named SolverApp which creates the A and b array then calls method(s) from the Solver class to obtain a solution.
Ensure SolverApp gives the user the ability to enter ANY 3 equations / 3 variable system of equations. *You may want to create code that provides the solution for ANY reasonably sized system of equations but, this is NOT required.*
Research solving systems of equations numerically (with computers) since the INVERSE method has been around for a LONG time. Logic / code should be readily available to obtain the inverse You may have me teach you the way to calculate the inverse if you wish.
Provide an MS Word document which contains the code for both classes and adequate INPUT /OUTPUT. Use the input above to test your Solver class to confirm its operation.
Send the MS Word.docx to mheinen_1@msn.com NLT midnight Monday 5/21/18.

Web material will help refresh your mathematics about the basics of linear equations.