Mad 155 – Android 2 Project Proposal

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My plan is to continue with the app I was working on in Mad 105 called Row Reduction.

**Description:**

The purpose of this app would be to help students work through solving a system of equations using Row Operations. This requires them to choose the number of variables, equations, and the coefficients. They work through an augmented matrix following the 3 fundamental row operations. The matrix will be updated as the user completes the operation.

**What was completed in version 1:**

In my previous version, I was able to get the coefficients from the user, display the matrix, and let them choose a row operation.

**What I want to fix from previous version:**

1. The formatting and calculations were buggy.
2. The “calculator” buttons. Possibly add swipe gestures instead of arrows?
3. Allow them to enter fractions as coefficients
4. Refactor my Matrix classes

**What I want to add in this version:**

1. Create a class for fractions. Using doubles did not go well when they were non-terminating decimals. Ex. 0.3333333 should be displayed as 1/3.
2. Add more variables and equations
3. Implement a Hint button and its functionality

**Recipe:**

1. The user will enter the number of equations and variables.
   1. Layout should look like a calculator (0 through 9) and a negative button. I have a picture at the end of the file to demo.
   2. Ideally, the user can use swipe gestures to move from textbox to textbox to enter the numbers.
   3. If that’s too complicated, I can add a left/right/up/down button to move to a new textbox.
2. I’ll validate the data. Should be an int or double.
3. Transition to a page that displays the problem as an augmented matrix. Should look something like this

1 2 | 8

3 2 | 16

This matrix would be stored as an array of doubles (or fractions class)

1. The user has three row reducing operations (buttons) to choose from at the bottom of the screen. Probably easiest to open a new screen to get input.
   1. Operation 1: requires two int inputs
   2. Operation 2: requires one double input and 2 int inputs
   3. Operation 3: requires one double input
2. The user’s choice and input will modify the matrix and display it to the user. After one operation the new matrix could look like this

1 2 | 8

1. -4 | -8
2. They continue choosing one of the three operations until the matrix is in row reduced form.
3. At any given step, I want the user to be able to ask for a Hint. I also want it to be of varying degree, ranging from generic to basically giving them the operation.