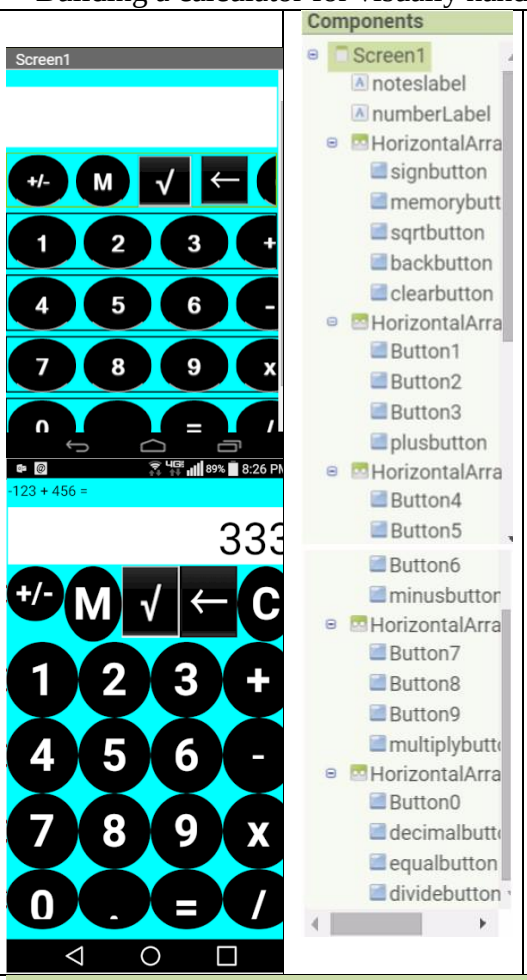
Lab 9 Using Variables, Control Decisions and Procedures in App Inventor.. by Nathan Chao

Building a calculator for visually handicapped and different numerical key layout



Shown at left are all the components and their names. Rename all buttons in the same fashion so you can follow the given blocks below more clearly.
The bottom screen shows a numerial add example and how the noteslabel and numberlabel is used.
You can use different color schemes and shapes as long as the entire screen is filled like a regular calculator and is clearly legible. Use dark background with ligh font color or vice versa.

You **MUST** size all buttons and fonts as follows

property	noteslabel	numberlabel	top row buttons	all other buttons
font size	14 bold	43	images to fit	30 bold
height	5%	16%	15%	15%
width	fill parent	fill parent	20%	25%

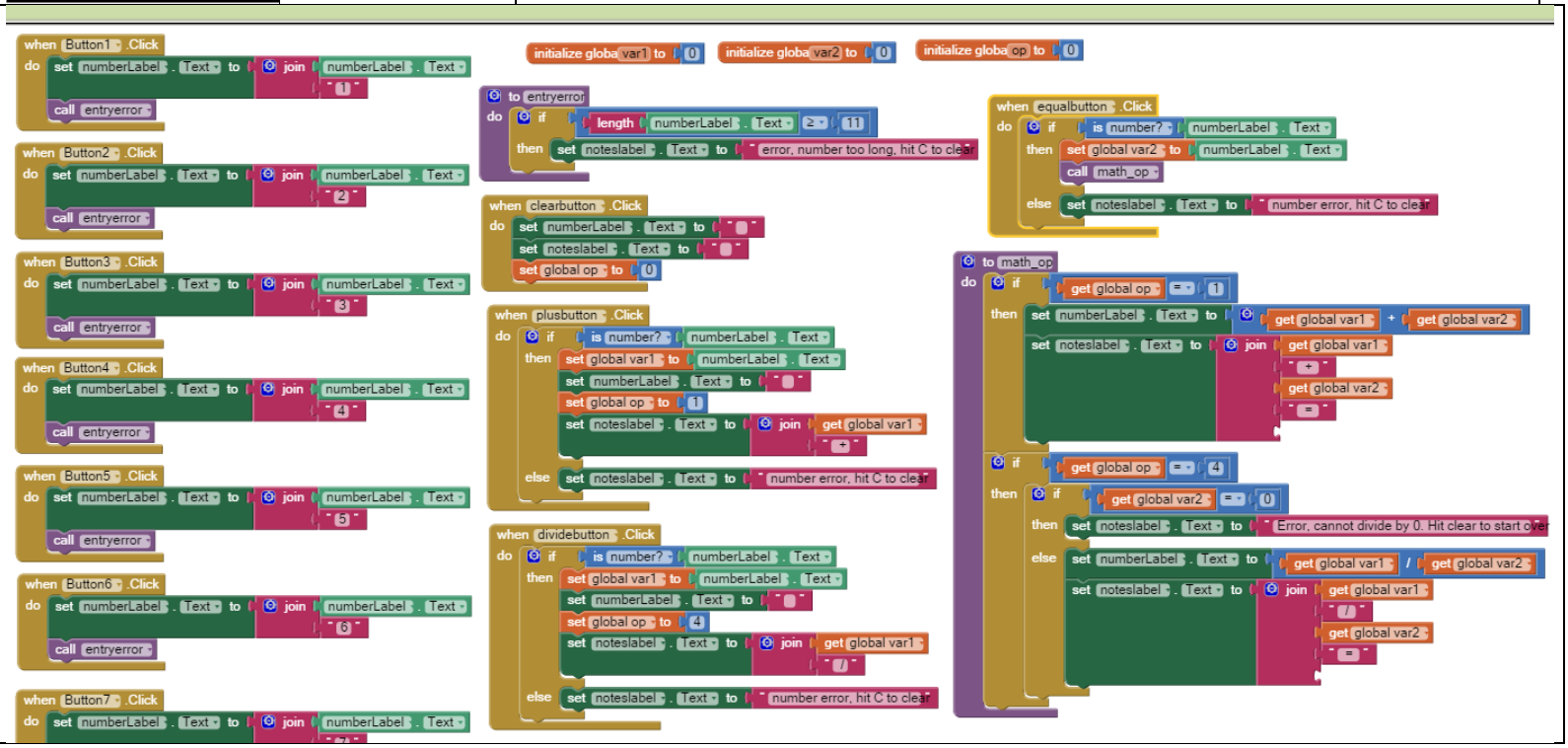
Eliminate Title Bar and Status Bar for full screen

2 images used for backspace and square root buttons. I got those images from a screenshot of my phone's downloaded calc, app.

All the blocks for week one of this exercise is given below.
The limited function of wk 1 can only do add and divide.

You need to add the subtract, multiply and square root functions.

Students seeking A also need to make the backspace, memory and sign change buttons work as well.



Place your name in the notesLabel so when app opens I see your name. Also add a timer routine to show your name for 3 seconds and then disappear anytime the = button is long clicked.

Lab 9 Report Template Name_____ Date _____

Title of this App

1. Describe what this app is about.
2. Describe how the app functions.
3.Different Phone Images of the App

Initial Screen Image	Sample run screimage for +	Sample run screen image for x

4. Block program function and step description

Block routines	Describe in detail what each piece in the block do for the app
Place a numerical keypad button block.	1. What does it do. 2. What does the join text block do for the number just entered.
Place keypad error check routine block here	1. What kind of error does it check for 2. How does the length block segment work
Place clear button block here	1. What does each of the 3 interior blocks do in this routine. 2. Why is op variable set to zero. What is the function of the op variable.
Plus button click routine here	1. What is the if then statement for. 2. Why does set var1 to numlabel text do and why is it needed. 3. What does the set numlabel text do and why 4. Why is op variable set to 1. 5. What does the join text do for noteslabel.
equal button blocks	describe in detail all interior blocks for function and purpose.
math op routine	1. How does the math routine know which operation to perform after the = button is touched. 2. The following pertains to the divide portion only. a. What additional test is carried out and why just for divide. b. explain what is happening to the numberslabel c. explain what is being done to the noteslabel.
backspace button blocks***	describe in detail all interior blocks for function and purpose.
+/- sign change blocks****	describe in detail all interior blocks for function and purpose.
M button blocks*	describe in detail all interior blocks for function and purpose.
square root button blocks**	describe in detail all interior blocks for function and purpose.

* See how this button works by downloading the completed app. I used a click to recall what was saved and long click (click and hold) for the save what is currently shown in numberlabel into a another naned variable

** The square root function only acts on a single number. It acts immediately on the number shown in the numberlabel text so you don't need to store into var1 or var2. The routine is contained inside the button.click and has nothing to do with equal or math op routine. The answer is shown right after the square root button is clicked provided there is a number shown in numberlabel.text

***Hint, backspace uses the segment text block whereby it chops the last character off which is current text length minus 1.

**** Sign change is done with a single math block that always negates whatever number is attached.