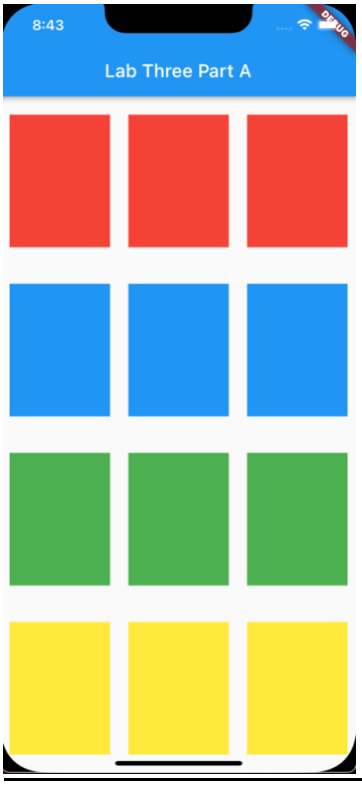
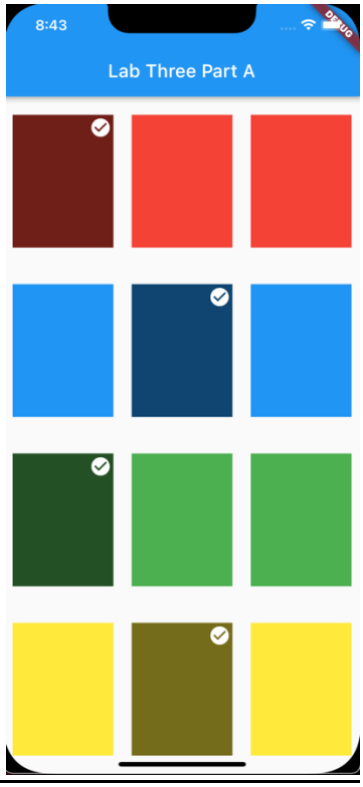
CIS*4030 – Mobile Computer – Lab Three: Stateful Widgets

In this lab you will be learning the difference between stateless and stateful widgets and how to effectively use both to make applications. You will also learn how to separate widgets into functions (to make your code more readable) and how to add functionality in your flutter applications.

Part A: Adding Interaction to our Grid of Coloured Squares

In this part of the lab, you are going to extend the app you created in the previous lab by adding some interaction to it. To start, open up the code you created for lab 2 part b and start by adjusting the app bar title to now be "Lab Three Part A – FirstName LastName" and please keep the debug banner removed. For this lab you need to use a Stack, AnimatedContainer (to animate a half-opacity black over the coloured squares after a user presses it), Align (use this to position the circle check icon), and GestureDetector. Note since we are adding interaction to the app, this means you will have to use a StatefulWidget, so you will need to adjust your app into a stateful widget. How this app should work is when a user presses on one of the squares the square will be overlayed with a half-opacity black square with the check-circle icon in the top-right corner.

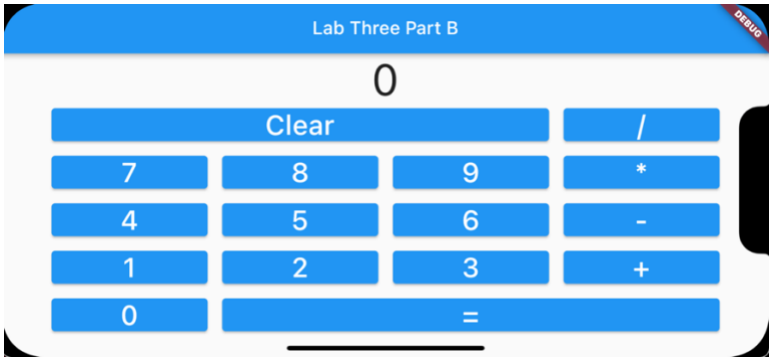




Part B: (Limited) Calculator

In this part of the lab, you will build a basic single operation calculator. Please follow the screenshots below to see how your user interface should look at the end. Start by creating a new flutter project, then rename the app bar title to be "Lab Three Part B – FirstName LastName", and then remove the debug banner. The following widgets will be useful for completing this lab: ElevatedButton, SizeBox.Expand, SafeArea (to keep widgets out of the bottom gesture area). Note as shown in the image below you will need to disable the operator buttons ('/', '*', '-', '+') after a user has entered a

single one. Also, note in the images below that your user interface should also work in landscape, if you use the lessons from the previous lab using Expanded and not using explicit sizes it should work in landscape (although as you can see in the image below it is not ideal).



Submission:

For this lab, you will submit a single video file (**must** be mp4, mov, or m4v format) that shows both of your apps in use. The recording should start by opening or having part A already open and then you will have to click 5 squares (to demonstrate the required functionality for that part). Next, go to your home screen and open part B. For part B you will need to illustrate the following operations:

1) 789 * 0 =
2) 4 / 5 =
3) 6 – 1 =
4) 2 + 3 =
5) Swap to landscape mode