

CSE 438: Mobile Application Development

Lab 1: Shopping Calculator



Overview

In this lab, you will create a simple shopping calculator. It will only have one screen and limited functionality, but it should help you get comfortable with Xcode, UIKit, and Swift.

Details

Due date: Wednesday, September 13th, 11:59pm

Grading: This lab is out of 50 points total. The exact point distribution is described in the “Requirements” section below.

Submission: Zip the entire project folder and email it to cse438ta@gmail.com. Please name the file “FirstNameLastName-Lab1.zip” and include a brief summary of your creative portion in the email body.

Description

This lab requires you to create your own app from scratch. Although many of the implementation details are left to you, there are some helpful guidelines and code snippets to get you started in the “Helpful Advice and Code Snippets” section below. Many of the topics covered in this lab have been discussed in lecture as well. Additional resources are available online in the Swift documentation and UIKit documentation that Apple provides.

The goal of this lab is to create a simple shopping calculator that calculates the final price of a product based on its original price, the current discount percentage, and the local sales tax. Everything should appear on the same screen, with labels and text fields that the user can edit. Whenever one of the fields is changed, the final price of the product should be updated.

Most labs in this course will have a “creative portion”. The creative portion is an opportunity to add new features to the app that are interesting to you and not covered in the other requirements. The goal with the creative portion is to add something new and different, not just re-hash existing requirements. Can’t think of something to add? Think about what you would want in the app. In order to get full credit, the creative portion should be substantial enough to merit the amount of points listed. Compare the difficulty/usefulness of your feature to the other features in the requirements section.

All labs will be graded in the simulator on an iPhone 7 (not 7 Plus). The best practice is to make sure your layout works across all different device sizes, but for the purpose of the labs, if your layout works on an iPhone 7 screen, you are ok.

Requirements

[20 points] Users can input the original price, discount percentage, and sales tax percentage for a given product. Each of these fields has a corresponding label.

[5 points] Whenever a text field is changed, the final price of the product is updated live.

[5 points] The final price is correctly calculated (and rounded).

[5 points] The app behaves appropriately given any possible input.

[5 points] The layout of the app is clean and easy to use.

[10 points] Creative portion: Add one other small feature. Be creative!

Helpful Advice and Code Snippets



It is going to be easiest to use the Storyboard for the layout of the app. Use your previous studio Xcode project for reference on how to add outlets and connections from the Storyboard to code. The built-in UIKit objects are sufficient to complete this lab — a combination of UILabel's and UITextField's should do the trick.

In order to update the final price of the product live, UITextField's have an "Editing Changed" event, which can be connected to your code via an IBAction. It is not sufficient to have the final price update when the editing finishes — the app should feel responsive even as the user is typing.

To round the final price to two decimal places, one method is to use the String's format constructor like so:

```
let displayText = "$\(String(format: "%.2f", finalPrice))"
```

Consider what happens with various edge cases. What should be displayed when the text fields are empty, zero, negative, or not numbers? This is up to you, but your choices should be sensible and not crash the app.

Carrier  3:17 PM 

My Shopping Calculator

Original Price

Discount %

Sales Tax %

Final Price
\$18.90

**An example of a working shopping calculator.
Feel free to design the layout as you see fit!**