

# ITP 342 Homework 3

## Tip Calculator

### Goal

- In this homework, you will create an **iPhone** app to calculate tip.
- This homework is intended to have you practice using user interface components.

### Assignment

- Open **Xcode**. Your app needs to compile and run using Xcode 9.2.
- Create a new project. For the template, choose **Single View Application**. For the Product Name, enter something like **TipSplit or HW3** in the text field. (Your project name should not be Week4. You must create a new project.) For the Organization Name, enter your name in the text field. For the Language pull-down, select the **Objective-C** option.
- In the Project Navigator, select the top item to edit project settings. Under the General tab in the Deployment Info section, change the Device Orientation to only display in Portrait (not Upside Down and not Landscape).
- Using Interface Builder, add at least the following elements to the Main.storyboard:
  - **Text Field** for the bill amount (Keyboard Type must be Decimal Pad)
  - **Segmented Control** for the 5 tax options (7.5, 8, 8.5, 9, 9.5)
  - **Switch** for whether tip includes tax
  - **Slider** for tip percent
  - **Stepper** for how many people to evenly split the bill
  - **Button** to clear all the fields
  - **View** to group UI components (must use at least one; examples have 1, 2, and 3)
  - **Labels** for displaying info (example has 12)
- Create the needed IBOutlets for the UI components.
- Create properties (at least 2) in the class extension to hold values such as `float` values for the bill amount, tax percent, tax amount, tip percent, subtotal (total for tip), tip value, total with tip, and total split, an `int` value for the split num, and a `BOOL` value for the include tax.
- Create helper methods (at least 1) that you will call from other methods. You could create a helper method called something like `setDefaultValues` that sets the default values. It will be called upon initial launch in the `viewDidLoad` method and when the user wants to clear the fields. You could create a helper method called something like `updateValues` that updates the appropriate properties and labels when the bill amount is changed, the tax percent is changed, the include tax switch is changed, the tip percent slider is changed, and the split stepper is changed. You could create a helper method called something like `clearAll` that calls the `setDefaultValues` method and resets the UI components to their default values.

- When the user enters an amount for the bill in the text field, the appropriate components should change.
- The keyboard for the text field should dismiss when the user touches the background.
- Create the needed IBActions for the UI components.
- When the user touches the Clear All button, an action sheet should be displayed (use UIAlertController) to ask the user if they really want to clear the fields. In the action sheet, display a message such as “Are you sure?”, add a Cancel button, and add a Clear All button which is a Destructive (text in red) button.
- The app must look good in iPhone SE, iPhone 8, and iPhone 8 Plus in portrait mode only. All labels should be readable.
- You may customize your UI as much as you want.
  - You can use your own colors.
  - You can add images.
  - You can put your components in a different order.
  - You can group your components differently.

### Grading (60 pts)

- Portrait only – 2 pt
- Text field (shows decimal number pad) – 2 pts
- Keyboard dismisses with background touch – 2 pts
- Segmented Control for tax percent – 1 pt
- Switch – 1 pt
- Slider – 1 pt
- Labels and IBOutlets for tax amount, subtotal (total for tip), tip percent, even split num, tip amount, total with tip, and total per person – 7 pts
- View (at least one added) – 2 pts
- Button causes Action Sheet (uses UIAlertController; destructive button) – 4 pts
- When Clear All is touched in Action Sheet, the values reset – 4 pts
- Properties (not IBOutlets, at least 2) – 4 pts
- IBActions – 6 pts
- Helper method (at least 1) such as setDefaultValues, updateValues, and clearAll – 6 pts
- Tax, tip, total with tip, and even split calculated correctly – 8 pts
- App Icon (both sizes) – 2 pts
- Name of app in Simulator is readable – 2 pts
- AutoLayout (looks good in iPhone SE, iPhone 8, and iPhone 8 Plus) – 6 pts

## Submission

- Compress your project folder.
- Rename the zip to *LastnameFirstnameHW3.zip* where *Lastname* is your last name and *Firstname* is your first name.
- Submit the .zip file on Blackboard under Assignments.

## Math

bill	\$100
taxPercent	8% = 0.08
tipPercent	20% = 0.2
numSplit	4
tax = bill * taxPercent	\$8
if (includeTax)	
totalForTip = bill + tax	\$108.00
else	
totalForTip = bill	\$100.00
tip = totalForTip * tipPercent	\$21.60 (includeTax) or \$20.00
totalWithTip = bill + tax + tip	\$129.60 (includeTax) or \$128.00
totalSplit = totalWithTip / numSplit	\$32.00 or \$32.40

Examples with 1 added view

Carrier

5:39 PM

Tip & Split

Bill \$

100

Tax%

7.5

8

8.5

9

9.5

Tax \$9.00

Tip includes tax

Total for tip \$109.00

20%

Even split

3

-

+

Tip \$21.80

Total with tip \$130.80

Total per person \$43.60

Clear All

Carrier

5:40 PM

Tip & Split

Bill \$

100

Tax%

7.5

8

8.5

9

9.5

Tip includes tax

20%

Even split

4

-

+

Tax \$8.00

Total for tip \$100.00

Tip \$20.00

Total with tip \$128.00

Total per person \$32.00

Clear All

Action Sheet and Clear All

Carrier

5:40 PM

Tip & Split

Bill \$

100

Tax%

7.5

8

8.5

9

9.5

Tip includes tax

20%

Even split

4

-

+

Tax \$8.00

Total for tip \$100.00

Tip \$20.00

Clear All Values

Are you sure you want to clear all values?

Clear All

Cancel

Carrier

5:40 PM

Tip & Split

Bill \$

Tax%

7.5

8

8.5

9

9.5

Tip includes tax

20%

Even split

1

-

+

Tax

Total for tip

Tip

Total with tip

Total per person

Clear All

## Example with 2 added views

Carrier

3:23 PM

# Tip & Split

Bill \$

100

Tax%

7.5

8

8.5

9

9.5

Tip includes tax

☐

20%

Even split

4

—

+

Tax \$9.50

Total for tip \$100.00

Tip \$20.00

Total with tip \$129.50

Total per person \$32.38

Clear All

Example with 3 added views

Carrier 5:42 PM

Tip & Split

Bill \$100

Tax%

7.588.599.5

Tax \$9.00

Tip includes tax

Total for tip \$100.00

20%

Even split 4

-

+

Tip \$20.00

Total with tip \$129.00

Total per person \$32.25

Clear All

selectedsegmentvalue?