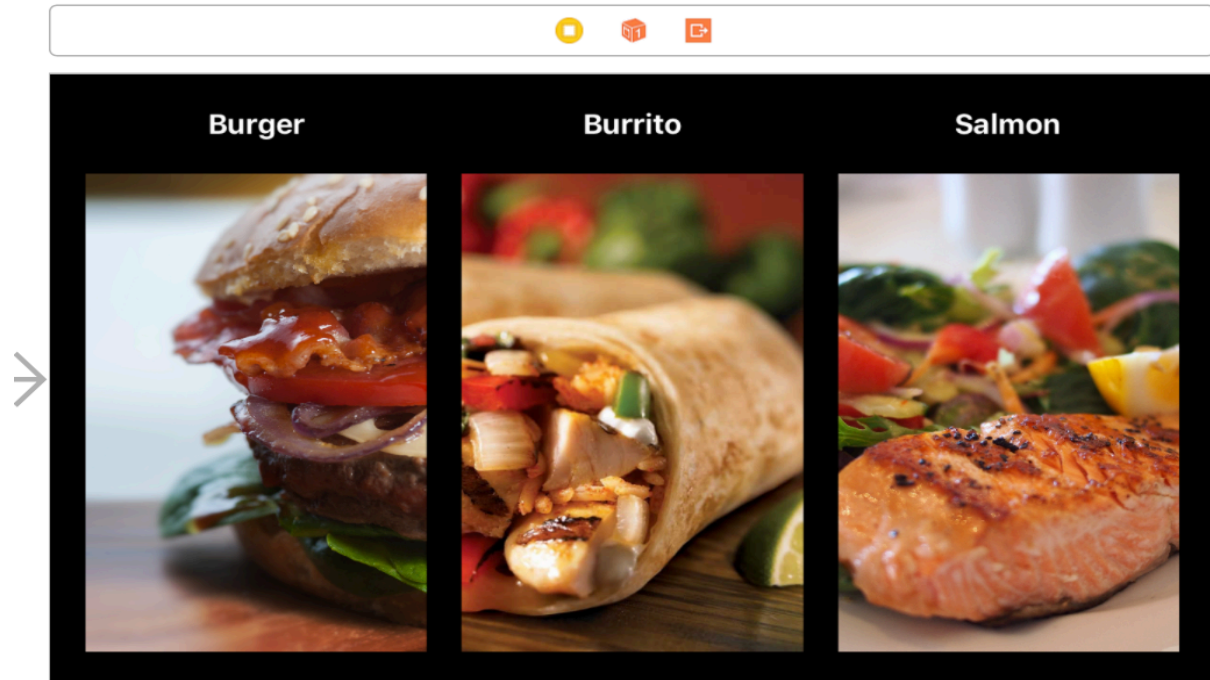


# How to Make an App For Beginners

Lesson 2  
Worksheet



**Welcome!**

This exercise is based off of the concepts taught in Lesson 2. You'll be building the layout pictured above.

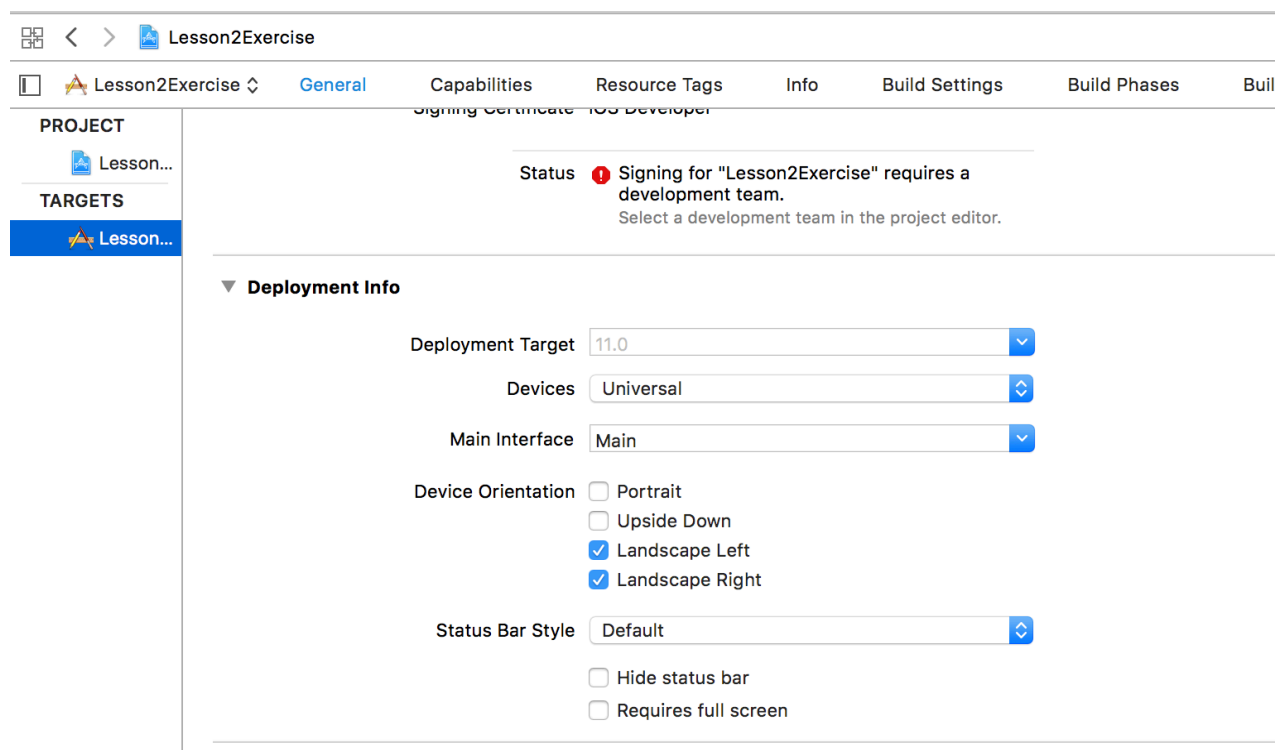
Just in case you don't remember how you got here (or if you need a refresher), Lesson 2 can be found here:

<https://codewithchris.com/lesson2>

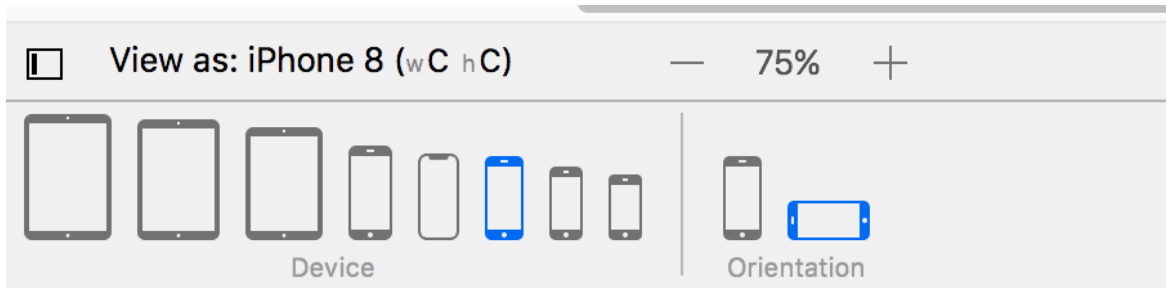
**Step 1:** Create a new Xcode project like we did in Lesson 2.

After you've chosen a place to save your project, you'll be presented with the settings for your project.

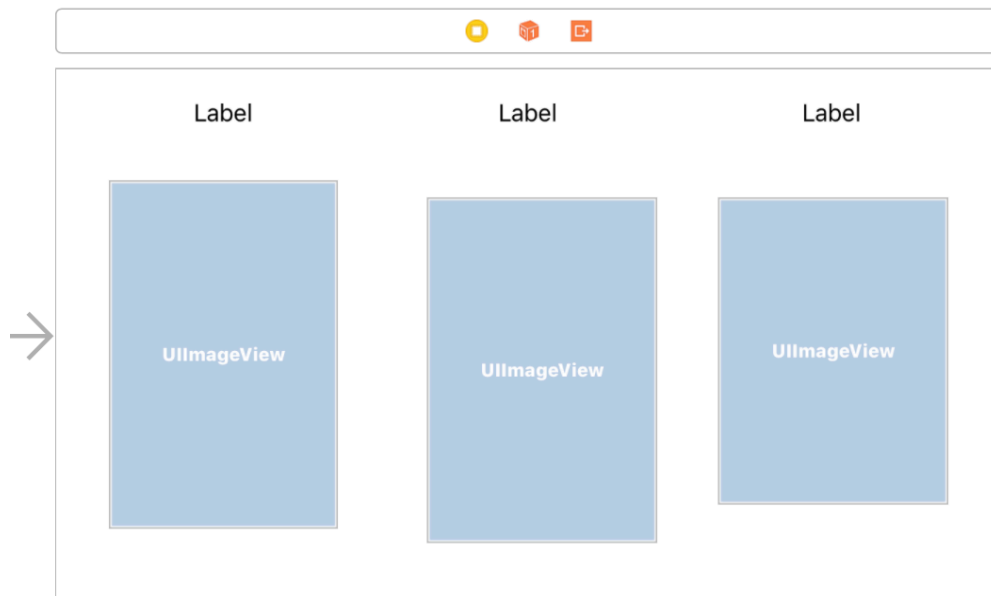
Scroll down in the Editor Area to find **Deployment Info** (shown below) and change the **Device Orientations** so that only the **Landscape ones are enabled**.



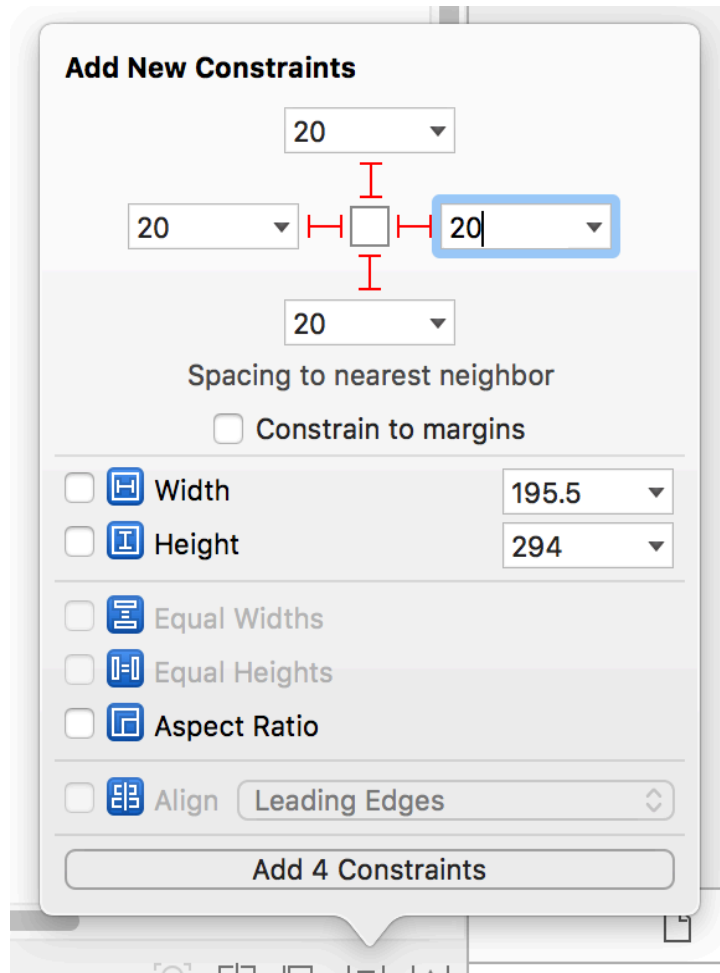
**Step 2:** Go to Main.storyboard and at the bottom, click “View as” to open up the drawer. Change the orientation to **landscape**.



**Step 3:** Drag and drop 3 labels and 3 imageviews from the **Object Library** to the **View** and arrange them roughly like what you see below. **Make sure none of the elements are overlapping or touching.**



**Step 4:** Click on the left-most imageview and open up the **Add New Constraints** menu. Uncheck **Constrain to Margins** and add a 20 point margin on all four sides.



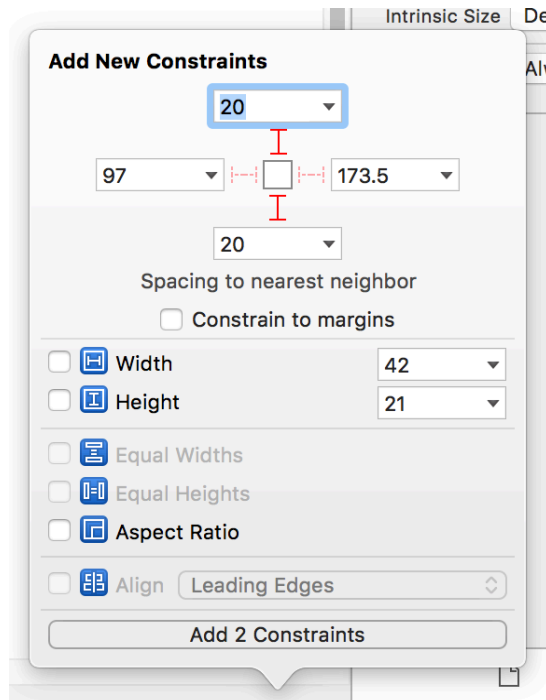
**Step 5:** Repeat step 4 for both the center imageview and the right-most imageview. This is going to make it so that the imageviews have a 20 point gap between one another and also to the left, right and bottom edges of the screen.

Now we need to position the labels.

**Step 6:** Click on the left-most label, open the **Add New Constraints** menu and uncheck **Constrain to Margins**.

Then add a 20 point margin to the **top** and **bottom only**. It doesn't matter if your left/right margins differ from mine in the screenshot.

Make sure that the only “red lines” that are active are the **top** and **bottom** constraints as shown in the screenshot below. Click the **Add 2 Constraints** button.

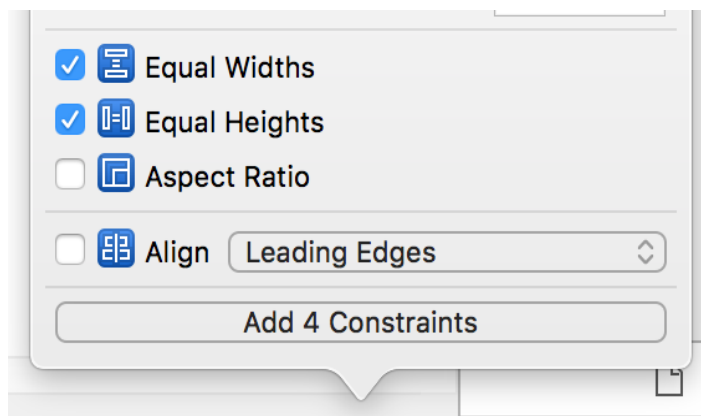


**Step 7:** Repeat this for the middle label and right-most label.

**Step 8:** Now we have to make sure all the imageviews are the same height and width.

Click on the left-most imageview to select it. Then hold down the **CMD** key and click the center imageview and then click the right-most imageview. You should have all 3 selected. Release the CMD key and click on the **Add New Constraints** menu.

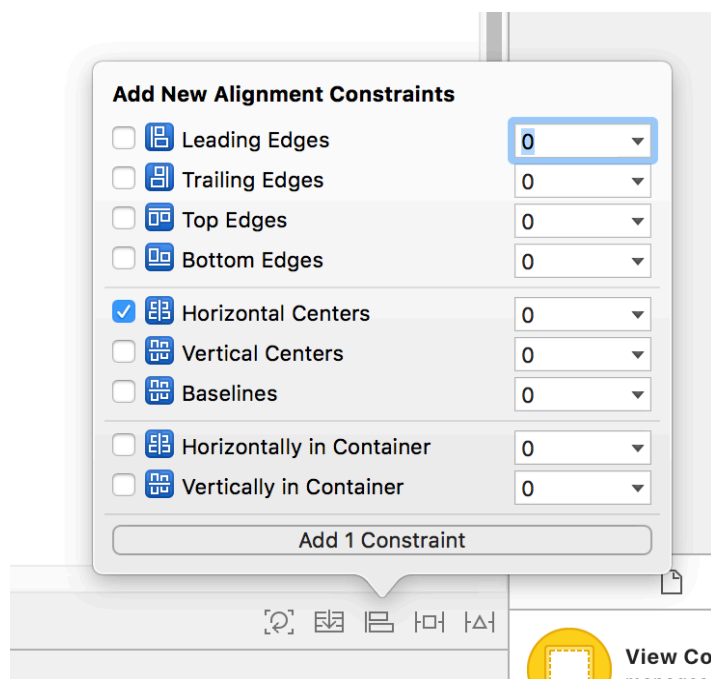
Near the bottom, enable **Equal Widths** and **Equal Heights** as shown below. Click on **Add 4 Constraints**.



**Step 9:** Next is to make sure the labels are positioned in the center above each of the imageviews.

Click on the left-most label to select it. Hold down **CMD** and click the left-most imageview. Now you'll have both the imageview and the label above it selected.

Open the **Add New Alignment Constraints** menu (this is the icon to the left of the Add New Constraints icon) and enable **Horizontal Centers** as shown below. Click **Add 1 Constraint**.



**Step 10:** Repeat this for the middle label and middle imageview.

Then do it again for the right-most label and right-most imageview.

You might have auto layout errors for “Content Priority Ambiguity” telling you to set various compression resistance or content hugging priorities. Leave them for now because in the next lesson, you’ll learn all about them.

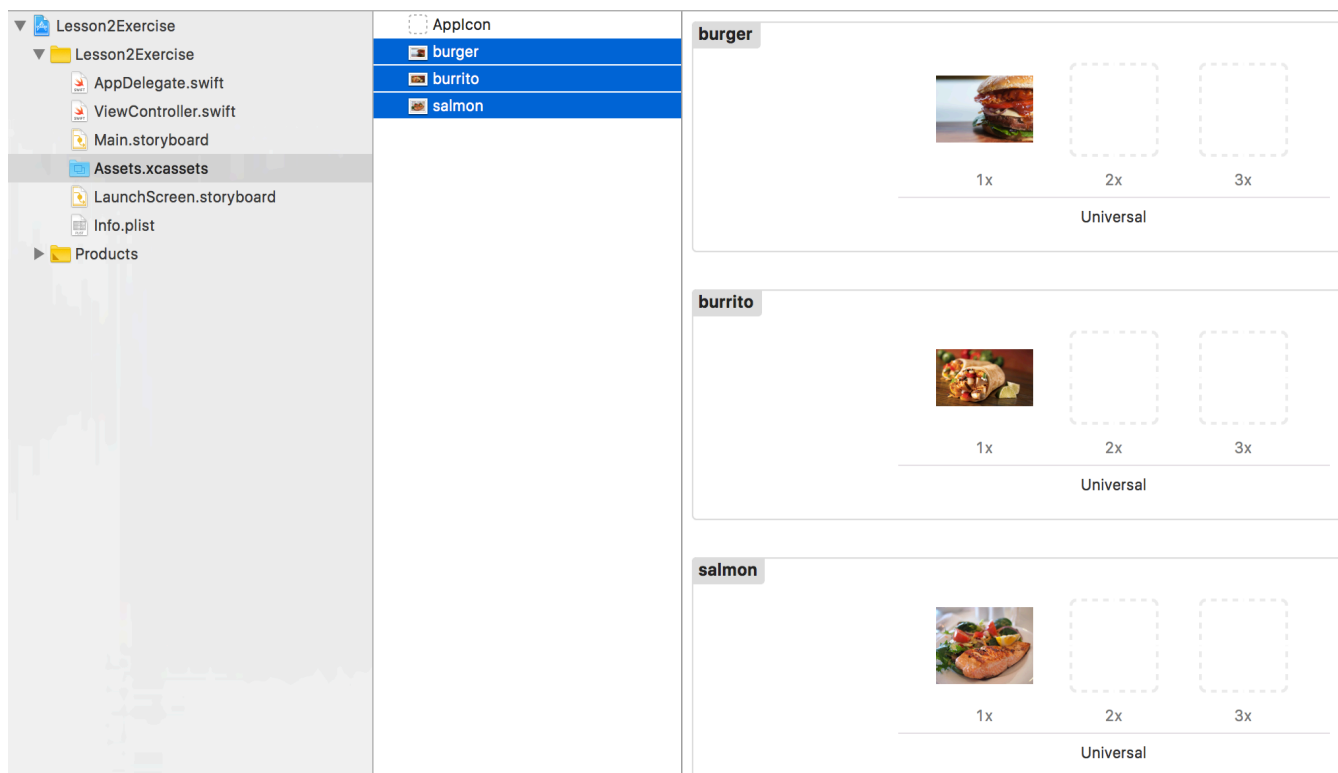


**Step 11:** We're done with constraints! Now let's add our image assets and customize the view. Go to this URL and download the images:

<https://codewithchris.com/code/Lesson2WorksheetAssets.zip>

Unzip the archive and you should have 3 images: burger.jpeg, burrito.jpeg and salmon.jpeg

In Xcode, click on **Assets.xcassets** in the file navigator. Your editor area will change to the Assets library. Simply drag the 3 images that you unzipped into this Editor Area to add them to your Xcode project.

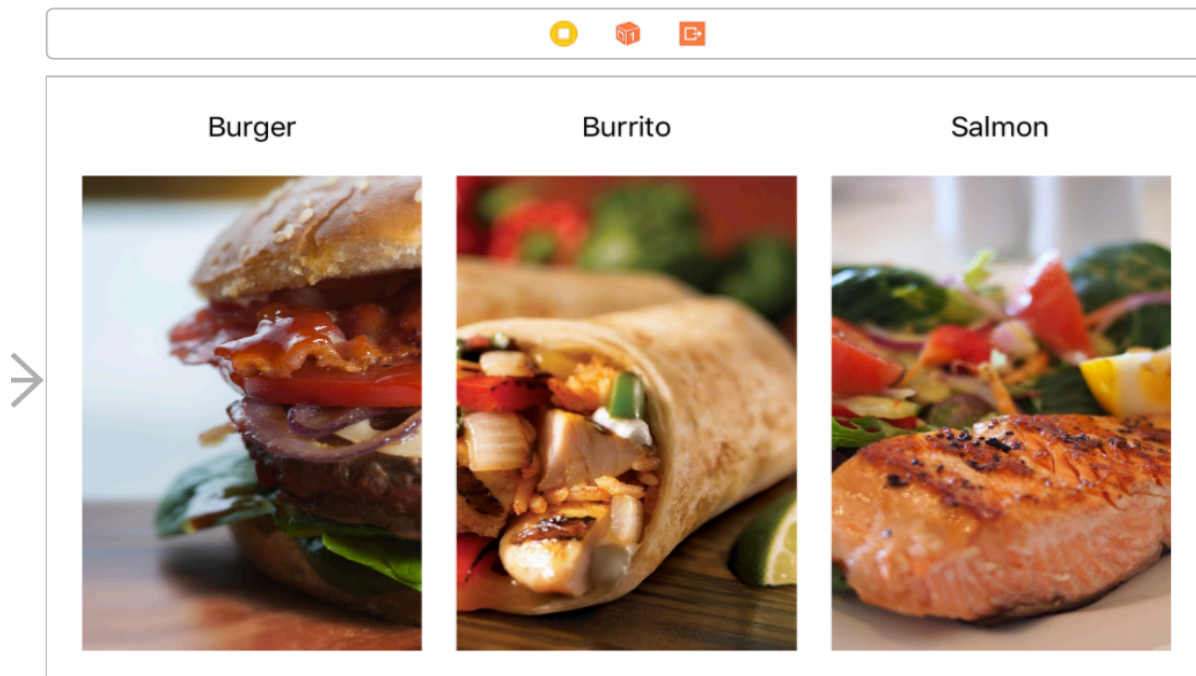


**Step 12:** Go back to **Main.storyboard** and then for each of the imageviews, do the following:

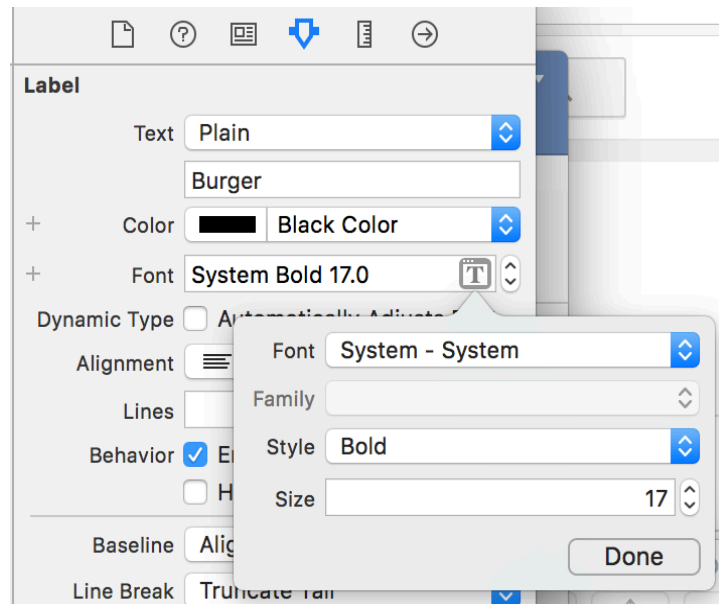
1. Click them and go to the inspector pane and change the **image property** to choose one of the images we just added.
2. Change the **content mode** to “aspect fill”
3. A bit farther down, enable “Clip to bounds”

It doesn't matter which order you do this in.

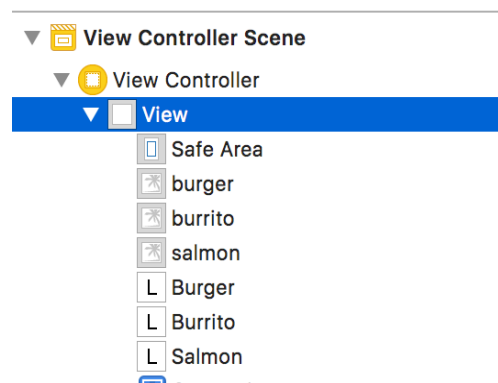
Now click on each label above it, go to the inspector pane and change the **text property** to some text that matches the image right below it.



**Step 13:** Click on each label, go to the inspector pane and under **font**, click the “T” icon to open up a menu where you can change the font weight to **bold**. Then under the **color** property, change the color to **white**. Do this for all 3 labels. Your labels won’t be visible because the font is white and the background is also white.

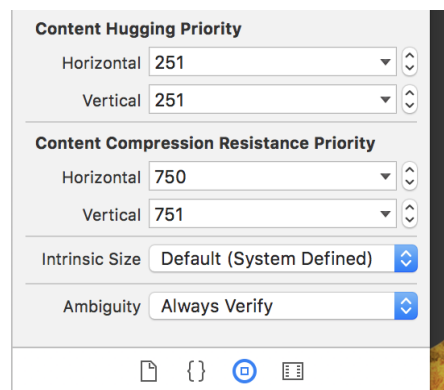


**Step 14:** In the **document outline**, click on the view. Then in the inspector pane, scroll down to the **background** property and change the color to **black**.



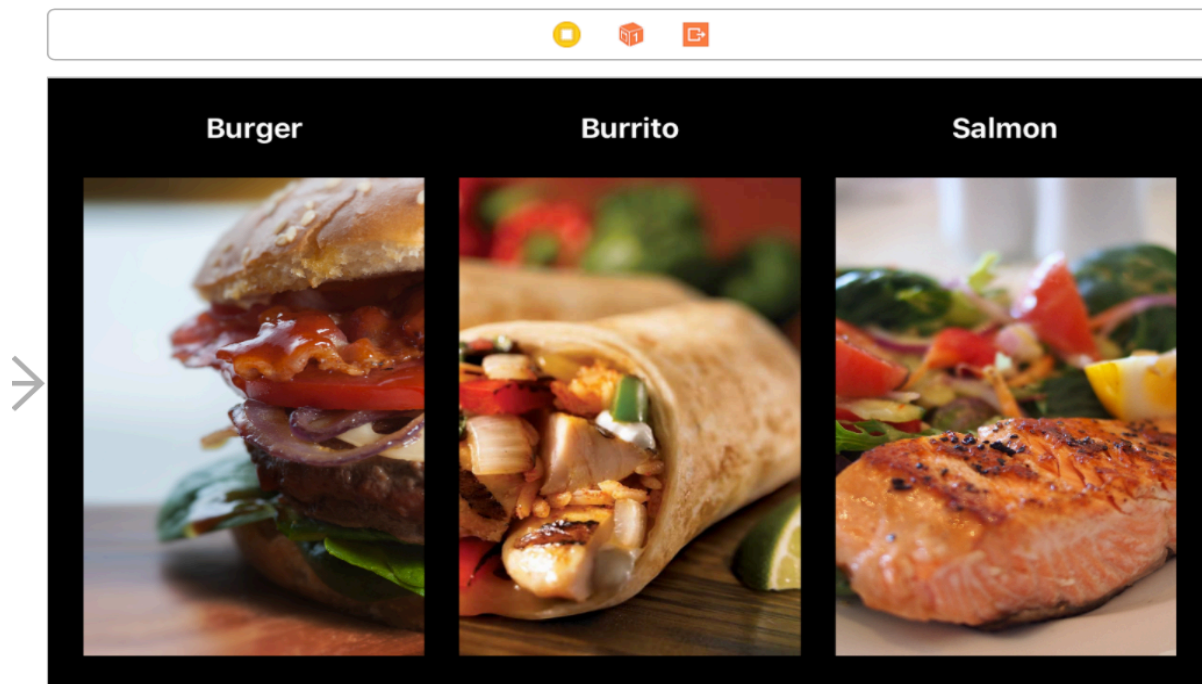
**Step 15:** Now for each of the labels, go into the Size Inspector tab on the right hand side, scroll down and you'll find something called **"Content Compression Resistance Priority"**. This number prioritizes which element remains visible when there's not enough screen space to display everything.

Change the Vertical number to 751. This will help the labels to not get swallowed by the UIImageViews when there's not enough space on the screen.



**You're done!**

This is your finished layout:



If you completed this exercise, celebrate and let me know on Twitter!

<https://twitter.com/CodeWithChris>

If you want to compare your project to mine, you can get it here:

<https://codewithchris.com/code/Lesson2WorksheetProject.zip>

**Let's move on to Lesson 3:**

<https://codewithchris.com/lesson3>