Intermediate

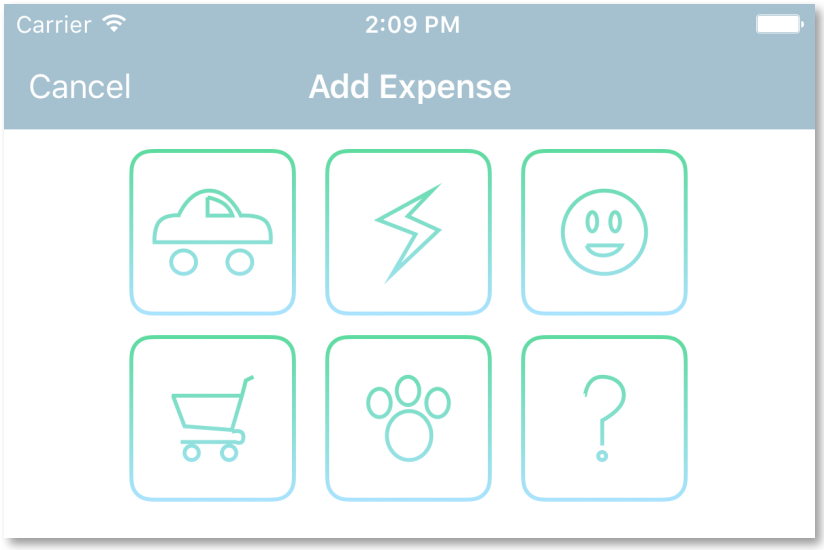
Core Graphics

Part 1: Gradients

Core Graphics Hands-On Challenges

Challenge: Blending Modes

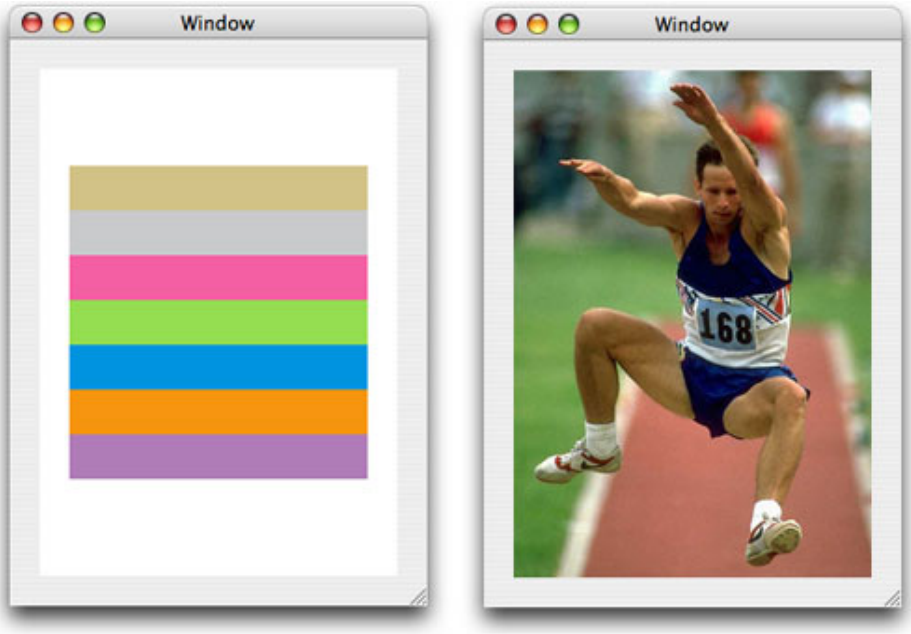
You'll now change the Category expense icons to be outlined with a gradient rather than filled.



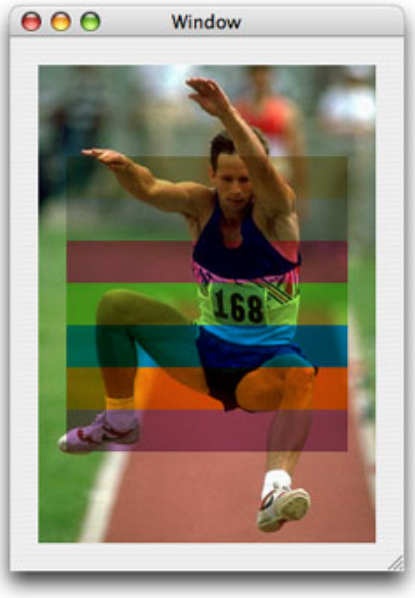
You can do this using blending modes. If you've used Photoshop, you've probably come across blending modes. It's beyond the scope of this tutorial to go into them all, but you can achieve great effects by blending layers.

Blending modes determine how layer colors interact with each other. When you place an image or a colored shape on top of another image or colored shape, the default is that the second image overwrites the first one. That's the **Normal** blending mode.

Multiply blending mode multiplies each pixel color from the top image with the pixel from the bottom image resulting in a darker color.



For example, if you place the previous left image with a blending mode of Multiply over the image on the right, then this is the result



Apple has a great visual list of the most common blending modes in its Quartz 2d Programming Guide at http://apple.co/1Qu1z32

The blending mode that you will be using will process the alpha channel rather than the color.

You'll stroke the icon's path as usual, but then set the context's blending mode to SourceIn. You'll then do a gradient fill.

The result of this is that only the pixels that have a color (i.e. the ones that were stroked) will be filled with the gradient.

First open **CategoryCell.swift** in the Challenge Starter app.

Instead of filling the cell with the gradient before stroking the icon path, you're going to draw the gradient at the very end of the method after stroking the path.

Remove

```
    edge.addClip()
```

as we don't need that any longer.

Replace that line with stroking the edge instead:

```
    edge.stroke()
```

Cut the endPoint and gradient drawing code:

```
    let endPoint = CGPoint(x: 0, y: rect.height)

    drawGradient(cellGradientStart,
      endColor: cellGradientEnd,
      startPoint: .zero,
      endPoint: endPoint)
```

Shortly you'll paste this in at the end of the method.

At the end of `drawRect(_:)`, add a conditional -

```
    if !selected {
      let context = UIGraphicsGetCurrentContext()
      CGContextSetBlendMode(context, .SourceIn)
```

This gets a reference to the current context and sets the blend mode to SourceIn.

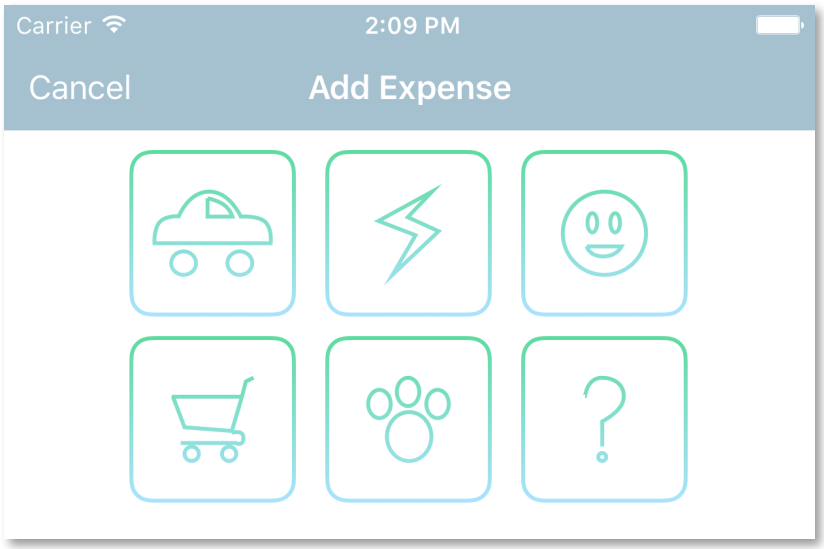
Paste in those cut gradient lines here and end the conditional:

```
      let endPoint = CGPoint(x: 0, y: rect.height)
      drawGradient(cellGradientStart ,
                   endColor: cellGradientEnd,
                   startPoint: .zero,
                   endPoint: endPoint)
    }
```

Here you're drawing the gradient.

If the context did not have a blending mode set, the gradient would overwrite the path, but because of the blending mode, only the non-alpha pixels from the icon path are picked out.

Run the application and see that the icons are drawn with a gradient outline (as long as they are not selected).



You can make really cool effects with blending modes - I encourage you to have a look at the Core Graphics Developer guide and experiment.

But beware that you don't do it too much, because blending layers is a hit on GPU processing.