Animation
What does it mean to *animate* something?

- To bring to life
- To cause to appear as if it’s moving or changing

In the context of iOS applications, this means to modify aspects of the user interface in a special way as to produce the appearance of action.

Why would we want to animate something?

- It draws the user towards things that change
- It indicates importance at a particular moment
- It makes your app look cool, fun, or polished – which can be a differentiator
You can animate the following properties of a UIView derived object:

- **frame** - change the view’s size and position relative to its superview’s coordinate system
- **bounds** - change the view’s size
- **center** - change the view’s position relative to its superview’s coordinate system
- **transform** - scale, rotate, or translate the view relative to its center point
- **alpha** - gradually change the transparency of the view
- **backgroundColor** - change the view’s background color
- **contentStretch** - change the way the view’s contents are stretched to fill the available space
UIView.animate

The basic UIView animation method is `UIView.animate`:

```swift
UIView.animate(
    withDuration: <duration>,
    delay: <delay>,
    options: <options>,
    animations: {
        <animation code>
    }
    completion: {
        <completion code>
    }
)
```
**UIView.animate (cont.)**

**duration:** how long in seconds to run the animation

**delay:** how long to wait until starting the animation

**options:**
- `.CurveEaseInOut` begin slow, accelerate, end slow
- `.CurveEaseIn` begin slow, accelerate to end
- `.CurveEaseOut` begin quickly, slow to end
- `.CurveLinear` even over the duration

**animation code:**
identifies the ending value for the selected attribute(s)

**completion code:**
code to be executed at the end of the animation
Adjust the *alpha*:

```swift
// Starting alpha value
self.labelName.alpha = 1.0

UIView.animate(
    withDuration: 3.0,
    animations: {
        self.labelName.alpha = 0.0
    }
)
```

*Alpha Animation: Fade Out*
Center Animation: Slide Out to Right

Adjust the `center`:

```
// Starting center value
self.labelName.center.x = self.view.center.x

UIView.animate(
    withDuration: 3.0,
    animations: {
        self.labelName.center.x +=
            self.view.bounds.width
    }
)
```
Adjust the *transform*:

```swift
UIView.animate(
    withDuration: 3.0,
    animations: {
        // 180 degree rotation
        self.labelName.transform = self.labelName.transform.transformed(by: CGFloat(Double.pi))
    }
)
```

**Center Animation: Spinning**