Animation

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

Animation

You can animate the following properties of a UIView derived object:

- **frame** – move or scale the view (relative to its superview)
- **bounds** – move the view's contents within the view
- **center** – move the view relative to the screen
- **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

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

```
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
`.repeat`	make the animation loop forever
`.autoreverse`	animate forward, then reverse

`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*:

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

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

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*:

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