Announcements

- **Lab 1 due on Wednesday by 11:59 PM**
  - Email it to cse438ta@gmail.com
- **Lab 2 is due on Monday September 25th**
  - The remaining labs are posted as well
- **We will hold Studio 2 on Wednesday**
  - Along with an additional lab on Thursday

Today's Topics

- **Views Introduction**
- **MVC**
- **Lab 2**
- **MVC and Auto Layout Demos**

Views

View Fundamentals

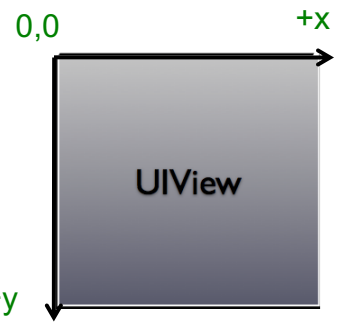
- Rectangular area on screen
- Draws content
- Handles events
- Subclass of UIResponder (event handling class)
- Views arranged hierarchically
  - every view has one superview
  - every view has zero or more subviews

View Hierarchy - UIWindow

- **Views live inside of a window**
- **UIWindow is actually just a view**
  - adds some additional functionality specific to top level view
- **One UIWindow for an iOS app**
  - Contains the entire view hierarchy
  - Set up by default in Xcode template project

UIView Coordinate System

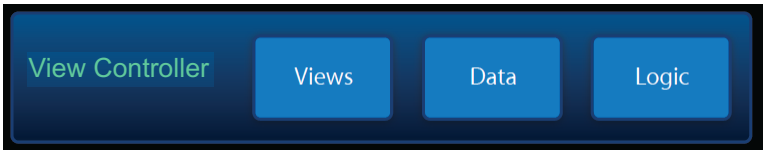
- **Origin in upper left corner**
- **y axis grows downwards**
- **Units are points, not pixels**
  - Points are units of coordinate system
  - Pixels are min size unit of drawing
  - Typically 2 pixels per point
    - var ContentScaleFactor



View Controllers

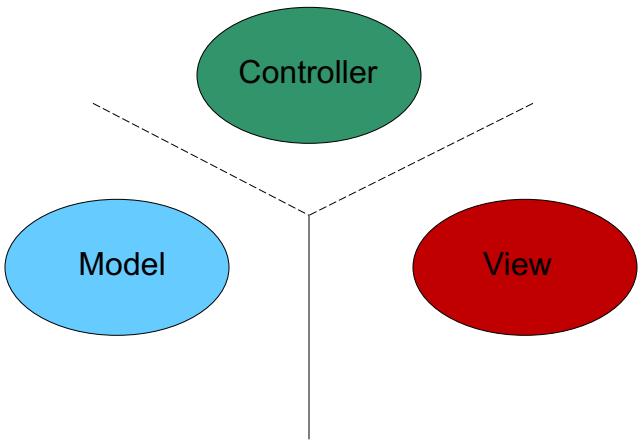
UIViewController

- Basic building block
- Manages a screenful of content
- Subclass to add your application logic



Model, View, Controller

Model, View, Controller



Model

- Manages the app data and state
- Not concerned with UI or presentation
- Often persists somewhere
- Same model should be reusable, unchanged in different interfaces

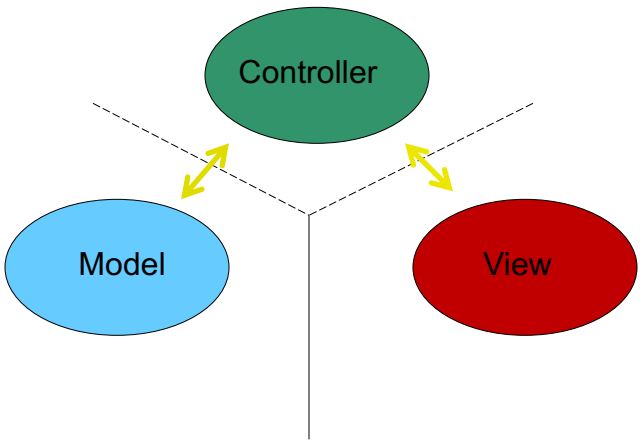
View

- Present the Model to the user in an appropriate interface
- Allows user to manipulate data
- Does not store any data
  - (except to cache state)
- Easily reusable & configurable to display different data

Controller

- Intermediary between Model & View
- Updates the view when the model changes
- Updates the model when the user manipulates the view
- Typically where the app logic lives

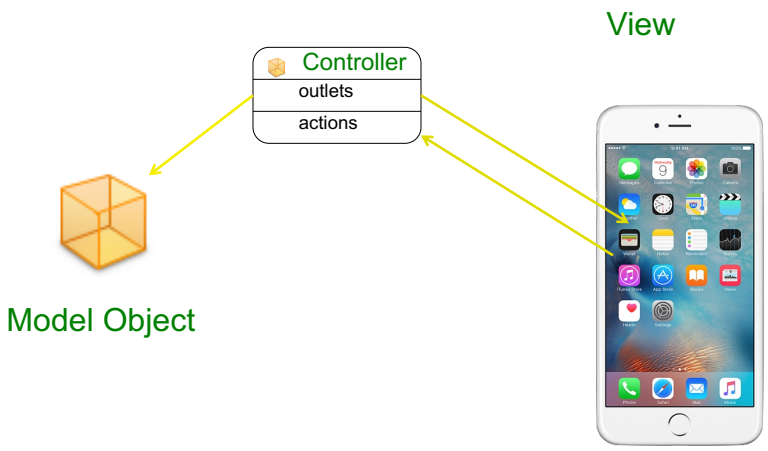
Model, View, Controller



Why Model-View-Controller?

- Separating responsibilities also leads to reusability
- By minimizing dependencies, you can take a model or view class you've already written and use it elsewhere
- Think of ways to write fewer lines of code

Model, View, Controller



Lab 2

MVC Demo

Auto Layout Demo