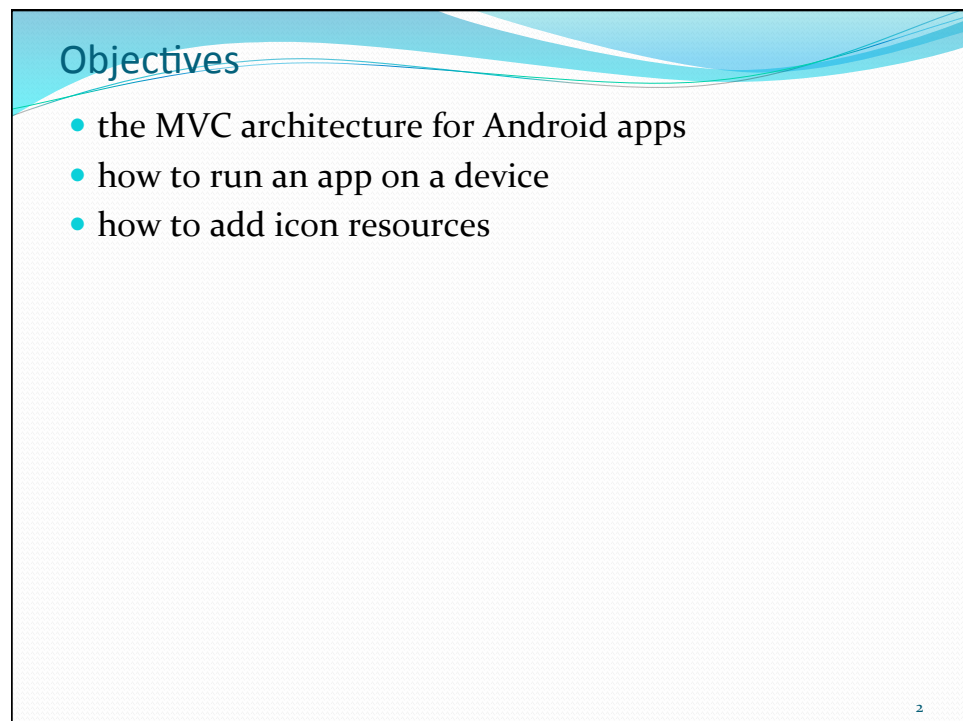Lecture 02

Model-View-Controller

CMSC 4303/5303 Mobile Apps Programming

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Objectives

- the MVC architecture for Android apps
- how to run an app on a device
- how to add icon resources

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Model-View-Controller (MVC) architecture

- Model objects
  - hold the app's data and "business logic"
  - have no knowledge of the user interface
- View objects
  - know how to draw themselves on the screen and how to respond to user input.
  - if you can it on the screen, then it is a view
  - typically, defined in the layout xml file (view layer)
- Controller objects
  - tie the view and model objects together.
  - contain "application logic"
  - are designed to respond to various events triggered by view objects and to manage the flow of data to and from model objects and the view layer.
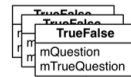
3

MVC flow with user input
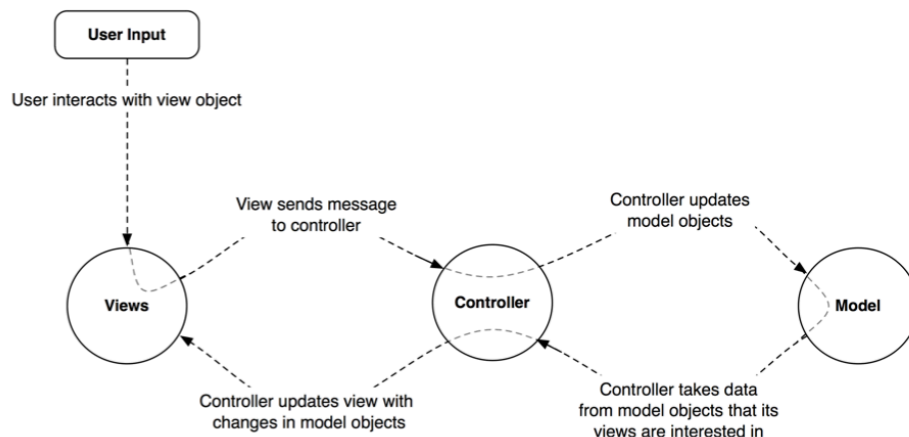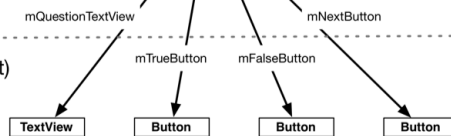

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Example: 02_MVC_GeoQuiz

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Running on a Device

- Connecting your device
  - On Windows: install adb (Android Debug Bridge) – find it from your device's manufacturer's website.
  - On Mac: mostly automatically recognized, otherwise, download the driver
- Open the DDMS perspective in Eclipse to confirm that the device is recognized
  - DDMS button at the top right corner of Eclipse (next to "Java" button).
  - Both devices and AVD are shown.
- For more help about devices
  - http://developer.android.com/tools/device.html

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Configuring your device for develpoment

- To test apps, you need to set it up to accept apps that are not from Google Play
  - Android 4.1 or earlier: Settings → Applications → Unknown sources (checked!)
  - Android 4.2: Settings → Security → Unknown sources (checked!)
- In addition, enable USB debugging
  - earlier than Android 4.0: Settings → Applications → Development → USB debugging (enable)
  - Android 4.0/4.1: Settings → Developer options
  - Android 4.2: Developer options is not visible. Settings → About Tablet/Phone → press Build Number 7 times. Return to Settings to see Developer options.

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Adding an Icon

- Put icon images in **res/drawable** directory
  - drawable: default
  - drawable-mdpi: medium-density screens (~160dpi)
  - drawable-hdpi: high-density screens (~240dpi)
  - drawable-xhdpi: extra-high-density screens (~320dpi)
- E.g., the "hdpi" qualifier indicates that the resources in that directory are for devices with a high-density screen.

```
res/
    drawable/
        icon.png
        background.png
    drawable-hdpi/
        icon.png
        background.png
```

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Adding resources to a project

Figure 2.7 Arrow icons in GeoQuiz `drawable` directories

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