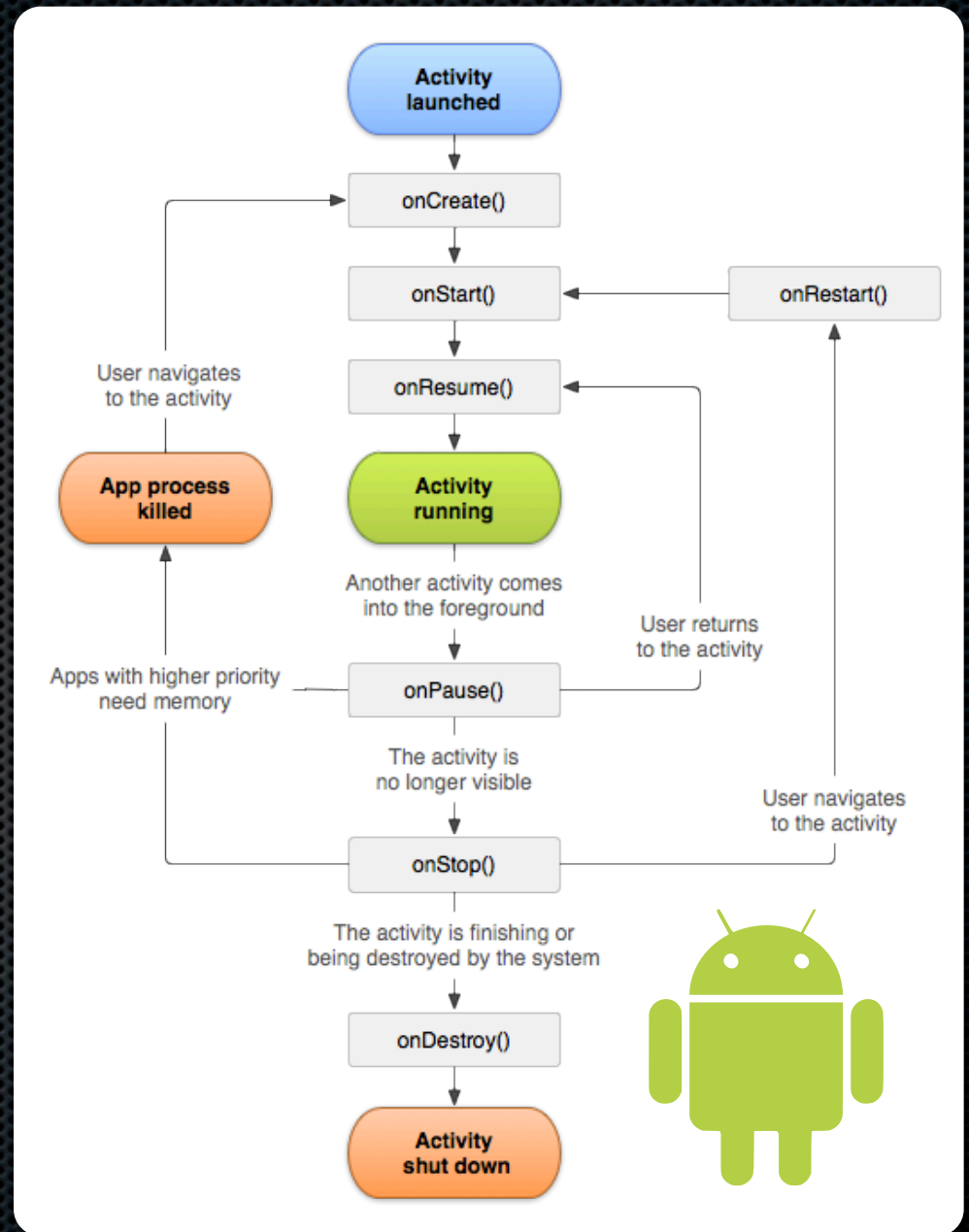


Mobile Application Programming: Android Messaging

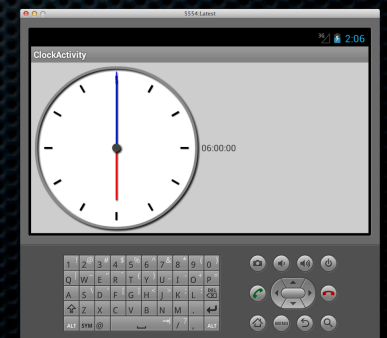
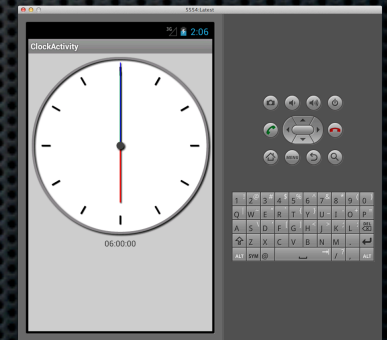
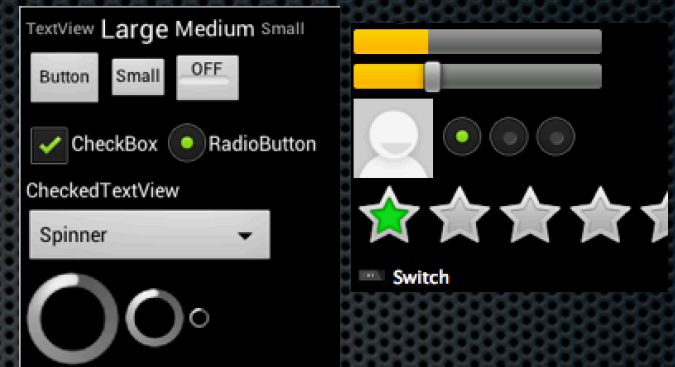
Activities

- ❖ Apps are **composed of activities**
- ❖ Activities are self-contained tasks made up of **one screen-full** of information
- ❖ Activities **start one another** and are **destroyed commonly**
- ❖ Apps can **use activities belonging to another app**



Custom Controls

- ✦ Create subclass of View class
- ✦ Override:
 - ✦ `onDraw(Canvas c)`
 - ✦ `onMeasure(int wMeasure, int hMeasure)`
- ✦ Add listener interface and listener property for the interesting events the control generates and call `on...` methods when events occur
- ✦ Implement view-level transient data saving



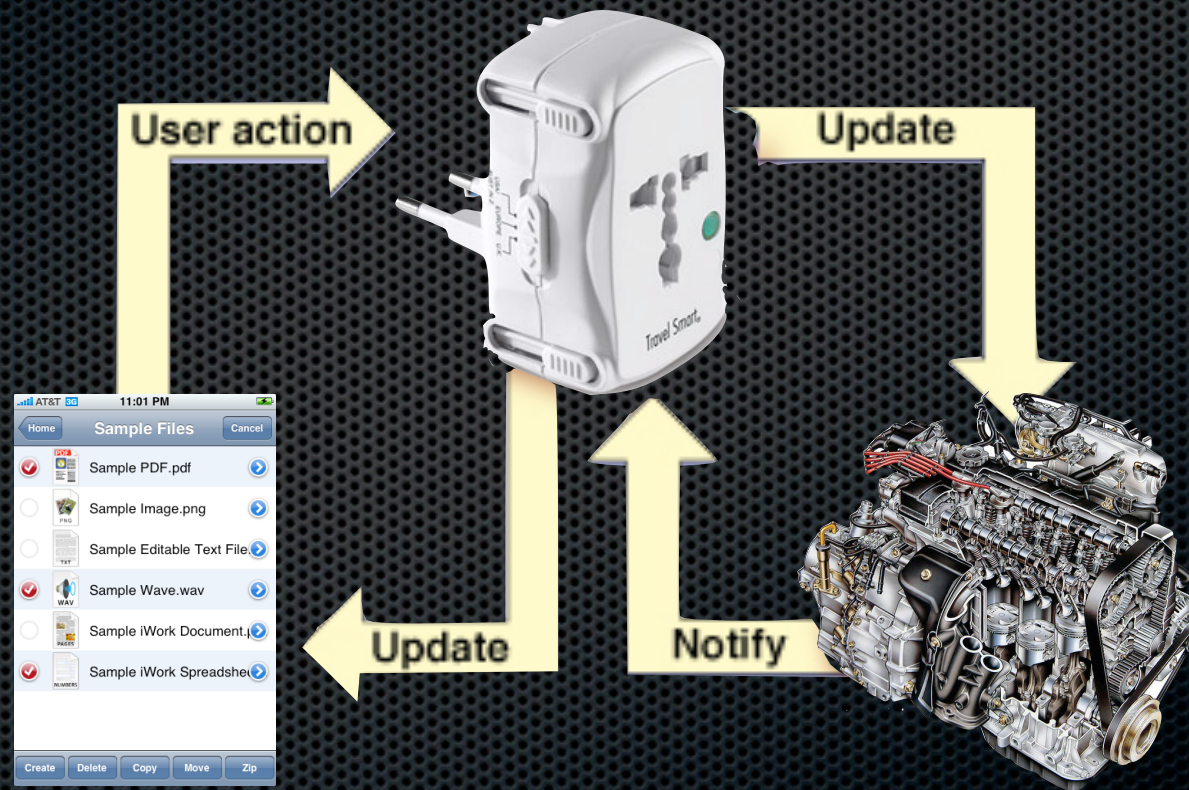
Application



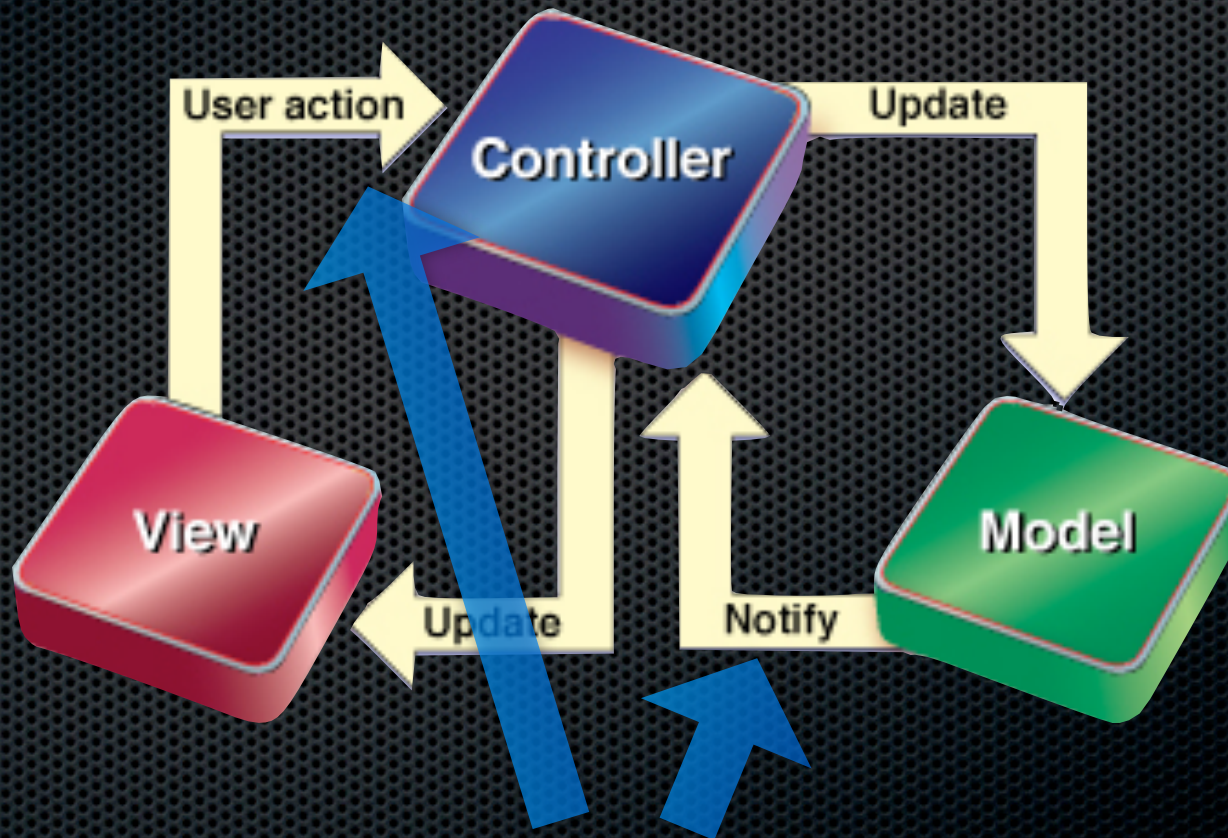
Application Controller (MVC)



Model View Adapter (MVA)

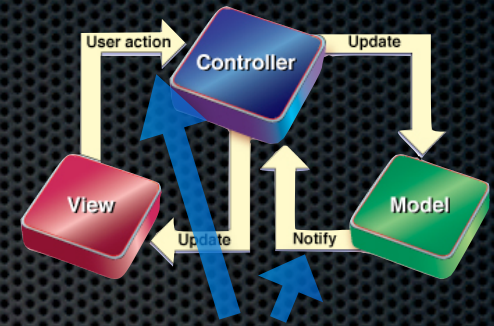


Notification



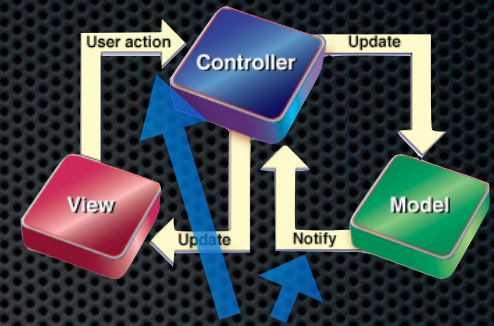
How do these happen? **Listeners & Interfaces!**

Notification Options



- ✦ **Listeners**
 - ✦ Declare listener **interface**
 - ✦ Add **getter/setter** for listener
 - ✦ **Call methods** on listener when appropriate
- ✦ **Interfaces** like listeners but more complex (eg. **ListAdapter**)
- ✦ **LocalBroadcastManager** (Android Support Package)
 - ✦ Call **registerReceiver**(BroadcastReceiver r, IntentFilter i)
 - ✦ Send using **sendBroadcast**(Intent i)

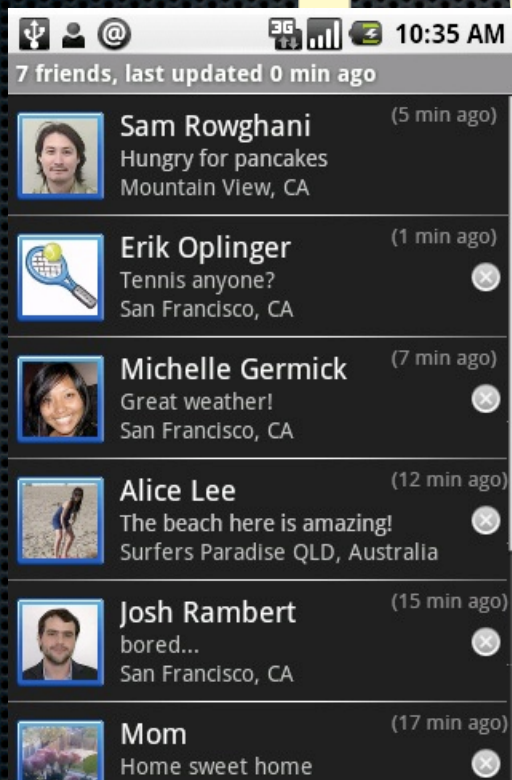
Notification Options



- **Listeners**
 - **Pros:** Simple and effective if used with anonymous classes
 - **Cons:** Tedious when many events need to be communicated
 - **Cons:** Only one listener is generally allowed to listen
- **Interfaces** like listeners but more complex (eg. `ListAdapter`)
 - **Pros:** Allows complex interaction, including requesting data from listener
 - **Cons:** Generally means more code to write to satisfy large interface
- **LocalBroadcastManager** (Android Support Package)
 - **Pros:** Easy cross-thread messaging, can have many receivers
 - **Cons:** Cannot request data from receiver using a broadcast

Notification - Example

List View



User action

FeedAdapter

Update

FeedManager

Update

Notify

Key	Type	Value
▼ Root	Array	(6 items)
▶ Item 0	Dictionary	(5 items)
▼ Item 1	Dictionary	(5 items)
User	String	Erik Oplinger
Message	String	Tennis anyone?
Location	String	San Francisco, CA
Timestamp	Date	Sep 19, 2012 1:58:06 AM
ImageURL	String	http://images.someservice.com/users/Erik_Oplinger.png
▼ Item 2	Dictionary	(5 items)
User	String	Michelle Germick
Message	String	Great weather!
Location	String	San Francisco, CA
Timestamp	Date	Sep 19, 2012 1:58:06 AM
ImageURL	String	http://images.someservice.com/users/Michelle_Germick.png
▼ Item 3	Dictionary	(5 items)
User	String	Alice Lee
Message	String	The beach here is amazing!
Location	String	Surfers Paradise QLD, Australia
Timestamp	Date	Sep 19, 2012 1:58:06 AM
ImageURL	String	http://images.someservice.com/users/Alice_Lee.png
▼ Item 4	Dictionary	(5 items)
User	String	Josh Rambert
Message	String	bored...
Location	String	San Francisco, CA
Timestamp	Date	Sep 19, 2012 1:58:06 AM
ImageURL	String	http://images.someservice.com/users/Josh_Rambert.png
▼ Item 5	Dictionary	(5 items)
User	String	Mom
Message	String	Home sweet home
Location	String	Boise, ID
Timestamp	Date	Sep 19, 2012 1:58:06 AM
ImageURL	String	http://images.someservice.com/users/Sue_Rowghani.png

Notification - Example

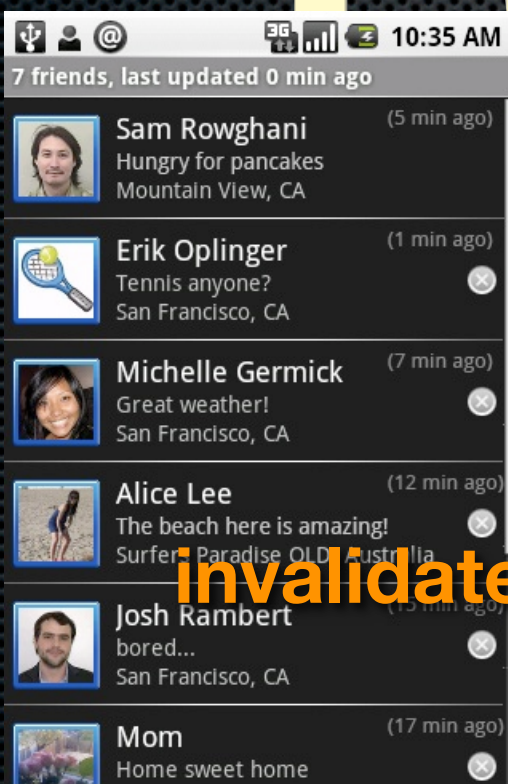
Methods
Interfaces
Broadcasts

ListAdapter

postMessage

ListView

FeedManager



Key	Type	Value
▼ Root	Array	(6 items)
▶ Item 0	Dictionary	(5 items)
▼ Item 1	Dictionary	(5 items)
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Message	String	Tennis anyone?
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ImageURL	String	http://images.someservice.com/users/Sue_Rowghani.png

User action

Update

FeedAdapter

Update

Notify

invalidateViews

MessagePosted