

ACS - APPLICATION IN OVERLAY MODE

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OVERVIEW

- Overlay Mode - Different way of multitasking in android
- Generally users use one application for a long duration and switch back and forth between other applications for short durations
 - eg: Browser and texting, Maps and email
- Open applications in a minimized window on top of normal applications, without going through a menu or on split screen
- Switch back to original application easily

MOTIVATION

- Make multitasking faster and easier
- Quicker way to switch back and forth between apps

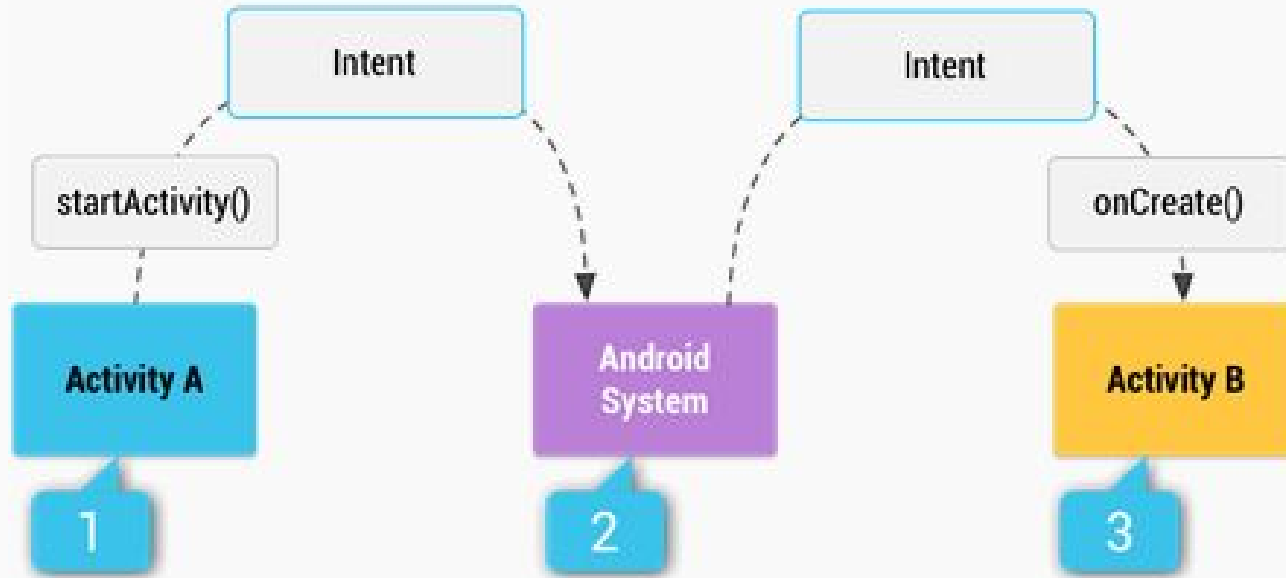
Where to start?

- Android Framework
 - How are apps created in Android?
 - Different stages in apps lifecycle
 - Intents - What do they do?
 - How are apps rendered?
 - Views, Layouts, Windows?
 - Window parameters
 - Themes

Chathead Service

- New system service
- Opens up a movable chathead on the screen
- Clicking on the chathead opens list of apps
- Chathead can be opened and closed from statusbar

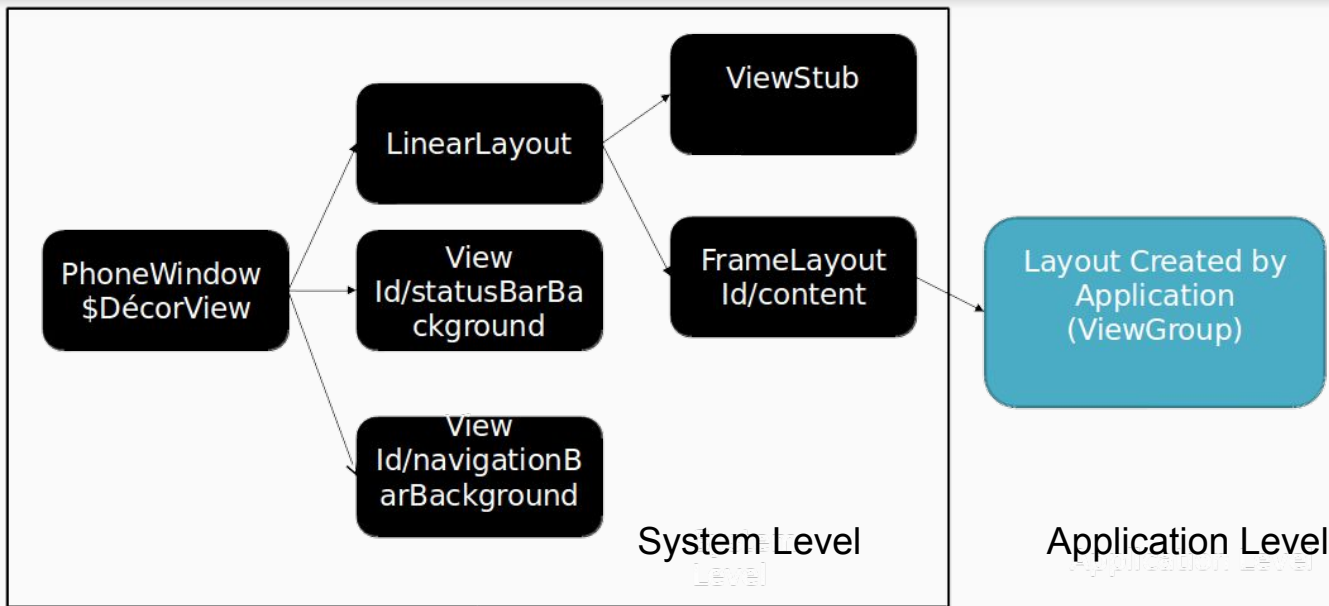
INTENTS



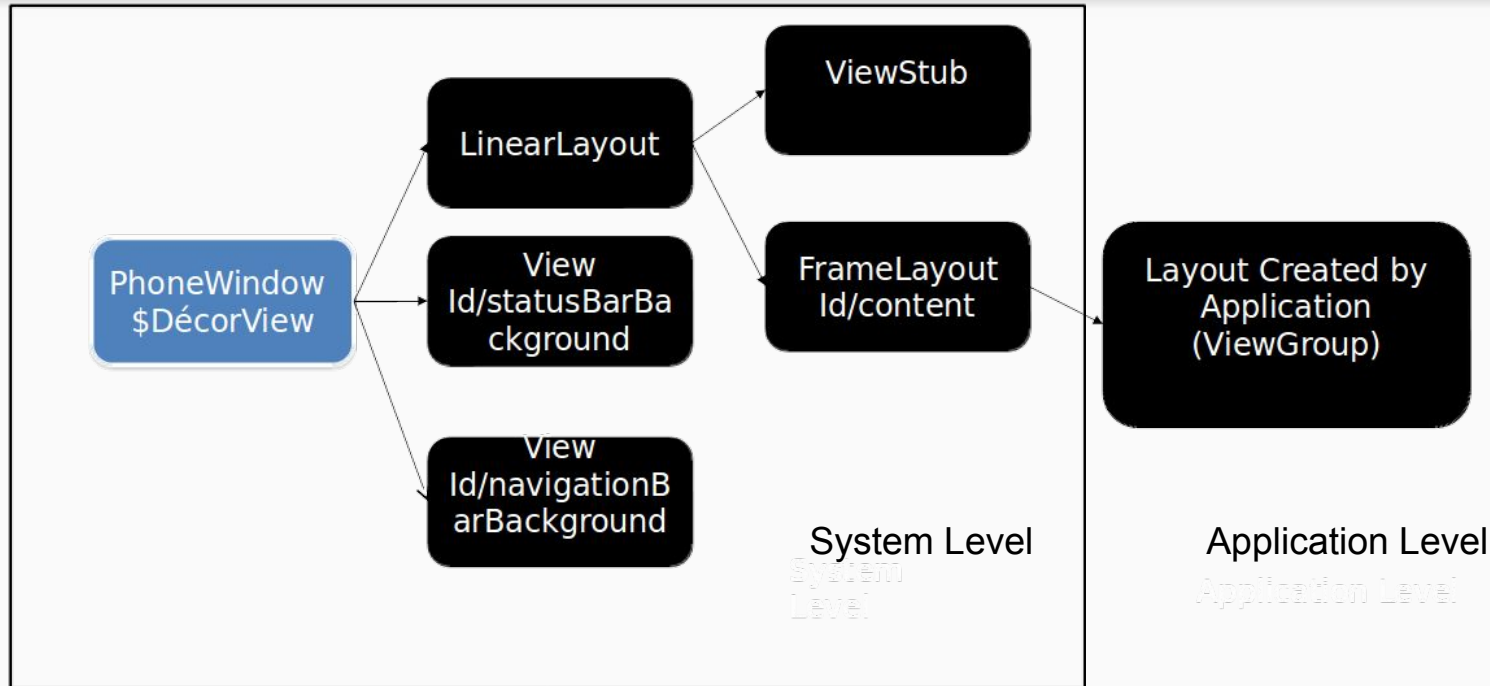
Our approach:

Add additional parameters to Intents when opened from chathead service

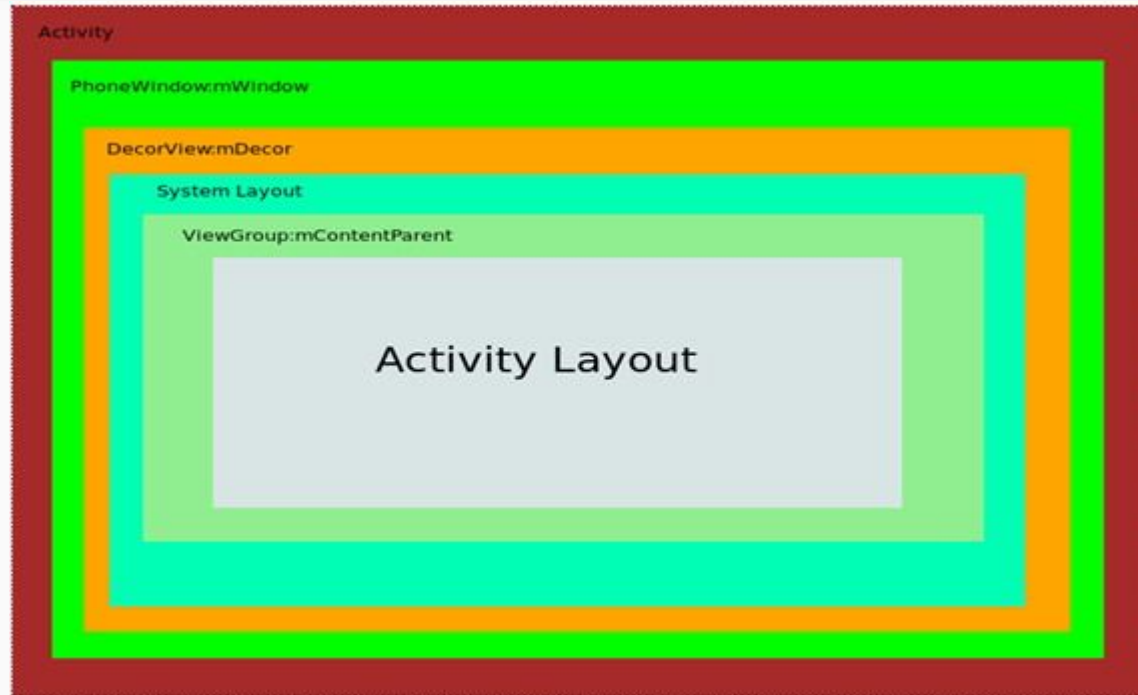
Initial Approach to Resizing apps



Updated Approach to Resizing Apps



Another Perspective of Views



Modified Class Files

- **Activity.java** - framework/base/core/java/android/app/Activity.java
 - **ContextThemeWrapper.java** - framework/base/core/java/android/view/ContextThemeWrapper.java
 - **Window.java** - framework/base/core/java/android/view/Window.java
 - **PhoneWindow.java** - framework/base/core/java/com/android/internal/policy/PhoneWindow.java
 - **DecorView.java** - framework/base/core/java/com/android/internal/policy/DecorView.java
 - **TypedArray.java** - framework/base/core/java/android/content/res/TypedArray.java
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- **WindowManagerService** - framework/base/services/core/java/com/android/server/wm/WindowManagerService.java
 - **ActivityRecord.java** - framework/base/services/core/java/com/android/server/am/ActivityRecord.java