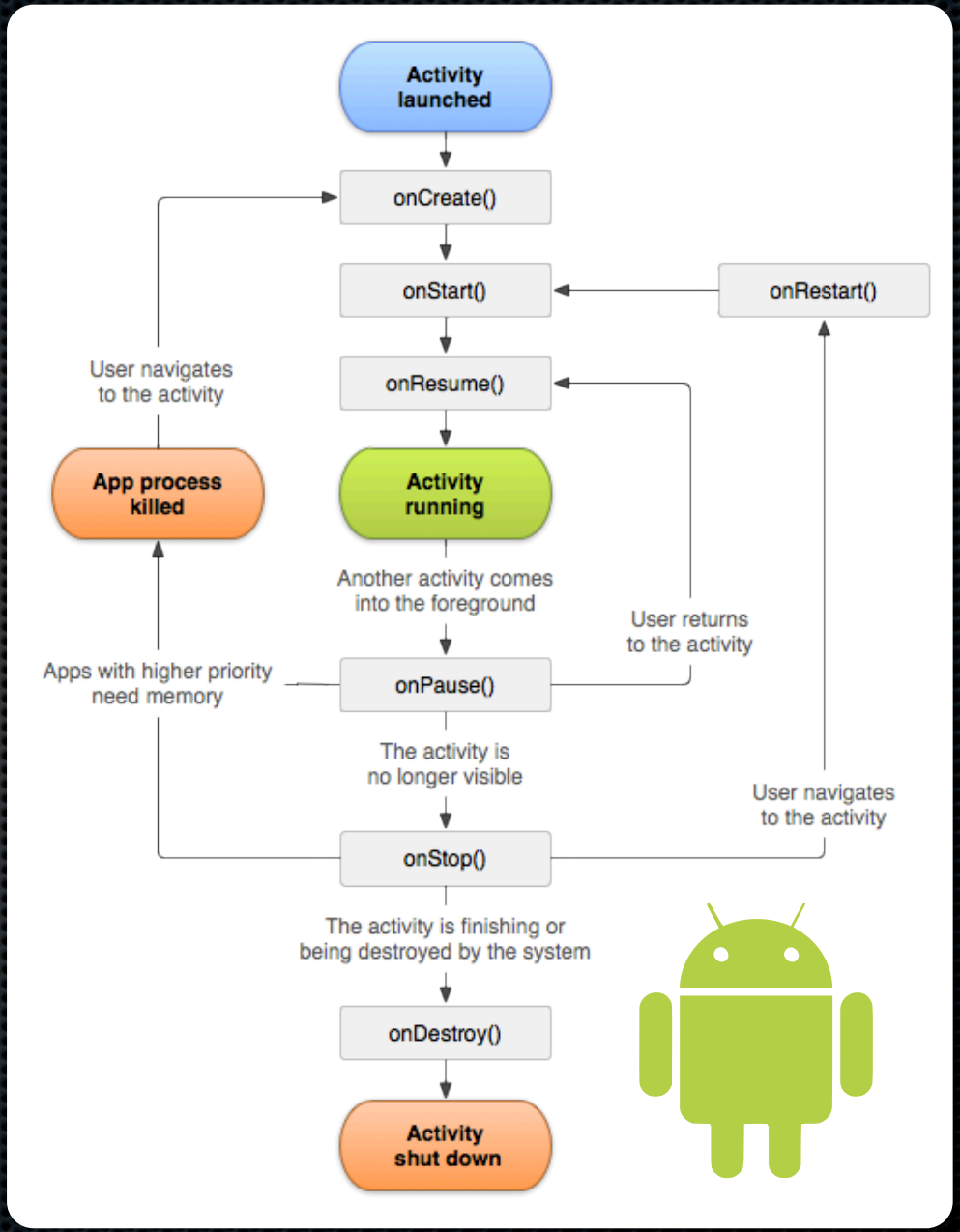
Mobile Application Programing: Android

Media Sensors


45% LESS FAT
3 Musketeers
Whipped Up, Fluffy Chocolate-on-Chocolate Taste

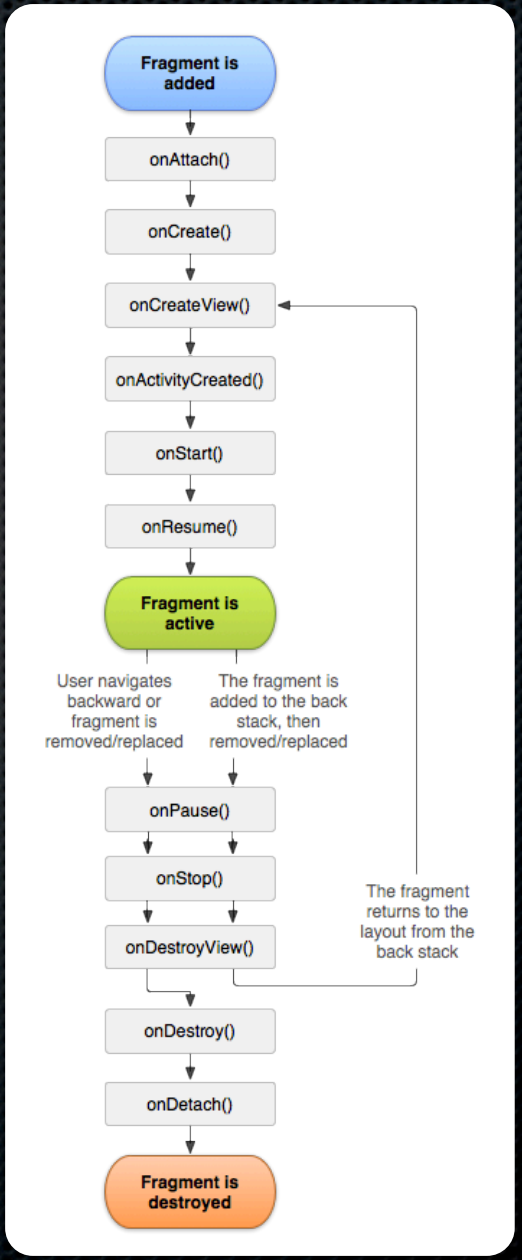
Activities

- 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



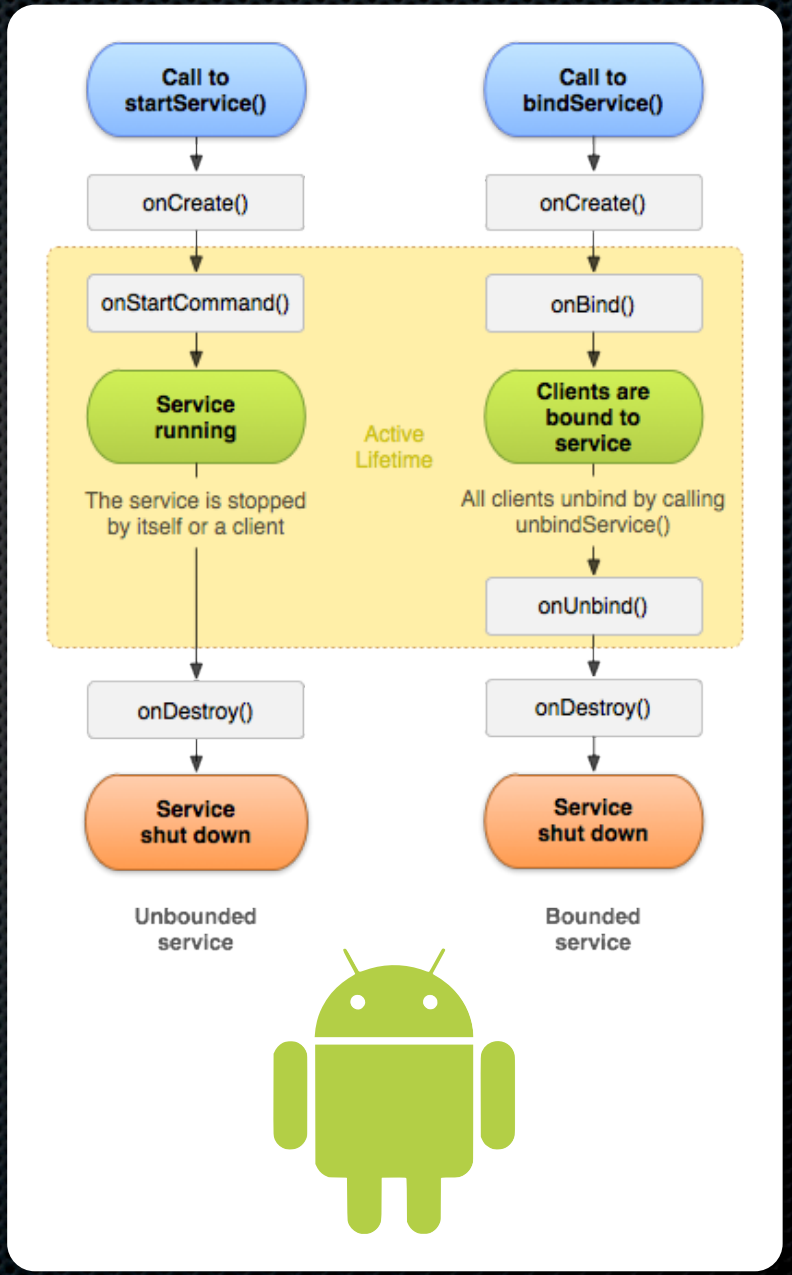
Fragments

- Acts like a sub-activity
- Attached and removed from an activity using the FragmentManager
- Attachment or removal of many fragments with FragmentTransaction
- Lifecycle tied to parent activity
- Adds onAttach / onDetach and onCreateView / onDestroyView



Services

- An application component that can perform long-running operations in the background and does not provide a user interface.
- Can be started and potentially run indefinitely or be bound to and run until the operation the service provides is no longer needed.
- Apps can use services belonging to another app
- Can be unbound or bound



Camera

- Camera interaction can be accomplished through another application or by direct interaction with the camera hardware
- Another application can be launched to capture image data by using an intent action
- Direct interaction is performed by using the Camera class in the android.hardware package

Camera

- An application activity capable of capturing images can be started by using the intent action:
  - MediaStore.ACTION_IMAGE_CAPTURE
- Camera applications return image thumbnails if invoked using startActivityForResult
  - See the returned intent's "data" extra
- Capturing a full image requires that a URI be provided in the MediaStore.EXTRA_OUTPUT key of the intent
- The full image can be then read from that URI in onActivityResult

Video

- An application activity capable of capturing videos can be started by using the intent action:
  - MediaStore.ACTION_VIDEO_CAPTURE
- Camera applications return video URI if invoked using startActivityForResult
  - See the returned intent's data property (not the "data" extra)
- Capture options can be passed to activity using extras and keys defined by the MediaStore class
- The video can be then read from that URI and manipulated

Audio

- The MediaPlayer class is used for both simple and advanced audio input / output
- Allows fine-tuned playback options and streaming
- For full-featured playback, run as a foreground service
- See Media Playback Guide for more information
  - http://developer.android.com/guide/topics/media/mediaplayer.html

Audio Recording

- The MediaRecorder class is used for recording of audio
- Need to set audio source, output format, output file, and audio encoder, then call prepare
- MediaRecorder.AudioSource.MIC is typical source, use constants from the MediaRecorder class to fill in rest
- Calling start and stop adds to recording, saving to the provided file as recording progresses
- Call release when finished to free resources and close audio file

OpenAL

- Available from NDK as OpenSL
- 3D sound source with output positioning and Doppler Effect
- Audio Device
- Audio Context
- Sound Listener
- Sound Source
- Sound Buffer