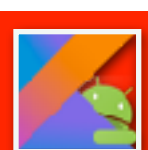




Building a View and MVC

@somkiat



Topics

Building a View
Model-View-Controller (MVC)
Workshop
Homework



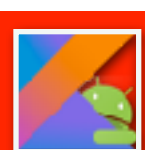
GUI Architecture of Android

Single thread (Main Thread)

Event-driven

Nestable components

Model-View-Controller pattern



MVC

Model View Controller



Model

Represent the **data** or data container
e.g. data store or database



View

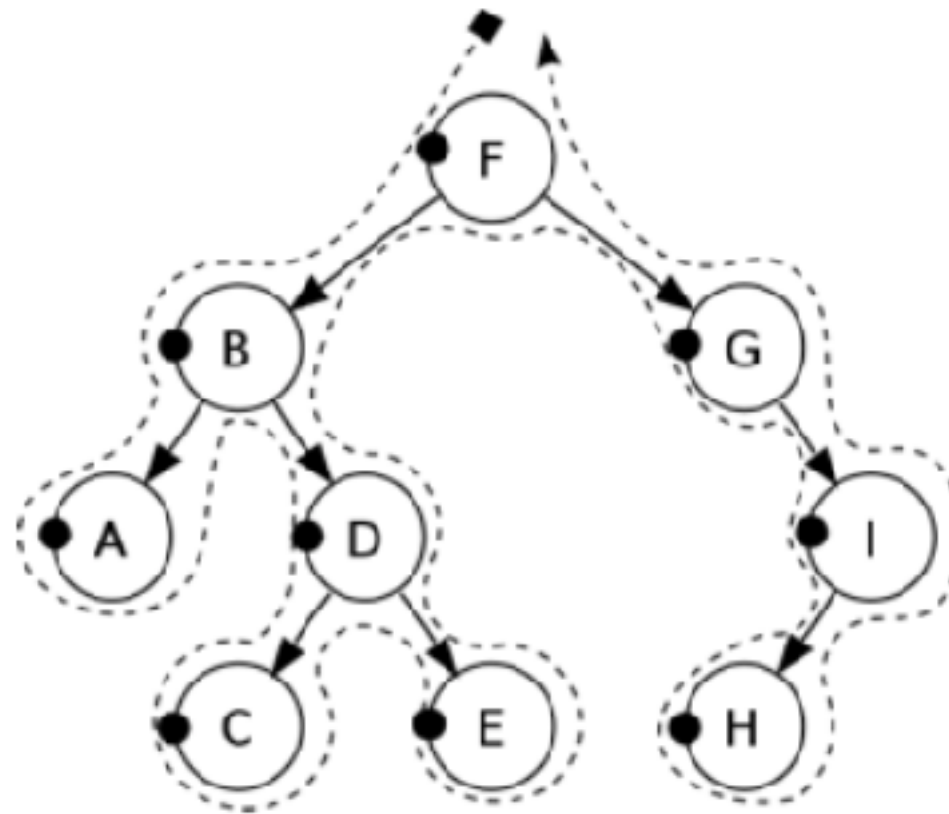
Responsible for rendering the display
Sending audio to speakers

In android, it's extend from **View class**

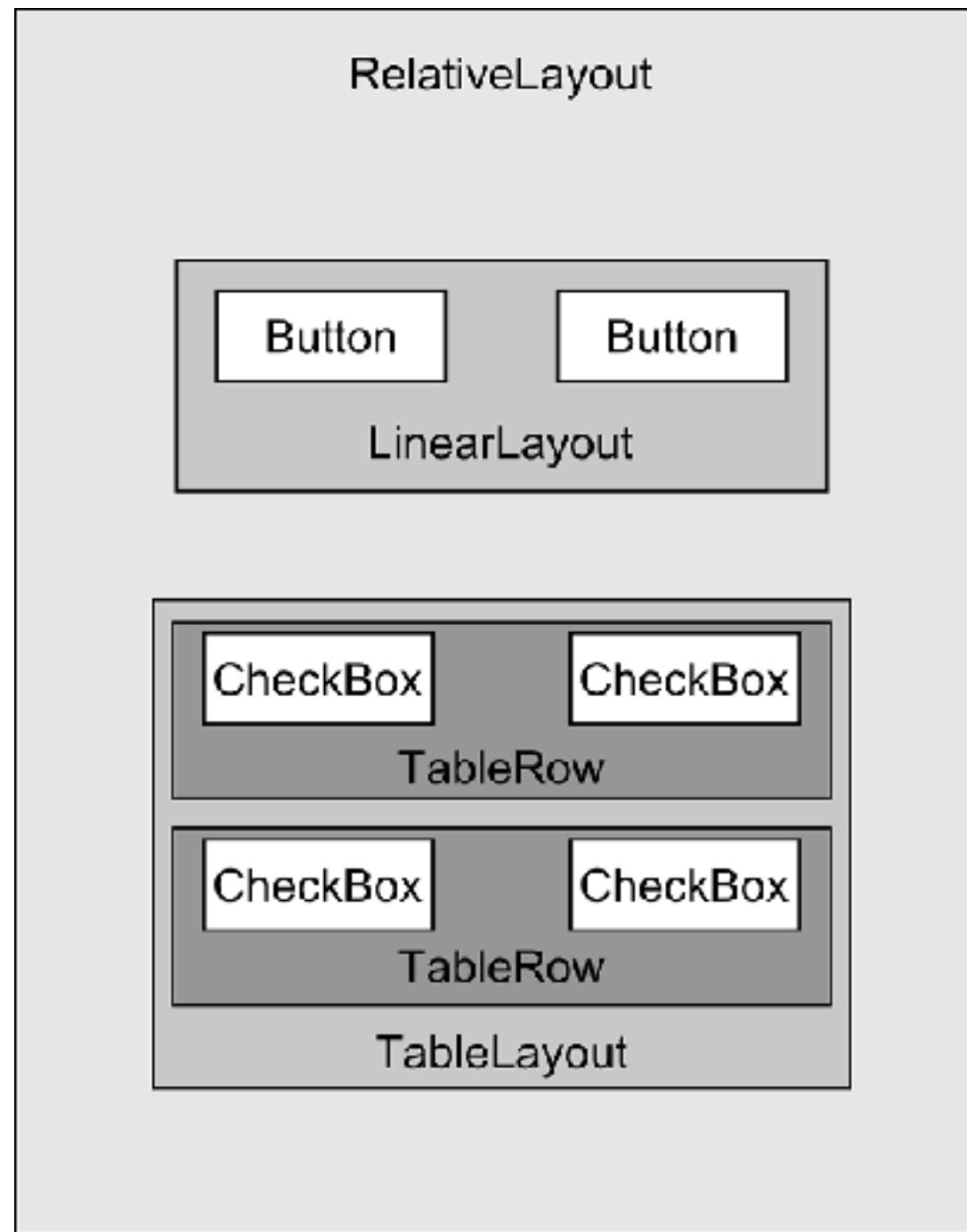


View

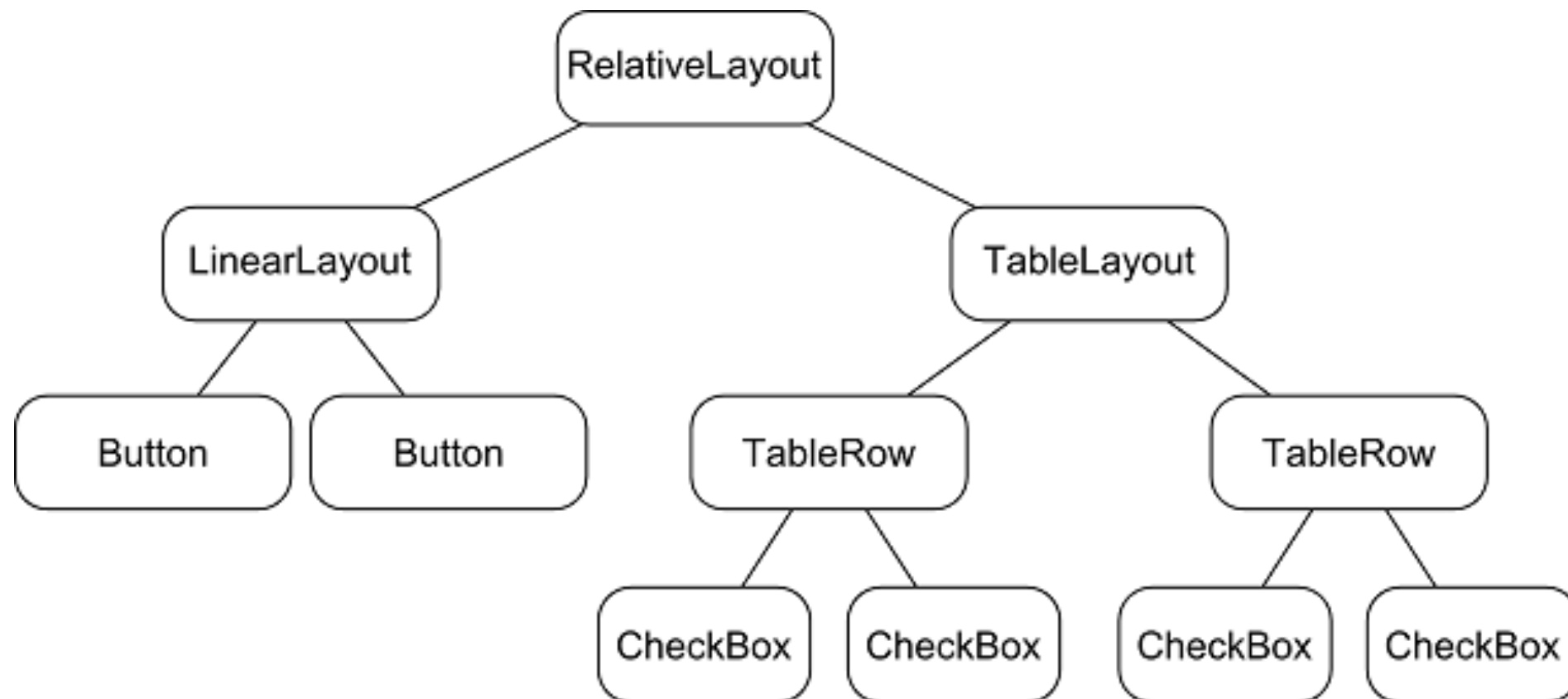
In Android, it's extend from **View** class



View Hierarchy

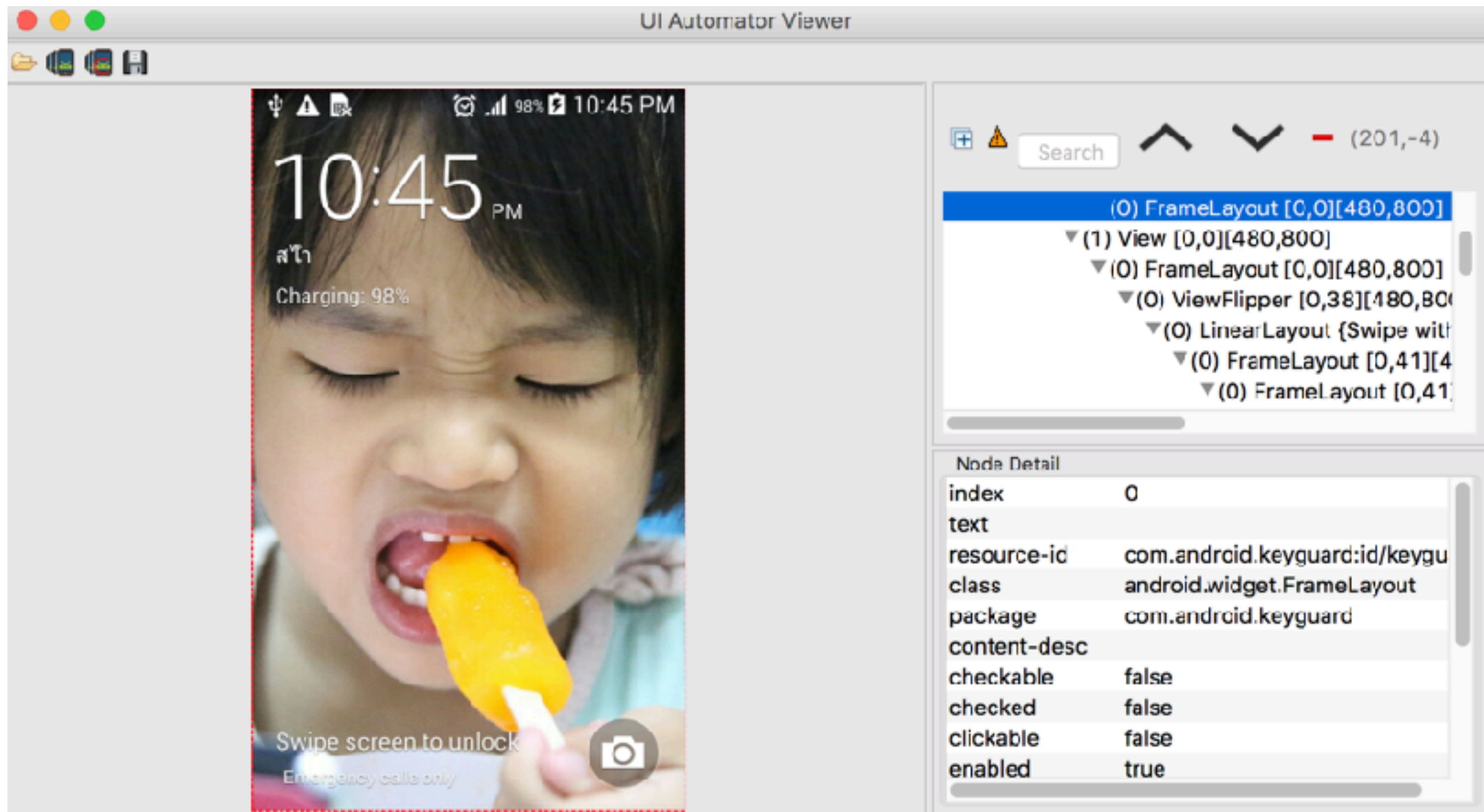


View Hierarchy



UIAutomator Viewer

\$ANDROID_HOME/tools/bin/uiautomatorviewer



Improving your layout

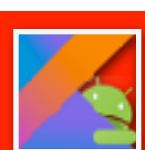
Inspect your layout

Revise your layout

Use Lint

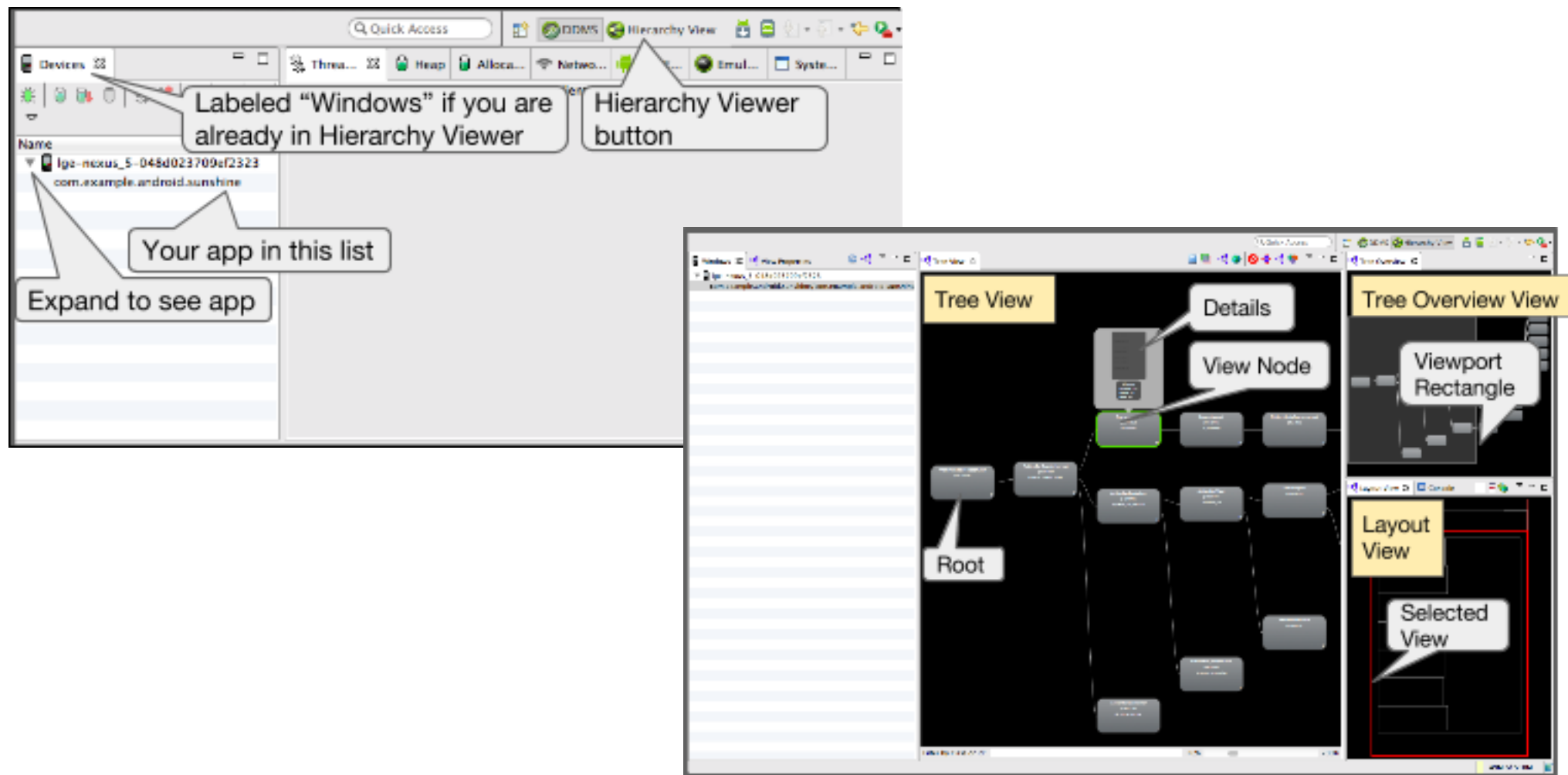
Loading view on demand
more ...

<https://developer.android.com/training/improving-layouts/index.html>



Profiling your layout

Hierarchy Viewer



<https://developer.android.com/studio/profile/hierarchy-viewer.html>

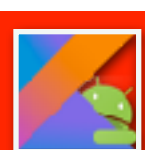
Controller

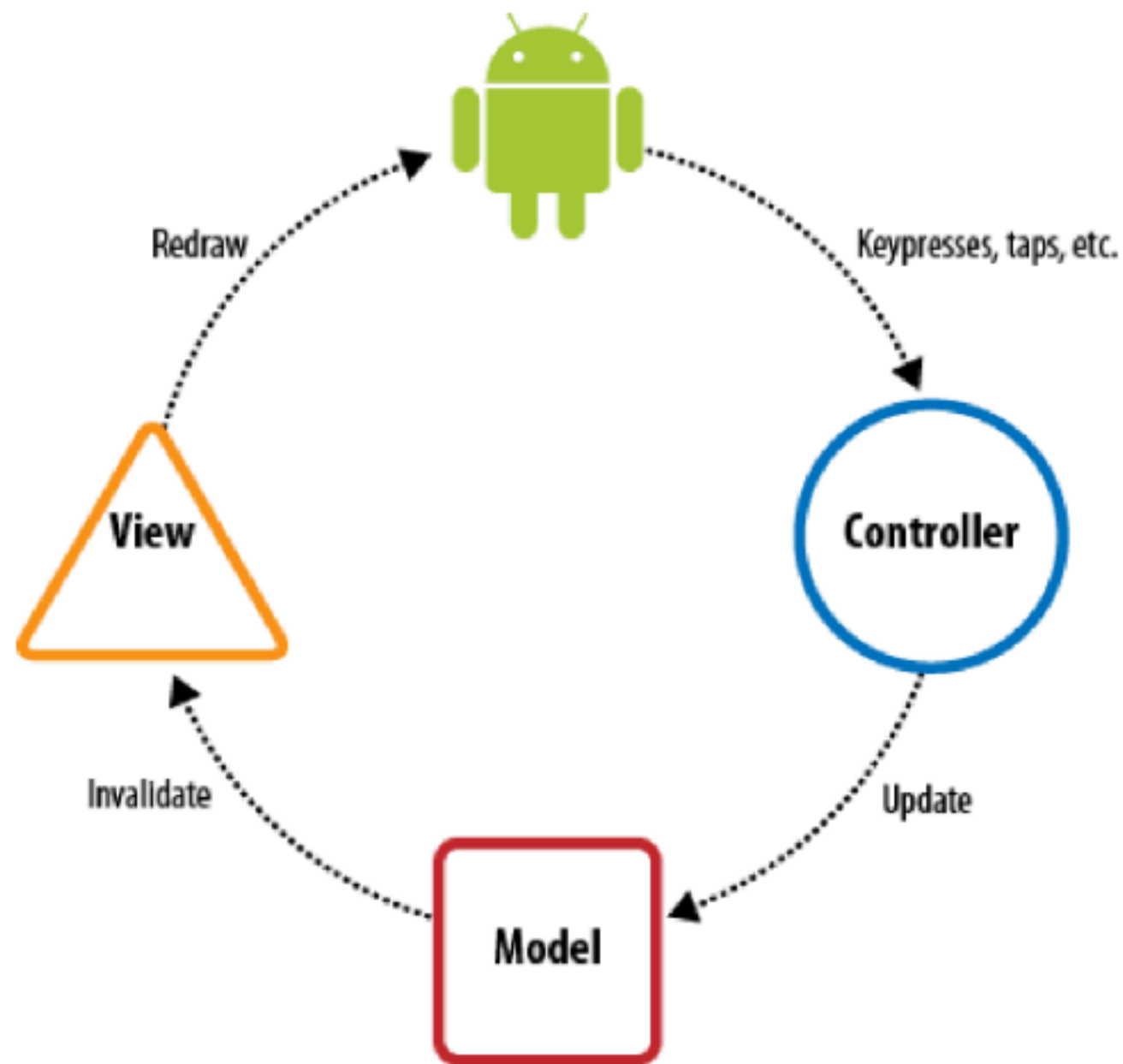
Responds to external actions

e.g. keystone, swipe, tab, incoming call

Implemented as a **event queue**

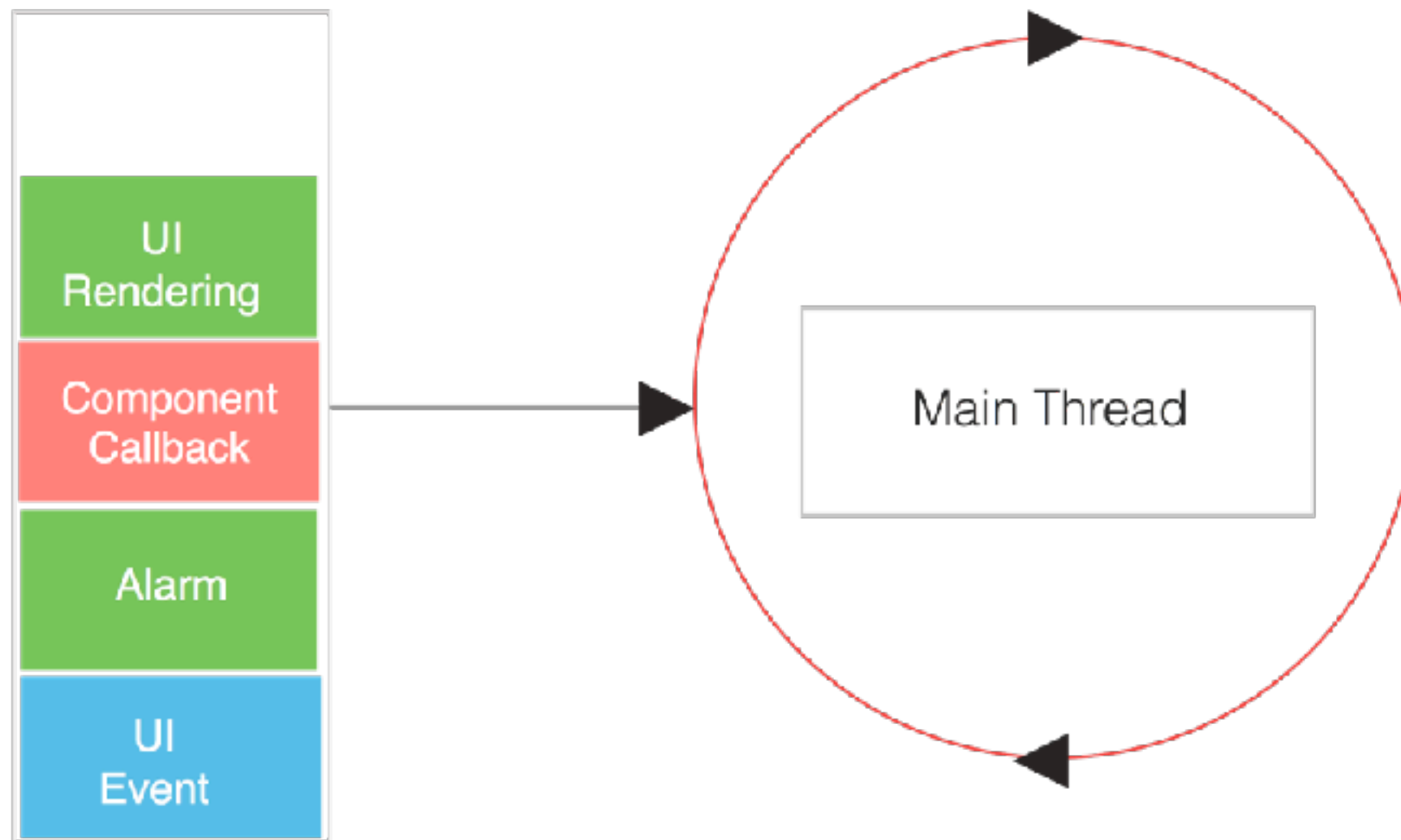
Update model from actions/events





Main Thread Queue

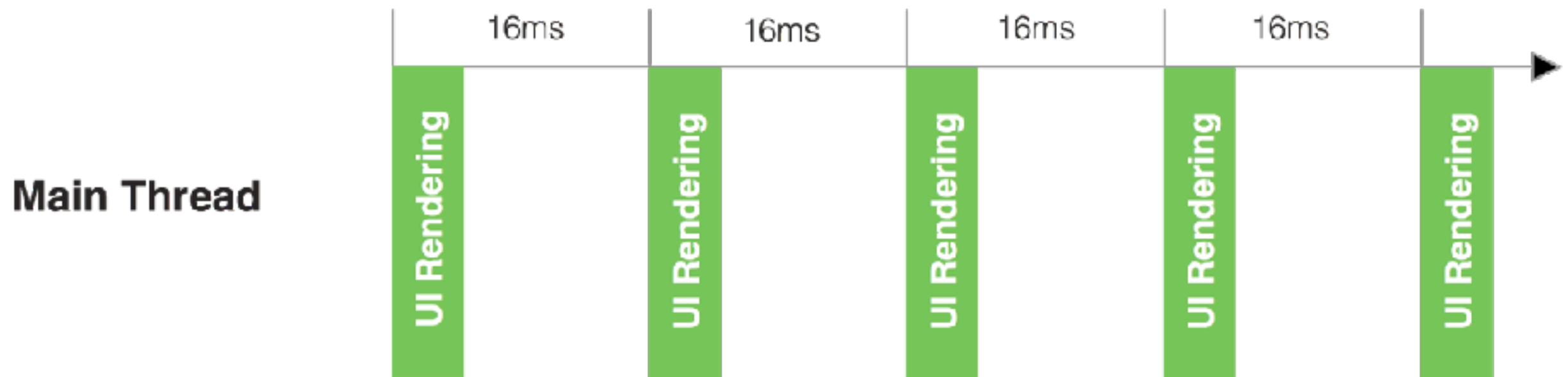
Message Queue



<http://hvasconcelos.github.io/articles/Offloading-work-from-the-UI-Thread>



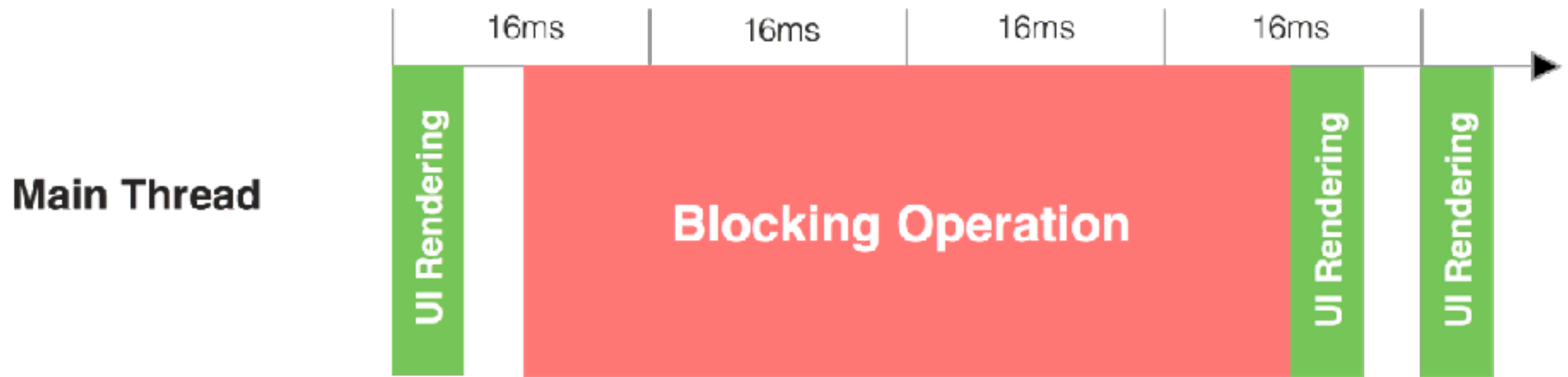
Main Thread Rendering



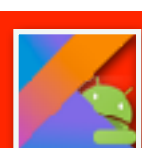
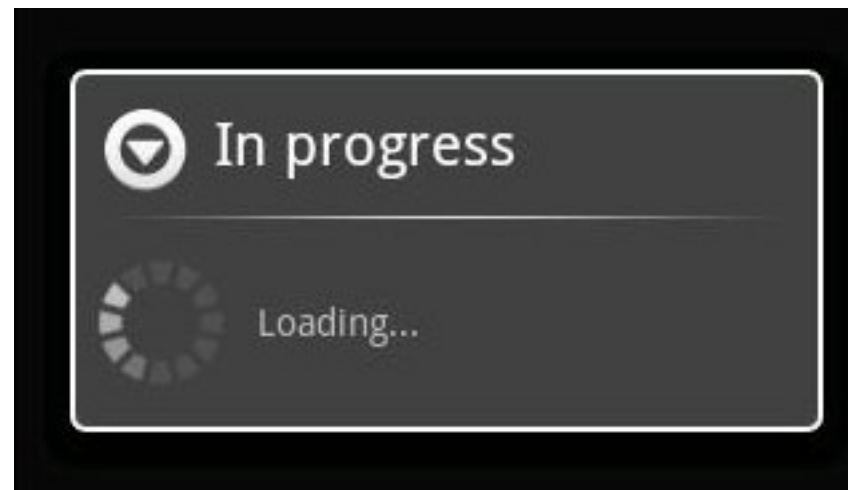
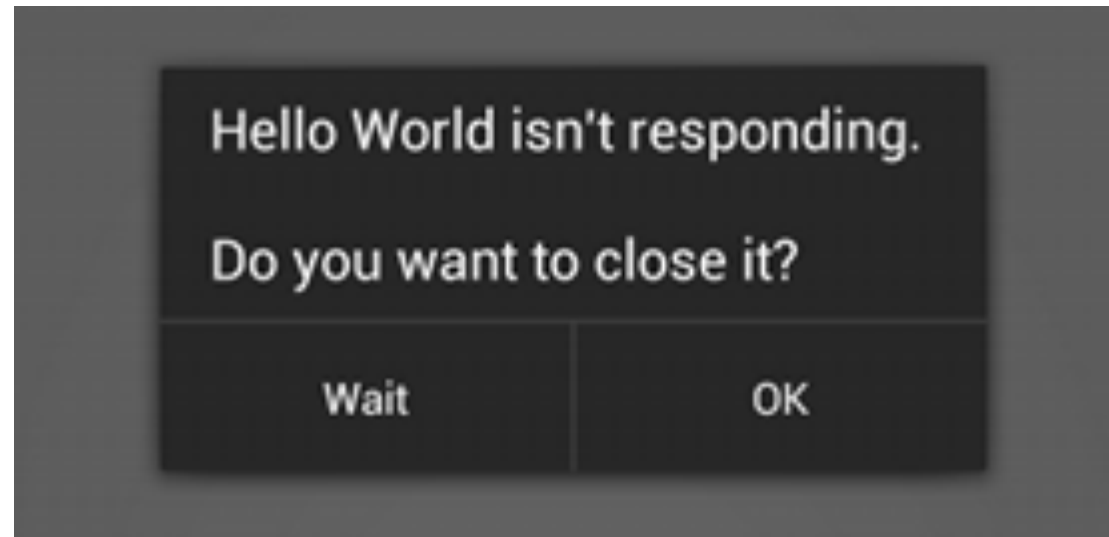
Most android devices refresh the screen 60 times/second, every 16 ms



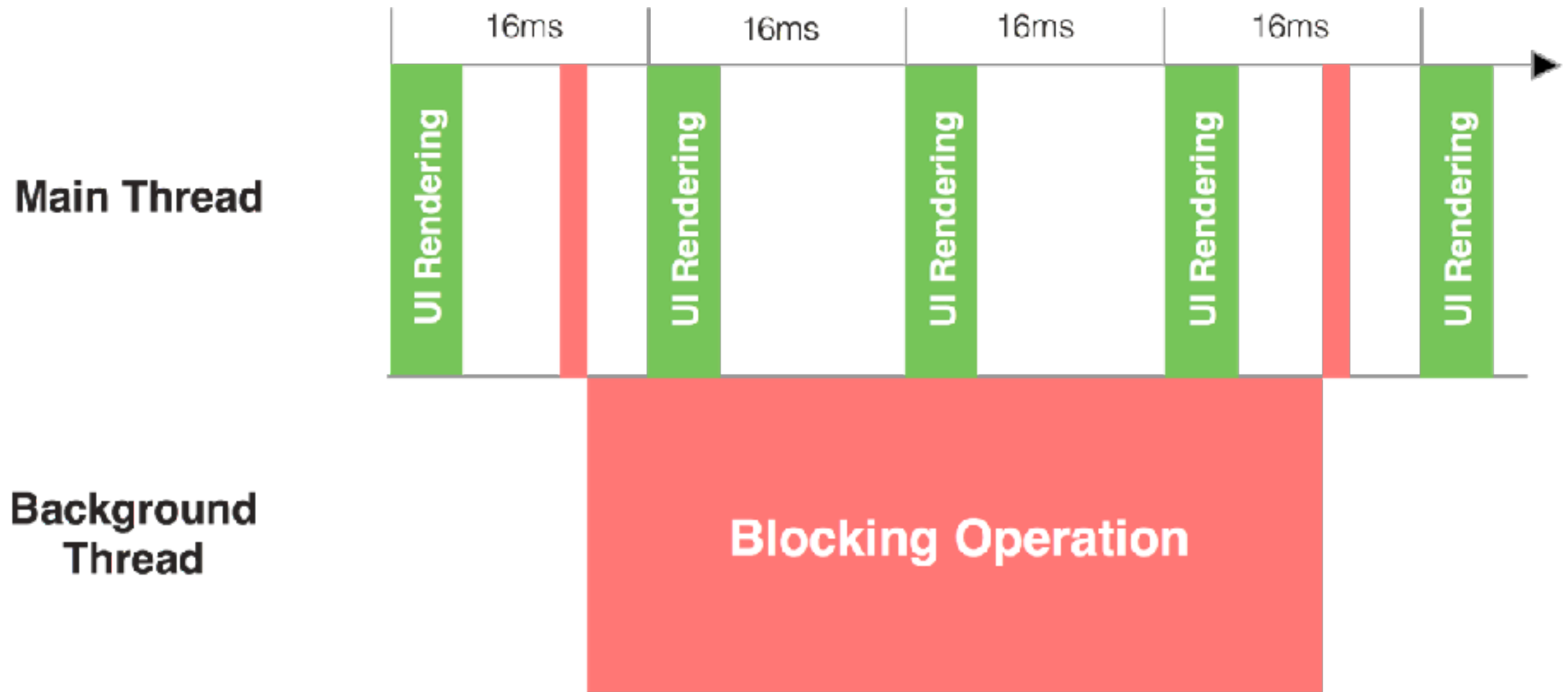
Blocking Operation !!



Blocking Operation !!



Background Thread



Asynchronous Techniques

Thread
AsyncTask
Loader
IntentService
JobScheduler
RxJava



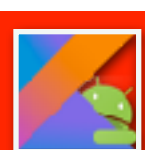
More !!!

Model View Presenter

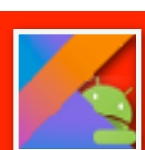
Model View ViewModel

View Interactor Presenter Entity Router

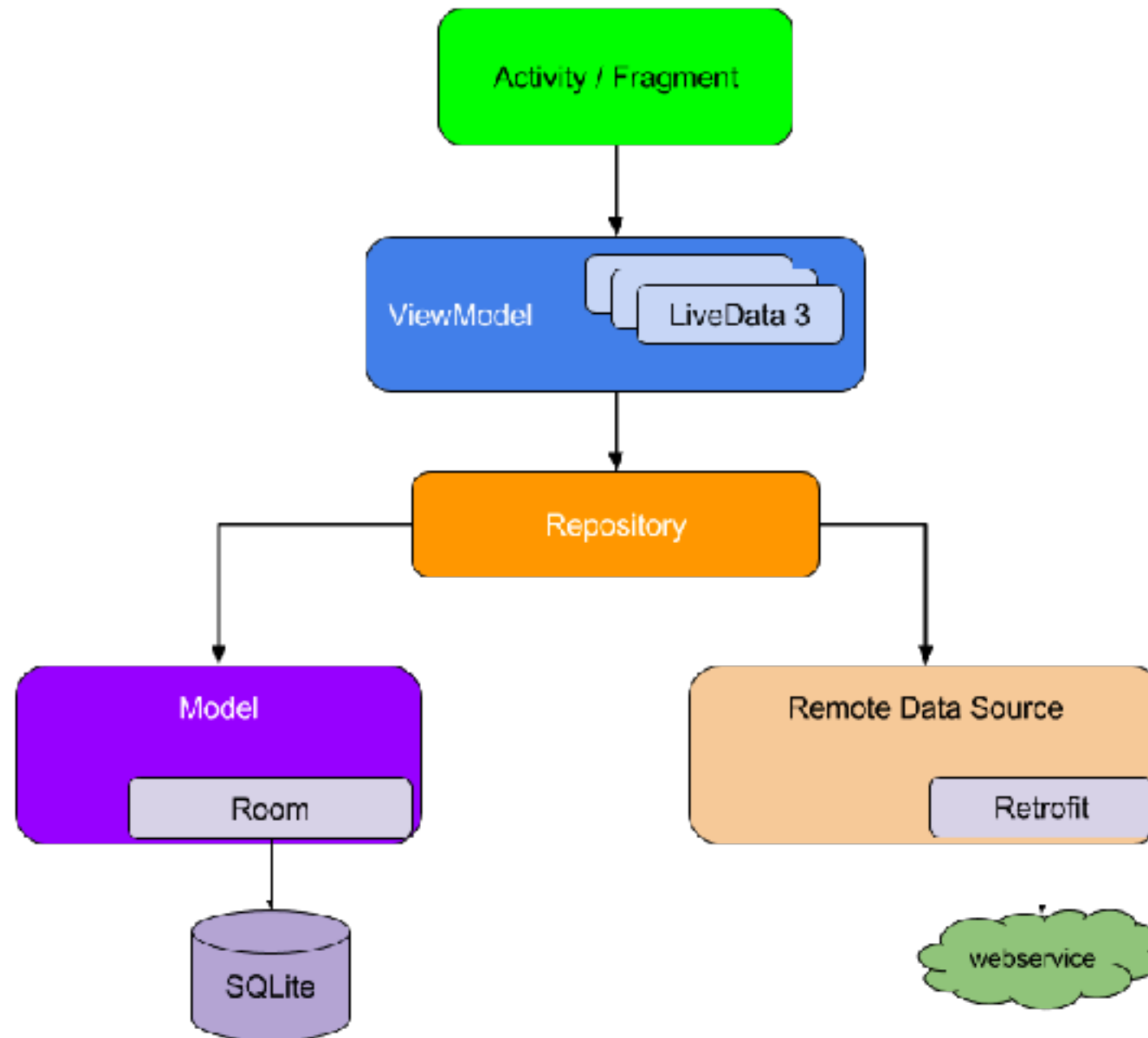
Clean Architecture



more ^_^

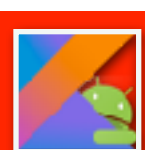


Architecture Components

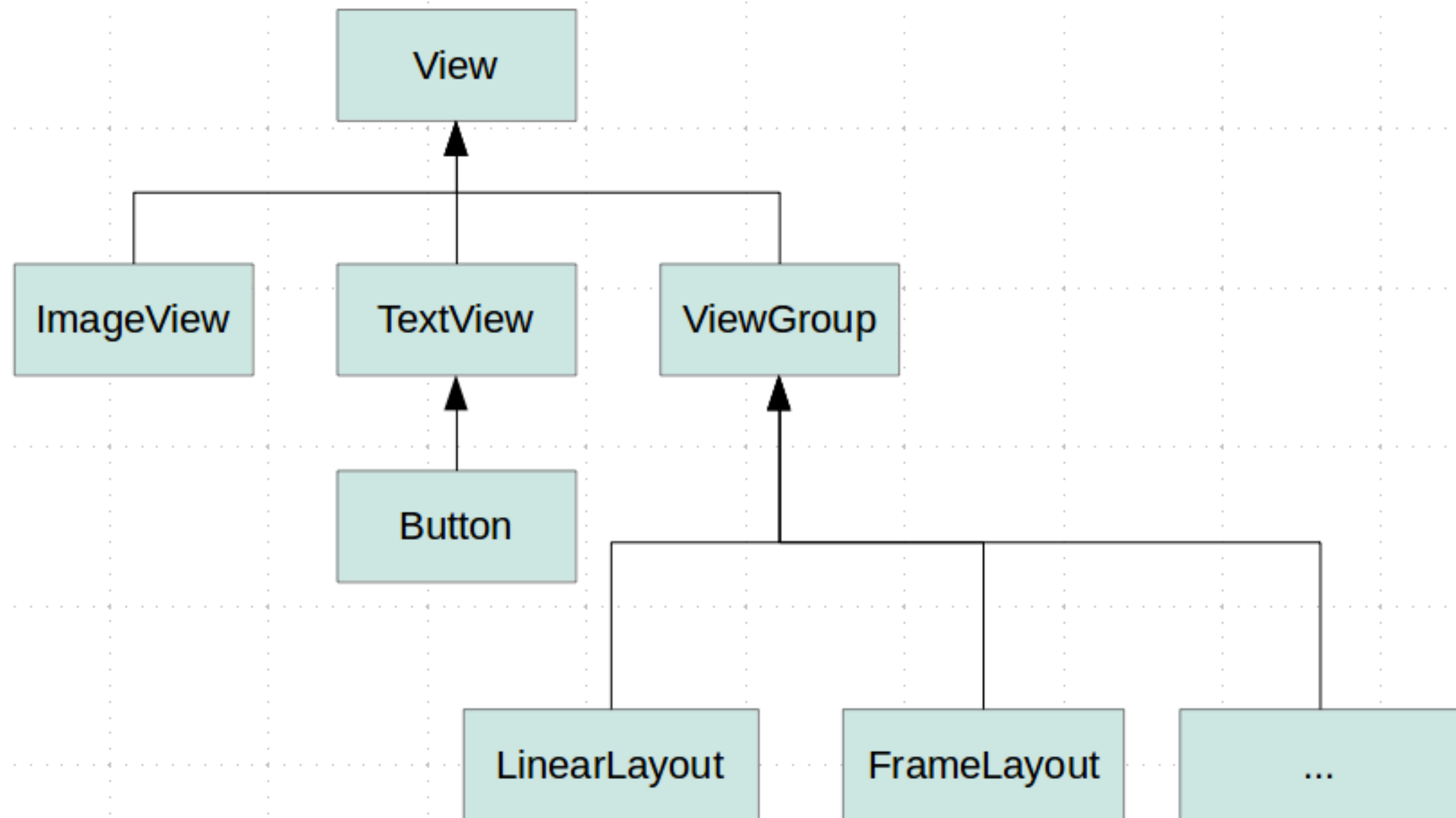


<https://developer.android.com/topic/libraries/architecture/guide.html>

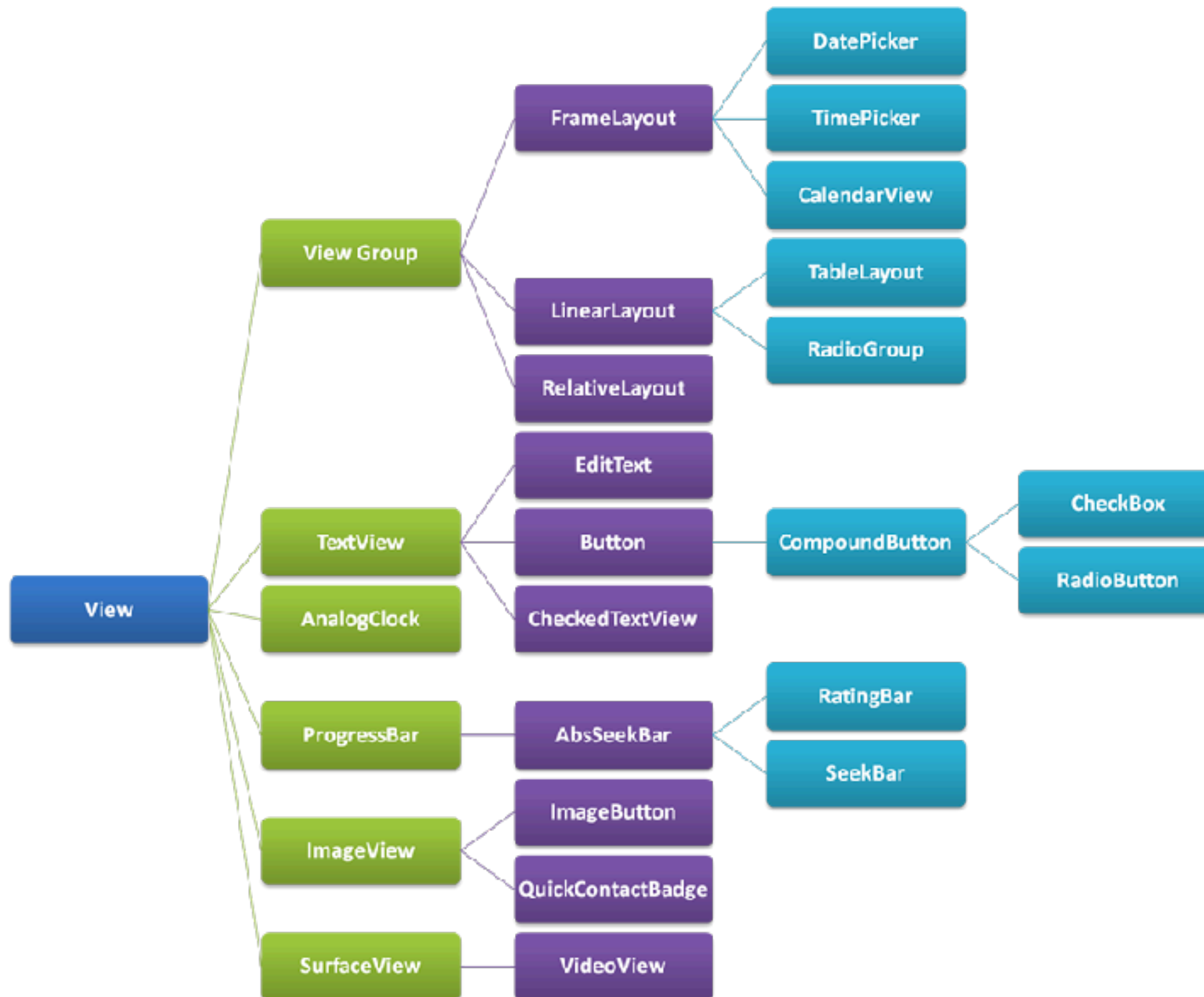
Start workshop



Android View



Android View



Android View

Widgets
Container views



Widgets

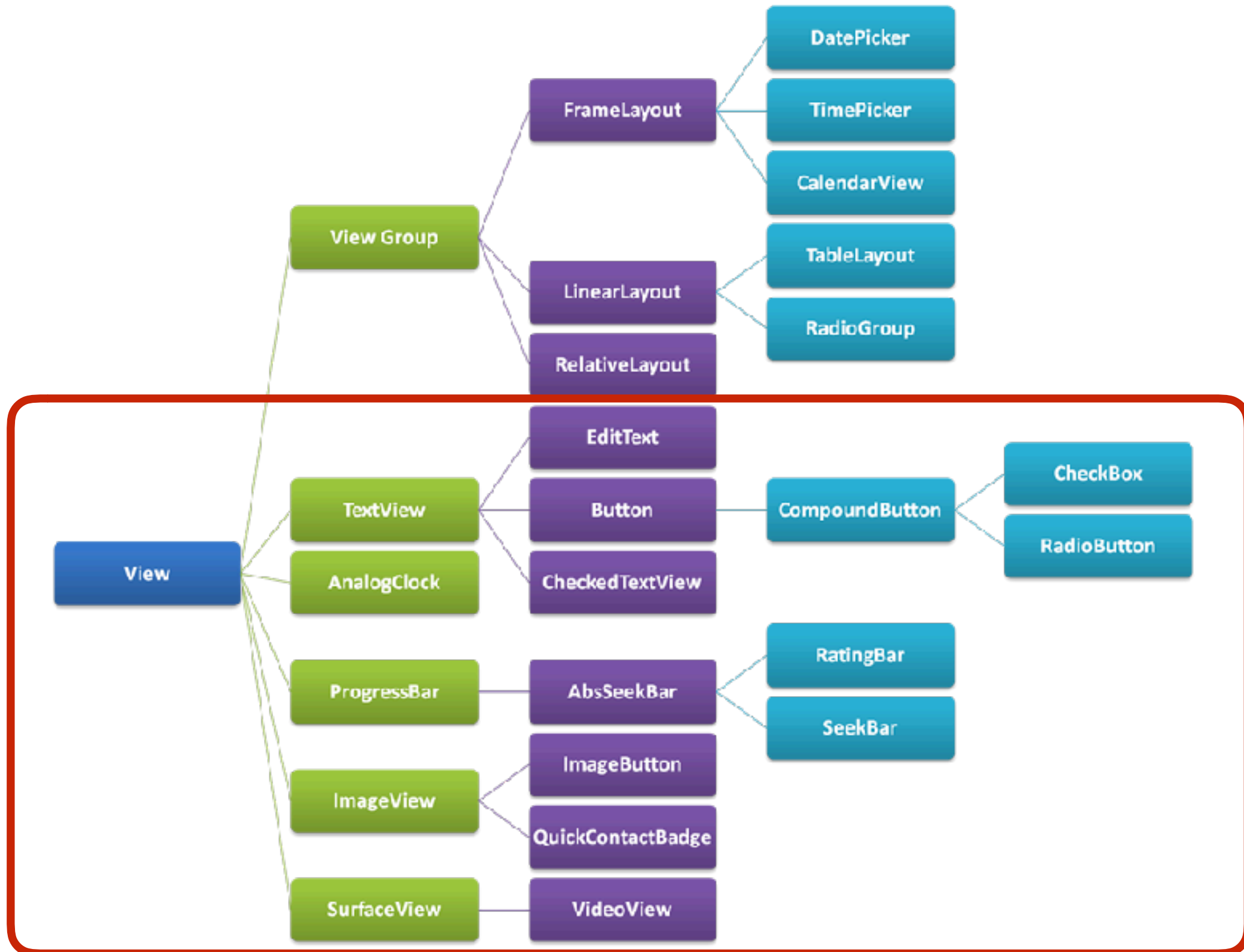
Displayed on screen

Extended from **android.view.View**

e.g. Button, TextView, EditText, ListView



Widgets



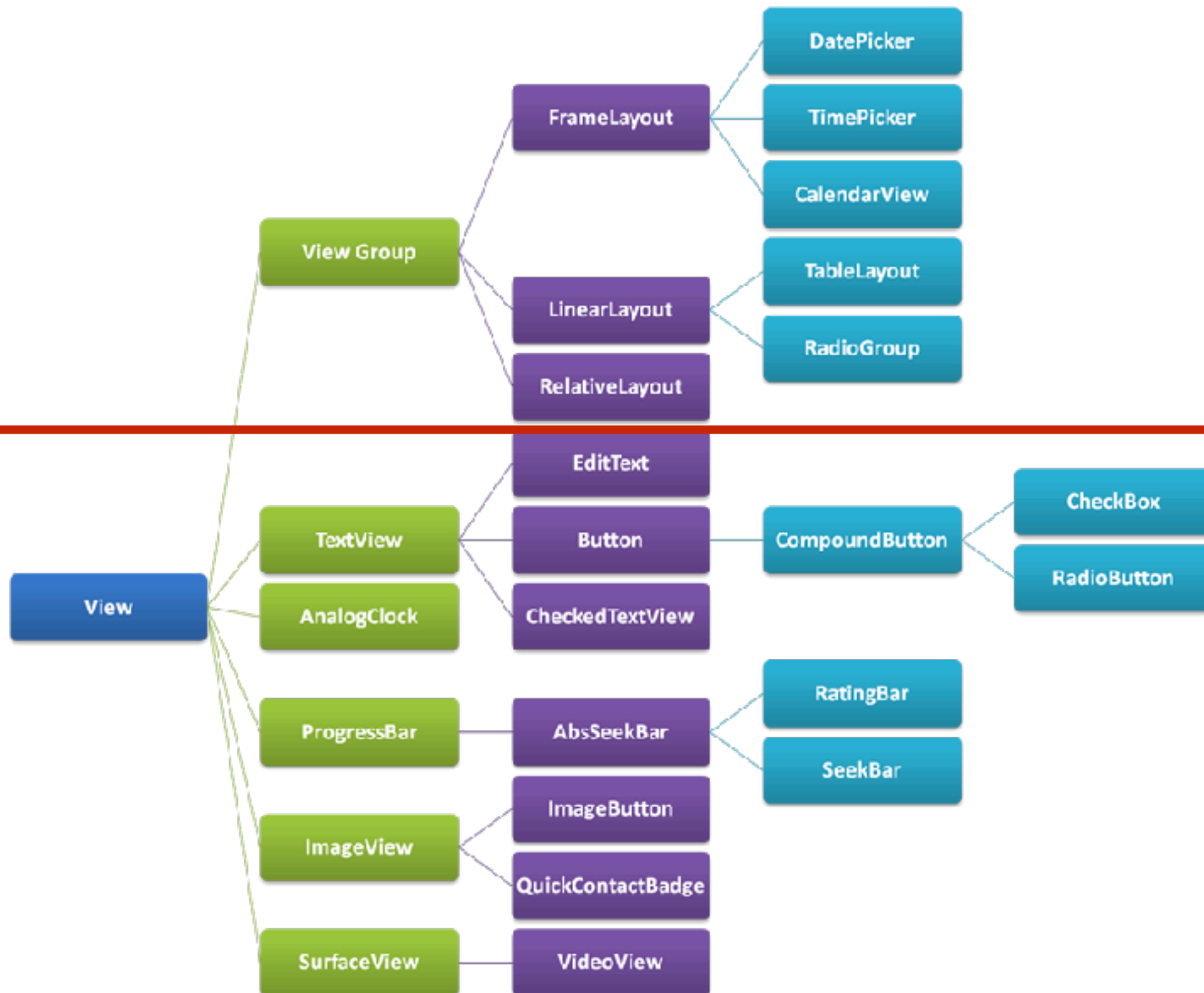
Container Views

User can't see this view

Extended from **android.view.ViewGroup**
e.g. Button, TextView, EditText, ListView



Container Views



Let's coding

