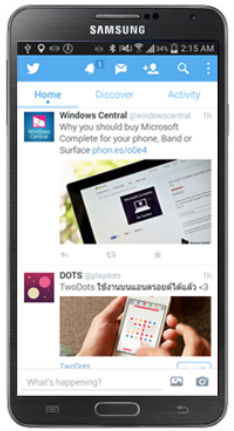
# Android Application Development

## Fragmentation

# Understand Android Fragmentation

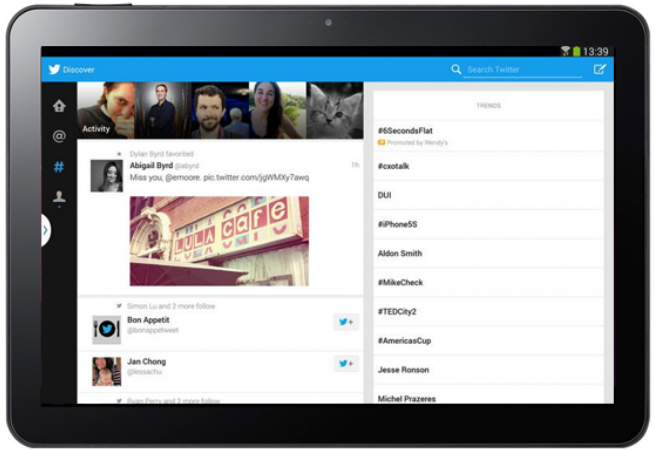
- Hardware : There are just 4 types of screen you have to deal with




Mobile Portrait


Mobile Landscape


Tablet Portrait




Tablet Landscape

# Hardware

- Hardware : Focusing on Mobile Phone
  - There are 3 types of Mobile Phone


Low End


Mid End


High End

# Hardware

- Low End: One of the key problem in Android world


Low End

- It's mass
- Has issues in both UI and performance
- My suggestion?
  - Should we care? → Yes … or No
  - UI has to fit on screen (You might need to customize UI occasionally)
  - Just don't crash
  - "Acceptable" performance is enough

# Hardware

- Android Phone you need to test between development
  - Just 3


Works
Fine
::
- UI Fit -


Works
Perfectly
::
- UI Fit -
- Fluid -
- Fast -


Low End

Mid End

High End

# Hardware

- Android Tablet you need to test between development
  - Just 2

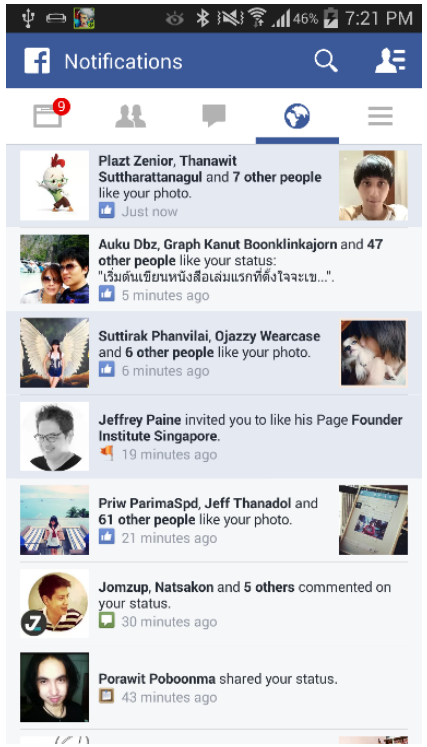

7”

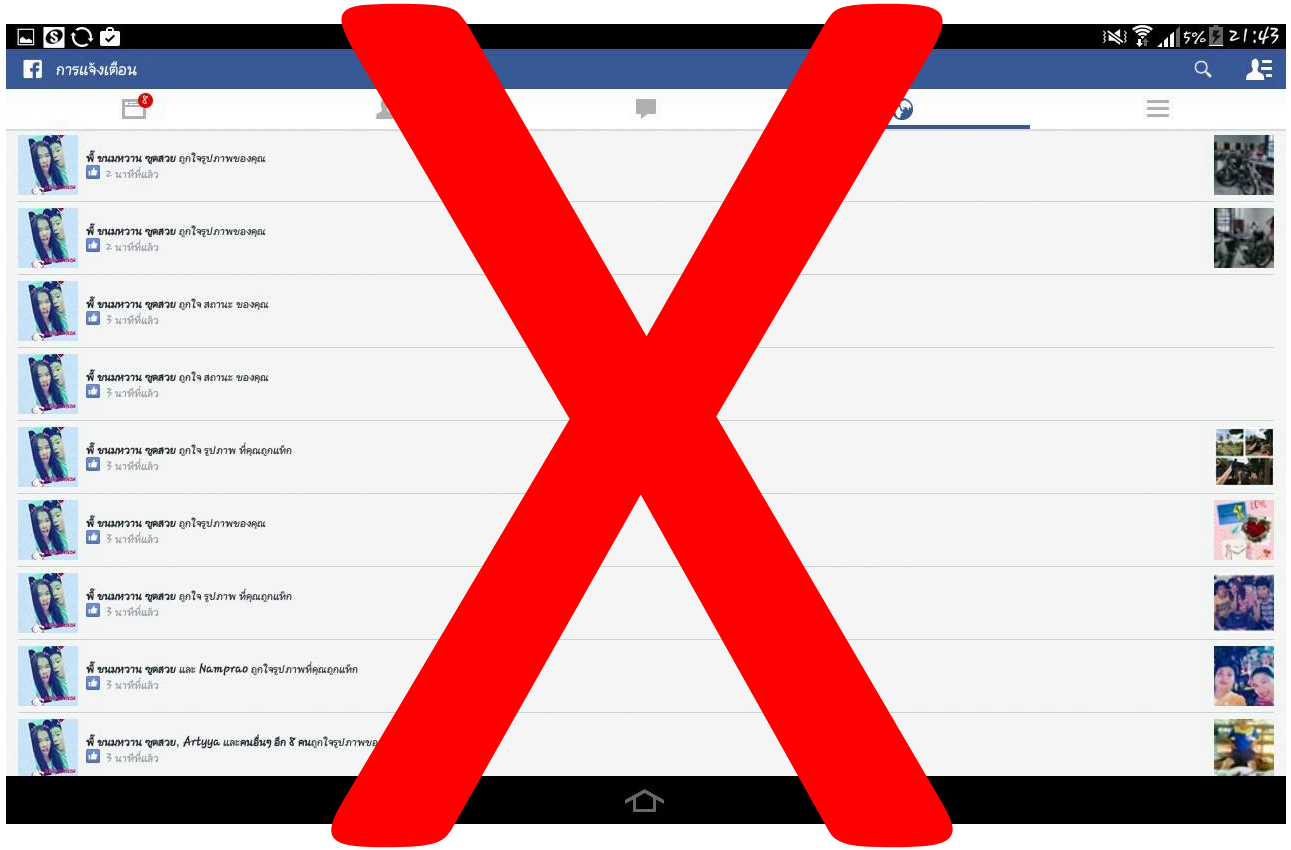

10”

# Hardware

- Do we need to care the screen resolution?
  - **No**

# UX&UI: Mobile & Tablet



# UX&UI: Mobile & Tablet

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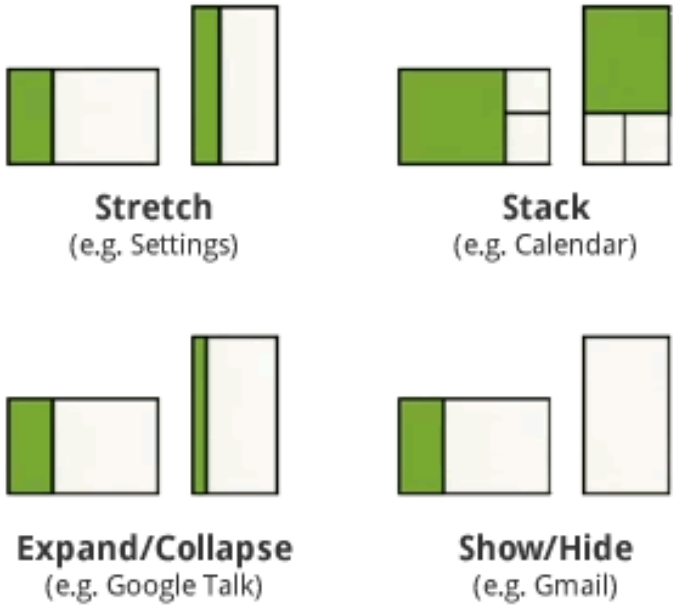
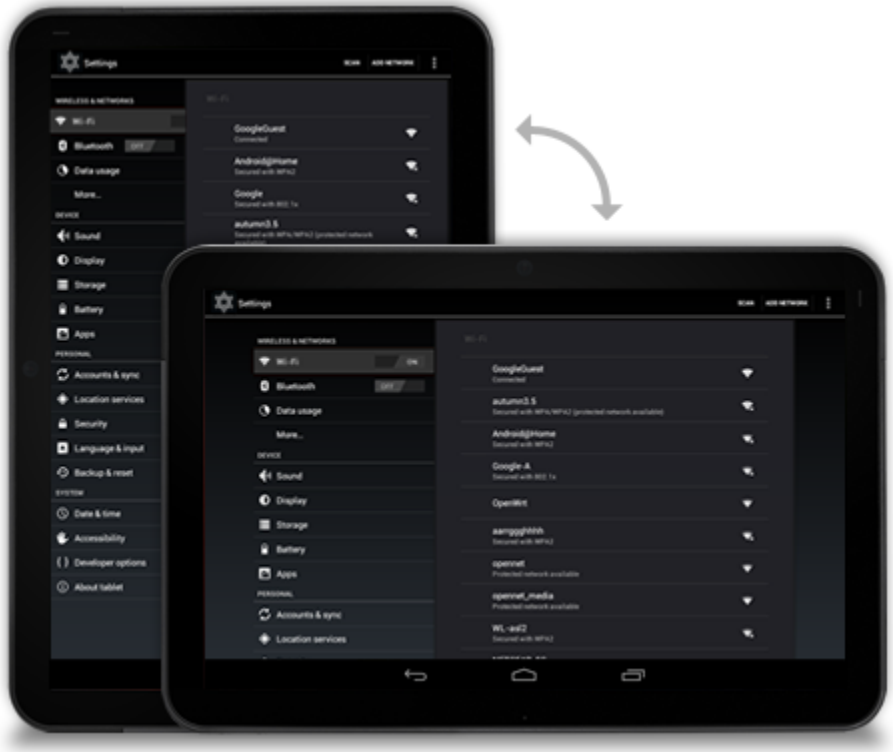


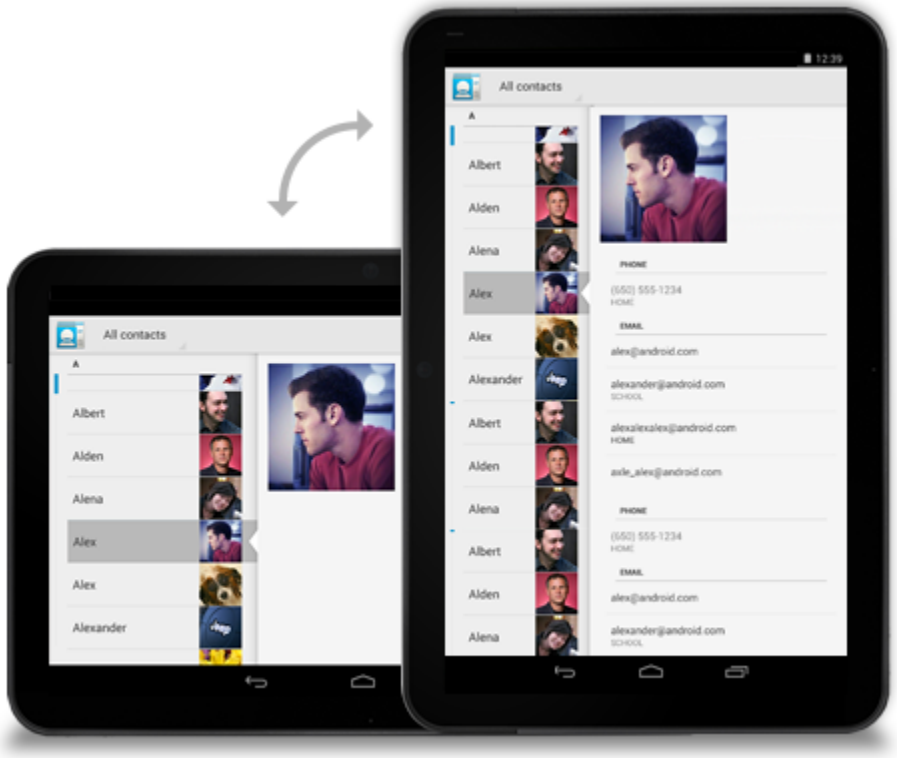

## How to do this?

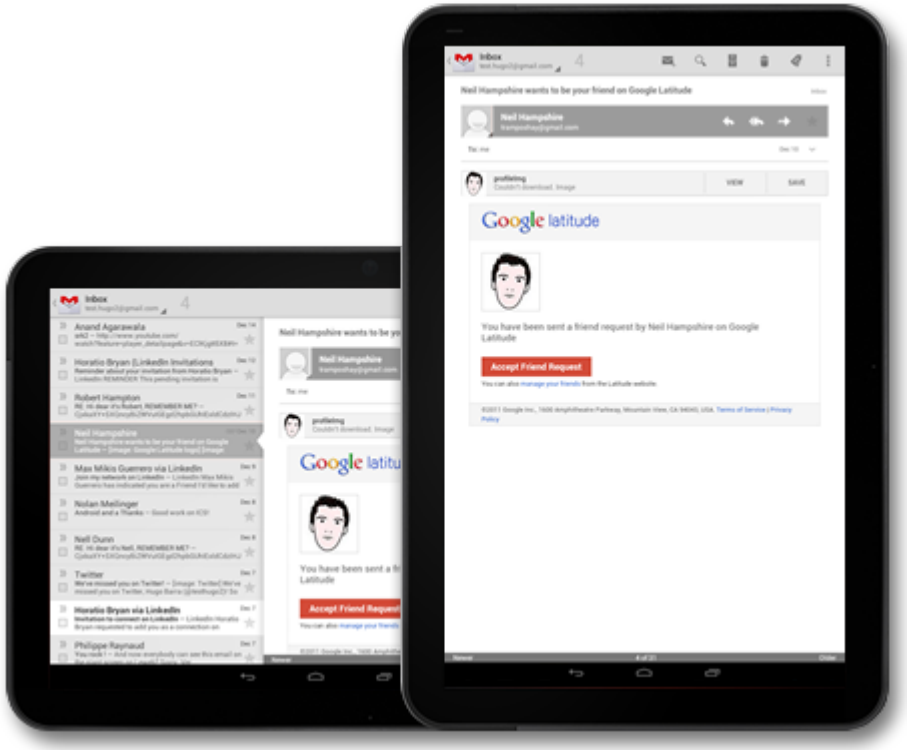
(See you in the next chapter)

# Tablet UI&UX: Portrait vs Landscape




# Tablet UI&UX: Portrait vs Landscape



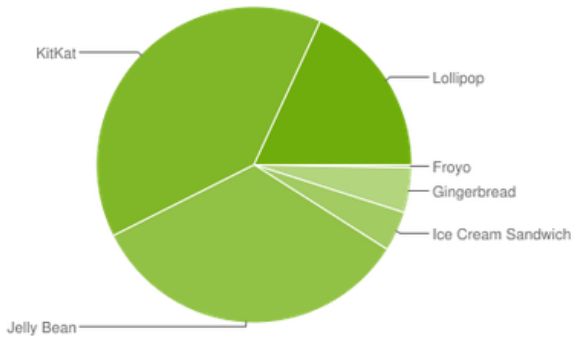
# OS Version

- Do we need to care → Definitely Yes
- Right now, use minSdkVersion as Android 4.0.3 ICS (API Level 15)[Aug 3, 2015]

| Version | Codename | API | Distribution |
|---|---|---|---|
| 2.2 | Froyo | 8 | 0.3% |
| 2.3.3 - 2.3.7 | Gingerbread | 10 | 4.6% |
| 4.0.3 - 4.0.4 | Ice Cream Sandwich | 15 | 4.1% |
| 4.1.x | Jelly Bean | 16 | 13.0% |
| 4.2.x | | 17 | 15.9% |
| 4.3 | | 18 | 4.7% |
| 4.4 | KitKat | 19 | 39.3% |
| 5.0 | Lollipop | 21 | 15.5% |
| 5.1 | | 22 | 2.6% |

*Data collected during a 7-day period ending on August 3, 2015.*

*Any versions with less than 0.1% distribution are not shown.*



# Android Support Library

The Android Support Library package is a set of code libraries that provide backward-compatible versions of Android framework APIs as well as features that are only available through the library APIs.

*** Very important. You will find yourself use it in every single app you made.**

# Android Support Library

Your Project

+

Android Support Library

=

Use Lollipop's API on ICS

## Support Library Versions

- V4
- V7
- V8
- V13
- V14
- V17

What is it?

# How to add Android Support Library to your project?

Hello Android Studio's Dependency System

```
dependencies {
    compile fileTree(dir: 'libs', include: ['*.jar'])
    compile "com.android.support:support-v4:21.0.+"
}
```

http://developer.android.com/tools/support-library/features.html

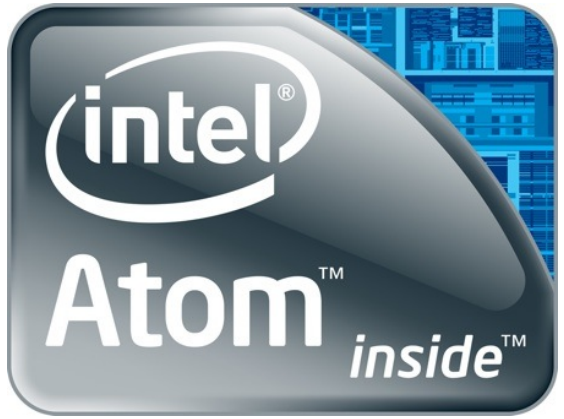
# Android Support Library: Example

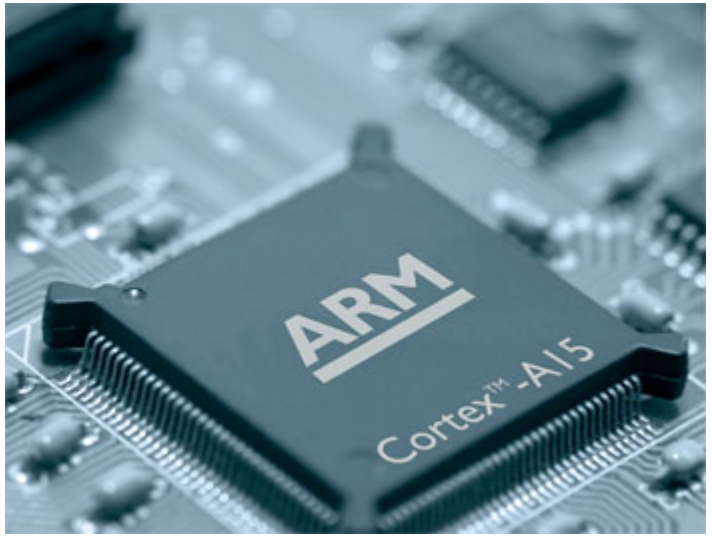
```
dependencies {
    compile fileTree(dir: 'libs', include: ['*.jar'])
    compile "com.android.support:cardview-v7:21.0.+"
}
```

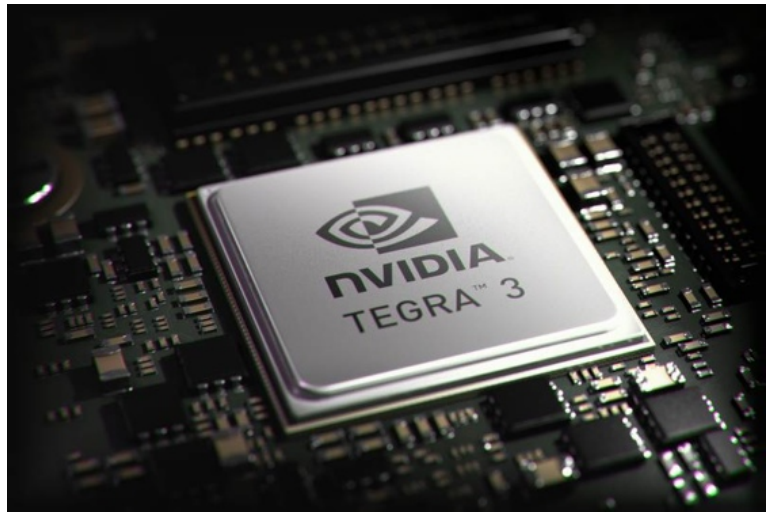
```
<android.support.v7.Cardview .../>
```

# CPU Architecture

- Do we need to care → No



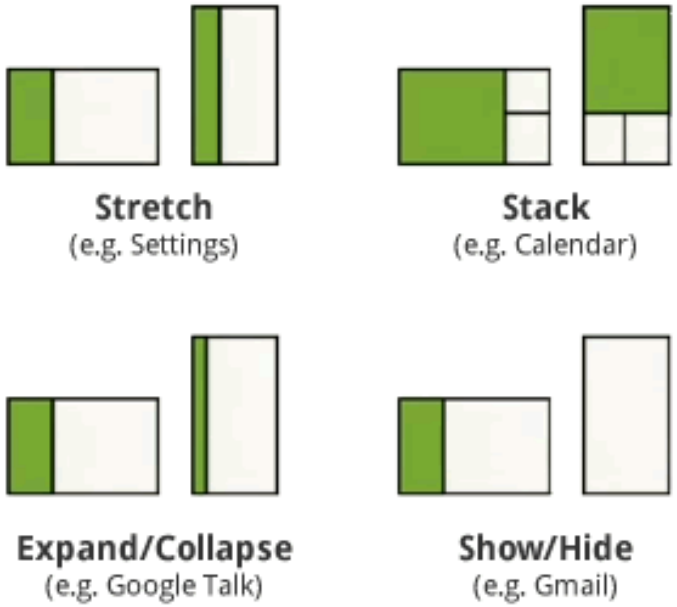



# In conclusion

- You need 5 devices to test your app
  - Phone: 1 Low-End, 1 Mid-End, 1 High-End
  - Tablet: 1 seven-inches, 1 ten-inches
- Use Android 4.0 ICS (API Level 15) as minimum SDK version
- Two heroes found here
  - Android Support Library : One of the biggest key to deal fragmentation
  - Dependency System : The smart system helps you enhance your app in one line (and with auto update)

# Now back to this




**How to do this?**