Mobile Application Programming: Android

Custom Layout
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
View & ViewGroup

TextView Large Medium Small

Button Small OFF

CheckBox RadioButton

CheckedTextView

Spinner

Slider

Switch

abc

Firstname Lastname

........

1…2…3

user@domain

(555) 0100

Address

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12:00am

1/1/2011
Android Layout

View Group
View Group
View Layout Directives

- **Gravity**
- **Padding**

Other `LayoutParams` Values (e.g. `radialSpacing`)
Custom View Group

- Subclass `ViewGroup`
- Override Constructors
- Override `onMeasure` to size `view group` itself (see Lecture 5 - View Measurement)
- Override `onLayout` to layout each `child`
- Subclass `LayoutParams` as inner class (if needed)
Custom View Group

- Override `onMeasure` to size view group itself
  - Usually requires asking children for their size!
    - Use `getChildAt` and `measureChild` to find size
  - Respect suggested minimum size with `getSuggestedMinimumWidth` and `getSuggestedMinimumHeight`
- Must call `setMeasuredDimension` to report size
  - Use `resolveSizeAndState` to combine results
Custom View Group

- Override `onLayout` to layout each child
- Iterate over children using `getChildCount` and `getChildAt`
- Ask child for its requirements using `getMeasuredWidth` and `getMeasuredHeight`
- Calculate `layout rectangle` trying to respect the requirements and view group’s own padding
- Respect `gravity` by calling `Gravity.apply`
- Call `layout` on child with resulting rectangle
Custom View Group

- Subclass `LayoutParams` (if needed)
- Make as a public inner class of custom view group
- Include any additional layout options needed
- Respect XML layout directives in constructors (later)
- Override required methods in `ViewGroup` subclass
  - `generateLayoutParams`
  - `generateDefaultLayoutParams`
  - `checkLayoutParams`