

Unit II: Adaptive Layout

CTE308- AS2025



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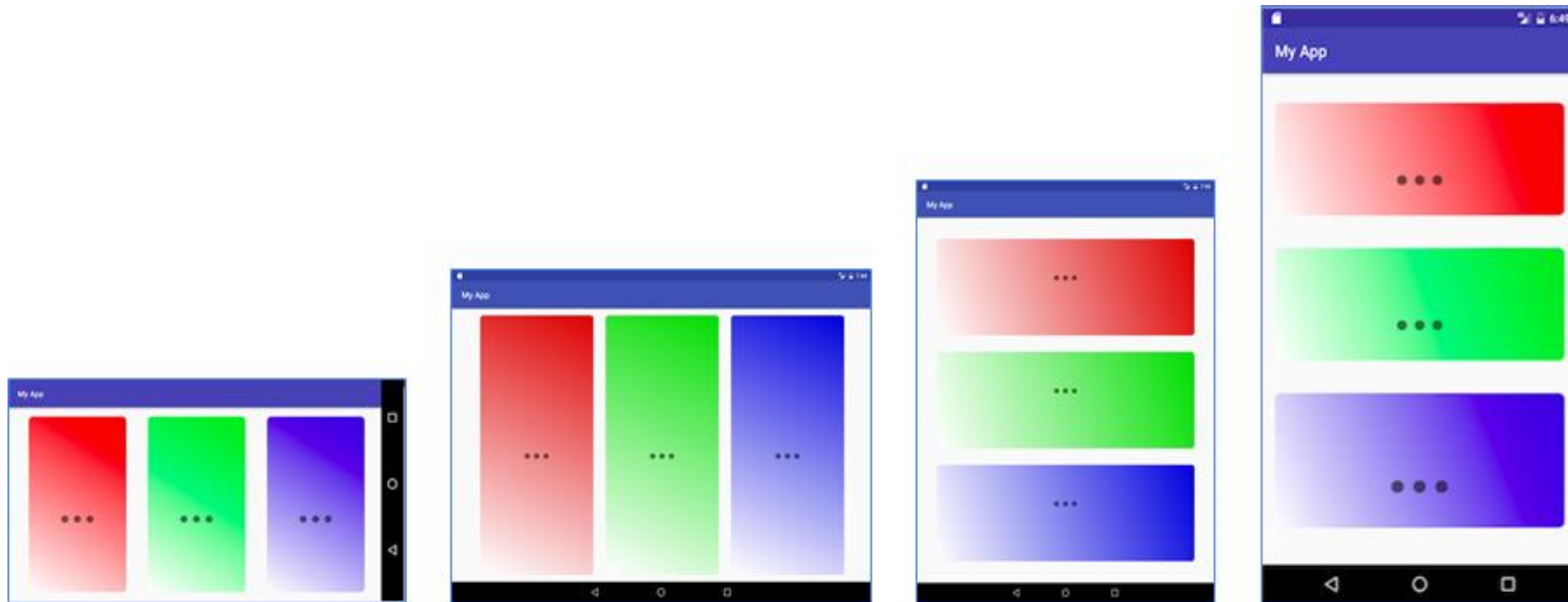
#17682761

OUTLINES

- Adaptive Layout
- Adaptive Resources
- Alternative Resources
- Default Resources

Adaptive Layout?

- Layouts renders properly on different screen sizes, orientations, and devices.



Adaptive Layouts & Resources

- Layout adapts to configuration
 - screen size
 - device orientation
 - Locale
 - Android version installed
- Provides alternative resources - localized string
- Uses flexible layouts - GridLayout

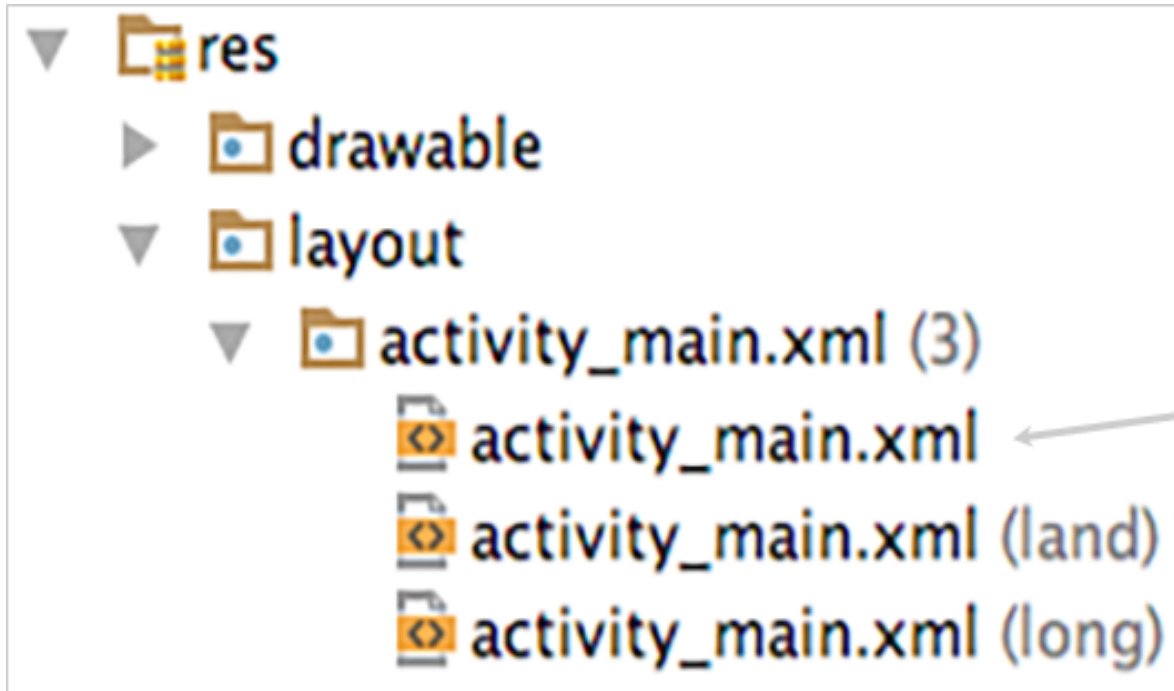
Resource folders of a small app

```
MyProject/  
  src/  
  res/  
    drawable/  
      graphic.png  
    layout/  
      activity_main.xml  
      list_iteminfo.xml  
    mipmap/  
      ic_launcher_icon.png  
    values/  
      strings.xml
```

Alternative Resources?

- Different device configurations may require different resources
 - localized strings
 - Image resolutions
 - Layout dimensions
- Android loads appropriate resources automatically

Create Alternative Resource folders



Use alternative folders for resources for different device configurations

Names for alternative resources folder?

- Resource folder names have the format:
 - *<resource name>-<config qualifier>*

drawable-hdpi	drawables for high-density displays
layout-land	layout for landscape orientation
layout-v7	layout for version of platform
values-fr	all values files for French locale

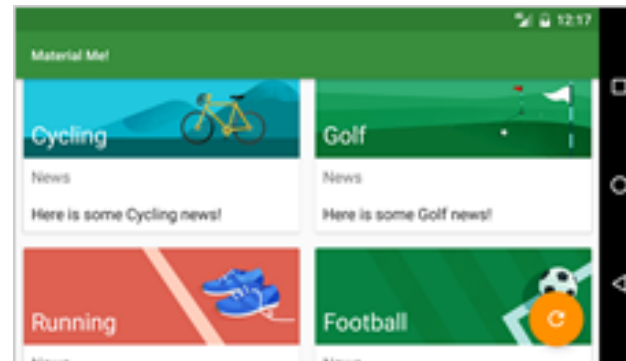
Screen Orientation?

- Use `res/layout` and provide alternatives for landscape where necessary
 - `res/layout-port` for portrait-specific layouts
 - `res/layout-land` for landscape specific layouts
- Avoid hard-coded dimensions to reduce need for specialized layouts

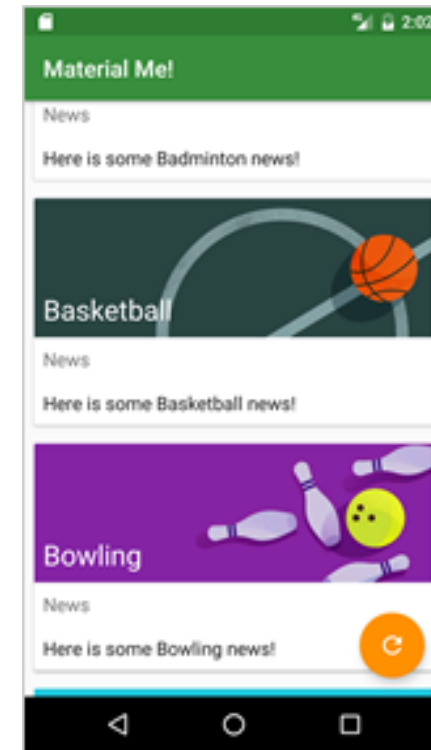
Simple Adaptive Layout

●GridLayout

- In values/integer.xml:
 - `<integer name="grid_column_count">1</integer>`
- In values/integer.xml-land:
 - `<integer name="grid_column_count">2</integer>`



Landscape



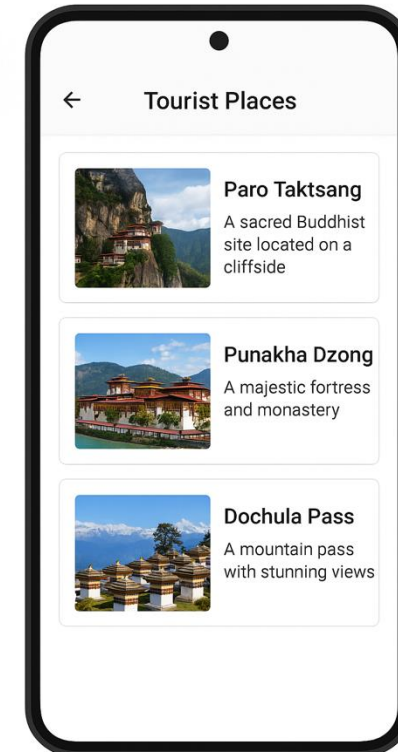
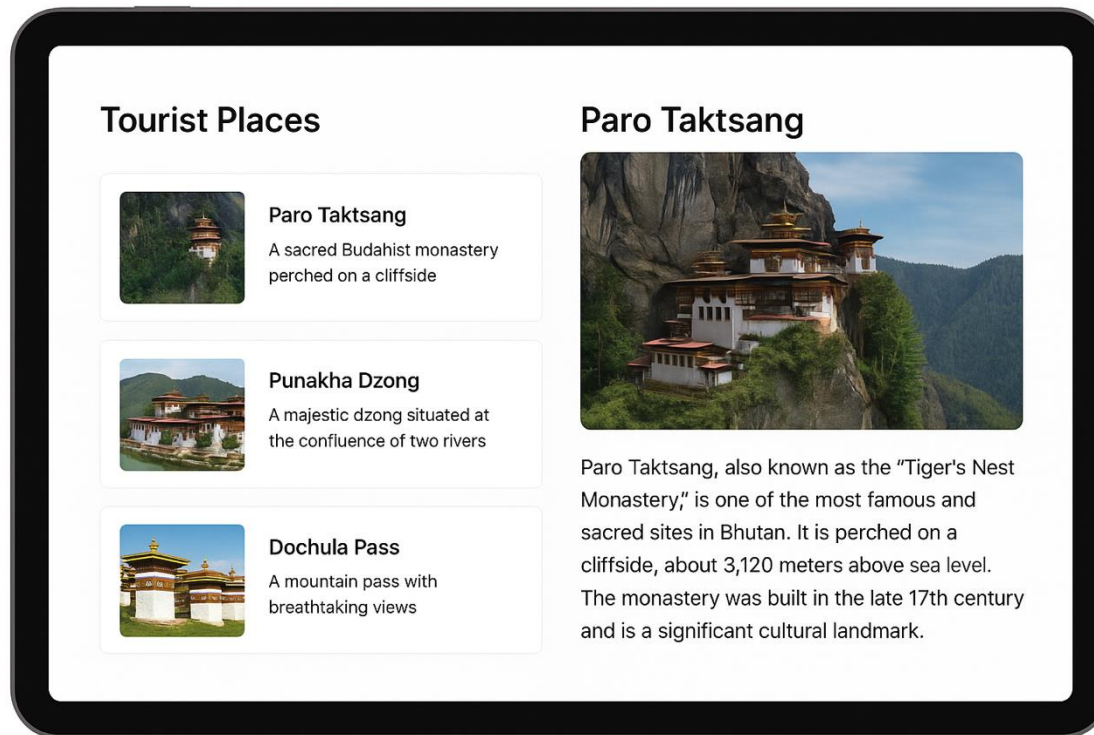
Portrait

Default Resources

- Always provide default resources
 - directory name without a qualifier
 - res/layout, res/values, res/drawables...
- Android falls back on default resources when no specific resources match configuration
- Localizing with Resources

Class Work

- Develop a **Tourist Places App** that displays a list of tourist spots and their details using **Fragments** and **Adaptive Layouts**.



Class Work

Requirements:

1. Create **Two Fragments**:
 - **PlacesListFragment**: Displays a list of tourist spots (e.g., “Paro Taktsang”, “Punakha Dzong”, “Dochula Pass”). Use RecyclerView.
 - **PlaceDetailFragment**: Shows details of the selected place (name, description, and an image).
2. Implement **Adaptive Layouts**:
 - On **phones (portrait)**:
 - Show only the **PlacesListFragment**.
 - When a place is tapped, open **PlaceDetailFragment** in a new activity (single-pane).
 - On **tablets (landscape)**:
 - Show **PlacesListFragment** and **PlaceDetailFragment** **side by side** in the same activity (two-pane).
3. Use **ConstraintLayout** for responsive design.
4. Use **layout qualifiers** (layout, layout-land, layout-sw600dp) to handle phone vs. tablet layouts.
5. Pass the selected place data from the list fragment to the detail fragment using Bundle or ViewModel.

Thank you!