

Royal University of Bhutan

Unit II: Adaptive Layout

CTE308- AS2025

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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

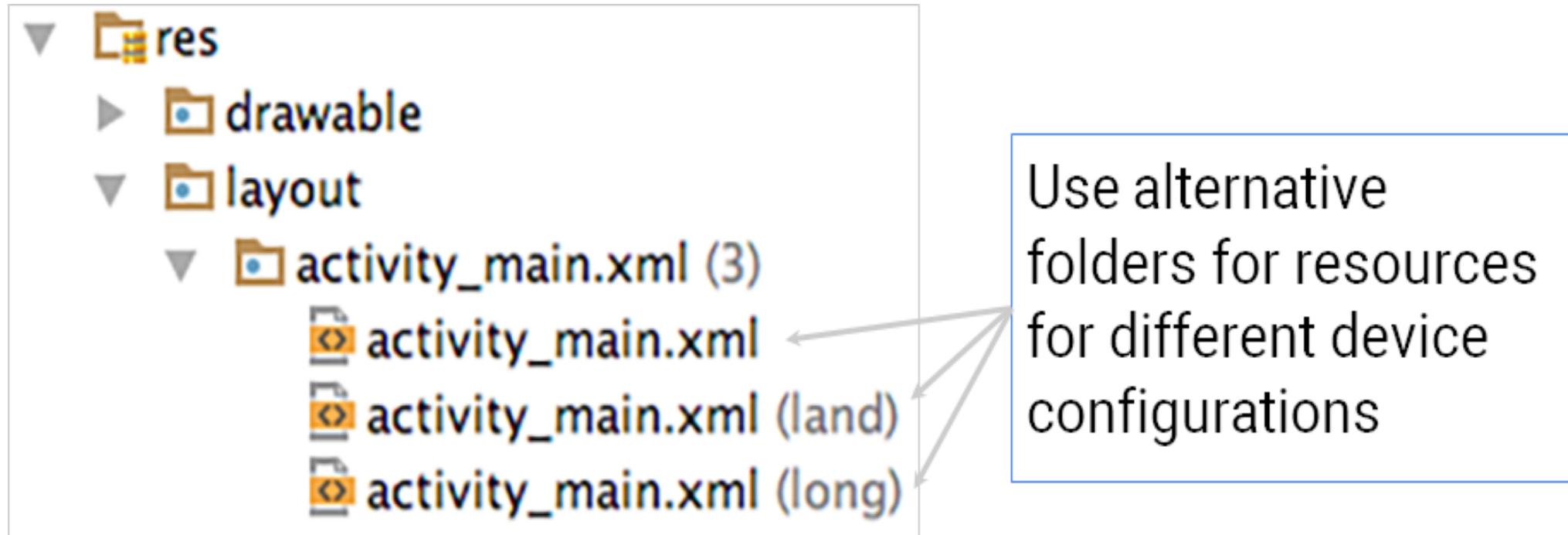
Resource folders of a small app

```
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

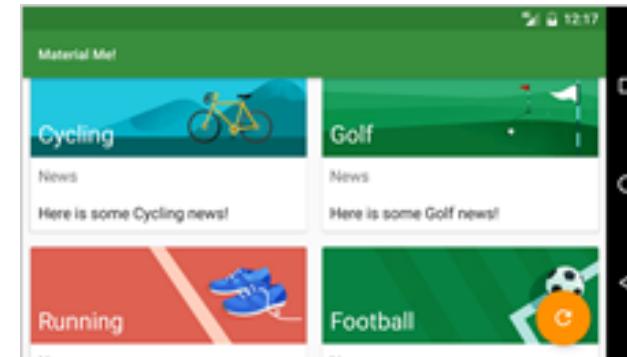
Screen Orientation?

- 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

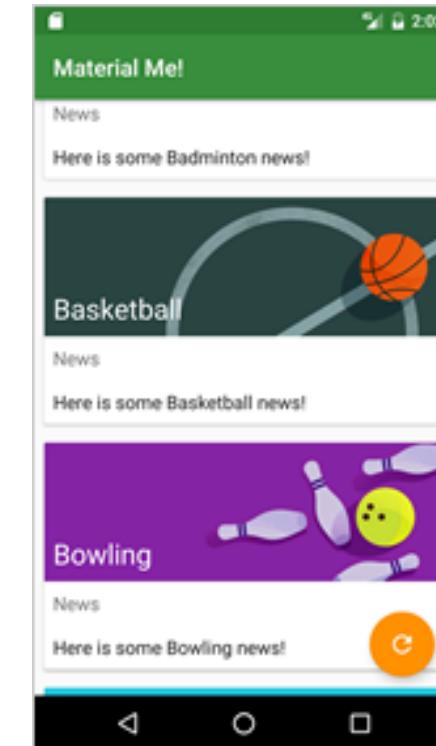
Simple Adaptive Layout

● 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



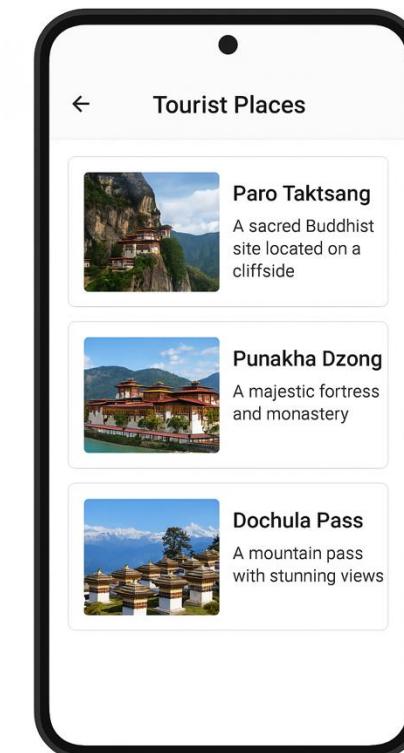
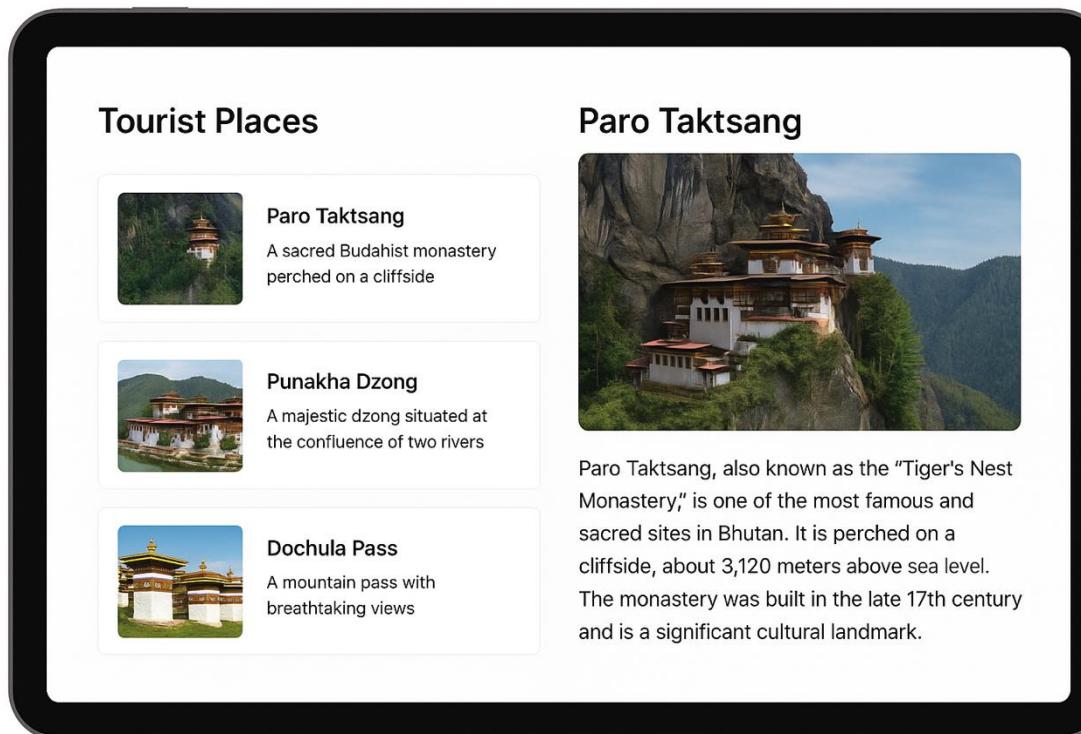
Portrait

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!