

# ANDROID UI

# Resources

- Stored in *res* sub-folders according to type:
  - drawable (images, graphics...)
  - layout (UI pages and elements)
  - mipmap (mipmap and unresizable images)
  - values (app strings, colors...)
- Resource folder names can contain qualifiers to restrict or force specific resources (screen size, language locale...)

# Widgets

- Graphical component : views
- Organization components : viewgroups (or layouts)
- Special elements (popup, option menu, toast...)

# Common widgets

- TextView: display a text
- Button: display a text but styled as a clickable element
- ImageView: display a drawable resource
- EditText: input field
- View: basic rectangle

# Common layouts

- FrameLayout: simplest layout; all elements are drawn on top of each others
- LinearLayout: stacks elements one after another in a line or a column
- RelativeLayout: elements are positioned relatively to each other or to the parent view
- ConstraintLayout: RelativeLayout evolved. Attach view borders to screen or reference

# Main widget properties

- **layout\_height and layout\_width**
  - mandatory
  - how much space to ask for
  - 3 value types are available:
    - wrap\_content
    - match\_parent
    - fixed value in dp
- **id**
  - unique identifier used to
    - interact with the widget from source code
    - position other widgets relatively

# Main widget properties

- Margins and Padding
- **background**
  - color the background of the view (using #rrggbb color notation or @color resource)
- **gravity (when applicable only)**
  - how the content is positioned inside of the widget

# Specific widget properties : views

- In **TextView**
  - **text**
    - specifies the text to display
  - **textColor, textSize, textStyle**
    - text presentation attributes
    - Text size in **sp** unit (not dp)
- In **ImageView**
  - **src**
    - link to drawable resource
  - **scaleType**
    - content resize behaviour



# Specific widget properties : viewgroups

- In **LinearLayout**
  - **orientation**
    - **horizontal** or **vertical**
  - **weightsum** and **layout\_weight**
    - make proportional sizing

# Specific widget properties : viewgroups

- **In RelativeLayout**
  - **layout\_alignParentLeft/Right/Top/Bottom**
    - boolean : align specified border to the same border of parent
  - **layout\_centerHorizontal/Vertical**
    - boolean : center in parent
  - **layout\_alignLeft/Right/Top/Bottom**
    - align border to the same border of reference
  - **layout\_above, layout\_below, layout\_toLeftOf, layout\_toRightOf**
    - position relative to reference

# ConstraintLayout

- Horizontal constraints (at least one)
  - **layout\_constraint(Left/Right)\_to(Left/Right)Of**
- Vertical constraints (at least one)
  - **layout\_constraint(Top/Bottom)\_to(Top/Bottom)Of**
- New **parent** reference
- Chains and bias
- GuideLines
  - **orientation, start, end, percent**
- Barriers
  - **direction, referenced views**

# Others

- **Popups:**
  - Common Android widget
  - Use a Builder class
  - Set behavior programmatically
- **Toast**
  - Fire and forget simple message
- **Menu in actionbar**
  - Menuitems in xml resource.