

ITW202: Mobile Application

Unit IV: Developing for Android

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Mobile Application Development

Material Design



What is Material Design?

Mobile Application Development

- Material Design is a visual design philosophy that Google created in 2014.
- Material Design includes a set of guidelines for style, layout, motion, and other aspects of app design.



Principles of Material Design: Bold, graphic, intentional

- Material Design involves deliberate color choices, edge-to-edge imagery, large-scale typography, and intentional white space that create a bold and graphic interface.

Principles of Material Design: Bold, graphic, intentional

- Emphasize user actions in your app so that the user knows right away what to do, and how to do it. For example, highlight things that users can interact with, such as buttons, EditText fields, and switches.

Principles of Material Design: Meaningful motion

- Make animations and other motions in your app meaningful, so they don't happen at random.
- When your app presents an object to the user, make sure the motion doesn't break the continuity of the user's experience. For example, the user shouldn't have to wait for an animation or transition to complete.

Principles of Material Design: Colors

Material Design principles include the use of bold color.

Material Design color palette

- The Material Design color palette contains colors to choose from, each with a primary color and shades

Principles of Material Design: Colors

Material Design color palette

Here's how to use the Material Design color palette in your Android app:

- 1 Pick a primary color for your app from Material Design color palette and copy its hex value into the colorPrimary item in colors.xml.
- 2 Pick a darker shade of this color and copy its hex value into the colorPrimaryDark item.
- 3 If you need more colors, create additional `<color>` elements in the colors.xml file.

Principles of Material Design: Colors

Contrast

- Make sure all the text in your app's UI contrasts with its background. Where you have a dark background, make the text on top of it a light color, and vice versa.
- This kind of contrast is important for readability and accessibility, because not all people see colors the same way.

Principles of Material Design: Colors

Contrast

- If you use a platform theme such as Theme.AppCompat, contrast between text and its background is handled for you.

Principles of Material Design: Colors

Opacity

- Your app can display text with different degrees of opacity to convey the relative importance of information.
- For example, text that's less important might be nearly transparent (low opacity).

Principles of Material Design: Typography

Roboto typeface

- Roboto is the standard typeface on Android.
- Roboto has six weights: Thin, Light, Regular, Medium, Bold, and Black.

Roboto Thin

Roboto Light

Roboto Regular

Roboto Medium

Roboto Bold

Roboto Black

Roboto Thin Italic

Roboto Light Italic

Roboto Italic

Roboto Medium Italic


Roboto Bold Italic

Roboto Black Italic

Principles of Material Design: Typography

Font styles

- The Android platform provides predefined font styles and sizes that you can use in your app.
- Too many sizes is confusing and looks bad.



Display 4	Light 112sp
Display 3	Regular 56sp
Display 2	Regular 45sp
Display 1	Regular 34sp
Headline	Regular 24sp
Title	Medium 20sp
Subheading	Regular 16sp (Device), Regular 15sp (Desktop)
Body 2	Medium 14sp (Device), Medium 13sp (Desktop)
Body 1	Regular 14sp (Device), Regular 13sp (Desktop)
Caption	Regular 12sp
Button	MEDIUM (ALL CAPS) 14sp

Principles of Material Design: Typography

Font styles

- For example, to make a TextView appear in the Display 3 style, add the following attribute to the TextView in XML:

```
android:textAppearance="@style/TextAppearance.  
AppCompat.Display3"
```

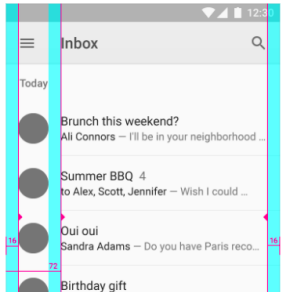
Principles of Material Design: Layout

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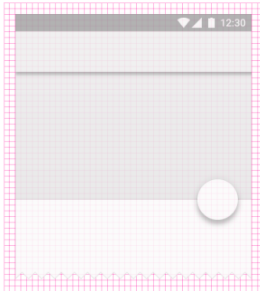
- Density independent pixels for views—dp
- Scalable pixels for text—sp
- Elements align to a grid with consistent spacing
- Plan your layout
- Use templates for common layout patterns

Principles of Material Design: Layout

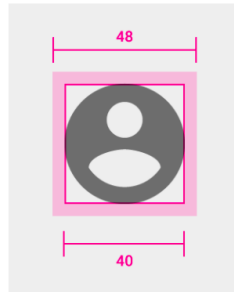
Mobile Application



Spacing



Grid alignment



Sizing

Principles of Material Design: Components

- Bottom Navigation
- Buttons
- Cards
- Chips
- Data Tables
- Dialogs
- Dividers

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THANK YOU

