Mobile Application Development

by

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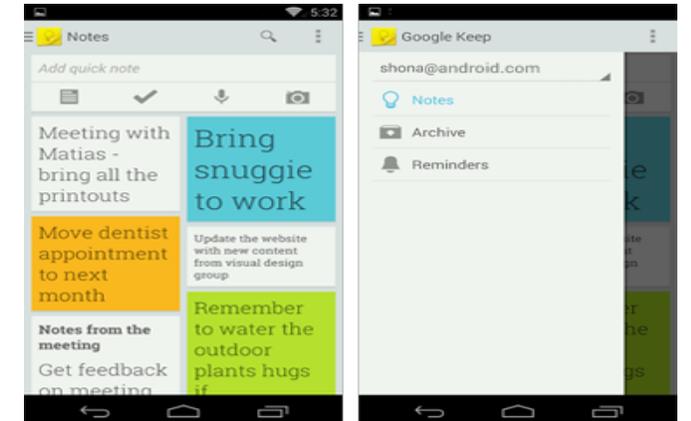
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Android UI Overview
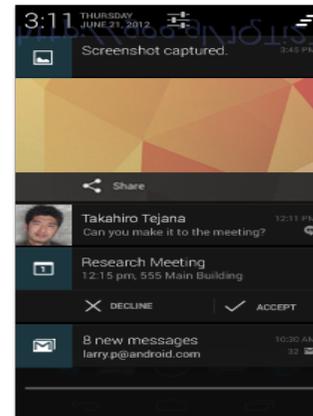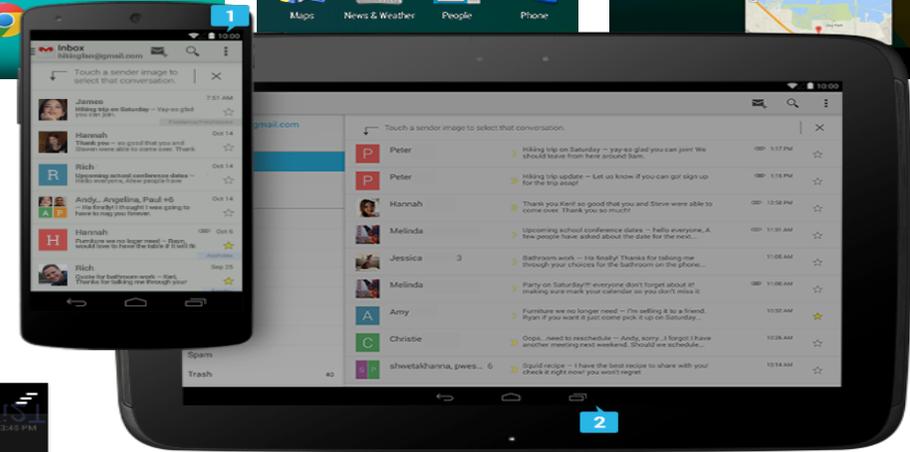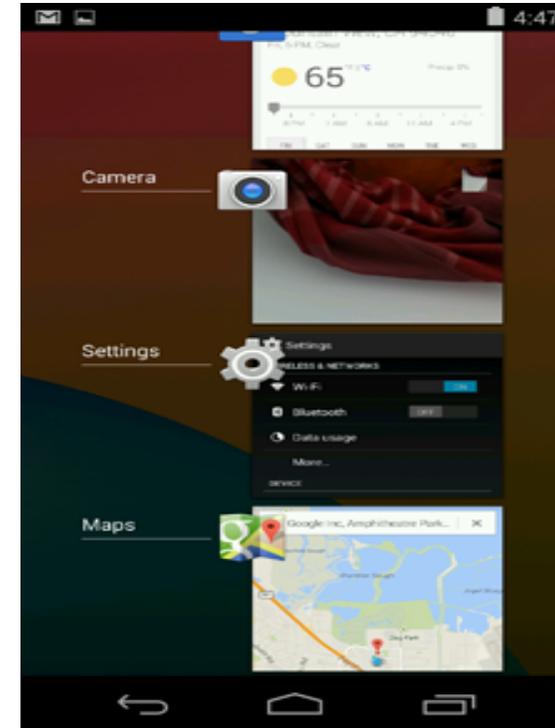
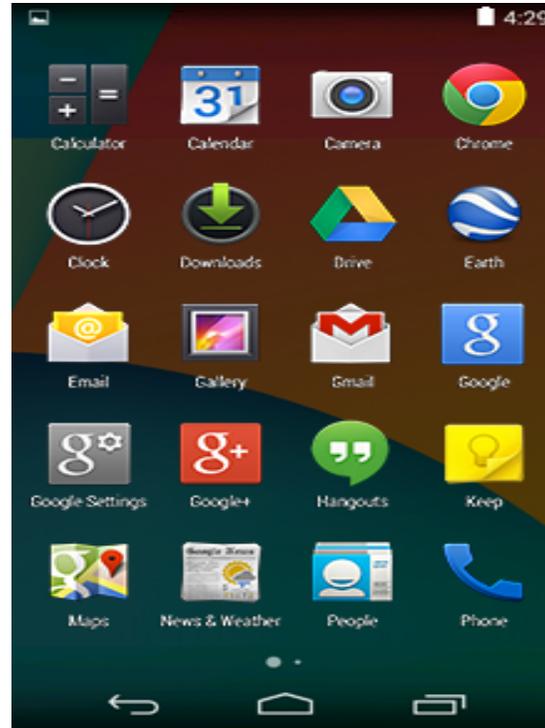# Agenda

❑ Primary Screens & Components

- ▪ Home, All Apps, & Recents

- ▪ System Bars

- ▪ Notifications

- ▪ Common APP UI

Home, All Apps, and Recents
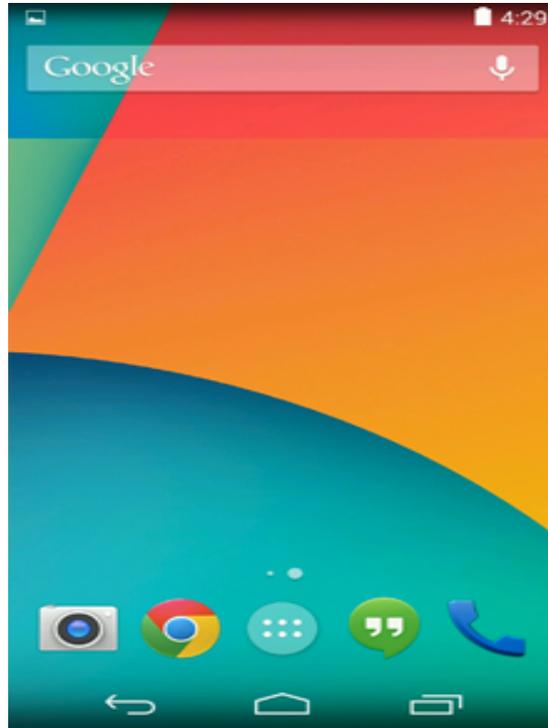
Home

❏ Home is a customizable space that houses app shortcuts, folders and widgets. Navigate between different home screen panels by swiping left and right.

❏ The Favorites Tray at the bottom always keeps your most important shortcuts and folders in view regardless of which panel is currently showing.

❏ Access the entire collection of apps and widgets by touching the All Apps button at the center of the Favorites Tray.
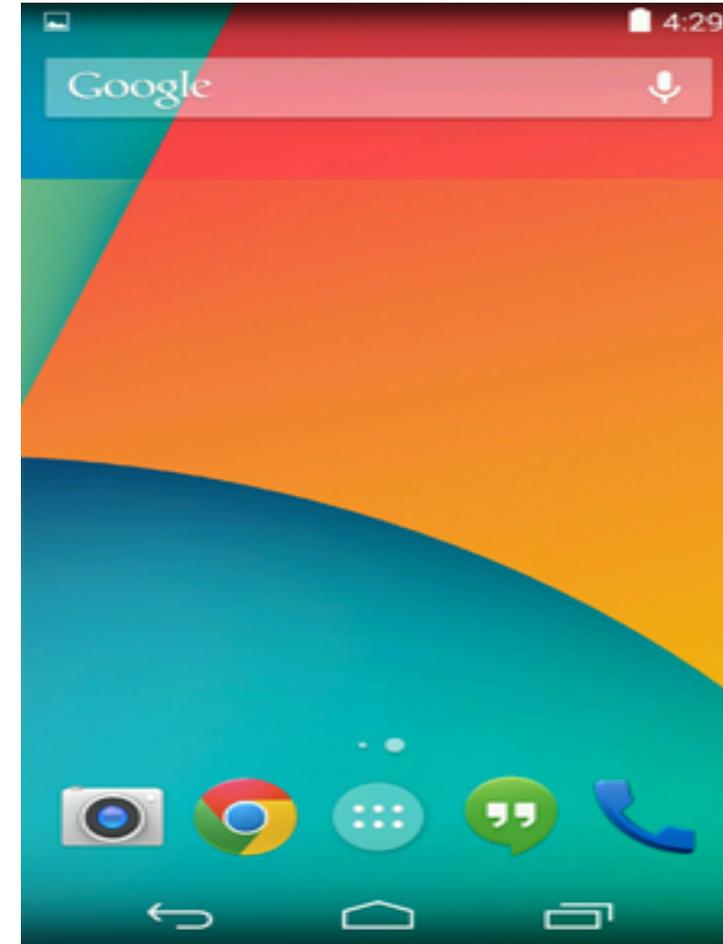
All Apps

❑ The All Apps screen lets you browse the entire set of apps and widgets that are installed on your device.

❑ Users can drag an app or widget icon from the All Apps screen and place it in any empty location on any Home screen.
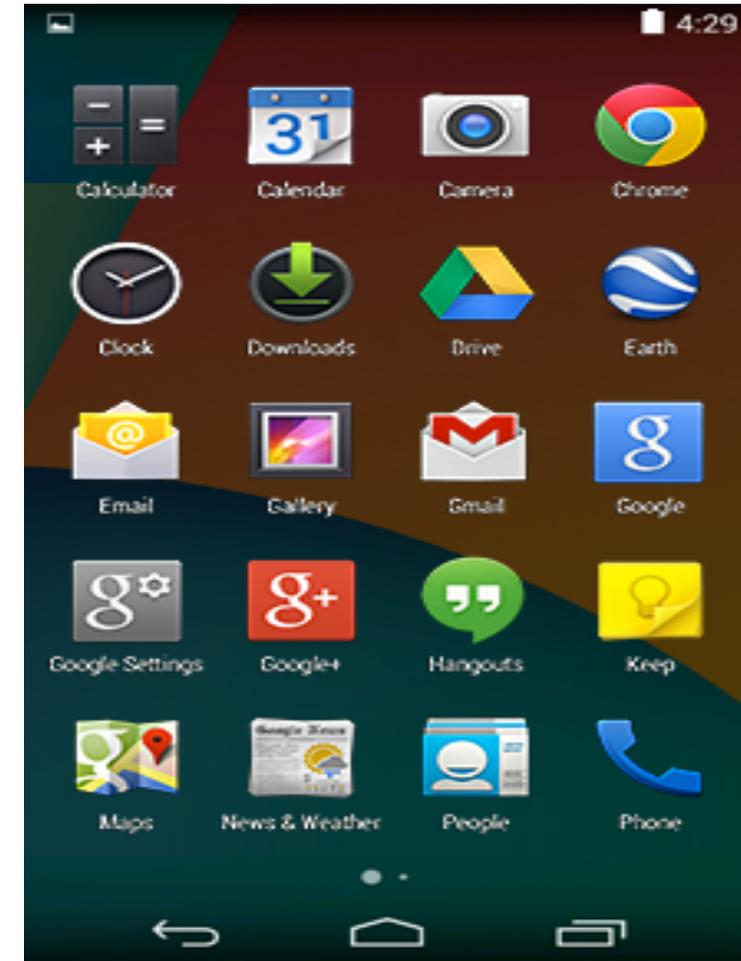
Recents

❑ Recents provides an efficient way of switching between recently used applications. It provides a clear navigation path between multiple ongoing tasks.

❑ The Recents button at the right side of the navigation bar displays the apps that the user has interacted with most recently. They are organized in reverse chronological order with the most recently used app at the bottom.

❑ Switch to an app by touching it. Remove an item by swiping left or right.
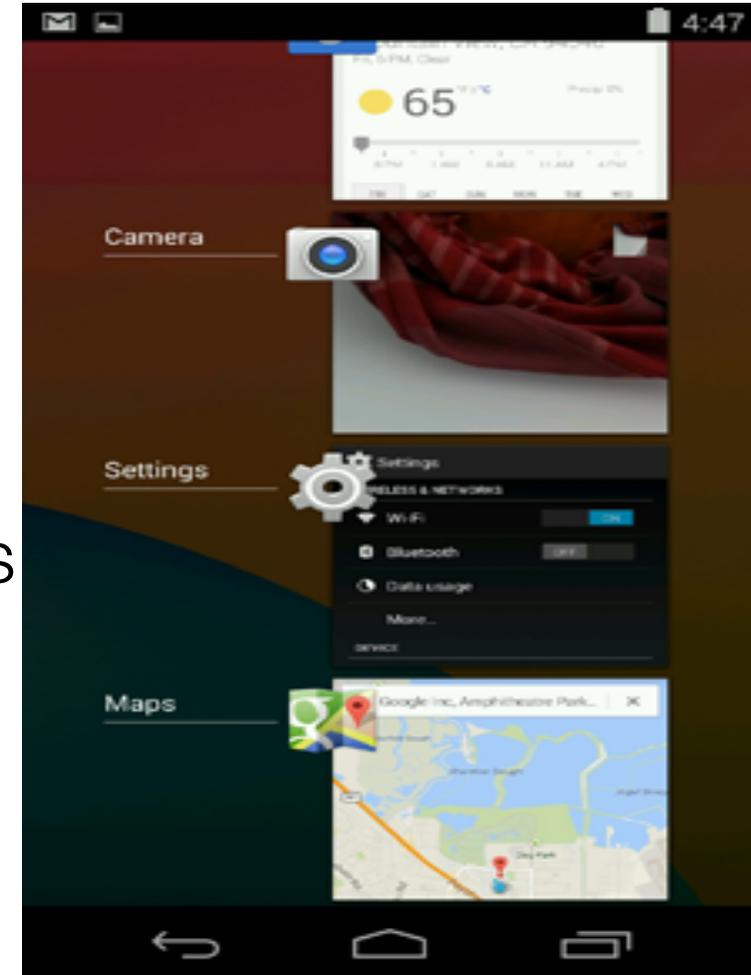
System Bars

❑ The system bars are screen areas dedicated to the display of notifications, communication of device status, and device navigation.

❑ Typically the system bars are displayed concurrently with your app.

❑ Apps that display immersive content, such as movies or images, can temporarily hide the system bars to allow the user to enjoy full screen content without distraction
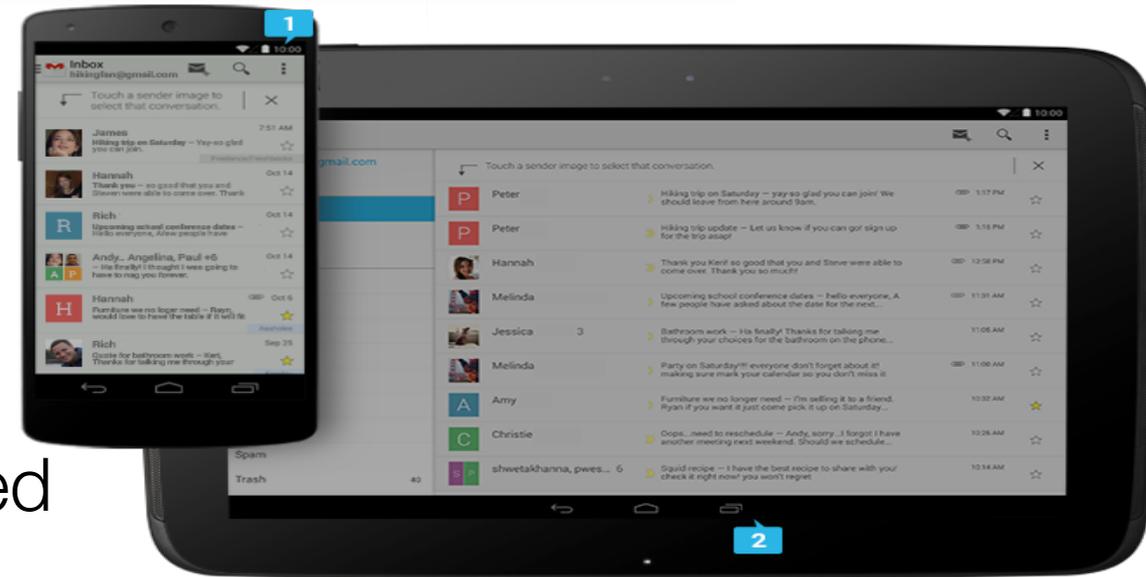
System Bars - Status & Navigation

❑Status Bar

- Displays pending notifications on the left and status, such as time, battery level, or signal strength, on the right. Swipe down from the status bar to show notification details.
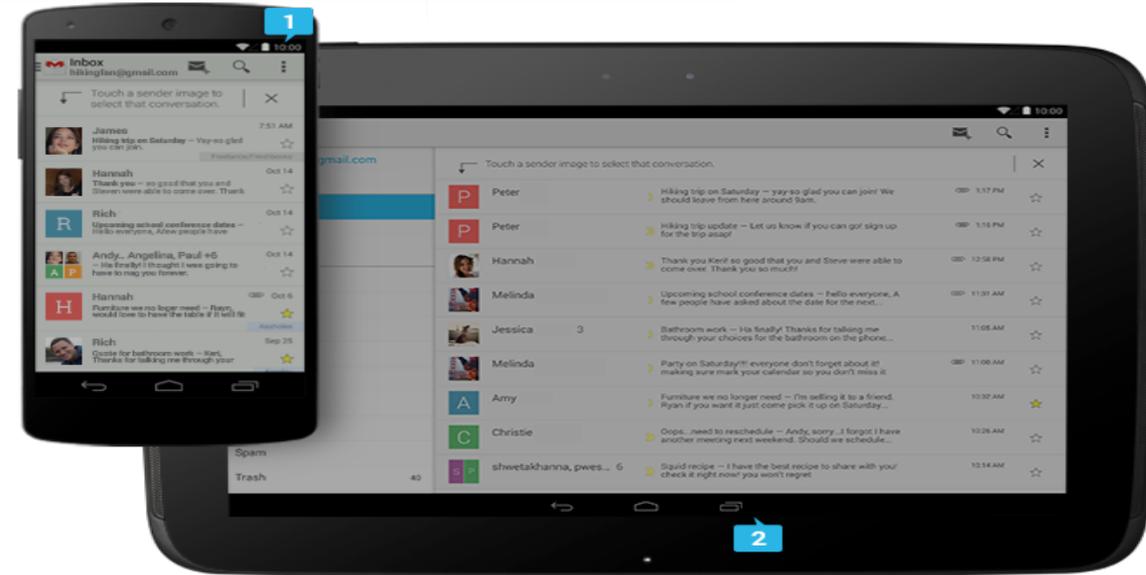
❑ Navigation Bar

- New for phones in Android 4.0, the navigation bar is present only on devices that don't have the traditional hardware keys. It houses the device navigation controls Back, Home, and Recents, and also displays a menu for apps written for Android 2.3 or earlier

Notifications

❑ Notifications are brief messages that users can access at any time from the status bar. They provide updates, reminders, or information that's important, but not critical enough to warrant interrupting the user.

❑ Open the notifications drawer by swiping down on the status bar. Touching a notification opens the associated app.
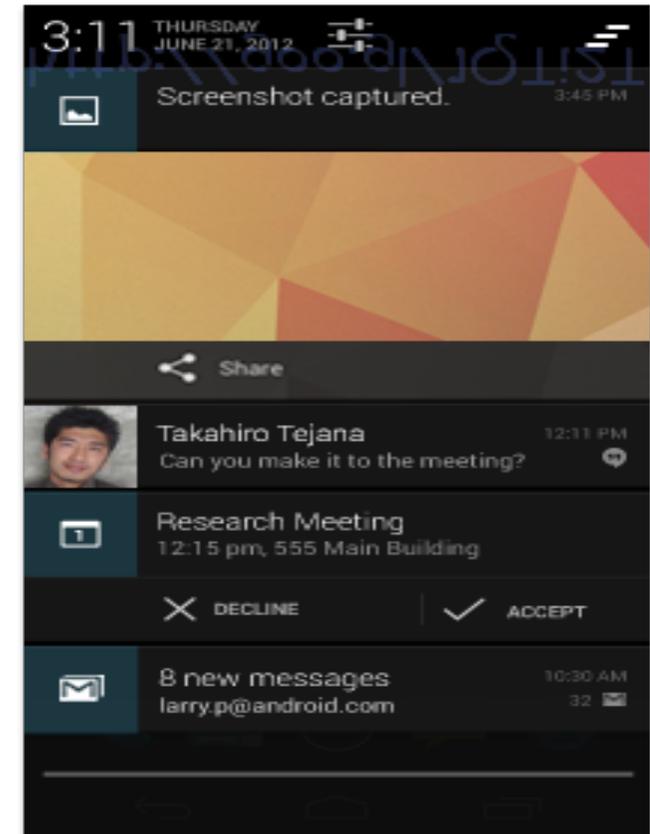
Notifications - Swiping

❏ Notifications can be expanded to uncover more details and relevant actions. When collapsed, notifications have a one-line title and a one-line message.
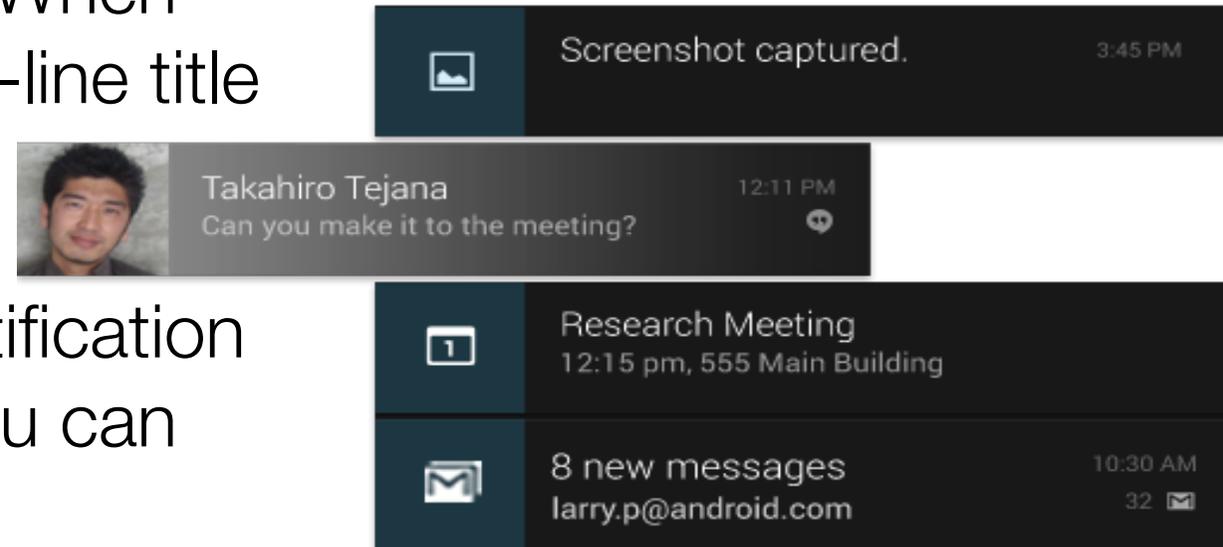
❏ The recommended layout for a notification includes two lines. If necessary, you can add a third line.

❏ Swiping a notification right or left removes it from the notification drawer.

Common App UI

❏ **Action Bar**

- The command and control center for your app. The action bar surfaces the most important actions for the current view, and may include simple controls for switching between views.

❏ **Navigation Drawer**

- If your app's structure is more complex, the navigation drawer can display the main navigation options. The navigation drawer expands from the left edge of the screen, overlaying the content area but not the action bar.

❏ **Content Area**

- The space where the content of your app is displayed.
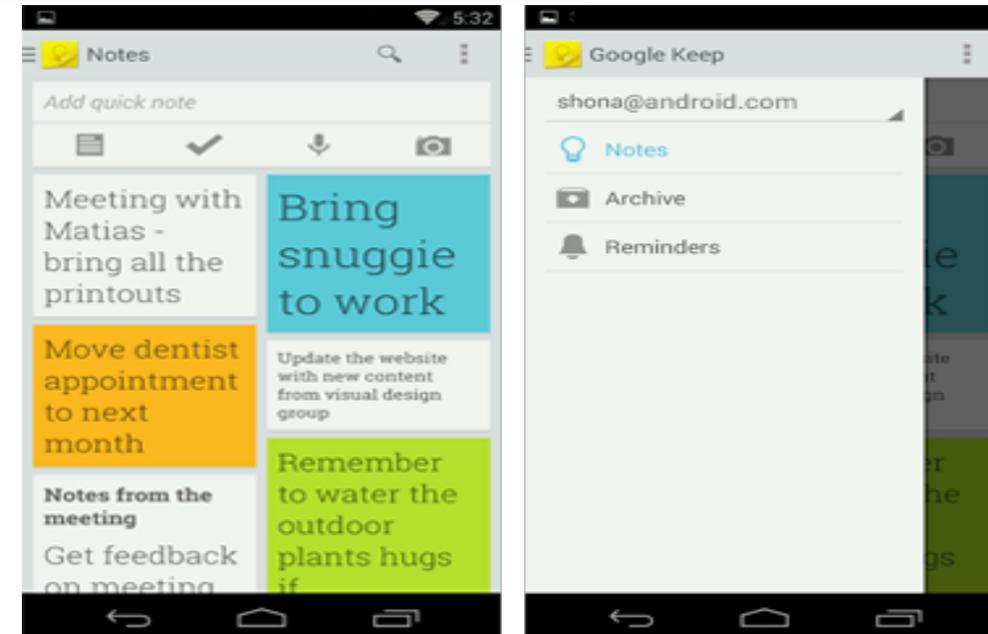
Devices and Displays

❑ Android powers hundreds of millions of phones, tablets, and other devices in a wide variety of screen sizes and form factors.
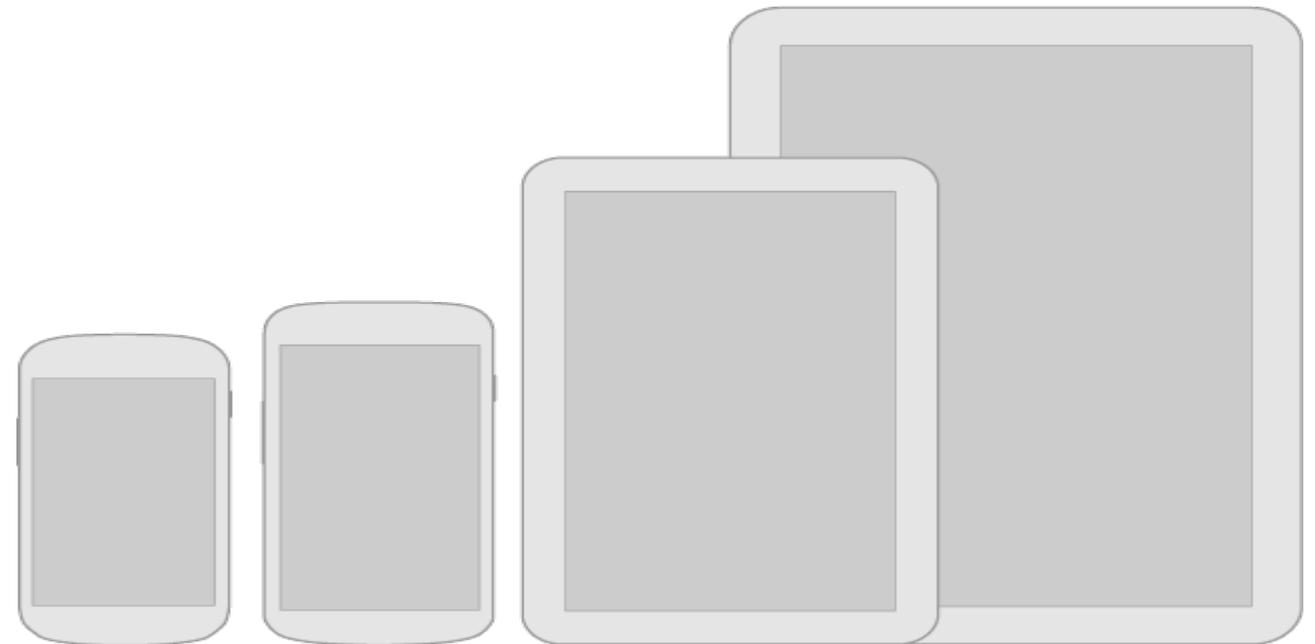
1x   1.5x   2x   3x   4x

BASELINE

MDPI
~160 DPI

HDPI
~240 DPI

XHDPI
~320 DPI

XXHDPI
~480 DPI

XXXHDPI
~640 DPI

Themes

❑ Themes are Android's mechanism for applying a consistent style to an app or activity.

❑ The style specifies the visual properties of the elements that make up your user interface, such as color, height, padding and font size.

❑ Android provides two system themes:

   ▪ Holo Light

   ▪ Holo Dark
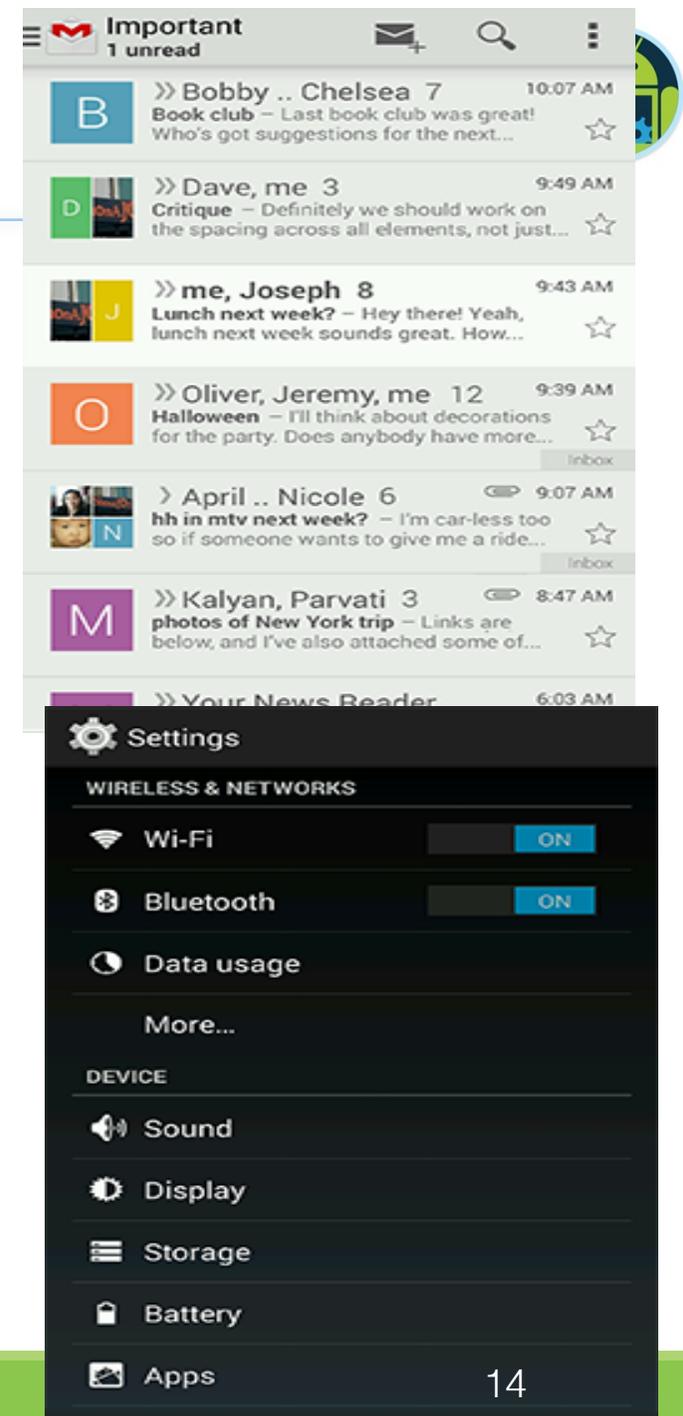
Touch Feedback

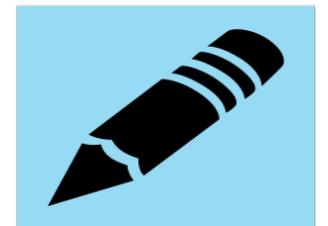❑ Use illumination and dimming to respond to touches, reinforce the resulting behaviors of gestures, and indicate what actions are enabled and disabled.

❑ Whenever a user touches an actionable area in your app, let them know the app is "listening" by providing a visual response. Make it subtle —just slightly lighter or darker than the untouched color.
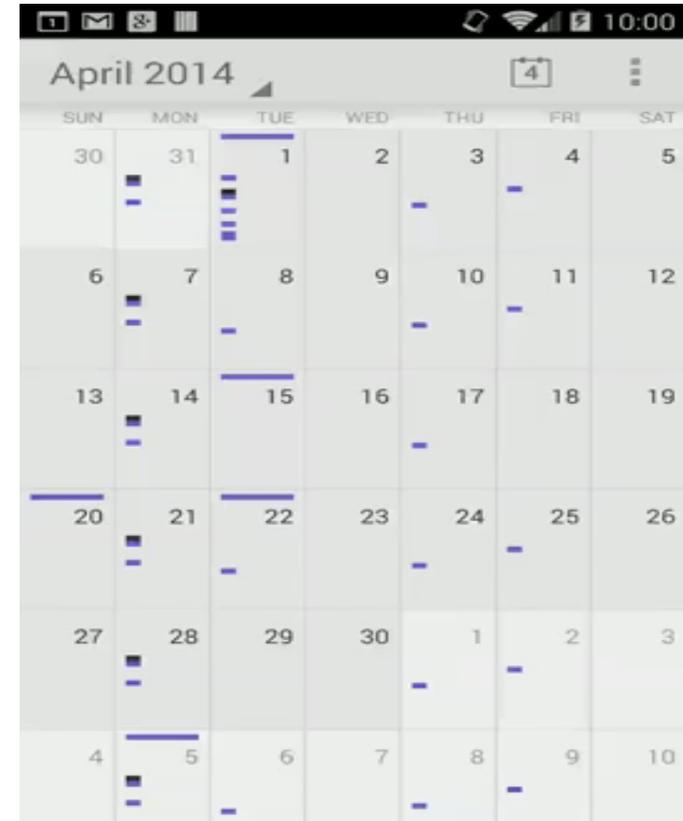
Touch Feedback

❏ Most of Android's UI elements have touch feedback built in, including states that indicate whether touching the element will have any effect.

Normal	REMAINS STATIC
Pressed	DARKENS SLIGHTLY (LIGHTENS ON DARK THEMES)
Focused	ILLUMINATES WITH COLOR
Disabled	DRAWS 30% OF THE NORMAL STATE
Disabled & focused	DRAWS 30% OF THE FOCUSED STATE

Touch Feedback - Communication

❑ When your objects react to more complex gestures, help users understand what the outcome will be.

❑ In Recents, when a user starts swiping a thumbnail left or right, it begins to dim. This helps the user understand that swiping will cause the item to be removed.
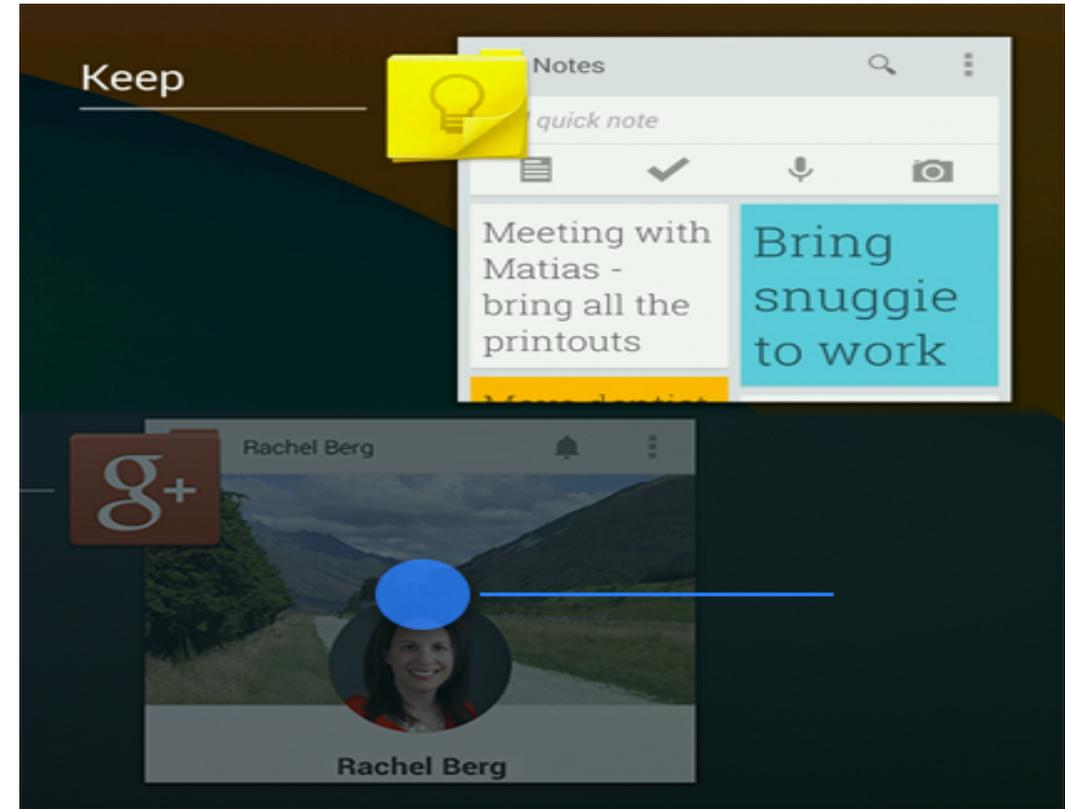
Touch Feedback - Boundaries

❑ When users try to scroll past the beginning or end of a scrollable area, communicate the boundary with a visual cue.

❑ Many of Android's scrollable UI widgets, like lists and grid lists, have support for boundary feedback built in.

❑ If you're building custom widgets, keep boundary feedback in mind and provide it from within your app.
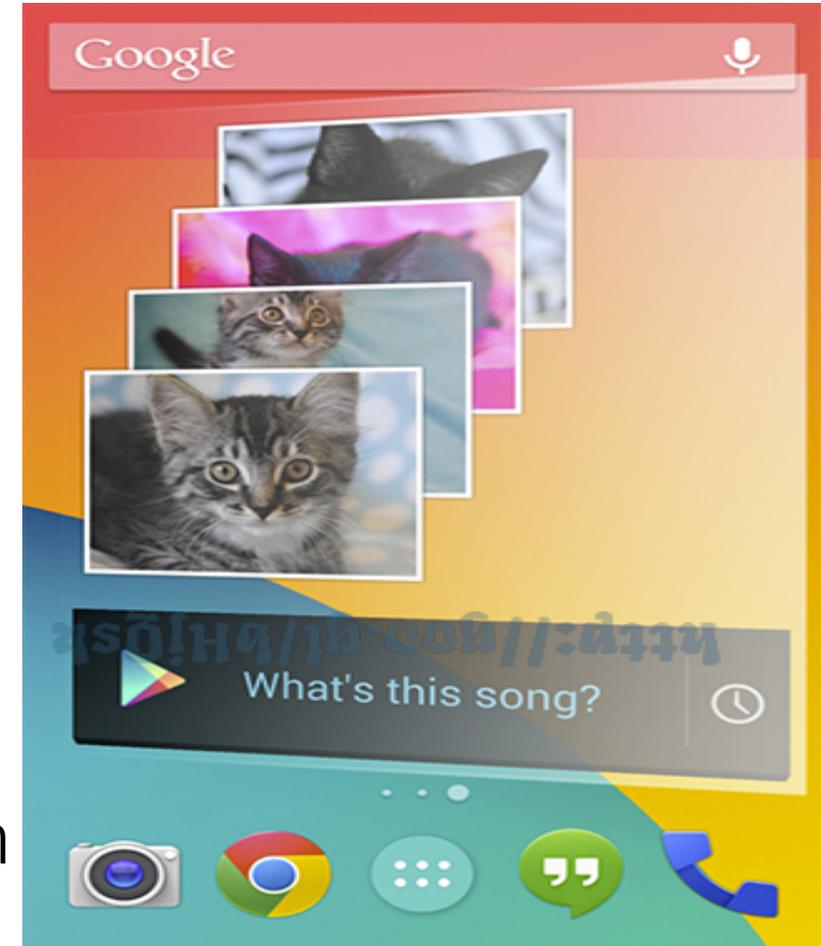
Measurements

❑px: Pixels - corresponds to actual pixels on the screen.

❑in: Inches - based on the physical size of the screen.

❑mm: Millimeters - based on the physical size of the screen.

❑pt: Points - 1/72 of an inch based

❑dp: Density-independent Pixels - an abstract unit that is based on the physical density of the screen. These units are relative to a 160 dpi screen, so one dp is one pixel on a 160 dpi screen. The ratio of dp-to-pixel will change with the screen density, but not necessarily in direct proportion.

❑sp: Scale-independent Pixels - this is like the dp unit, but it is also scaled by the user's font size preference. It is recommend you use this unit when specifying font sizes, so they will be adjusted for both the screen density and user's preference.

Metrics and Grids

❑ Devices vary not only in physical size, but also in screen density (DPI). To simplify the way you design for multiple screens, think of each device as falling into a particular size bucket and density bucket:

- The size buckets are handset (smaller than 600dp) and tablet (larger than or equal 600dp).

- The density buckets are LDPI, MDPI, HDPI, XHDPI, XXHDPI, and XXXHDPI.

❑ Optimize your application's UI by designing alternative layouts for some of the different size buckets, and provide alternative bitmap images for different density buckets..

PHONE

320DP

384DP

TABLET

600DP

800DP

960DP

1280DP
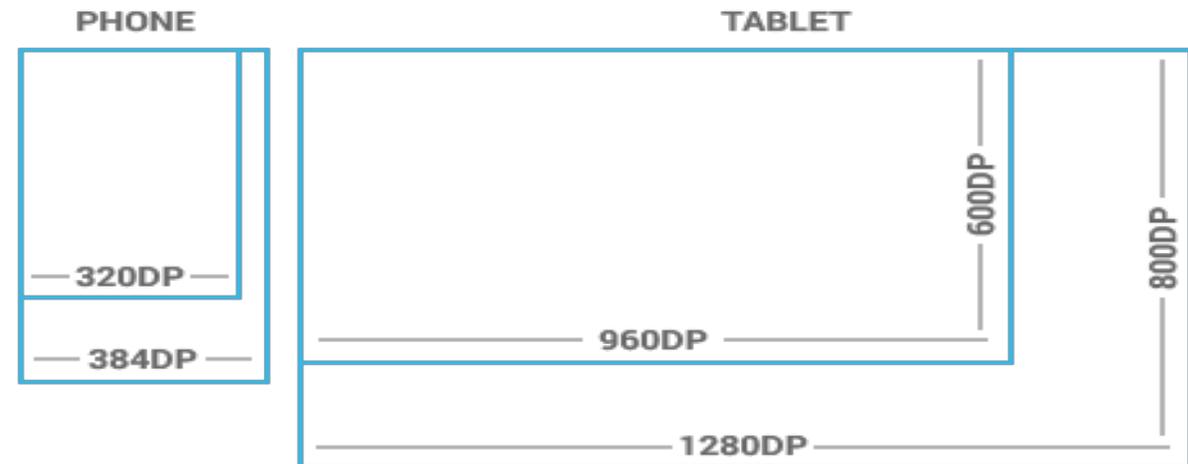
48dp Rhythm

❑ Touchable UI components are generally laid out along 48dp units
.

single line item with avatar + text single line item with text

❑ On average, 48dp translate to a physical size of about 9mm (with some variability). This is comfortably in the range of recommended target sizes (7-10 mm) for touchscreen and will ensure:

- your targets will never be smaller than the minimum recommended target size of 7mm regardless of what screen they are displayed on.

- you strike a good compromise between overall information density on the one hand, and targetability of UI elements on the other.
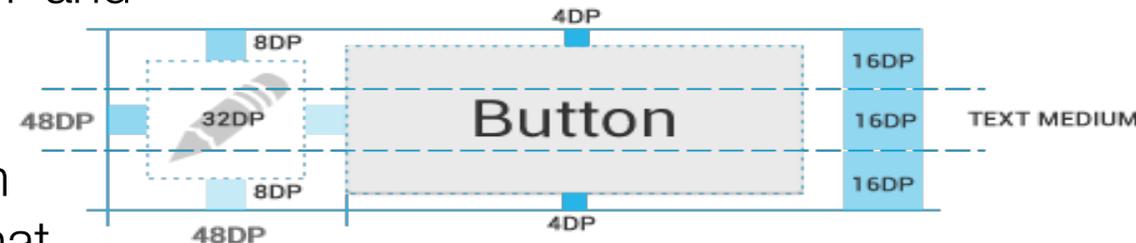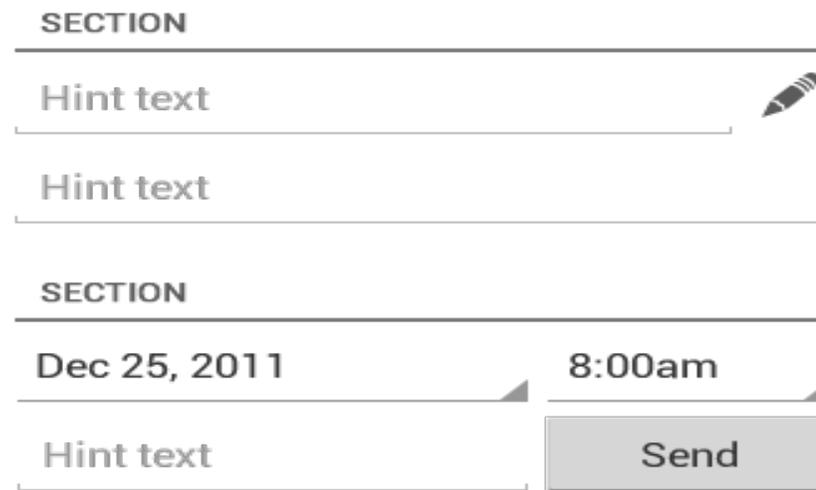
Mind the gaps
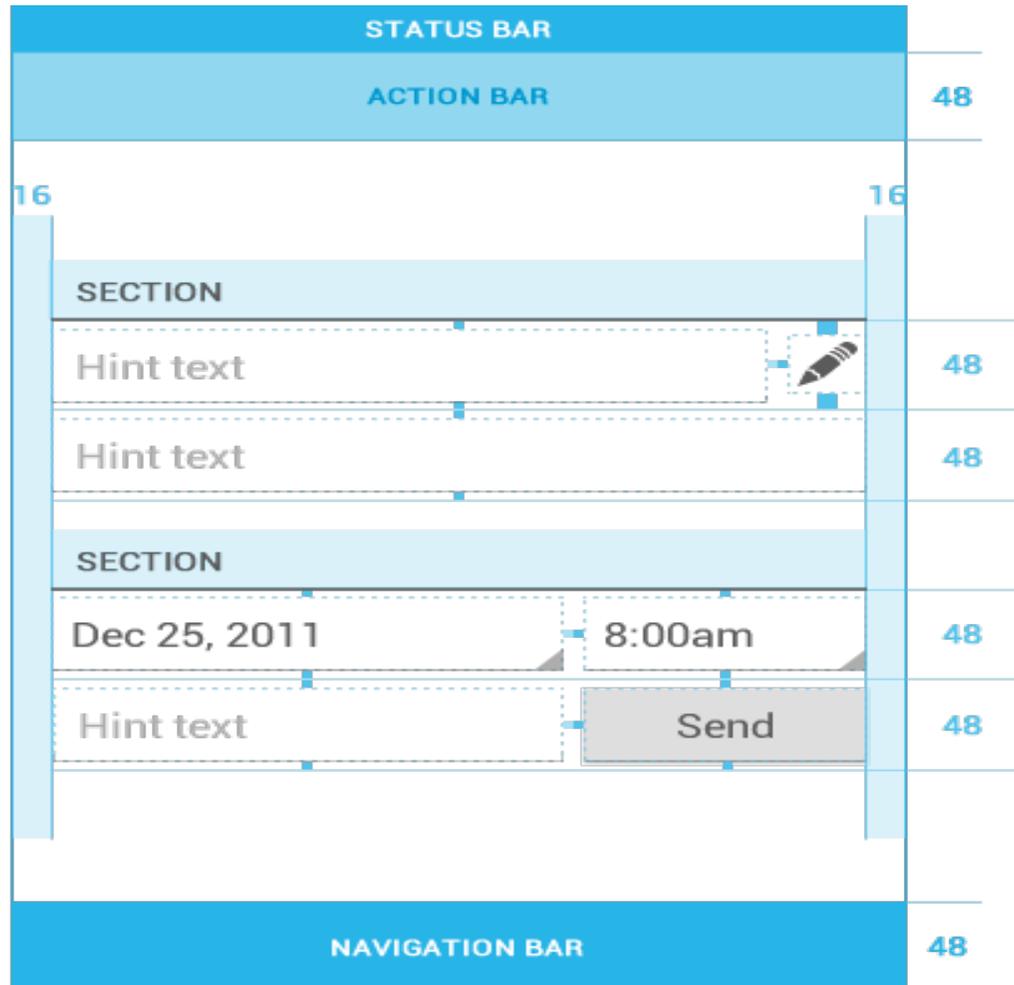
Spacing between each UI element is 8dp.

Typography

❏ The Android design language relies on traditional typographic tools such as scale, space, rhythm, and alignment with an underlying grid.

❏ Successful deployment of these tools is essential to help users quickly understand a screen of information.

Typography

❑The current TextView framework offers Roboto in thin, light, regular and bold weights, along with an italic style for each weight.

❑The framework also offers the Roboto Condensed variant in regular and bold weights, along with an italic style for each weight.

Roboto Thin
Roboto Light
Roboto Regular
Roboto Medium
Roboto Bold
Roboto Black
Roboto Condensed Light
Roboto Condensed
Roboto Condensed Bold

Default type colors

❑ The Android UI uses the following default color styles: textColorPrimary and textColorSecondary.

❑ For light themes use textColorPrimaryInverse and textColorSecondaryInverse.

❑ The framework text color styles also support variants for touch feedback states when used inside UI elements.

Text Color Primary Dark
Text Color Secondary Dark

Text Color Primary Light
Text Color Secondary Light

Typographic Scale

❑ Contrast in type sizes can go a long way to create ordered, understandable layouts.

❑ However, too many different sizes in the same UI can be messy.

❑ The Android framework uses the following limited set of type sizes:

Text Size Micro	12sp
Text Size Small	14sp
Text Size Medium	18sp
Text Size Large	22sp

Colour

❑ Use color primarily for emphasis. Choose colors that with your brand and provide good contrast between visual components

❑ Blue is the standard accent color in Android's color palette.

❑ This is the color that highlights when you touch lists, tabs or surrounding pop up dialogs

Tab 1   Tab 2
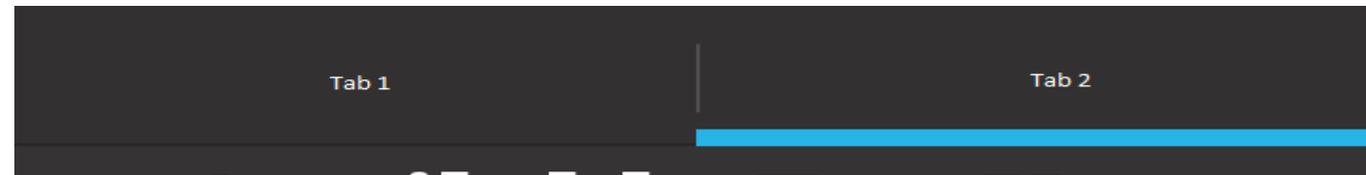
Iconography

❑ An icon is a graphic that takes up a small portion of screen real estate and provides a quick, intuitive representation of an action, a status, or an app.

❑ App may be installed on a variety of devices that offer a range of pixel densities, therefore, provide each icon in multiple sizes.

❑ When your app runs, Android checks the characteristics of the device screen and loads the appropriate density-specific assets for your app.

Iconography - Launcher

❑ The launcher icon is the visual representation of your app on the Home or All Apps screen.

❑ Since the user can change the Home screen's wallpaper, make sure that your launcher icon is clearly visible on any type of background.

❑ Launcher icons on a mobile device must be 48x48 dp.

❑ Launcher icons for display on Google Play must be 512x512 pixels.

Questions?