



Material Design

Guideline e codice per app usabili

Lezione 3

Material Design

Material 3 is the latest version of Google's open-source design system. Design and build beautiful, usable products with Material 3.

Get started

What's Material?

Material Design is a design system built and supported by Google designers and developers. **Material.io** includes in-depth UX guidance and UI component implementations for Android, Flutter, and the Web.

The latest version, Material 3, enables personal, adaptive, and expressive experiences – from dynamic color and enhanced accessibility, to foundations for large screen layouts and design tokens.



Build beautiful products, faster.

Material is a design system – backed by open-source code – that helps teams build high-quality digital experiences.

Check the video! <https://youtu.be/m1diVY4Uzjc>



Material is an adaptable system of guidelines, components, and tools that support the best practices of user interface design. Backed by open-source code, Material streamlines collaboration between designers and developers, and helps teams quickly build beautiful products.

Material Design

- Material è un sistema adattabile di linee guida, componenti e strumenti che supportano le migliori pratiche di progettazione dell'interfaccia utente
- Supportato da codice open-source, Material semplifica la collaborazione tra designer e sviluppatori e aiuta i team a creare rapidamente splendidi prodotti
- Material design è una guida completa per il design visivo, dinamico e interattivo su piattaforme e dispositivi
- Viene definito un design language, perché permette di definire linea guida, stili, architetture di progettazione, ...

Storia

- Google ha annunciato il Material Design il 25 giugno 2014, durante la conferenza Google I/O del 2014
- Nel 2018, Google ha iniziato a riprogettare la maggior parte delle proprie app in una versione personalizzata e adattata di Material Design chiamata "Google Material Theme", chiamata anche "Material Design 2"
- Al Google I/O nel maggio 2021, Google ha annunciato un nuovo concetto su Android 12 noto come "Material You" (noto anche come "Material Design 3"), sottolineando una maggiore animazione, pulsanti più grandi e la possibilità di personalizzare i temi dell'interfaccia utente generato dallo sfondo dell'utente



Home



Get started



Develop



Foundations



Styles



Components



Blog

Material 3

- Sito web: <https://m3.material.io/>
- Sezioni disponibili:
 - Home
 - **Get Started:** Get to know Material 3 – from UX guidance and tools to reusable components and open-source code
 - **Develop:** Implement Material Design with code and developer documentation for MDC-Android, Flutter, Jetpack Compose, and the Web
 - **Foundations:** Foundations inform the basis of any great user interface, from accessibility standards to essential patterns for layout and interaction
 - **Styles:** Styles are the visual aspects of a UI that give it a distinct look and feel. They can be customized by changing your Material theme.
 - **Components:** Components are interactive building blocks for creating a user interface. They can be organized into five categories based on their purpose: Action, containment, navigation, selection, and text input.
 - Blog

Multipiattaforma!



MDC-Android

Developer documentation, tutorials, and feature highlights to build with Material for Android.



Jetpack Compose

Developer documentation, tutorials, and feature highlights to build with Material for Android using Jetpack Compose.



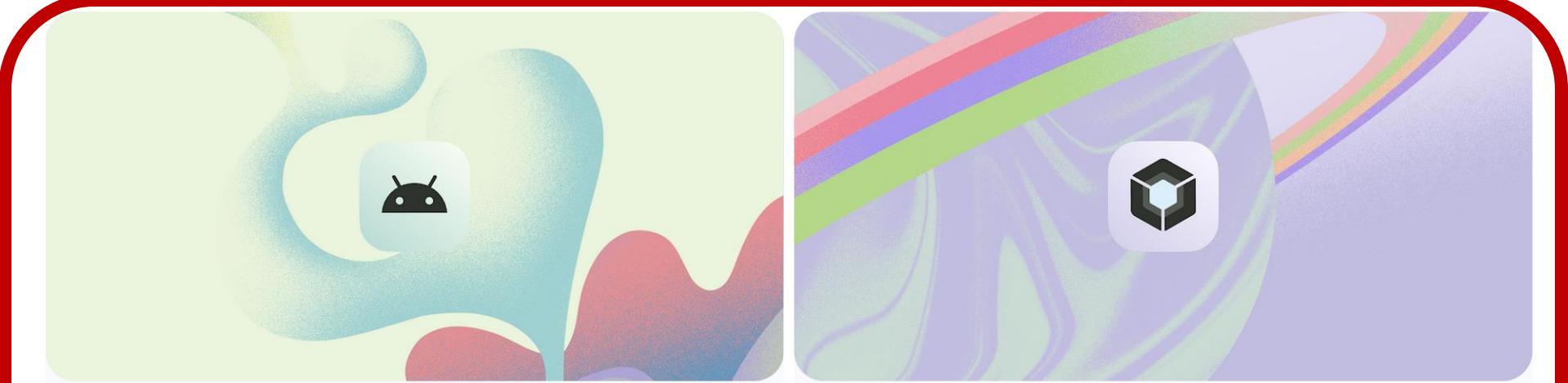
Flutter

Developer documentation, tutorials, and feature highlights to build with Material for Flutter.



Web

Planned developer documentation to build with Material in any Web framework.

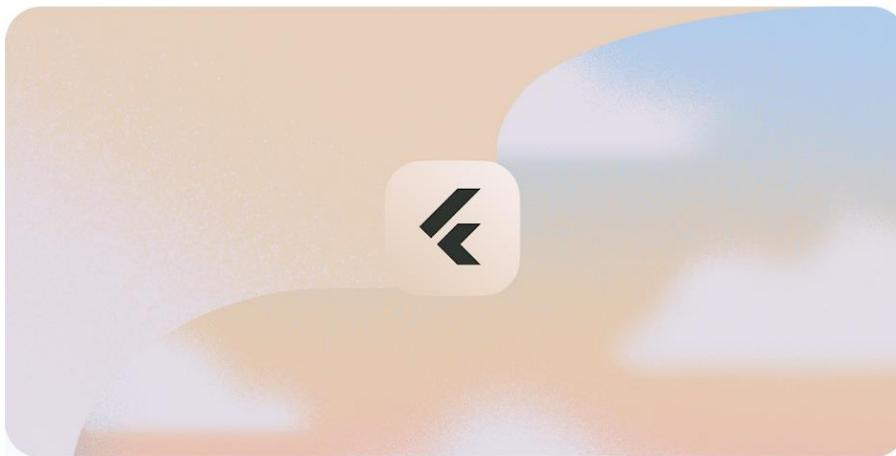


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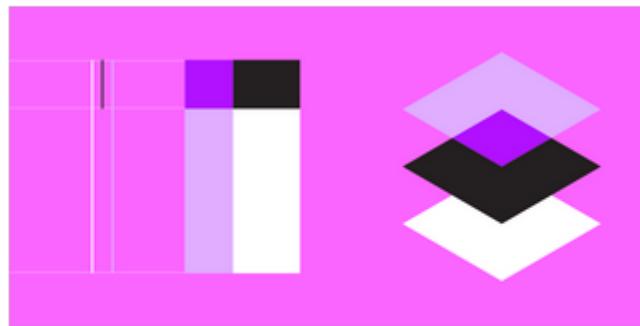


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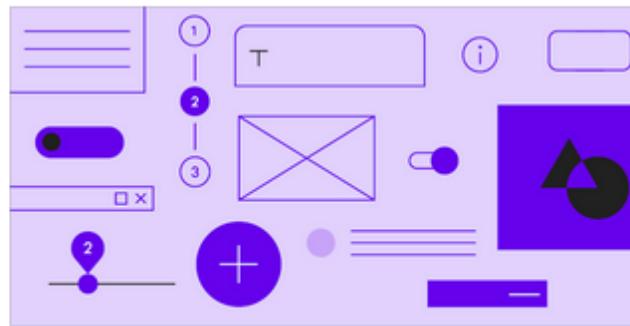
Design guidance and code

Use our most popular design and development resources to jumpstart your latest project



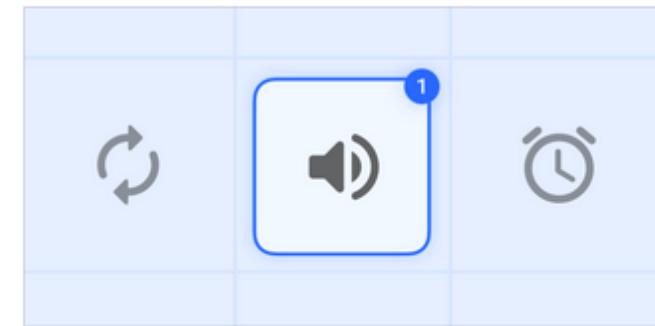
Material Design guidelines

Material Design principles, styles, and best practices



Components

Design guidance and developer documentation for interactive UI building blocks



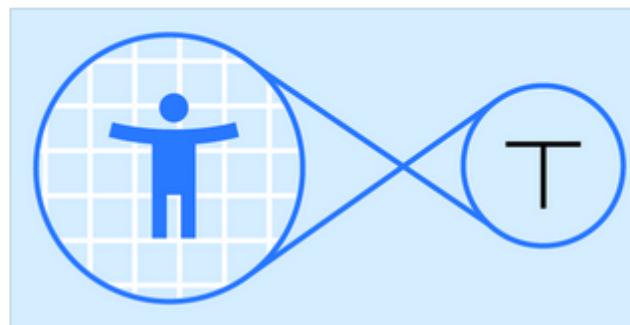
Icons

Access five sets of stylized system icons, available in a range of formats and sizes



Material Components for the web

Implement and customize Material web apps with our code and documentation



Accessibility guidelines

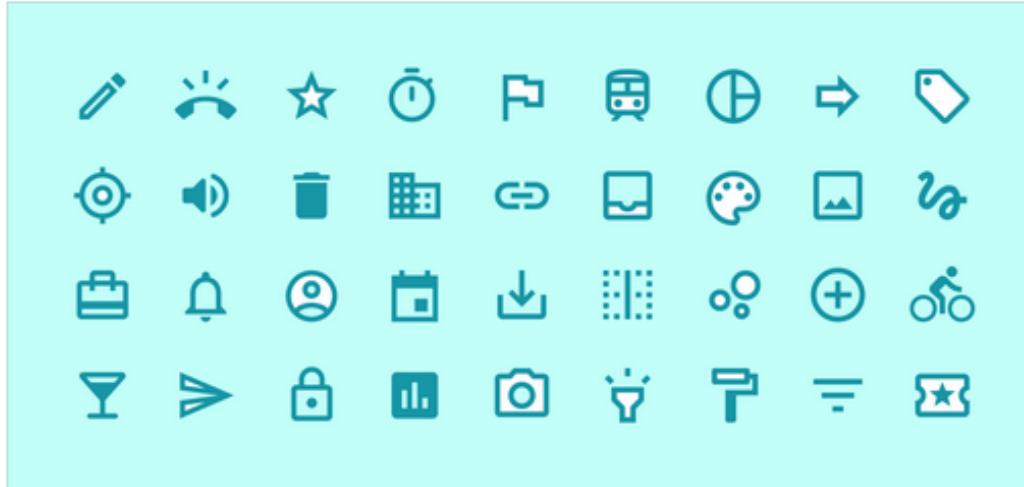
Learn how to help users of diverse abilities to navigate, understand, and use your UI



Developer tutorials

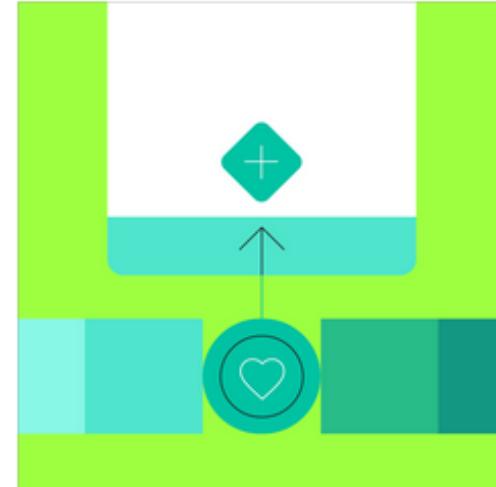
Implement Material with Java, Kotlin, Objective C, Swift, the web, or Flutter

- Permette di gestire diversi aspetti della grafica e dell'UX!



System icons

System icons symbolize common actions, files, devices, and directories. Each icon is reduced to its minimal form, expressing essential characteristics.



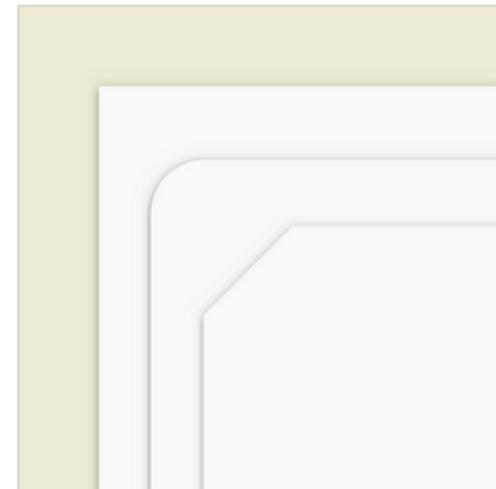
Generate custom color palettes

Craft a unique color scheme for your brand with this online tool.



The type system

Use typography to present your design and content as clearly and efficiently as possible.



Harness the power of shape

Shapes can direct attention, identify components, communicate state, and express brand.

Material design

- Material design vi fornisce sia materiale che linee guida per il design
- Infatti, nella sezione Material Foundation potete trovare interessanti articoli relativamente a
 - Colore
 - Layout
 - Suono
 - Icone
 - Interazione
 - Comunicazione
 - Forme
 - ...
- Per ogni aspetto vi fornisce i (buoni) principi di design

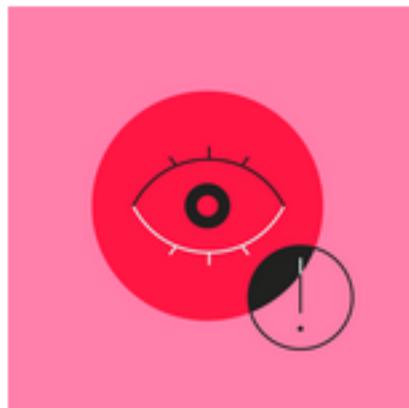
ES: The color system

Principles



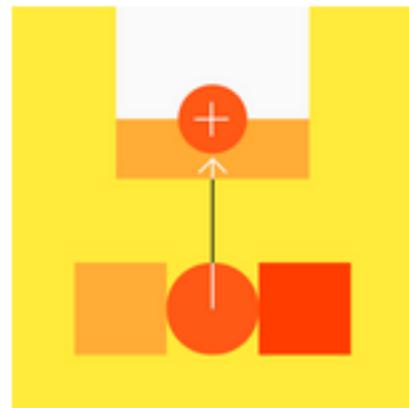
Hierarchical

Color indicates which elements are interactive, how they relate to other elements, and their level of prominence. Important elements should stand out the most.



Legible

Text and important elements, like icons, should meet legibility standards when appearing on colored backgrounds.



Expressive

Show brand colors at memorable moments that reinforce your brand's style.

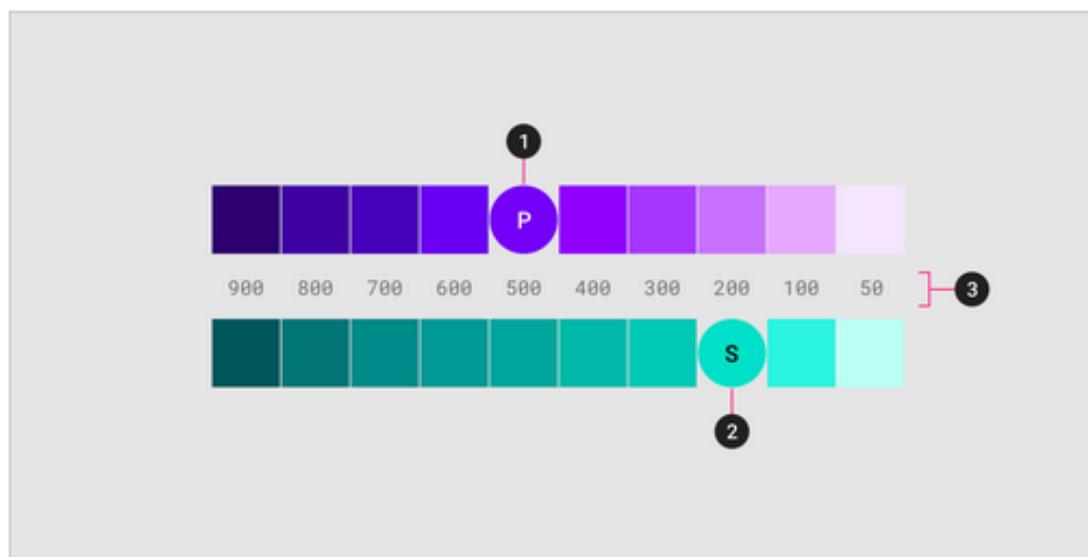
Vi fornisce i principi generali che occorre seguire per avere un Interfaccia pulita e chiara E migliorare quindi l'UX!

ES: The color system

Colors and theming

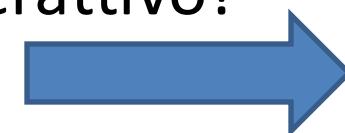
Color themes are designed to be harmonious, ensure accessible text, and distinguish UI elements and surfaces from one another.

The [Material Design palette tool](#), Theme Editor, or 2014 Material Design palettes are available to help you select colors.



Vi permette di facilitarvi nella scelta della Palette dei colori, considerando anche l'accessibilità
Più informazioni le potete trovare qui <https://material.io/design/color/the-color-system.html#tools-for-picking-colors>

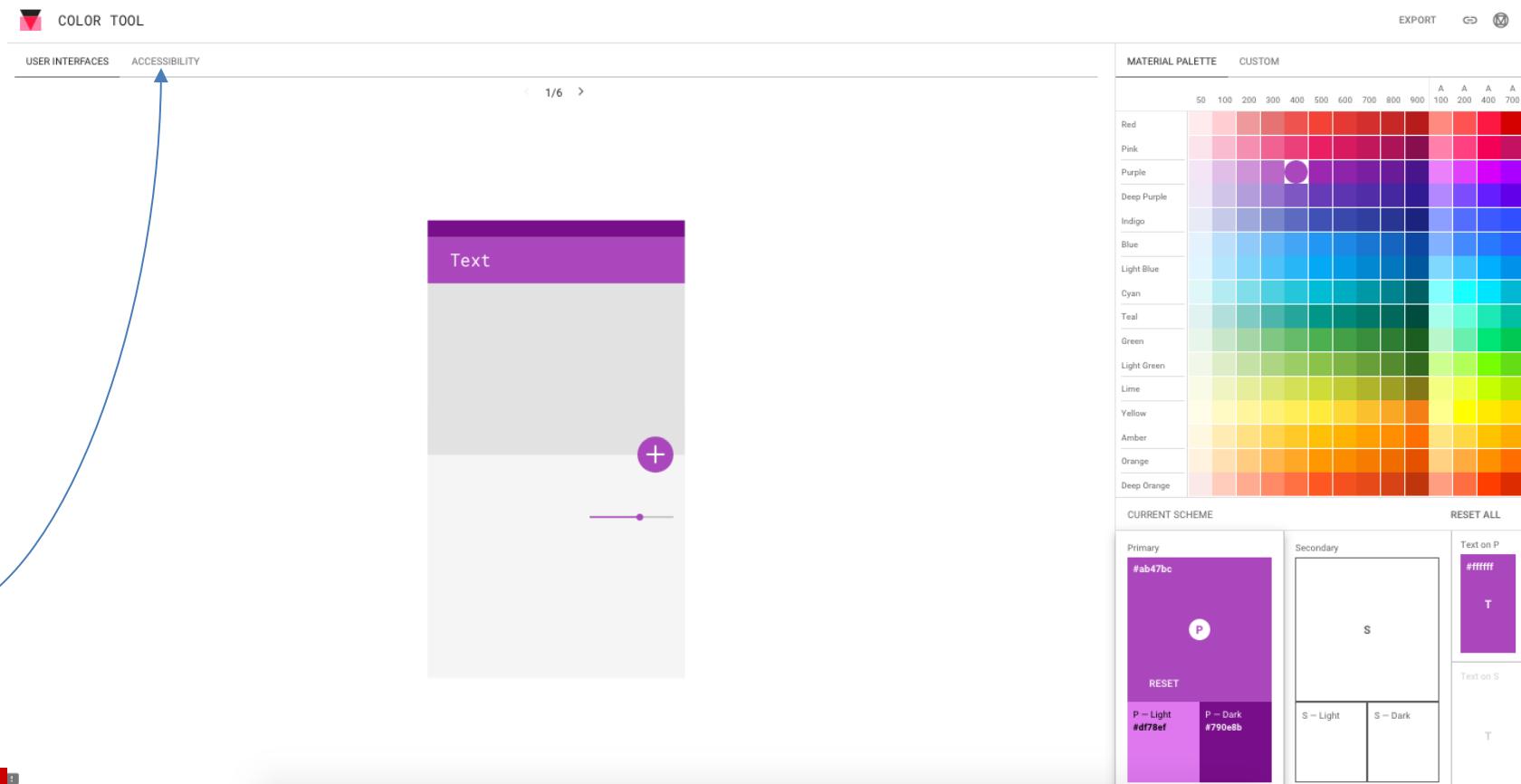
Interattivo!



The screenshot shows the 'Color palettes' section of the Material Design palette tool. It displays four types of color palettes: PRIMARY, COMPLEMENTARY, ANALOGOUS, and TRIADIC. Each palette is represented by a horizontal bar of color swatches with numerical values from 900 to 50 below them. A legend on the left identifies the colors: Primary (blue), Secondary (green), and Tertiary (orange). A color wheel is also present. On the right, there are sections for 'Primary color' (with a color picker and hex code #6002EE) and 'Secondary color' (with a plus sign). A red button labeled 'View in color tool' is at the bottom right.

ES: The color system

- <https://m2.material.io/resources/color/#!/?view.left=0&view.right=0>
- Potete scegliere dei colori e vedere come si adattano all'interfaccia!
- Anche controllo accessibilità sui colori!

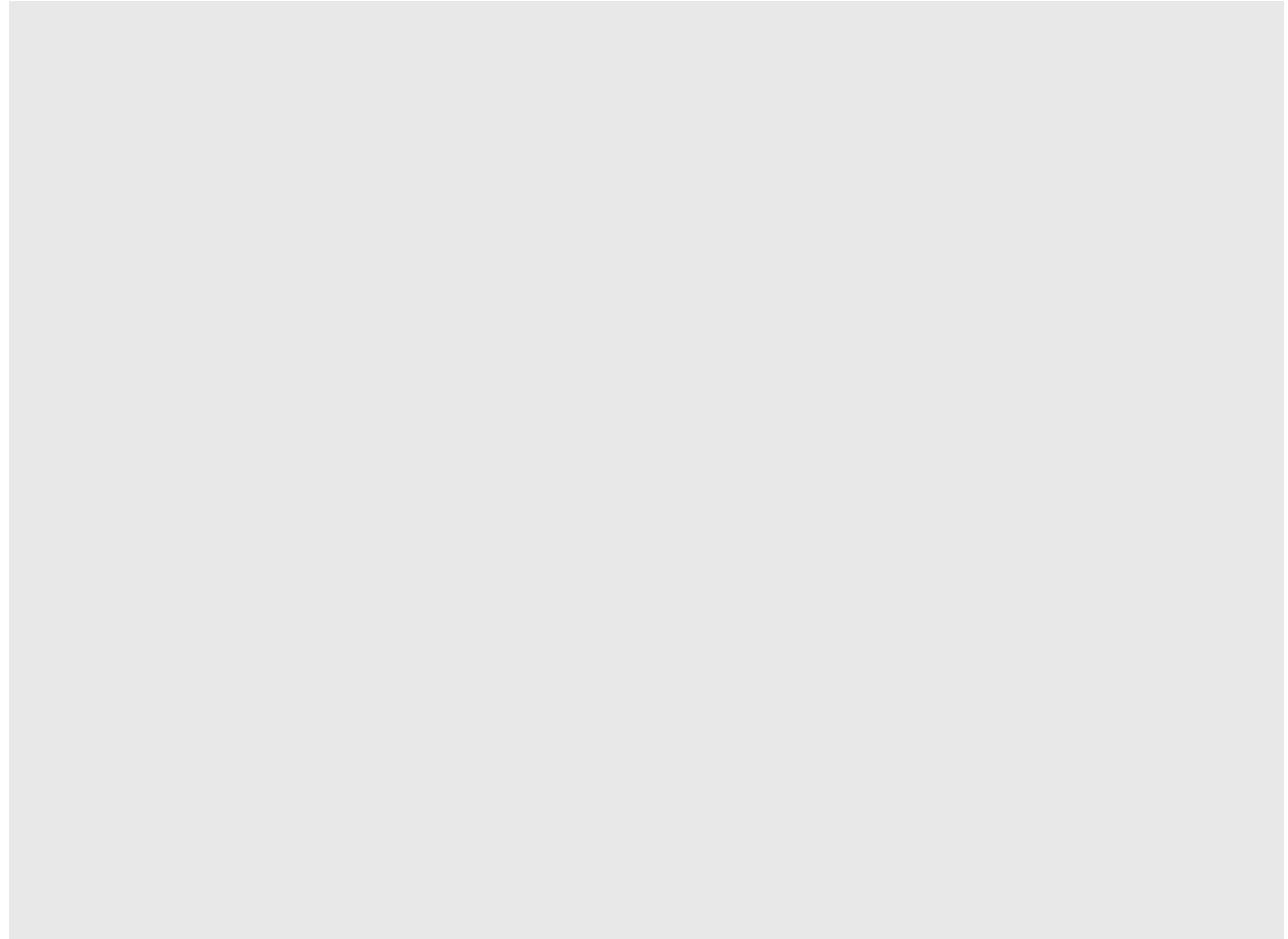


ES: The color system

- Primary color!

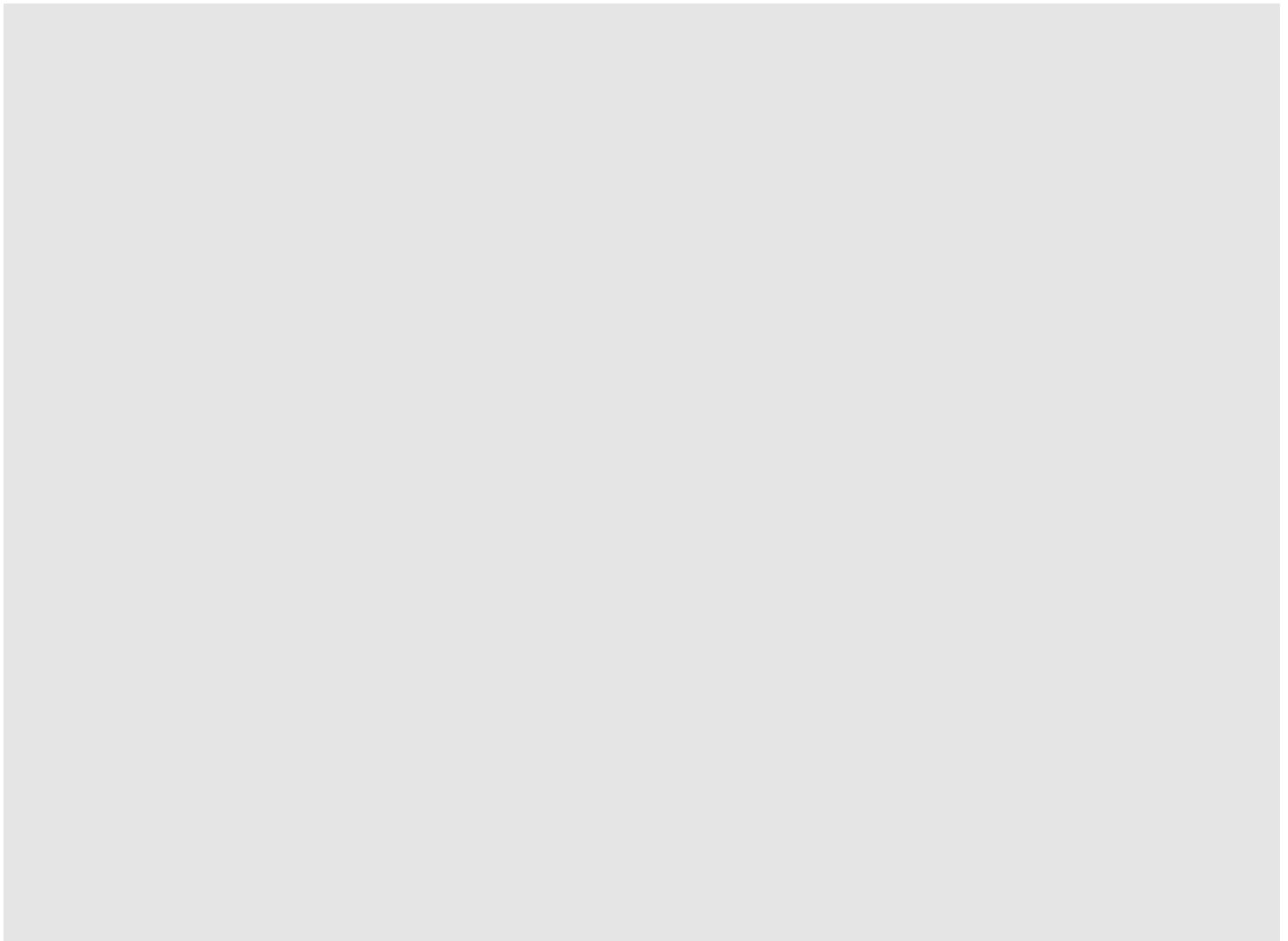
Link:

https://storage.googleapis.com/spec-host/mio-staging%2Fmio-design%2F1581631970573%2Fassets%2F1_0WGypORQm2ttQ2EAY6W9Shc41yqsVSn%2Fcolor-colorsystem-schemecreation-primary-baseline-1av5.mp4



ES: The color system

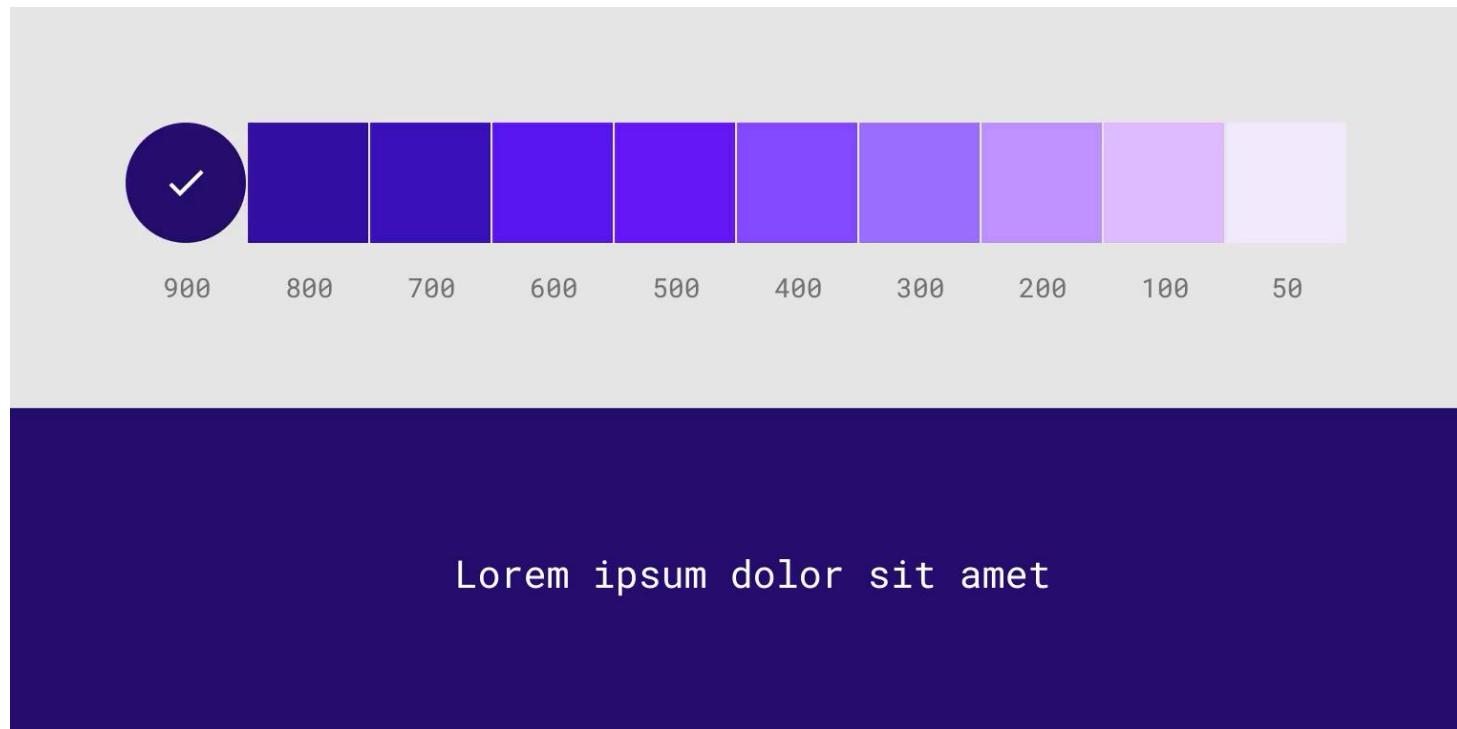
- Secondary color!



Link: <https://storage.googleapis.com/spec-host/mio-staging%2Fmio-design%2F1581631970573%2Fassets%2F10pANQAwTXfXDLzAtsjHIIKXuHHrfNTr%2Fcolor-colorsystem-schemecreation-secondary-baseline-1a.mp4>

ES: The color system

- Accessibilità



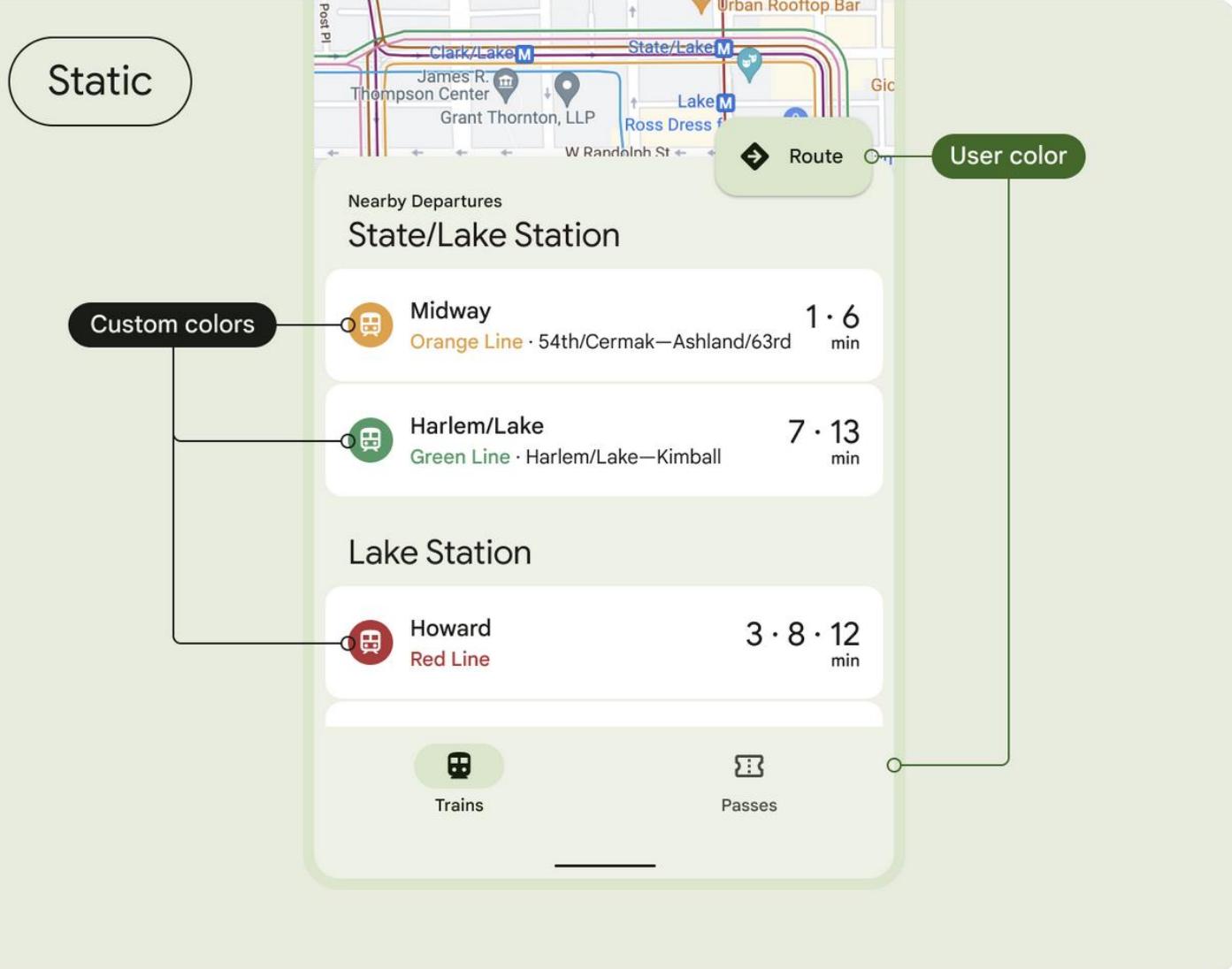
Link:

<https://storage.googleapis.com/spec-host/mio-staging%2Fmio-design%2F1581631970573%2Fassets%2F1T0tTFmW3QrkCjrDS0aH5W2PV8XmbQV%2Fcolor-colorsystem-schemecreation-accessibility-1a.mp4>

Product-specific custom colors

Custom colors pin specific hues that often are needed alongside expressive colors in UI as a way to communicate conventional meaning, such as errors.

They're also used to give teams more control and customization alongside the variability of a dynamic color environment.

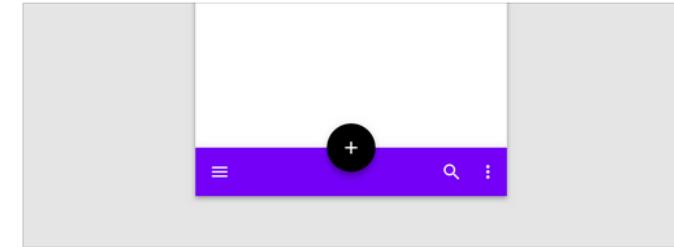


Material Design Components

- Oltre alla parte di design vera e propria, esiste una parte in cui vengono definiti i vari componenti
- I componenti sono elementi costitutivi interattivi per la creazione di un'interfaccia utente.
- Possono essere organizzati in cinque categorie in base al loro scopo: Action, containment, navigation, selection, and text input
- Per ogni componente, Material fornisce il codice per Android (Java e Jetpack Compose Kotlin), web e flutter (se presente)

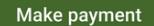
App bars: bottom

A bottom app bar displays navigation and key actions at the bottom of mobile screens.



Actions

Action components help people achieve an aim.



Common Buttons

Buttons help people initiate actions, from sending an email, to sharing a document, to liking a post.



Extended FAB

Extended FABs help people take primary actions. They're wider than FABs to accommodate a text label and larger target area.



Floating action buttons

The FAB represents the most important action on a screen. It puts key actions within reach.



Icon buttons

Icon buttons help people take supplementary actions with a single tap.



Segmented button

Segmented buttons help people select options, switch views, or sort elements.

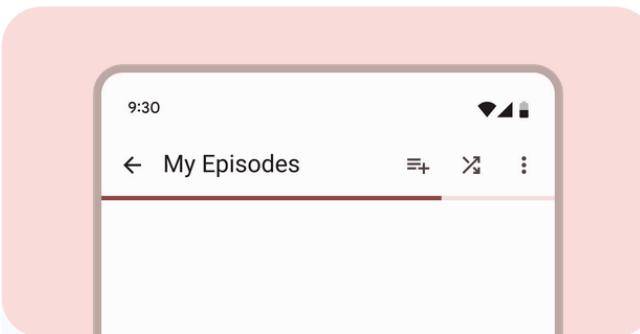
Communication

Communication components provide helpful information.



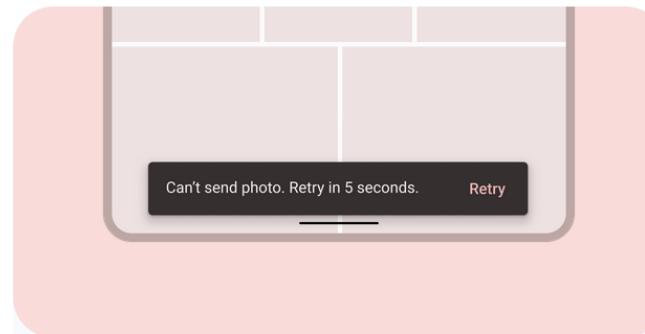
Badges

Badges convey dynamic information, such as counts or status. A badge can include labels or numbers.



Progress indicators

Progress indicators inform users about the status of ongoing processes, such as loading an app or submitting a form.



Snackbar

Snackbars provide brief messages about app processes at the bottom of the screen.

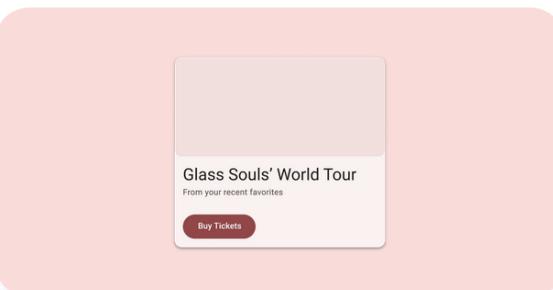
Containment

Containment components hold information and actions – including other components like buttons, menus, or chips.



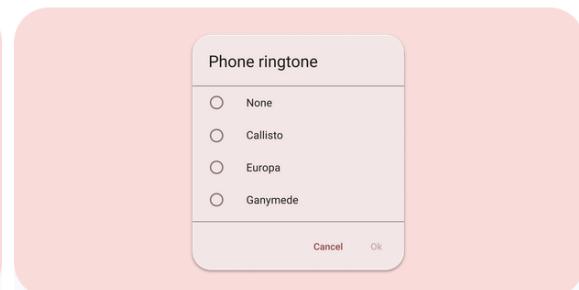
Bottom sheets

Bottom sheets are surfaces containing supplementary content, anchored to the bottom of the screen.



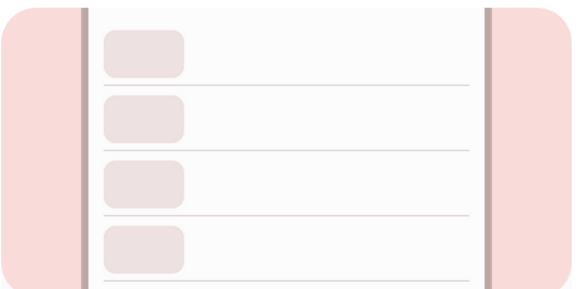
Cards

Cards contain content and actions that relate information about a subject.



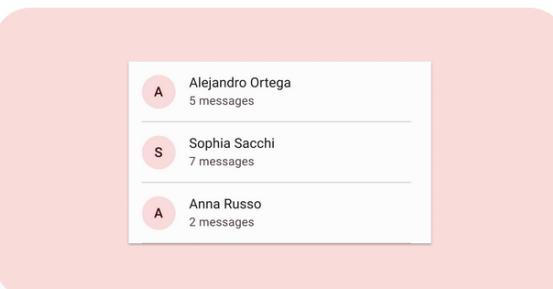
Dialogs

Dialogs provide important prompts in a user flow.



Divider

A divider is a thin line that groups content in lists and containers.



Lists

Lists are continuous, vertical indexes of text or images.

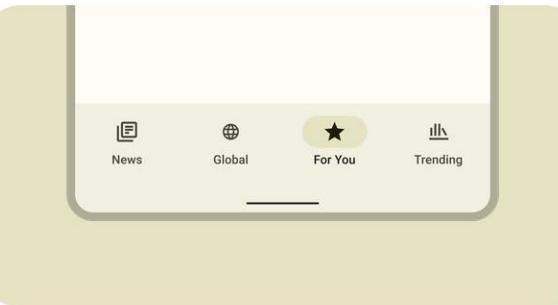
Navigation

Navigation components help people move through the UI.



Bottom app bar

A bottom app bar displays navigation and key actions at the bottom of mobile screens.



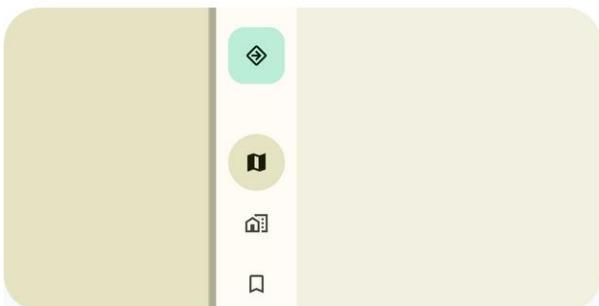
Navigation bar

Navigation bars offer a persistent and convenient way to switch between primary destinations in an app.



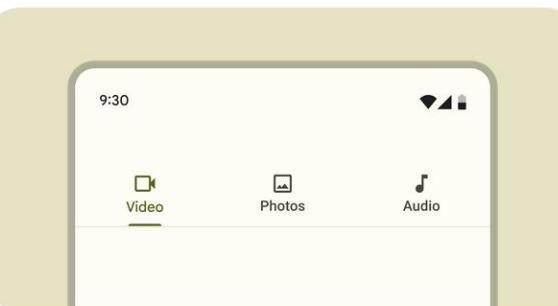
Navigation drawer

Navigation drawers provide ergonomic access to destinations in an app.



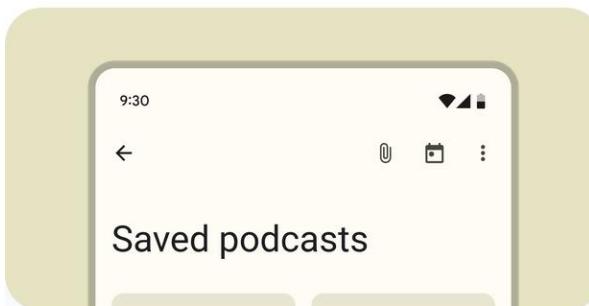
Navigation rail

Navigation rails provide access to primary destinations in apps when using tablet and desktop screens.



Tabs

Tabs organize content across different screens, data sets, and other interactions.

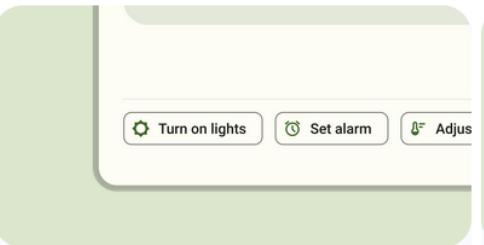


Top app bar

Top app bars display information and actions at the top of a screen.

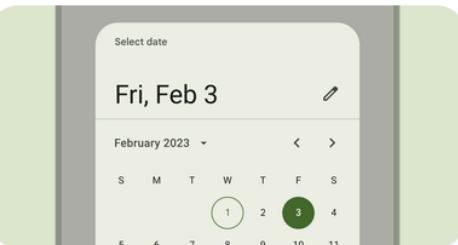
Selection

Selection components let people specify choices.



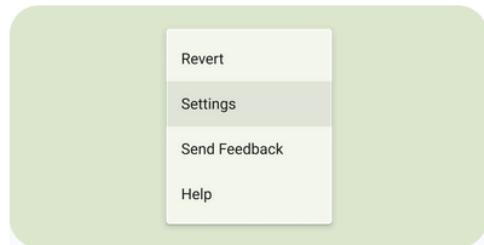
Chips

Chips help people enter information, make selections, filter content, or trigger actions.



Date pickers

Date pickers let people select a date, or a range of dates.



Menus

Menus display a list of choices on a temporary surface.



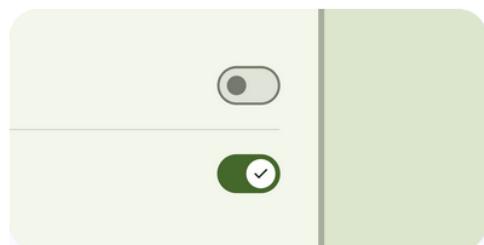
Radio button

Radio buttons allow users to select one option from a set.



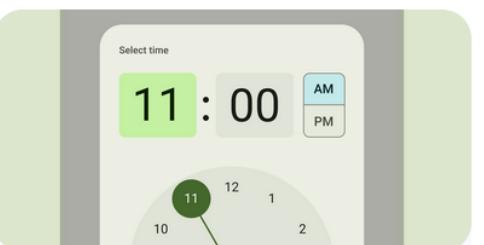
Sliders

Sliders allow users to make selections from a range of values.



Switch

Switches toggle the state of a single item on or off.

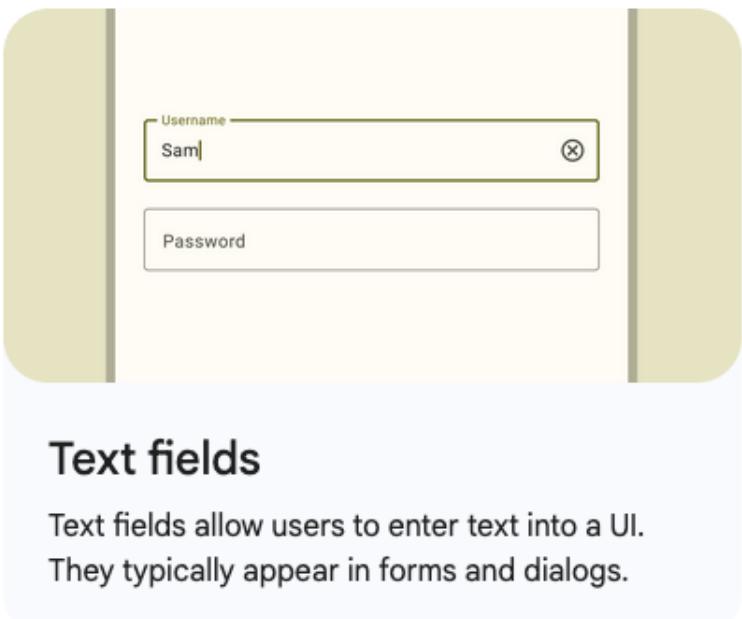


Time pickers

Time pickers help users select and set a specific time.

Text inputs

Text input components let people enter and edit text.



Text fields

Text fields allow users to enter text into a UI.
They typically appear in forms and dialogs.

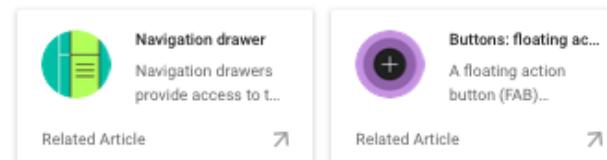
Material Design Components

- Fornisce anche i principi di design, come usare il componente, ecc.
 - Sempre in ottica di fornire una migliore UX all’utente
 - <https://m3.material.io/components>

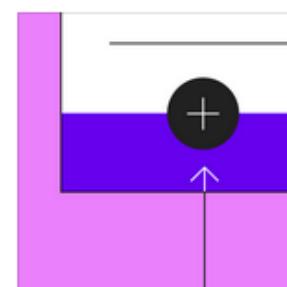


Usage

Bottom app bars provide access to a bottom navigation drawer and up to four actions, including the floating action button.

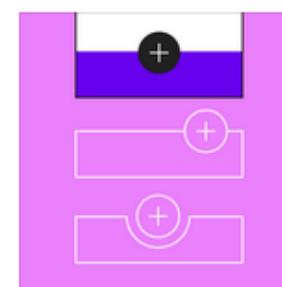


Principles



Actionable

Bottom app bars highlight important screen actions and raise awareness of the floating action button.



Flexible

A bottom app bar’s layout and actions change based on the needs of the screen.



Ergonomic

The bottom app bar is easy to reach from a handheld position on a mobile device.

Material design components for Android

- Dettagli sull'uso di questi componenti in Android lo potete trovare qui:
- <https://github.com/material-components/material-components-android/tree/master/docs/components>
- Ora ne vedremo alcuni insieme nel dettaglio

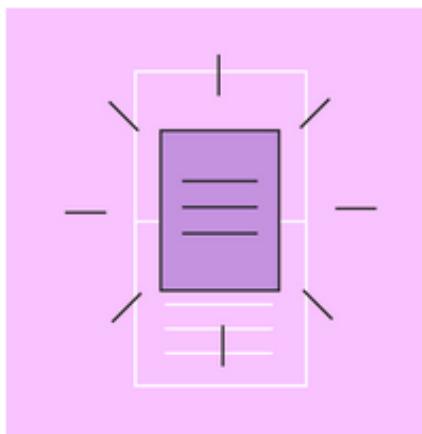
- Ecco una lista di componenti Material – (giusto per darvi un'idea)

Android ▾	Material Card
Components	Material Text View
Alert Dialogs	Menus
Badge	Modal Bottom Sheets
Bottom App Bar	Navigation Views
Bottom Navigation	Pickers
Bottom Sheets	Radio Buttons
Buttons	Slider
Checkboxes	Snackbars
Chips	Switches
Collapsing Toolbars	Tab Layout
Extended Floating Action Button	
Floating Action Buttons	Text Fields
List	Top App Bars

Dialogs Component

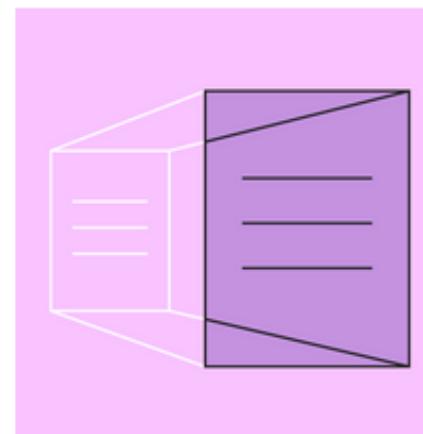
- Per il componente *Dialogs*, trovate i principi (indipendenti dal sistema operativo utilizzato) nella sezione Components
 - <https://m3.material.io/components/dialogs/overview>

Principles



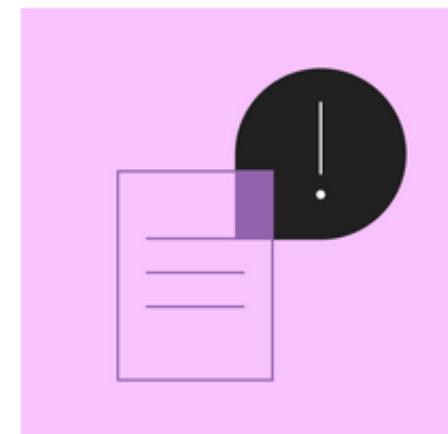
Focused

Dialogs focus user attention to ensure their content is addressed.



Direct

Dialogs should be direct in communicating information and dedicated to completing a task.

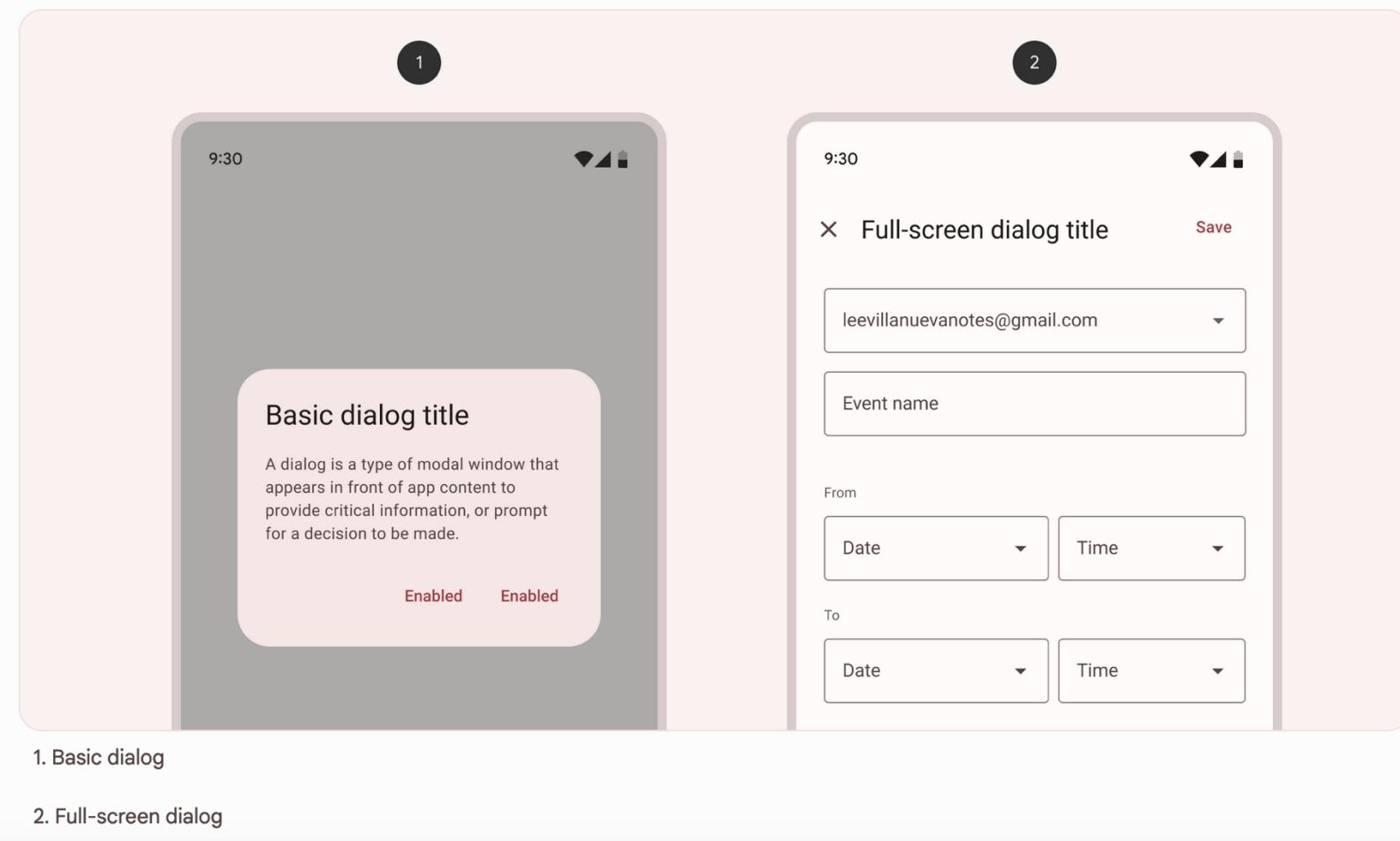


Helpful

Dialogs should appear in response to a user task or an action, with relevant or contextual information.

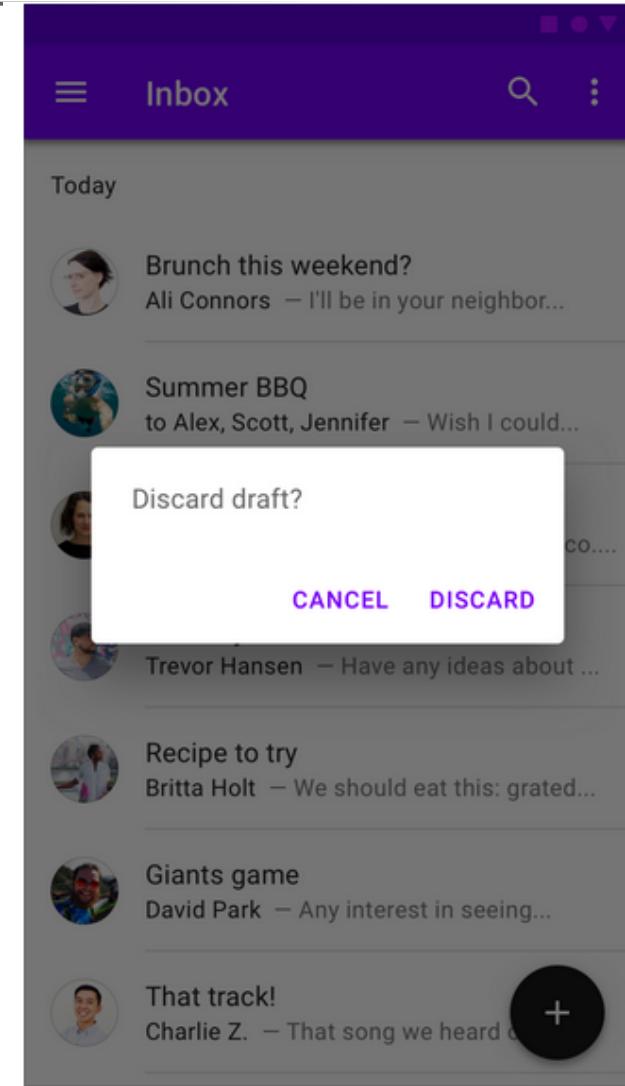
Dialog component

- Le finestre di dialogo possono richiedere un'azione, comunicare informazioni o aiutare gli utenti a svolgere un'attività
- Esistono due tipi di finestre di dialogo: di base e a schermo intero

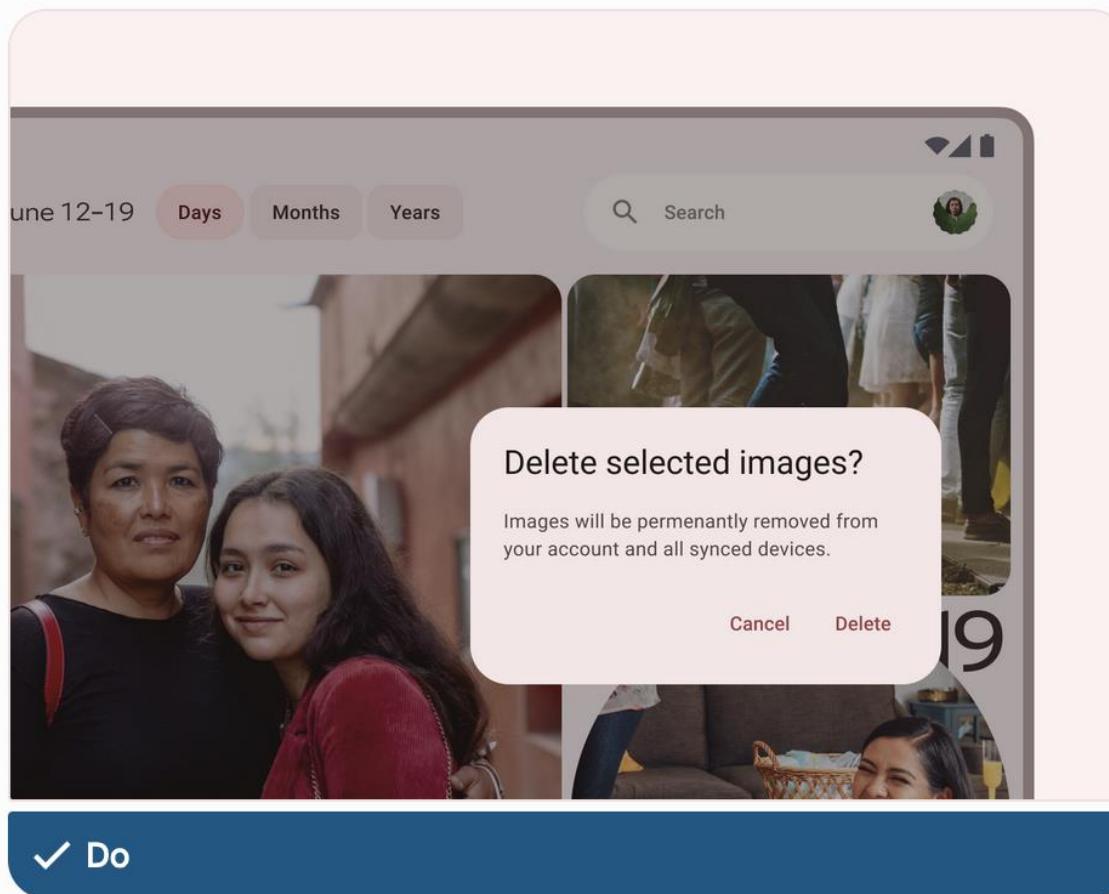


Basic Dialog

- Una finestra di dialogo è una finestra modale che appare davanti al contenuto dell'app per fornire informazioni critiche o chiedere una decisione
- Le finestre di dialogo disattivano tutte le funzionalità dell'app quando vengono visualizzate e rimangono sullo schermo fino a quando non vengono confermate, ignorate o non viene intrapresa un'azione richiesta
- I dialog sono volutamente interruttivi, quindi dovrebbero essere usati con parsimonia

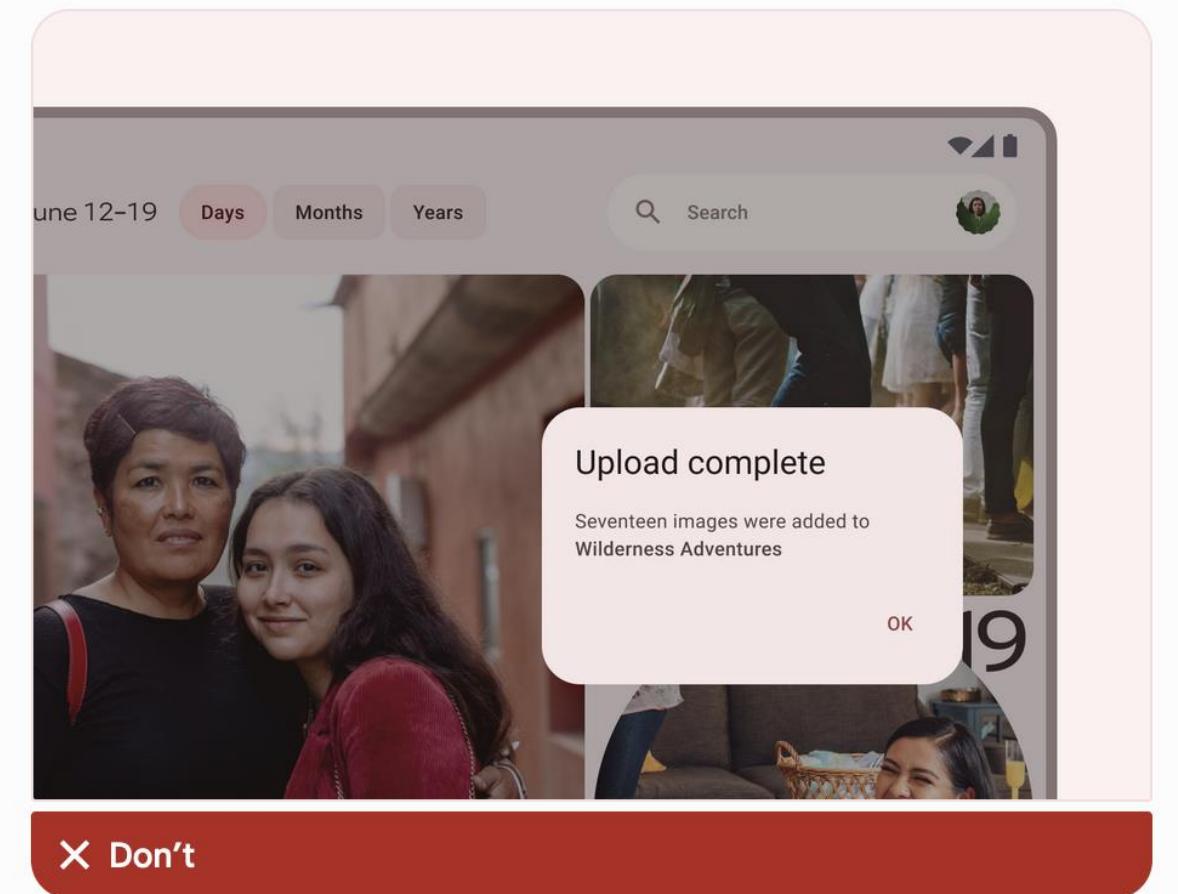


Esempio



✓ Do

Use dialogs for prompts that block an app's normal operation, and for critical information that requires a specific user task, decision, or acknowledgement.

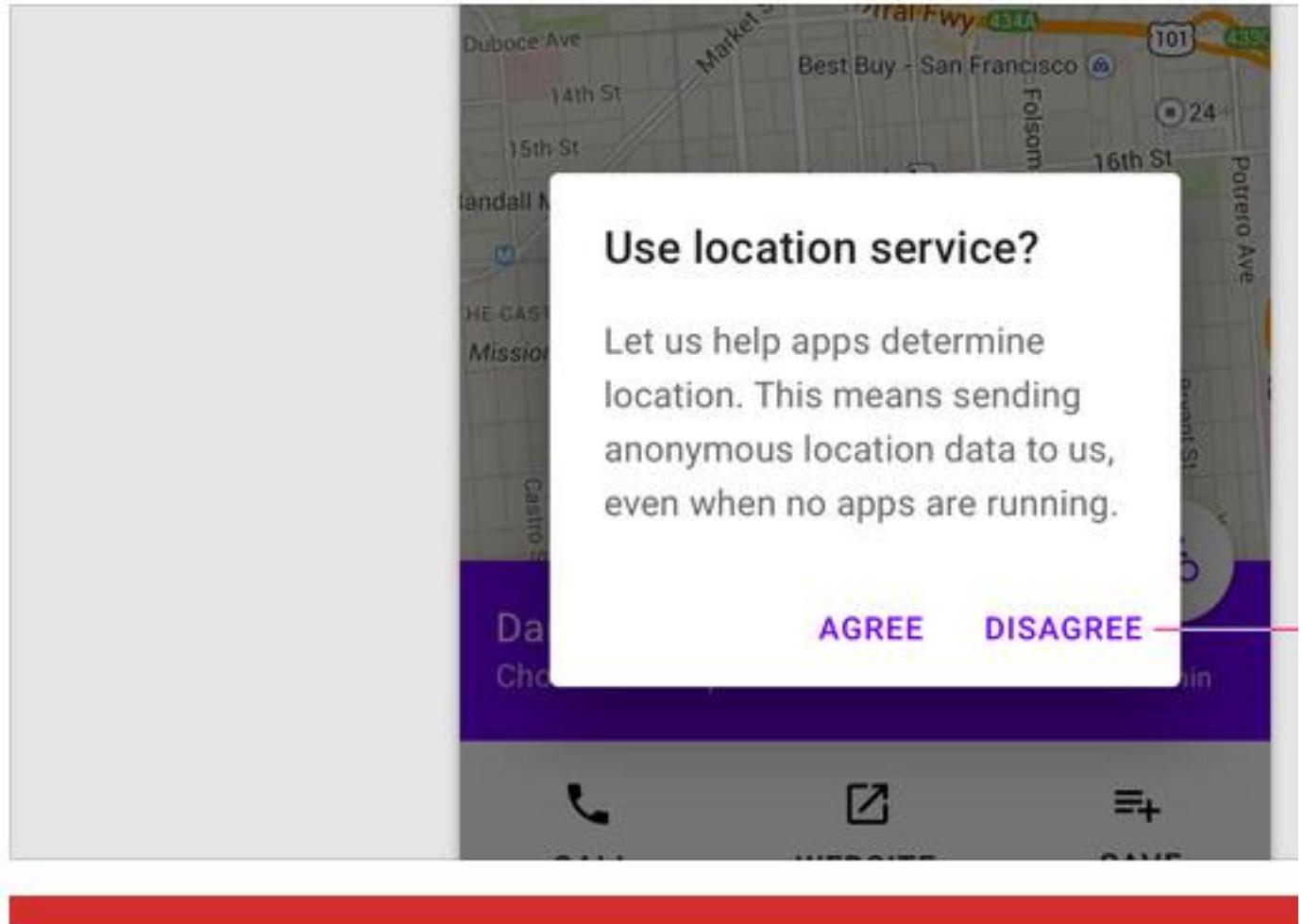


✗ Don't

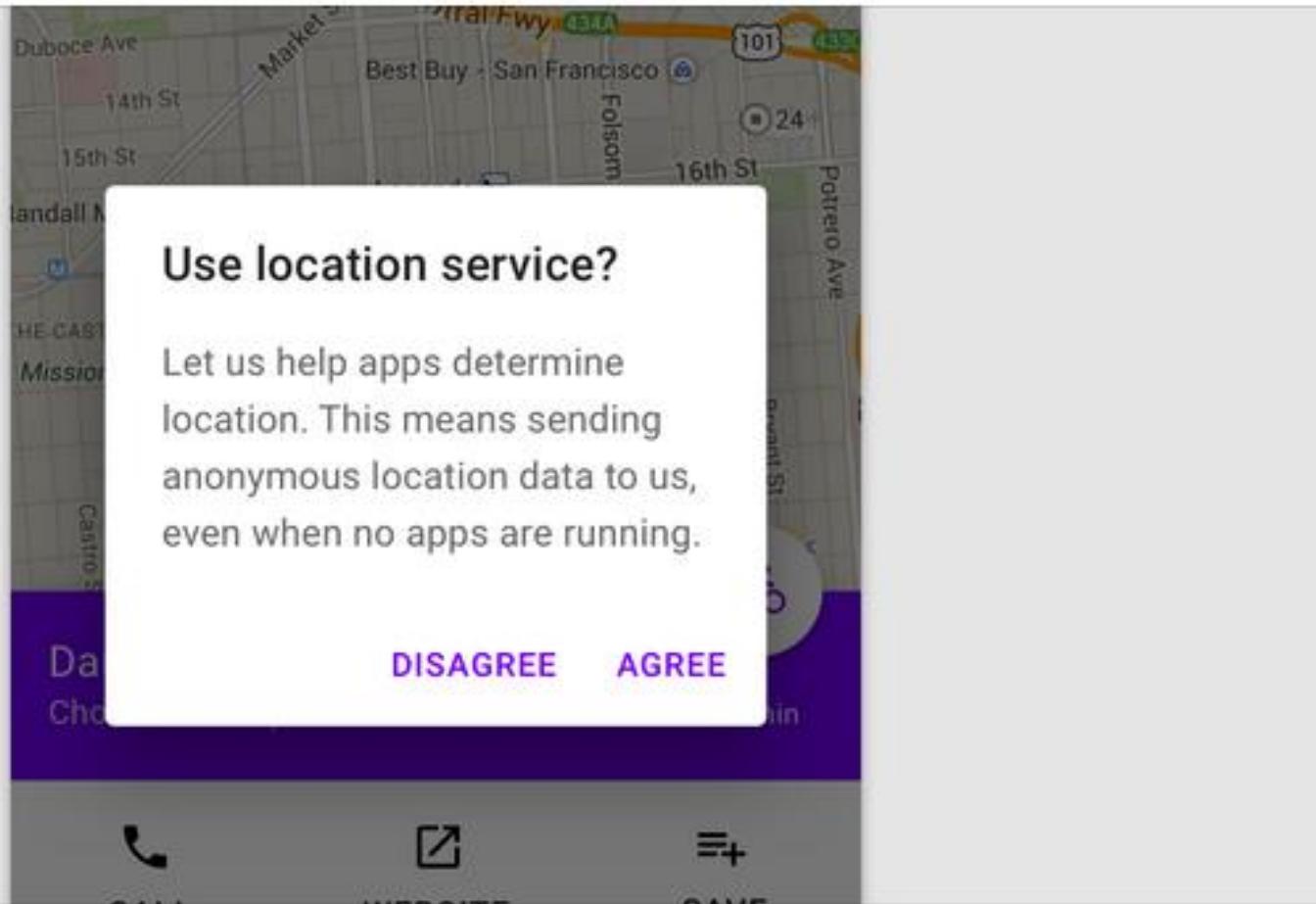
Don't use dialogs for low- or medium-priority information. Instead, use a banner (which can be dismissed) or snackbar (which disappears automatically).

Dialogs buttons

- Cosa c'è di sbagliato qui??



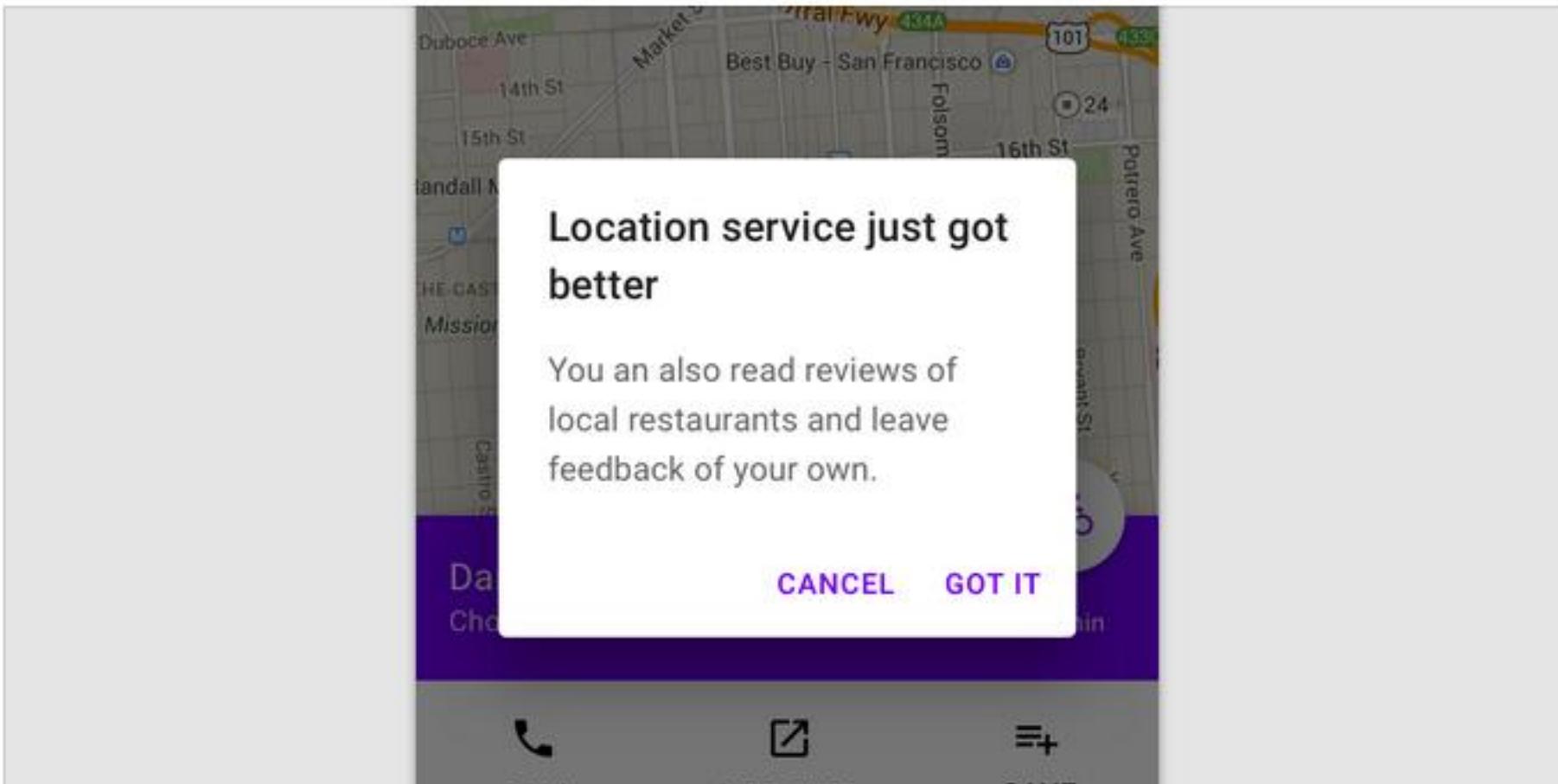
Dialogs buttons



- L'ordine!
- Prima sempre il pulsante «negativo» rispetto all'azione da confermare

These side-by-side buttons display buttons provide the actions of "Disagree" and "Agree" as options.

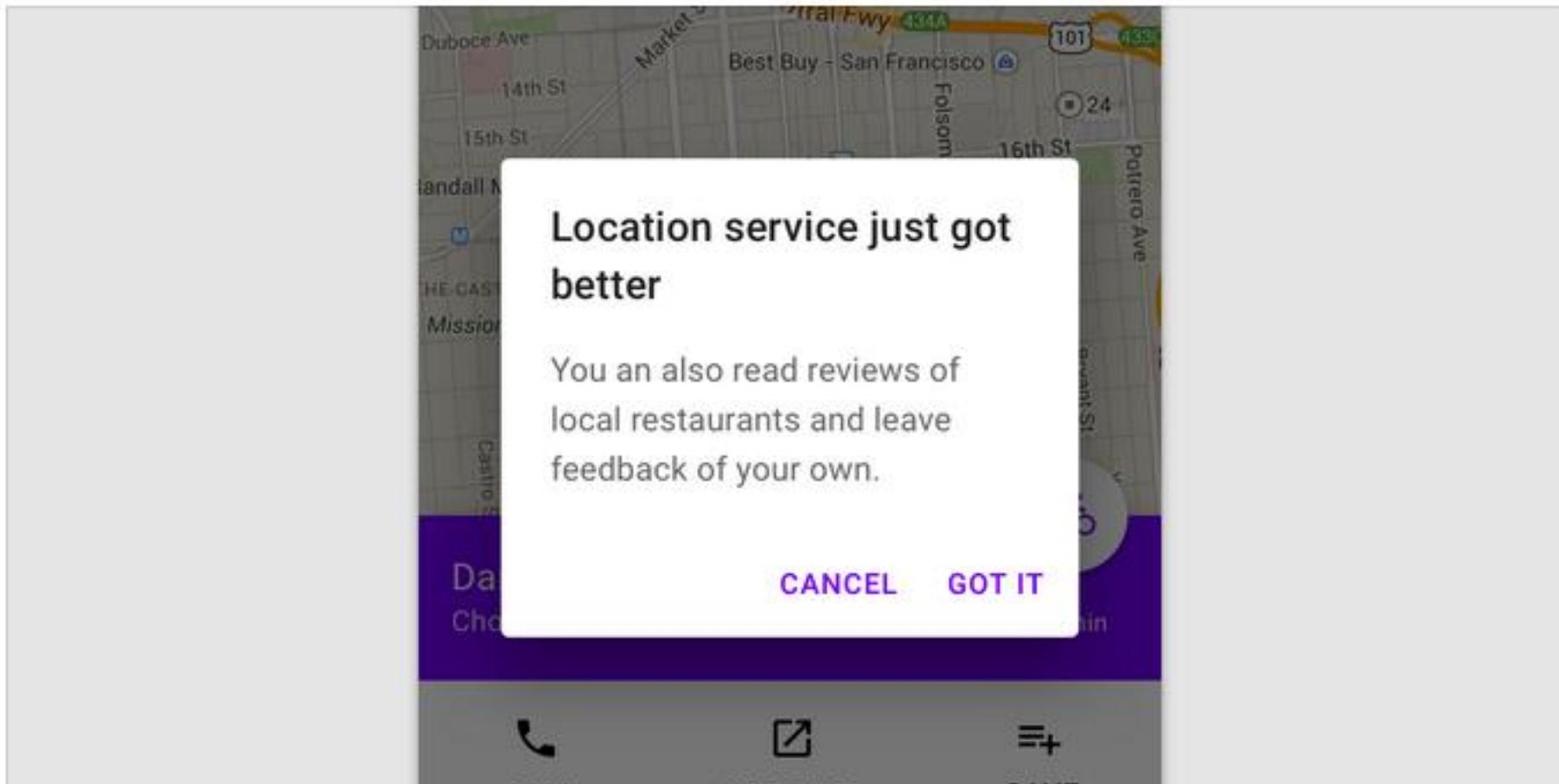
Dialogs buttons



- E qui?

Don't.

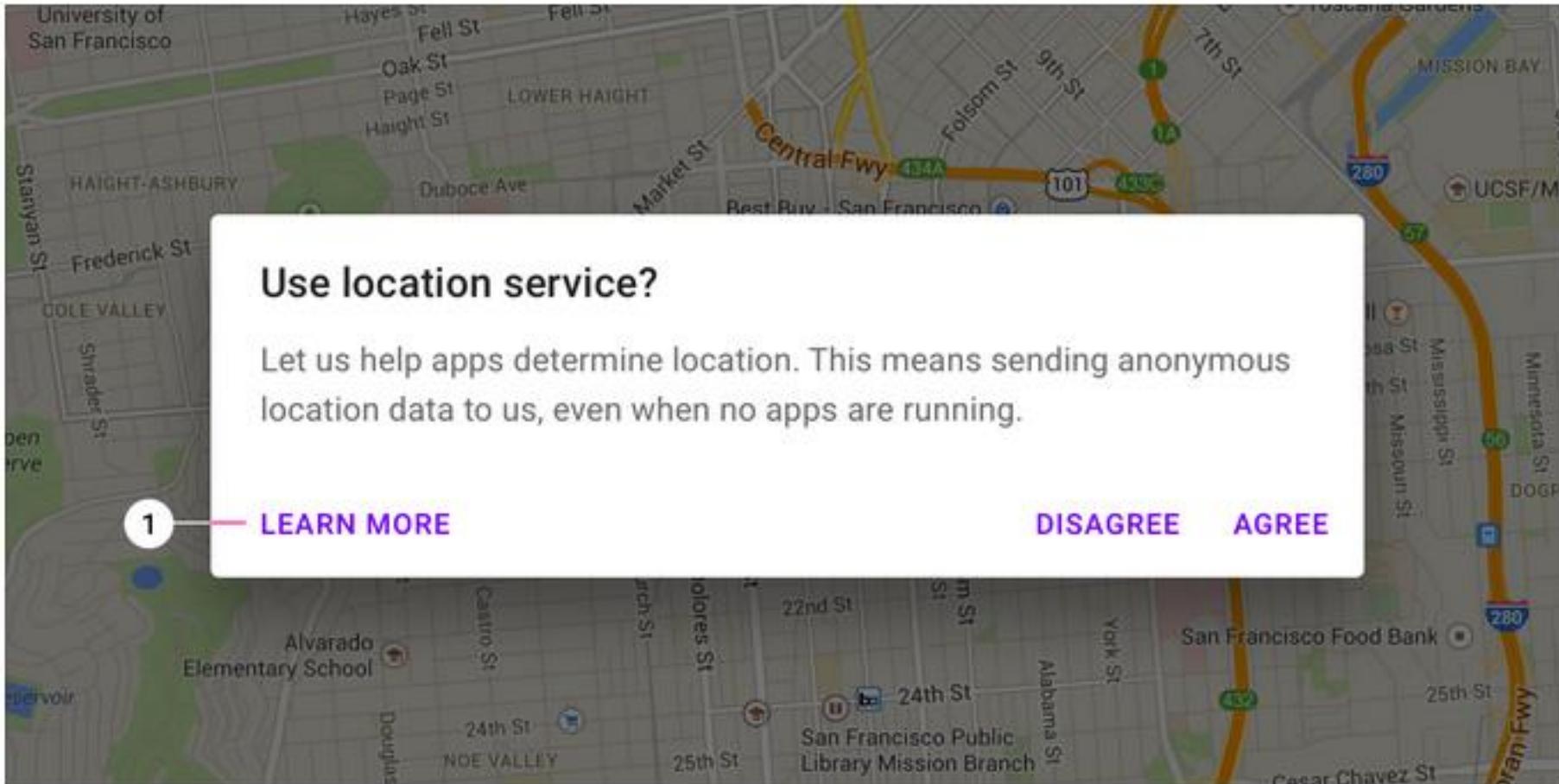
Dialogs buttons



Don't.

- Non ha senso il «cancel»
- Cosa dovrebbe succedere cliccando «cancel»?

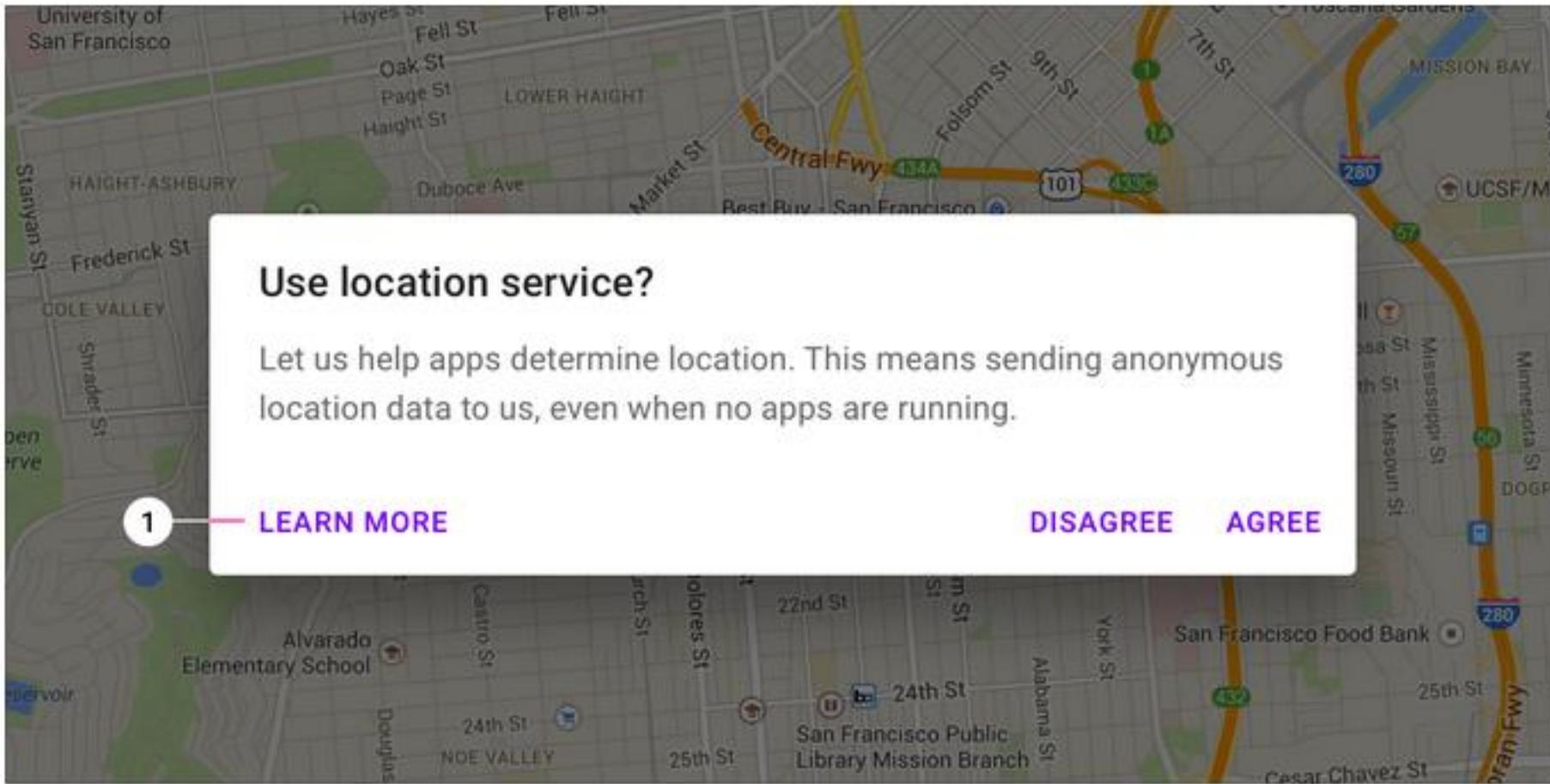
Dialogs buttons



- E qui?

Don't.

Dialogs buttons

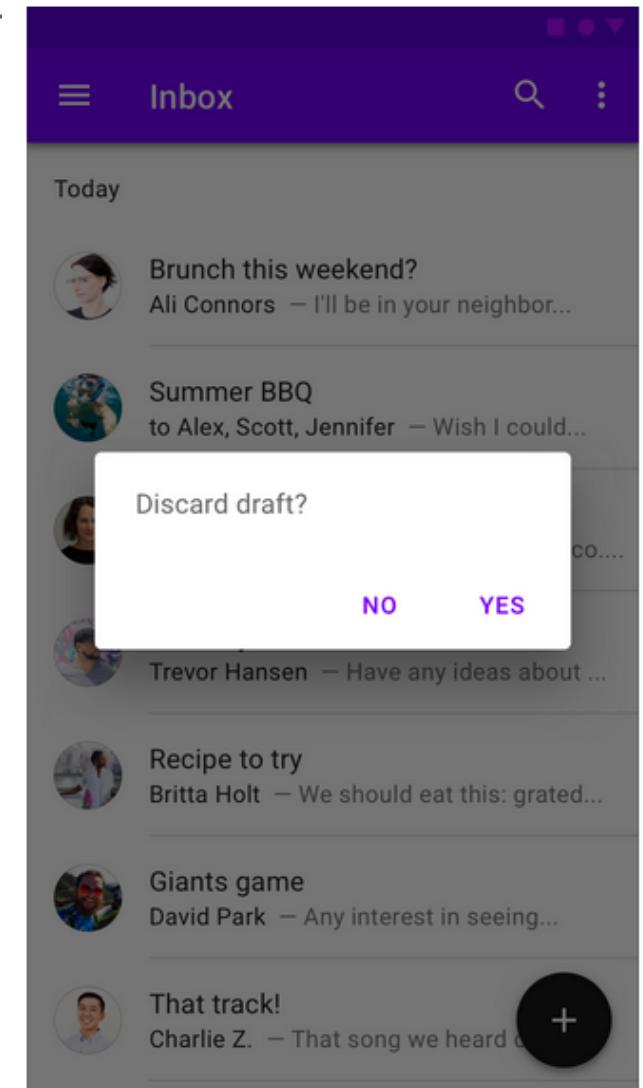
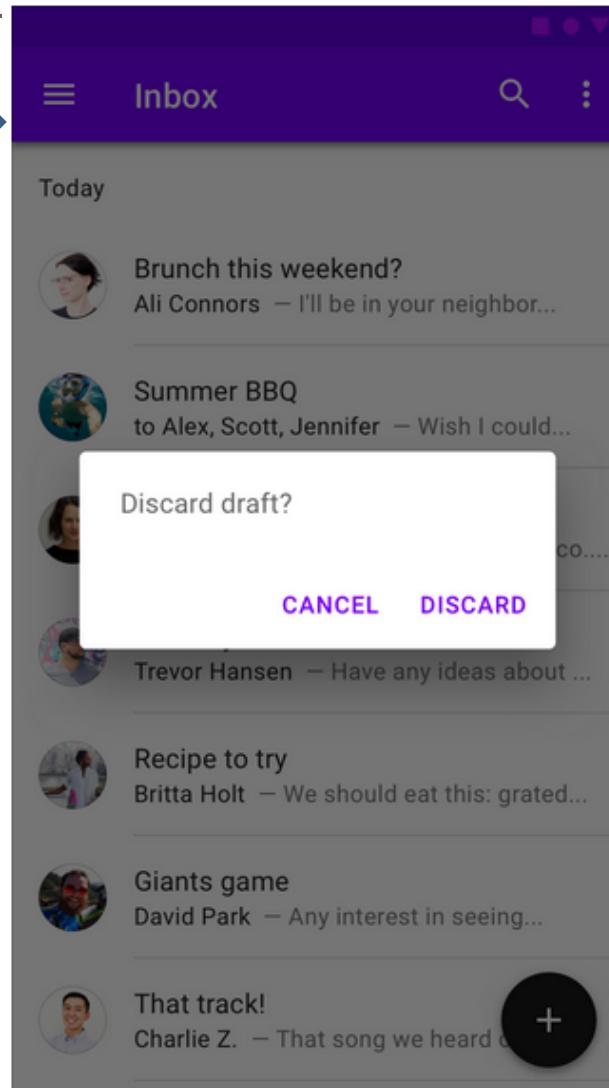


Don't.

- «Learn more» non deve esserci insieme ad una decisione
- Probabilmente porta in un'altra schermata con il rischio che l'utente non scelga una opzione

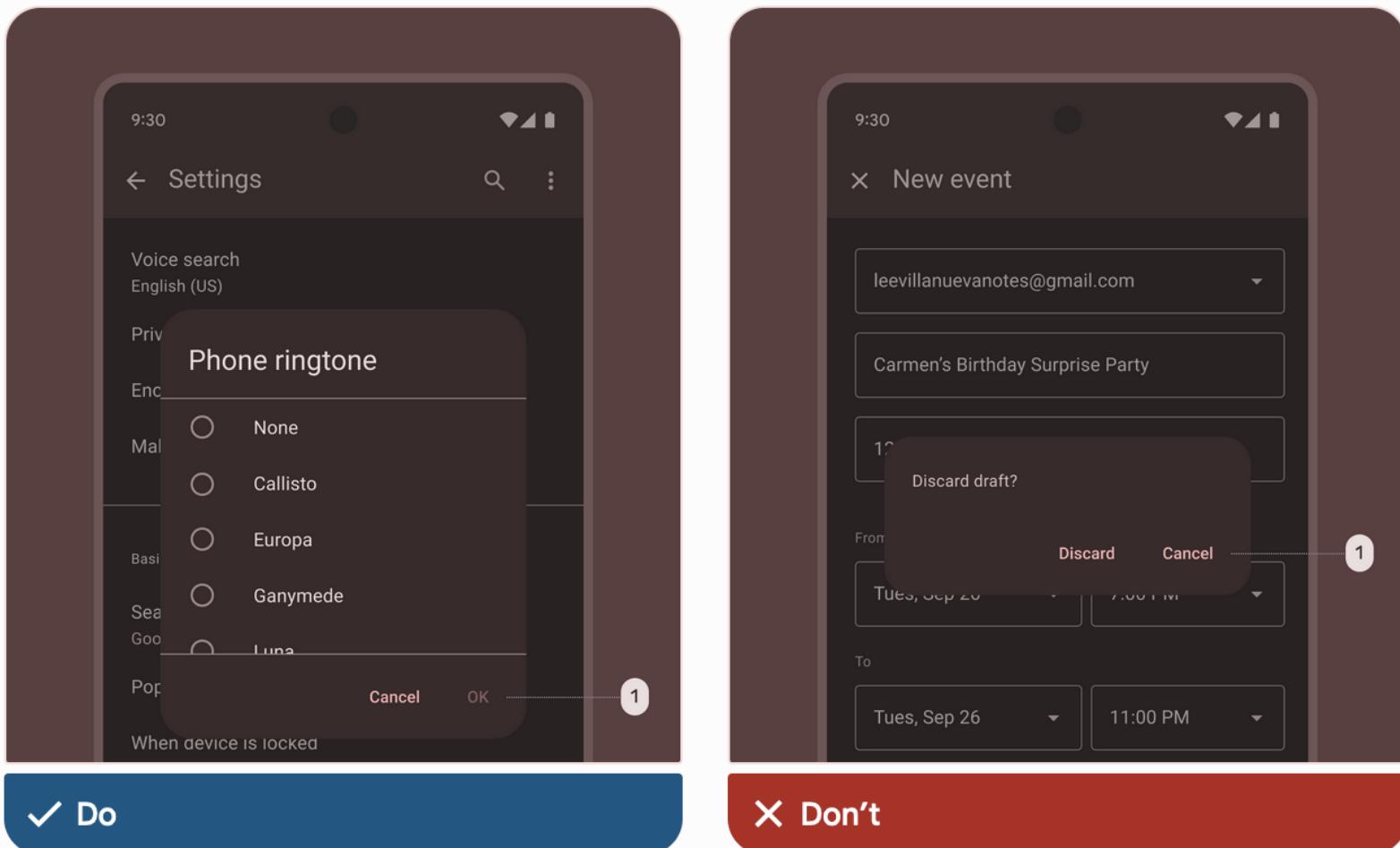
Alert Dialogs

- Questa è corretta!
- La differenza è che qui è chiaro che o torni indietro o elimini i dati (si ripete l'azione)
- Nell'altro non si indica cosa farà il si o cosa il no



Do.

Don't.



✓ Do

Disable confirming actions (1) until a choice is made. Dismissive actions are never disabled.

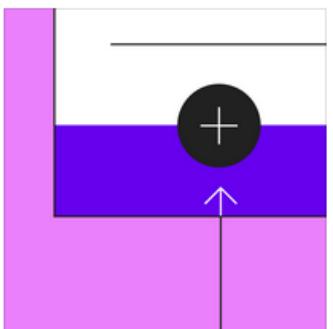
✗ Don't

Don't place dismissive actions (1) to the right of confirming actions. Instead, place them to the left of confirming actions.

Bottom App Bars

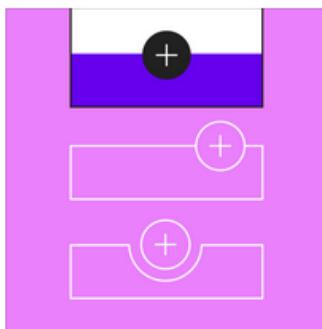
- Una barra dell'app in basso che mostra la navigazione e le azioni chiave nella parte inferiore degli schermi

I principi:



Actionable

Bottom app bars highlight important screen actions and raise awareness of the floating action button.



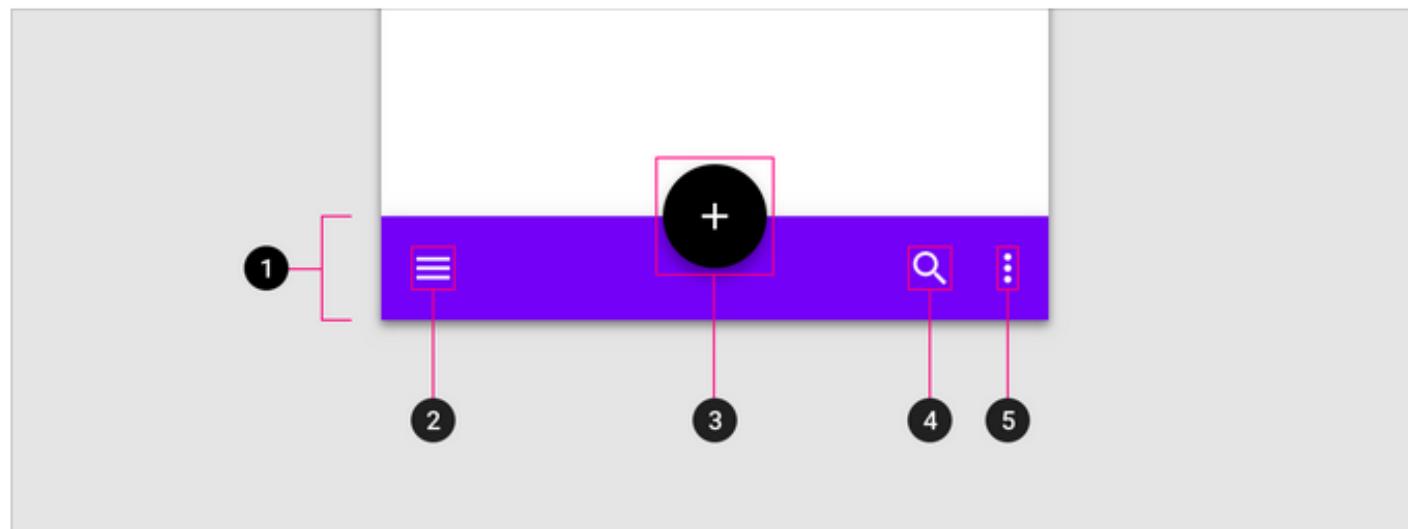
Flexible

A bottom app bar's layout and actions change based on the needs of the screen.



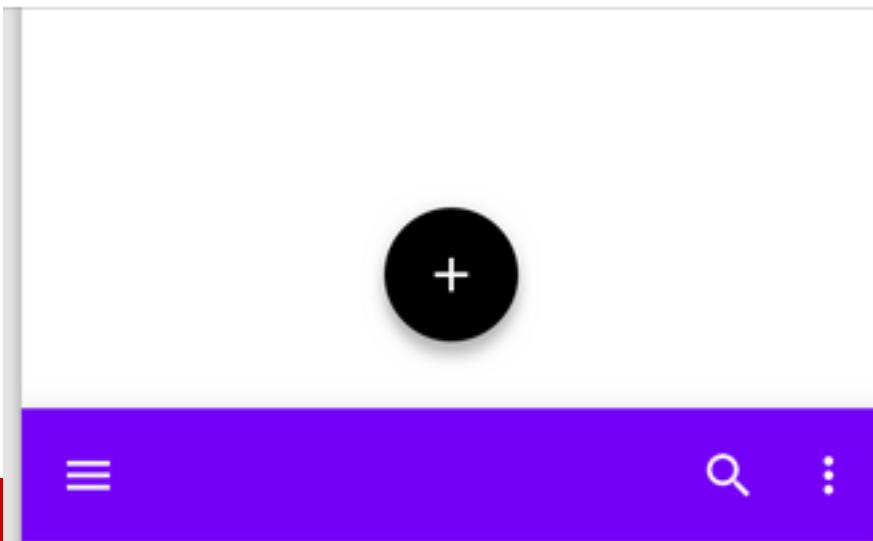
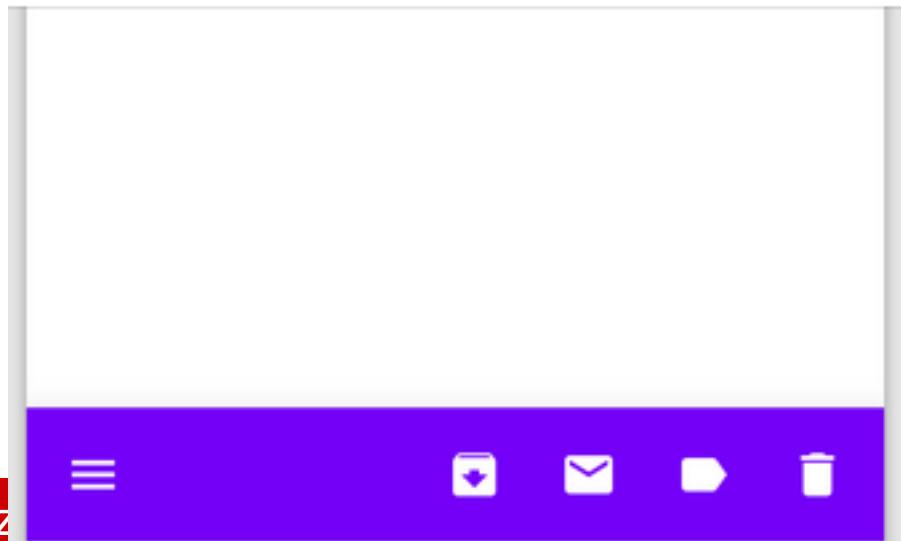
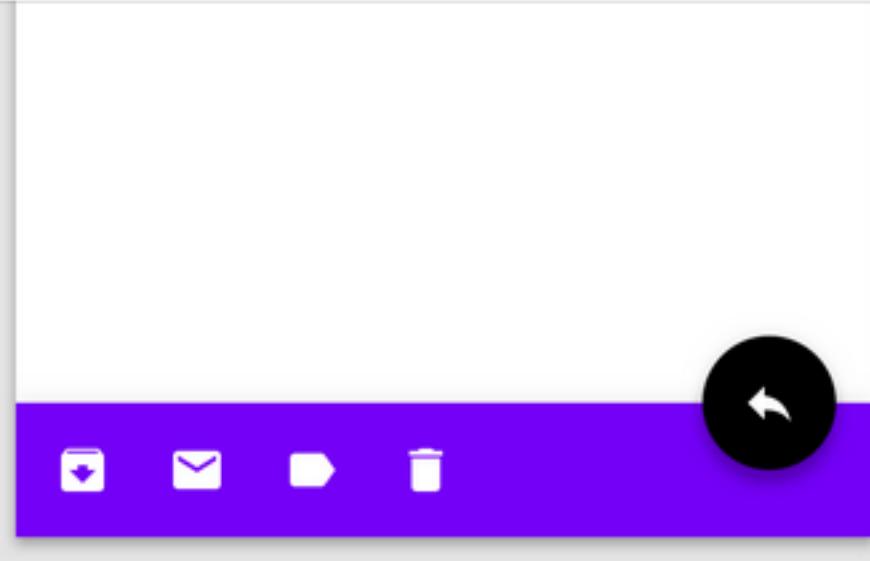
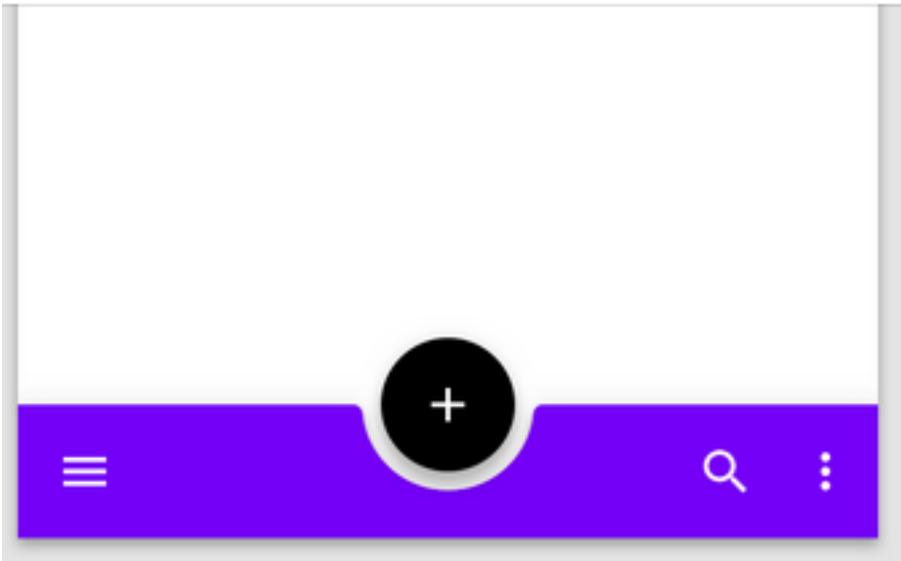
Ergonomic

The bottom app bar is easy to reach from a handheld position on a mobile device.

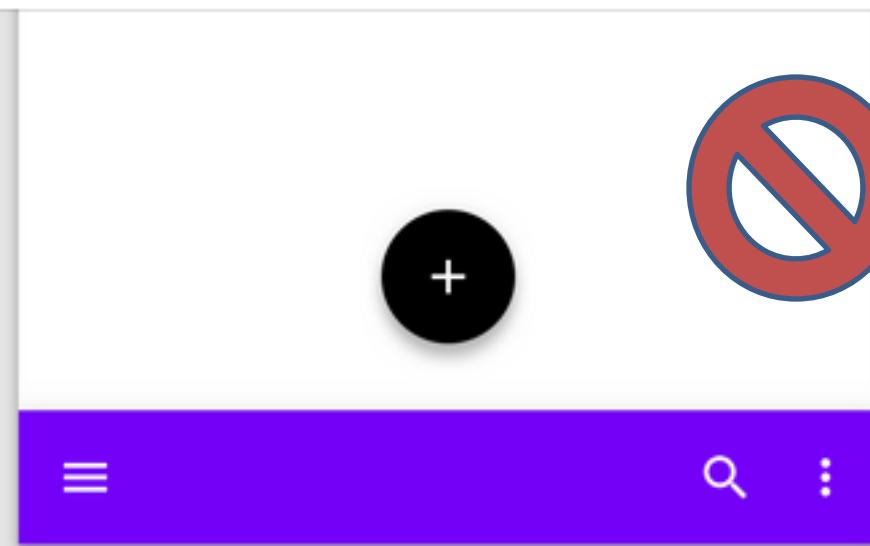
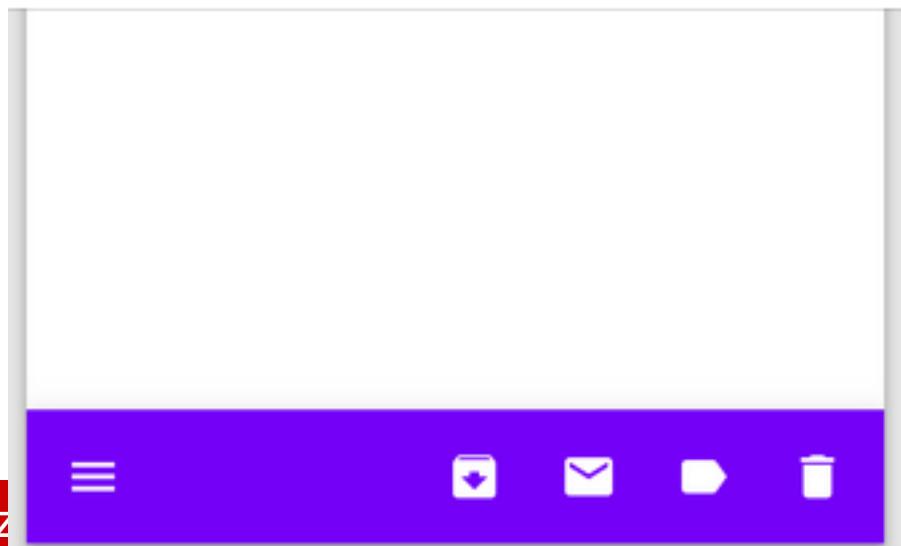
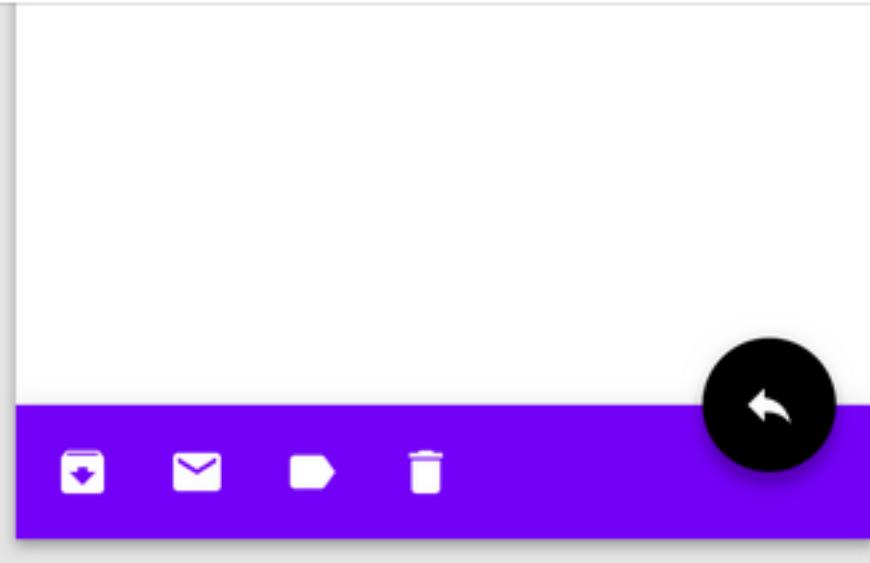
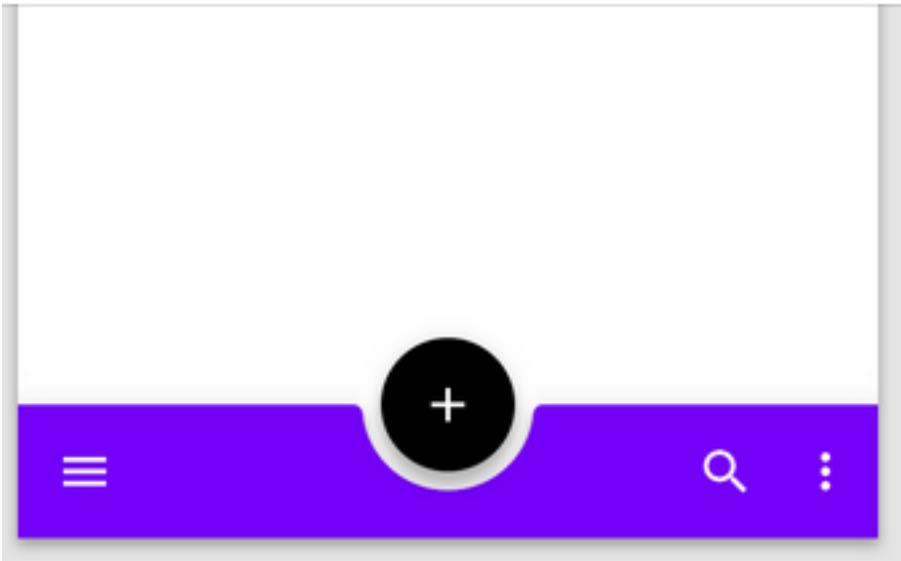


1. Container
2. Navigation drawer control
3. Floating action button (FAB)
4. Action icon
5. Overflow menu control

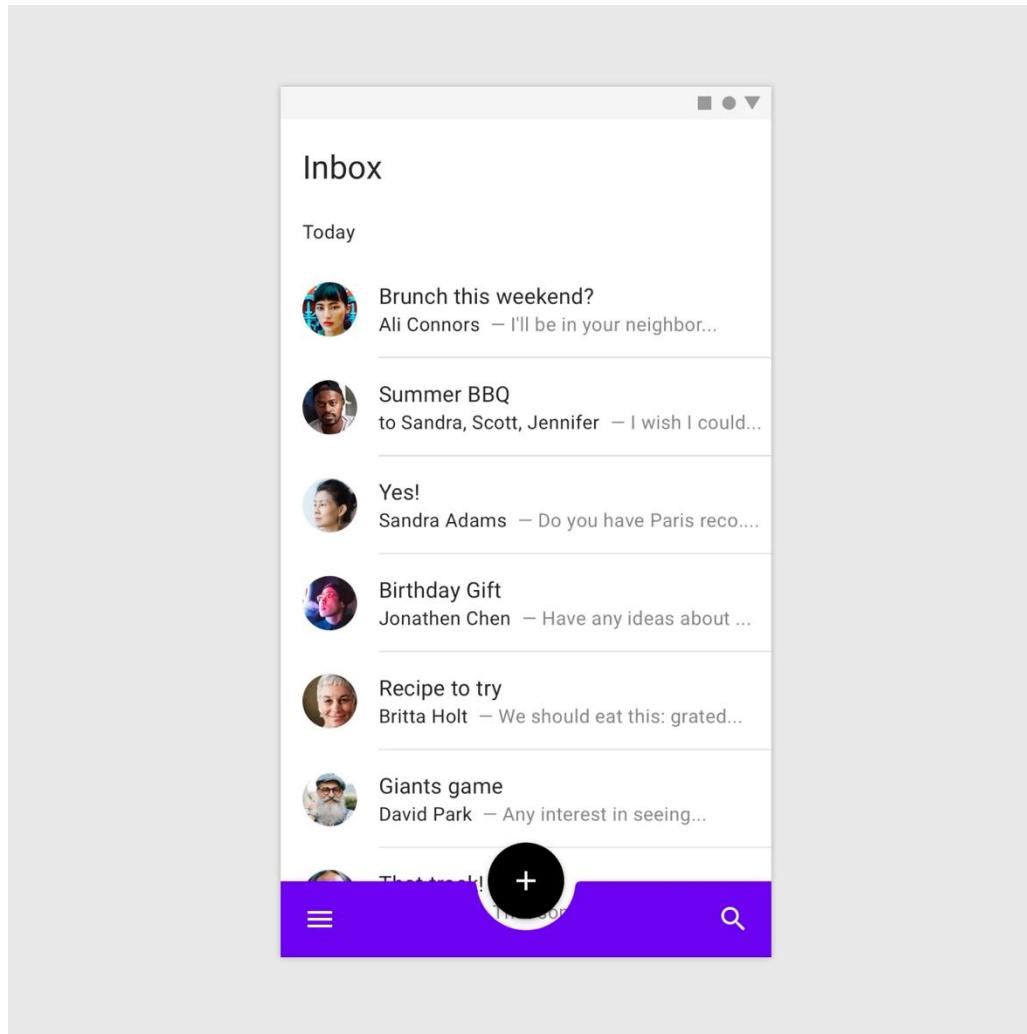
Quale di questi non è corretto?



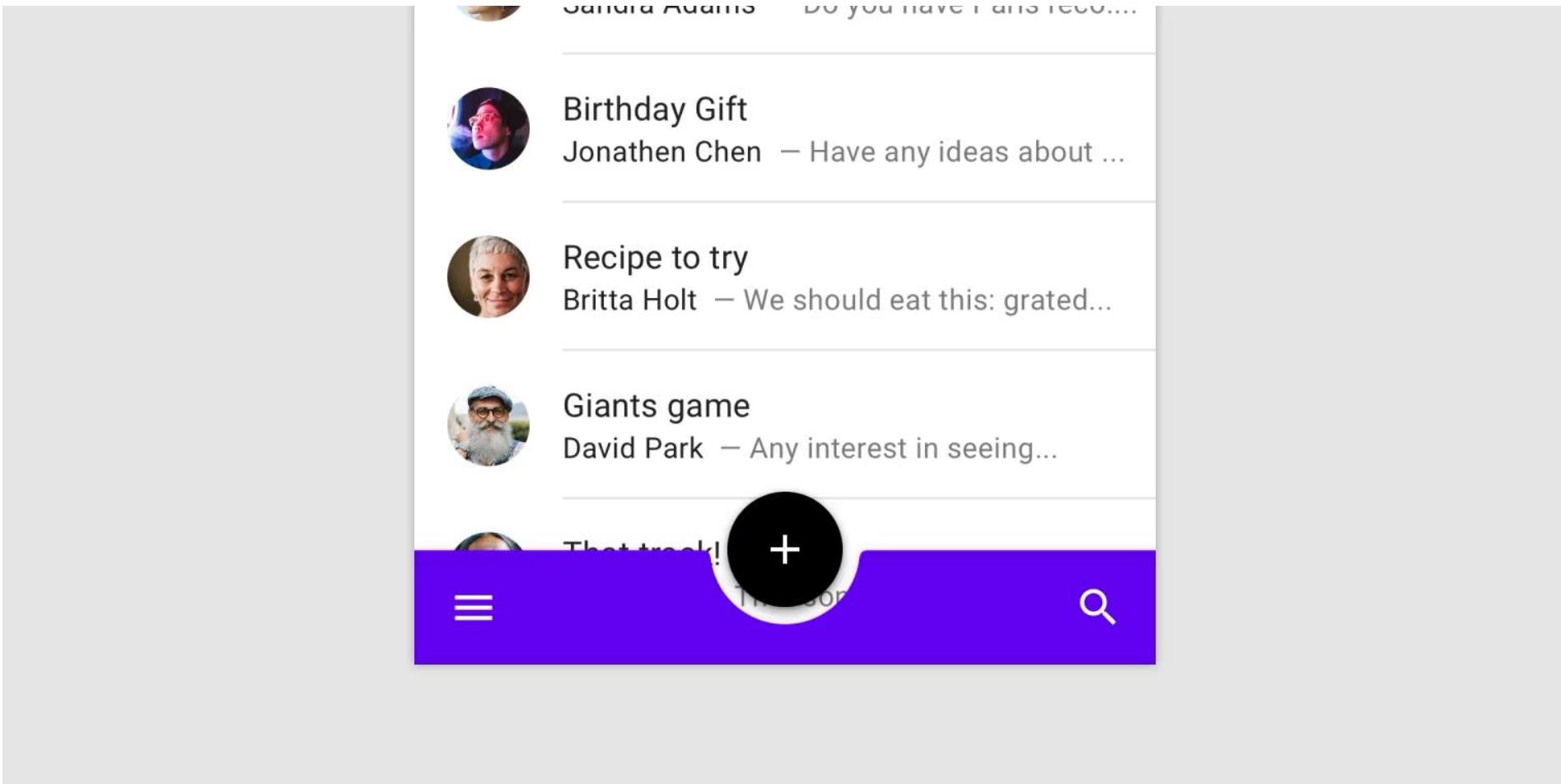
Quale di questi non è corretto?



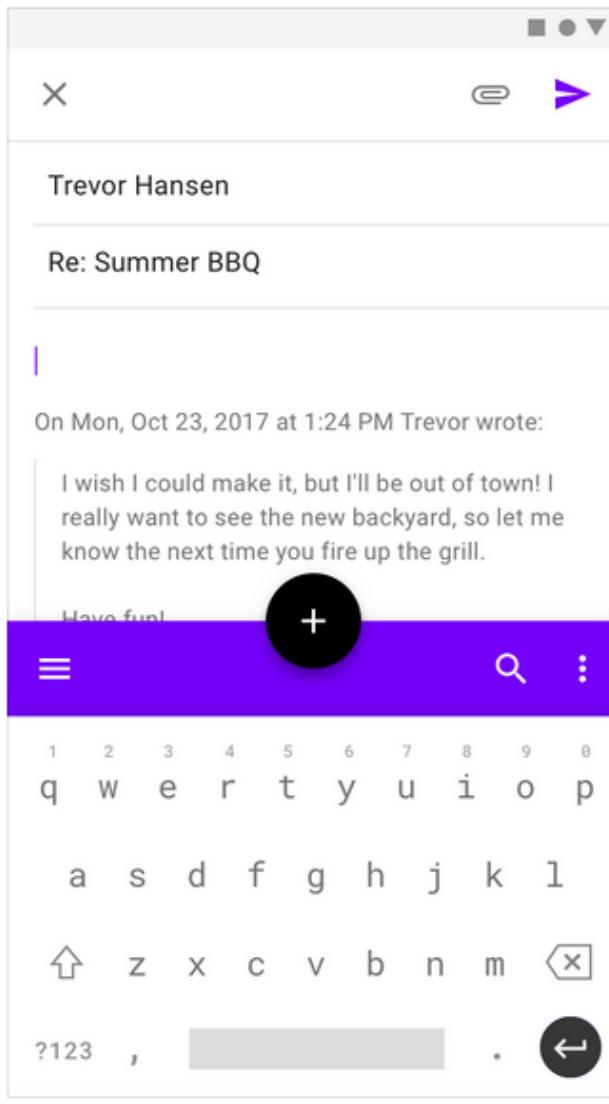
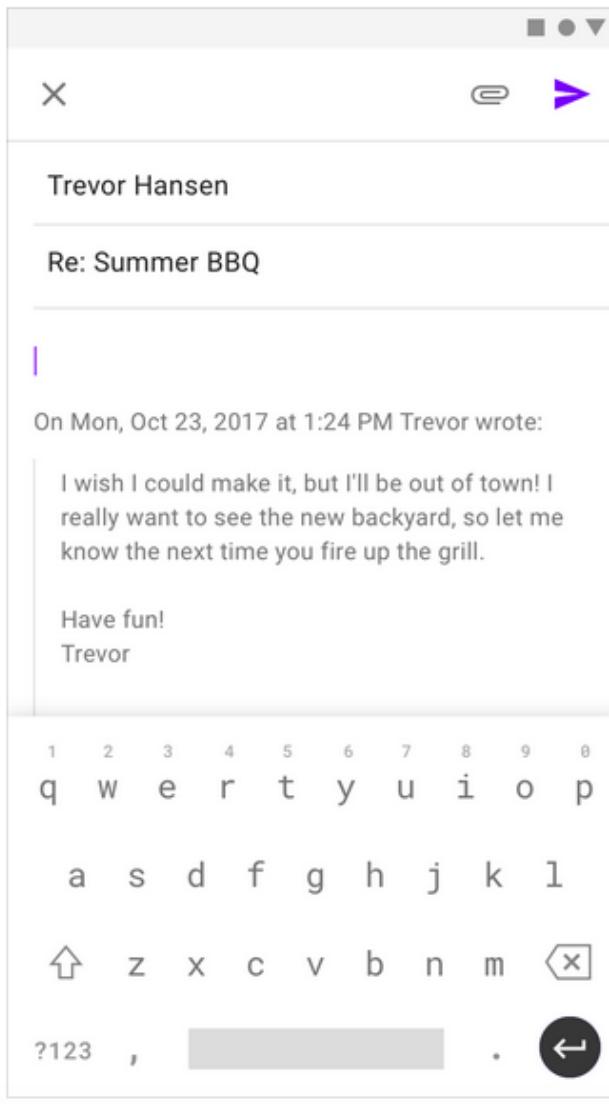
Layout



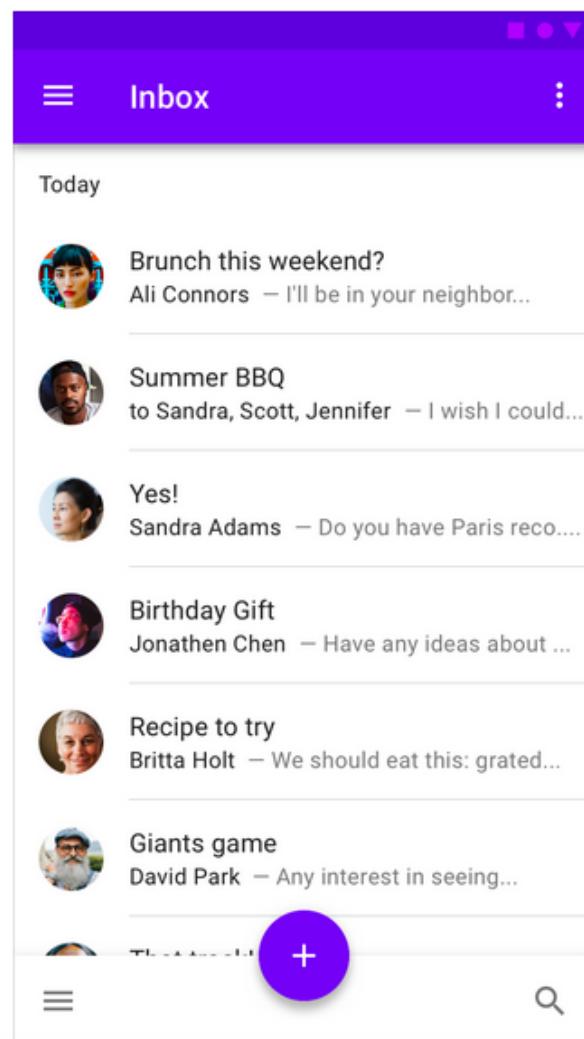
Scrolling



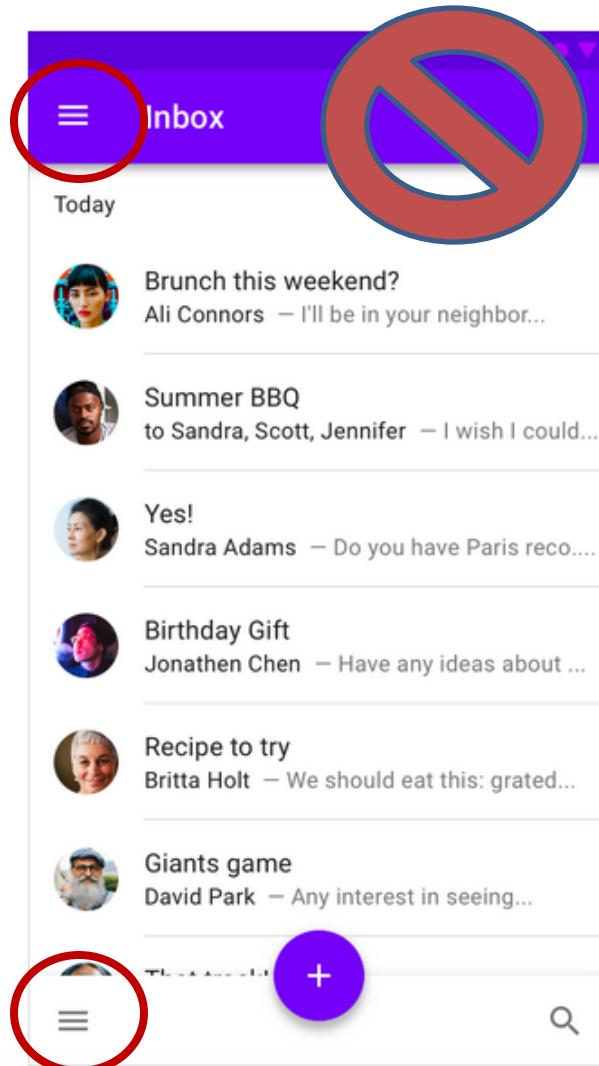
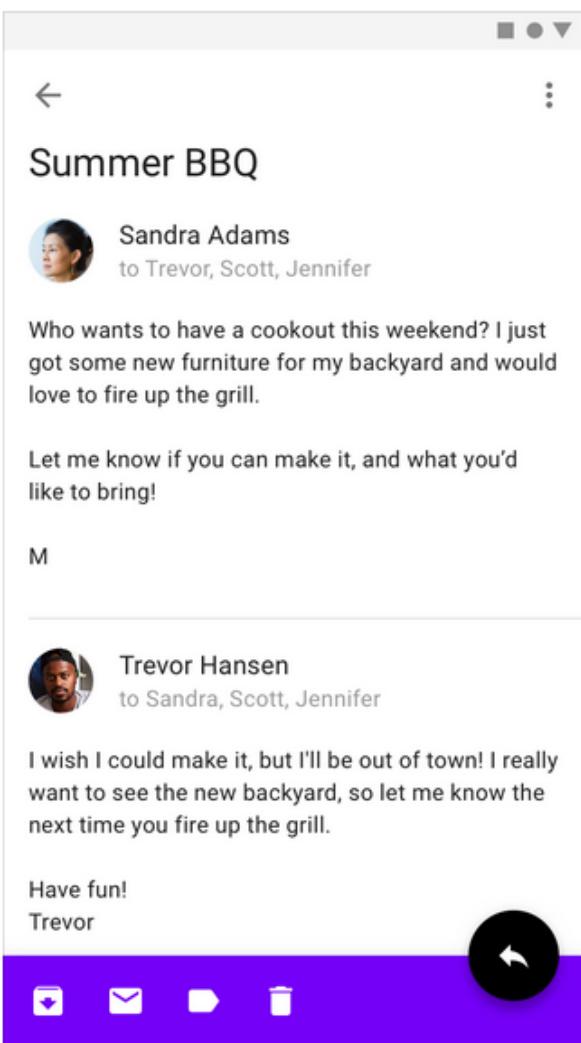
Esempio



Quale non è corretto? (meglio evitare?)

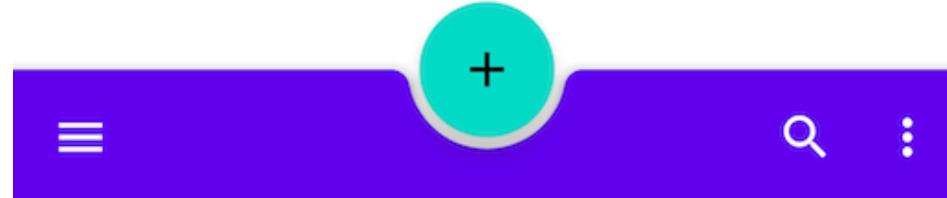


Quale non è corretto? (meglio evitare?)



BottomAppBar

- Una delle caratteristiche distinctive di Material Design è il design di *BottomAppBar*
 - Mette maggiormente a fuoco le funzionalità, aumenta il coinvolgimento e fissa visivamente l'interfaccia utente



Material Card

- Una Card è un componente di Material che può contenere una foto, un testo e un collegamento su un singolo argomento
- Possono visualizzare contenuti contenenti elementi di dimensioni variabili, ad esempio foto con didascalie di lunghezza variabile

Usage

Cards are surfaces that display content and actions on a single topic.

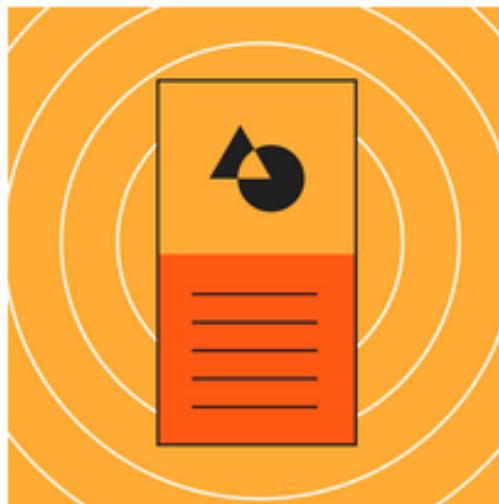
They should be easy to scan for relevant and actionable information. Elements, like text and images, should be placed on them in a way that clearly indicates hierarchy.

Principles



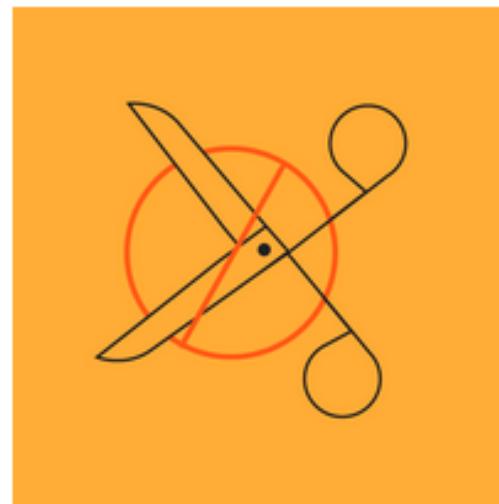
Contained

A card is identifiable as a single, contained unit.



Independent

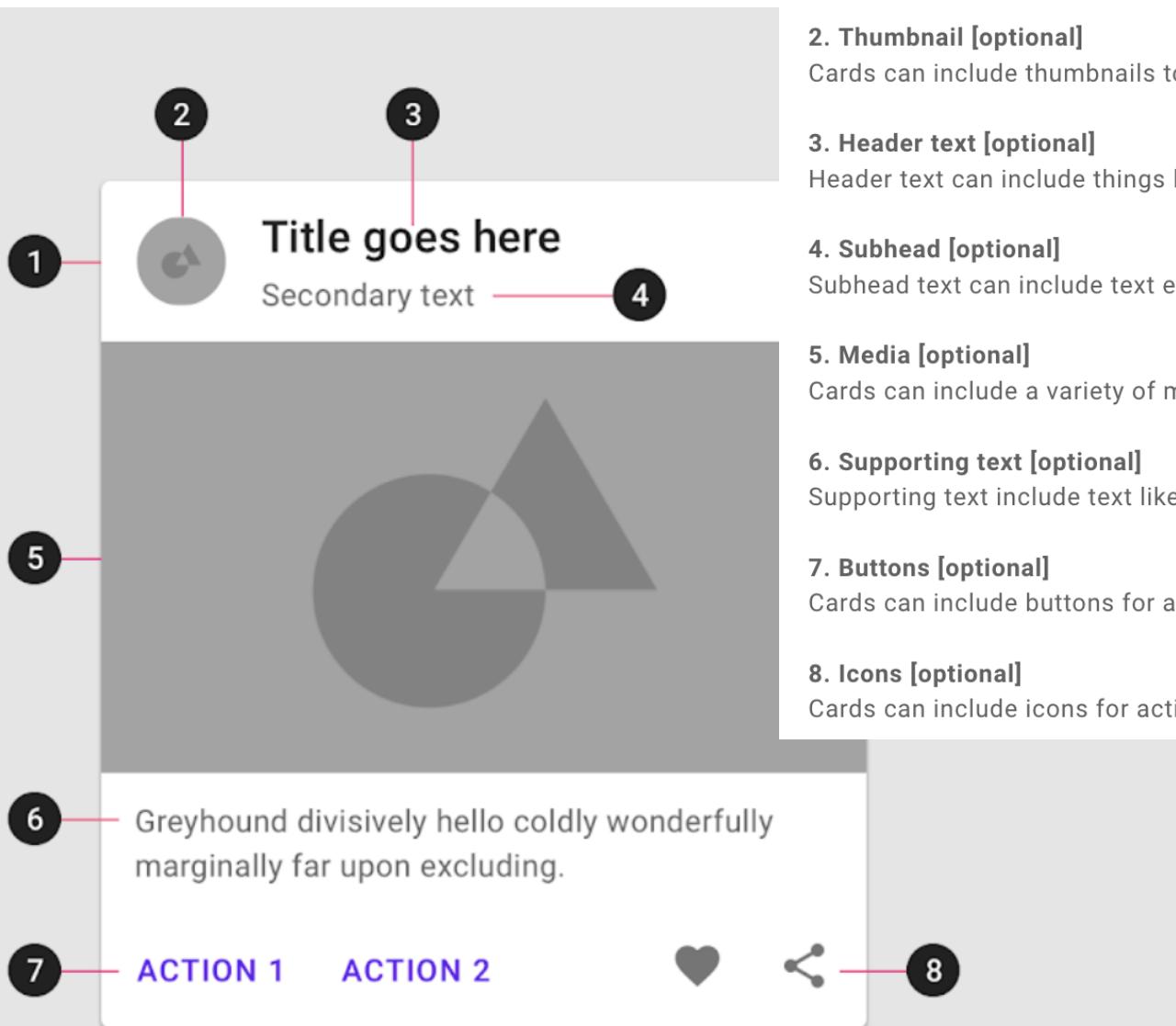
A card can stand alone, without relying on surrounding elements for context.



Individual

A card cannot merge with another card, or divide into multiple cards.

Material Card



1. Container

Card containers hold all card elements, and their size is determined by the space those elements occupy. Card elevation is expressed by the container.

2. Thumbnail [optional]

Cards can include thumbnails to display an avatar, logo, or icon.

3. Header text [optional]

Header text can include things like the name of a photo album or article.

4. Subhead [optional]

Subhead text can include text elements such as an article byline or a tagged location.

5. Media [optional]

Cards can include a variety of media, including photos, and graphics, such as weather icons.

6. Supporting text [optional]

Supporting text include text like an article summary or a restaurant description.

7. Buttons [optional]

Cards can include buttons for actions.

8. Icons [optional]

Cards can include icons for actions.

Material Card

Rich media



Primary title

Title goes here

Secondary text

Greyhound divisively hello coldly wonderfully marginally far upon excluding.

Supporting text

ACTIONS

ACTION 1 **ACTION 2**



Cafe Badilico

★★★★★ 4.5 (413)

\$ • Italian, Cafe

Small plates, salads & sandwiches an intimate setting with 12 indoor seats plus patio seating.

1

Tonight's availability

5:30PM

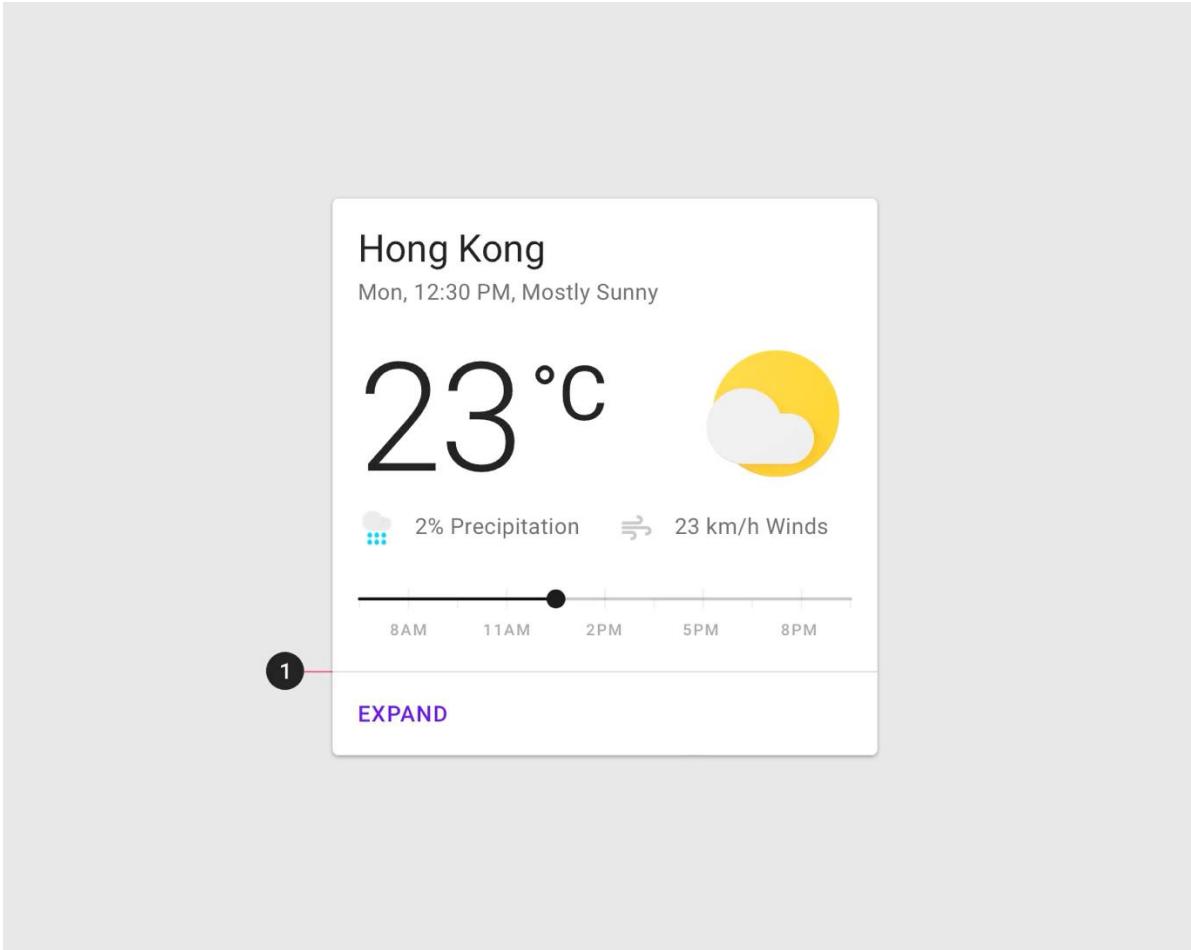
7:30PM

8:00PM

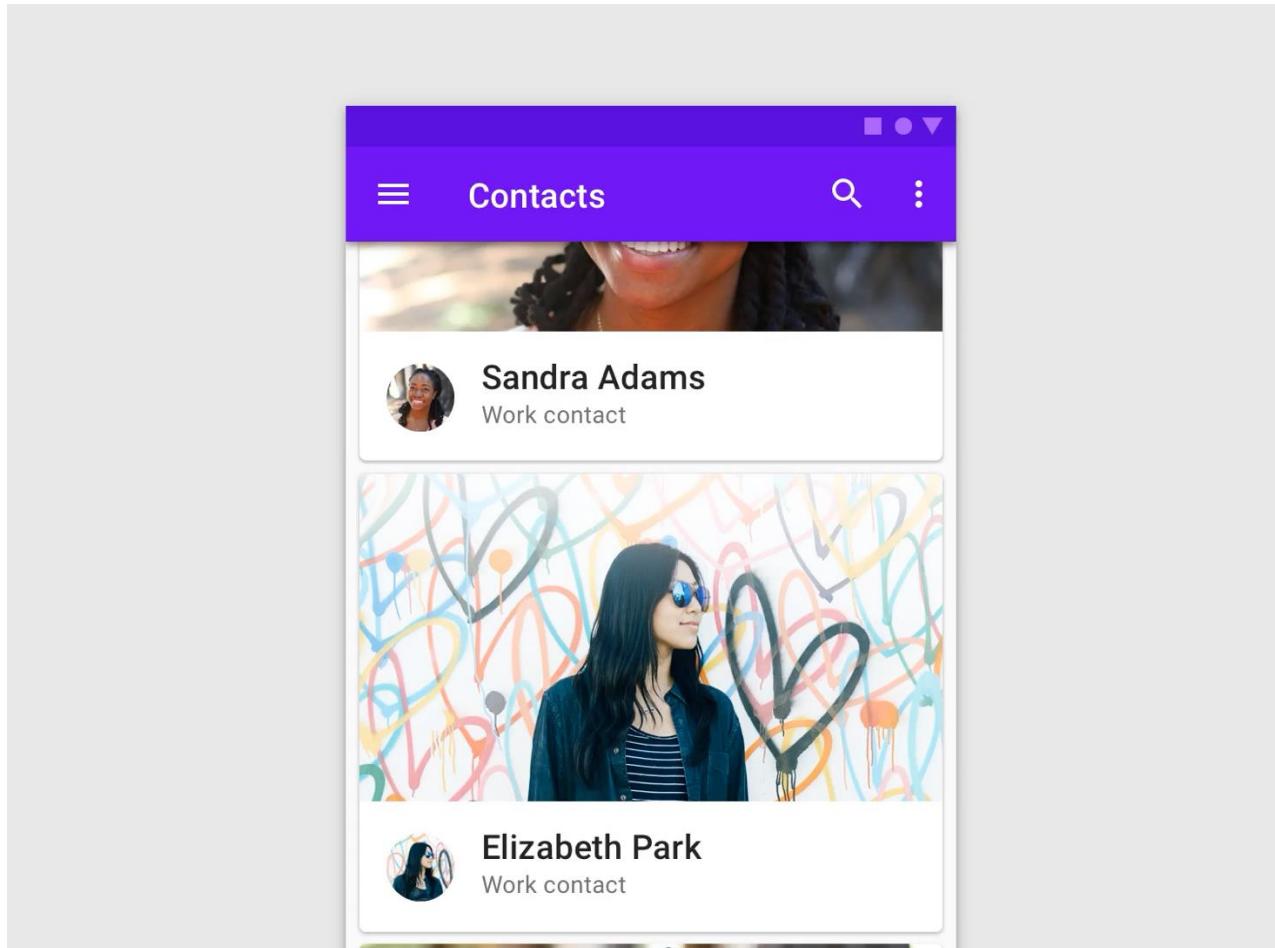
9:00PM

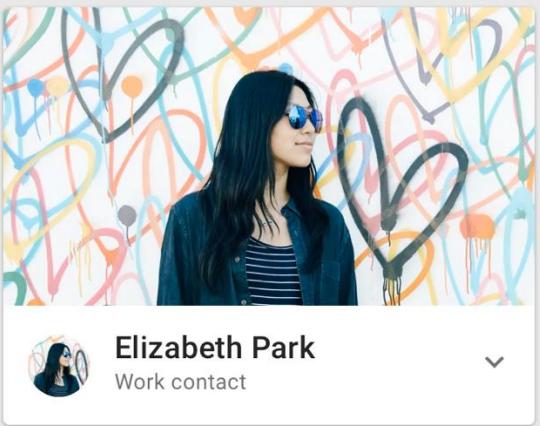
RESERVE

Material Card



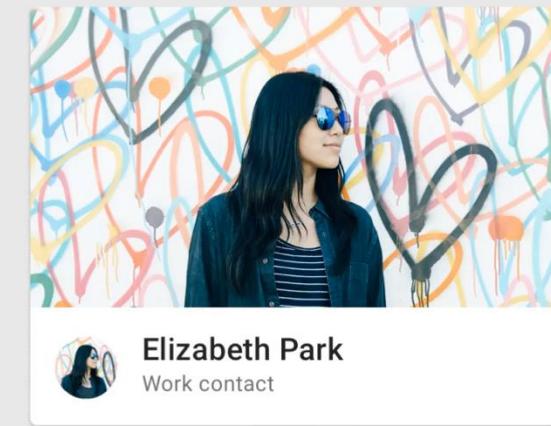
Material Card





Do

Expand a card to reveal information.



Don't

Cards don't flip over to reveal information.

Swipe



Title goes here

Secondary text

Greyhound divisively hello coldly wonderfully marginally far upon excluding.



Title goes here

Secondary text

Greyhound divisively hello coldly wonderfully marginally far upon excluding.

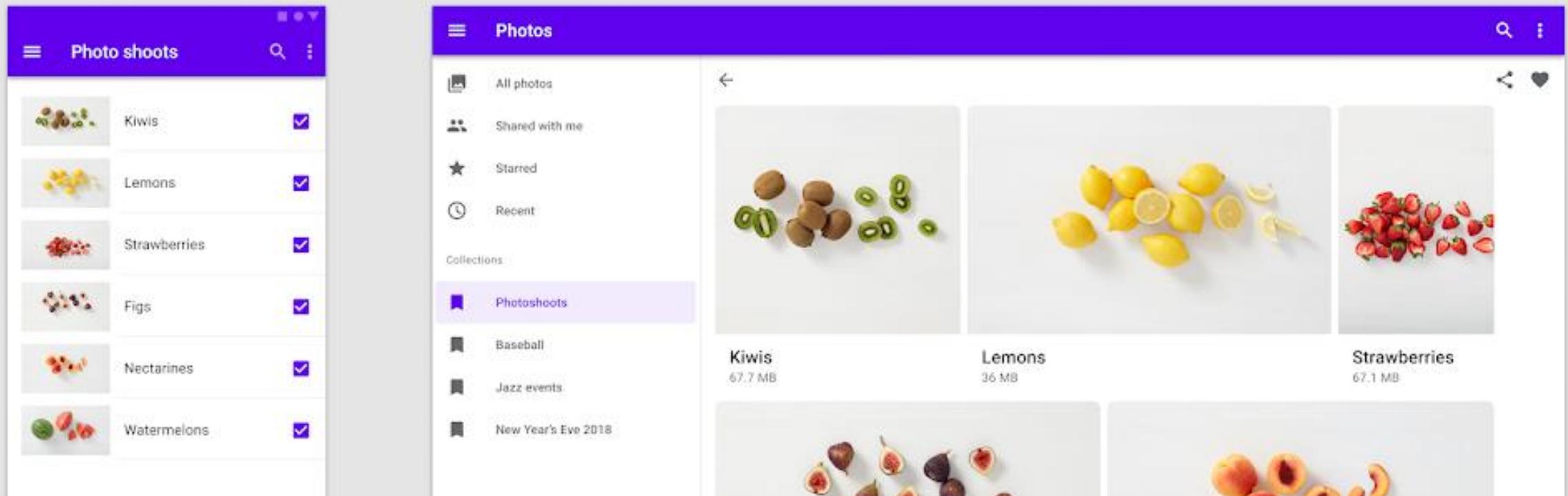
Do

A card should only have one swipe action assigned to it.

Don't

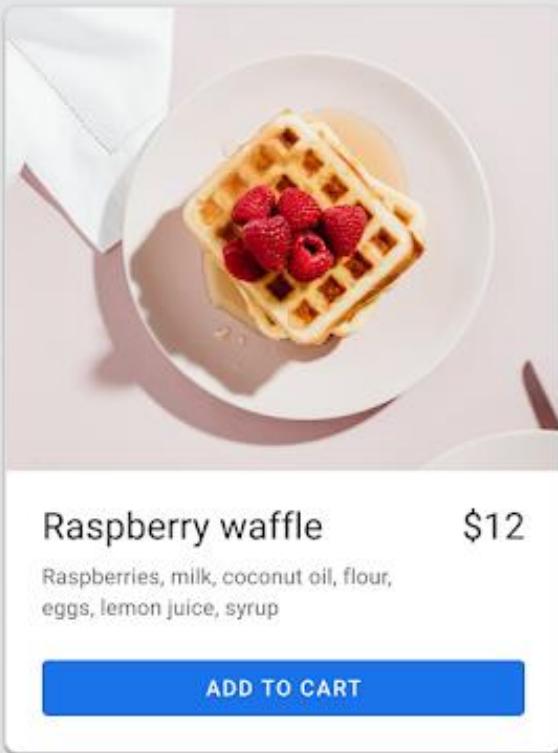
Cards should not contain swipeable content (such as an image carousel or pagination). Swipe gestures should also not cause portions of cards to detach upon swipe.

Ergonomics



Adapting presentation

1

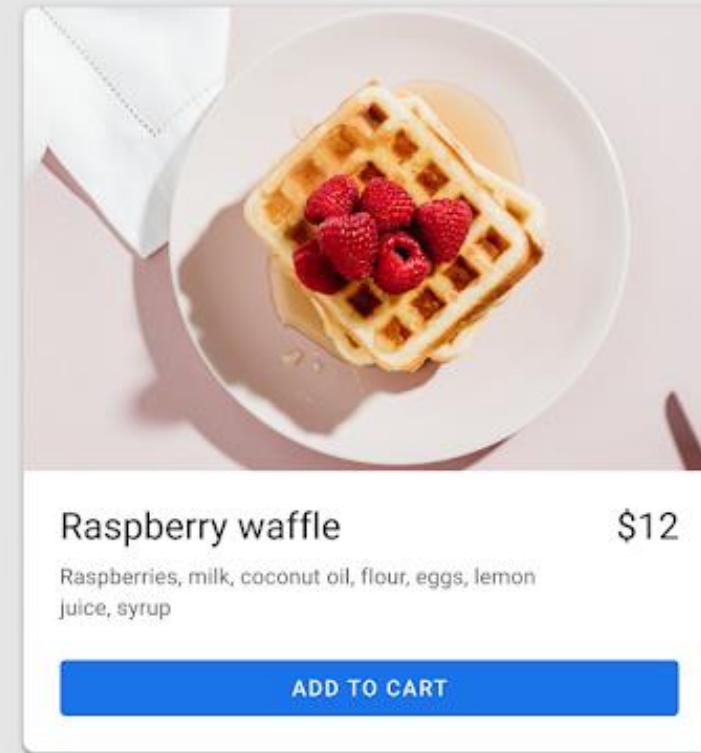


Raspberry waffle \$12

Raspberries, milk, coconut oil, flour,
eggs, lemon juice, syrup

ADD TO CART

2



Raspberry waffle \$12

Raspberries, milk, coconut oil, flour, eggs, lemon
juice, syrup

ADD TO CART

The image shows a mobile application interface for ordering food. At the top, there is a large, rectangular image of a dish of pesto pasta served in a white bowl, with a small mortar and pestle containing green herbs visible in the background. Below this image, the dish's name, "Pesto pasta", is displayed in bold black text. Underneath the name is the price, "\$15". A descriptive text follows, stating: "Made with our homemade basil pine nuts pesto sauce. Gluten free pasta available upon request." At the bottom of the card is a prominent blue button with the white text "ORDER NOW".

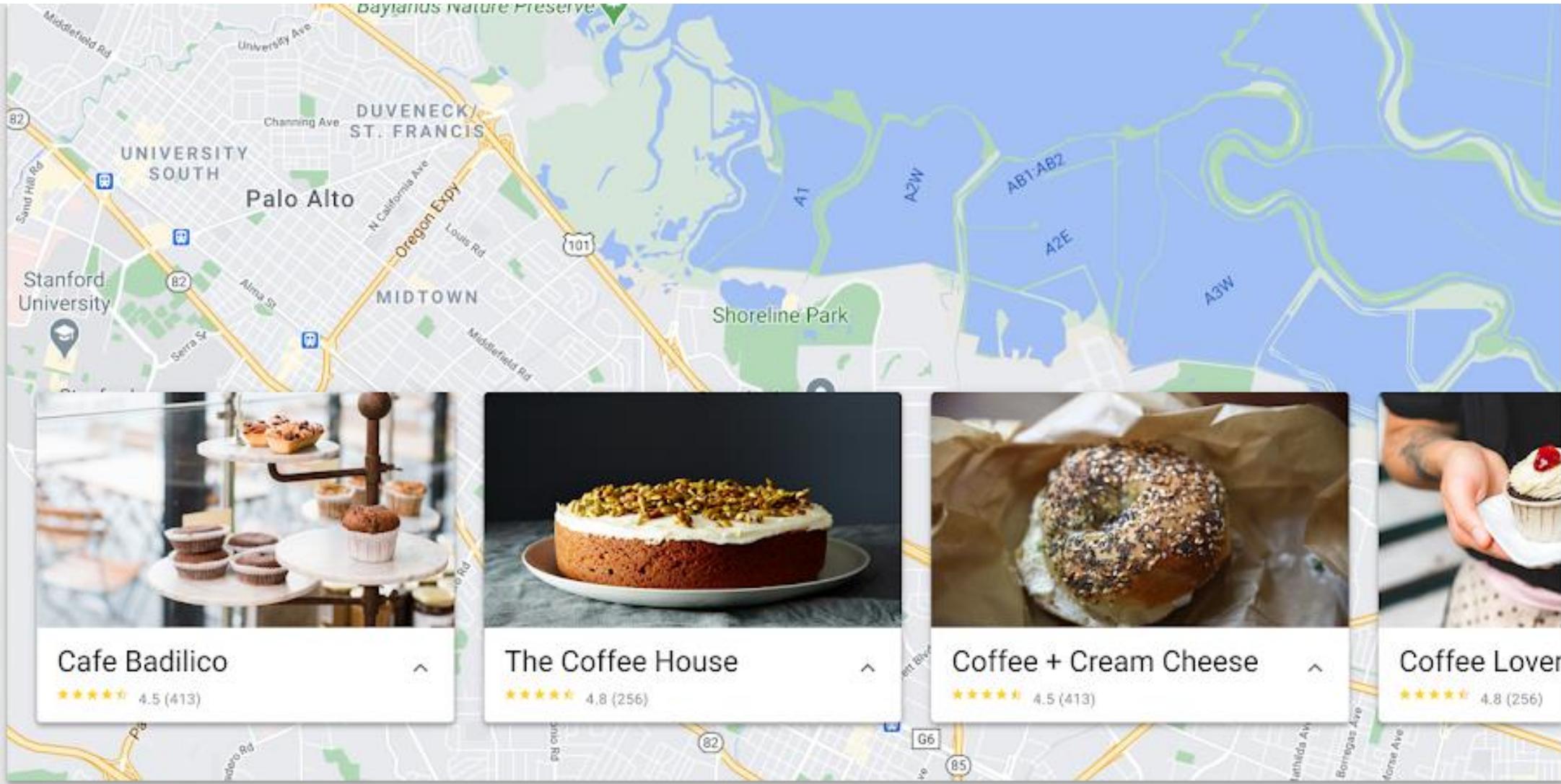
Pesto pasta

\$15

Made with our homemade basil pine nuts pesto sauce. Gluten free pasta available upon request.

ORDER NOW

Example of a group of related cards in a carousel

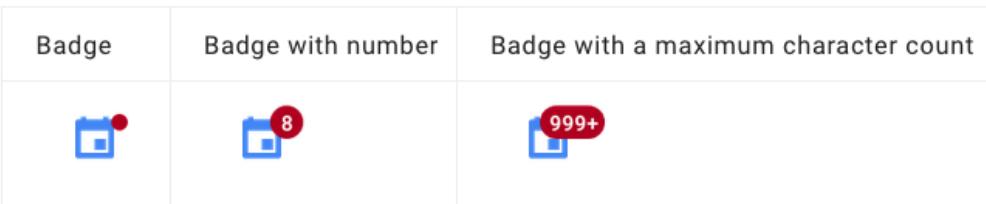


Cards

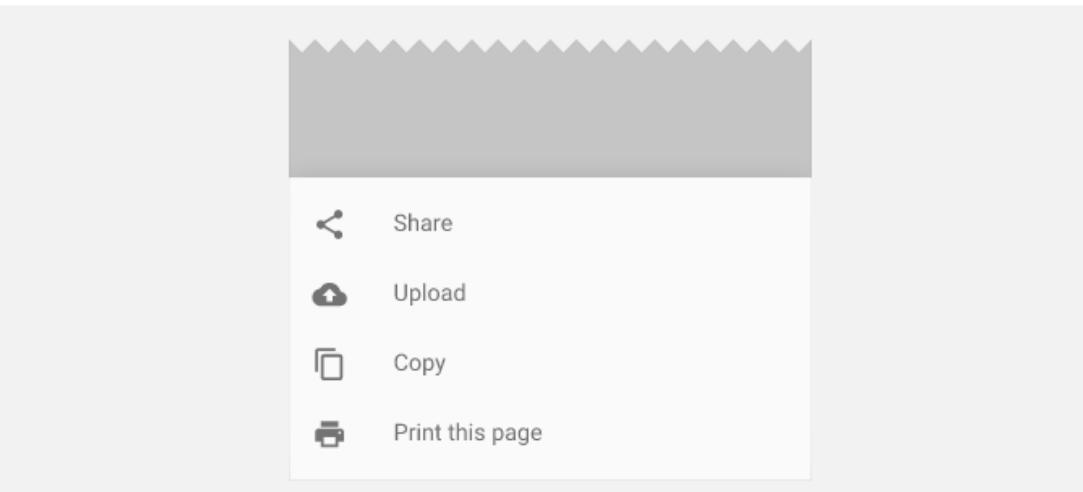
- Potete trovare tantissimi altri dettagli sulle Cards qui:
 - <https://m3.material.io/components/cards/overview>

Altri esempi di componenti Material!!!

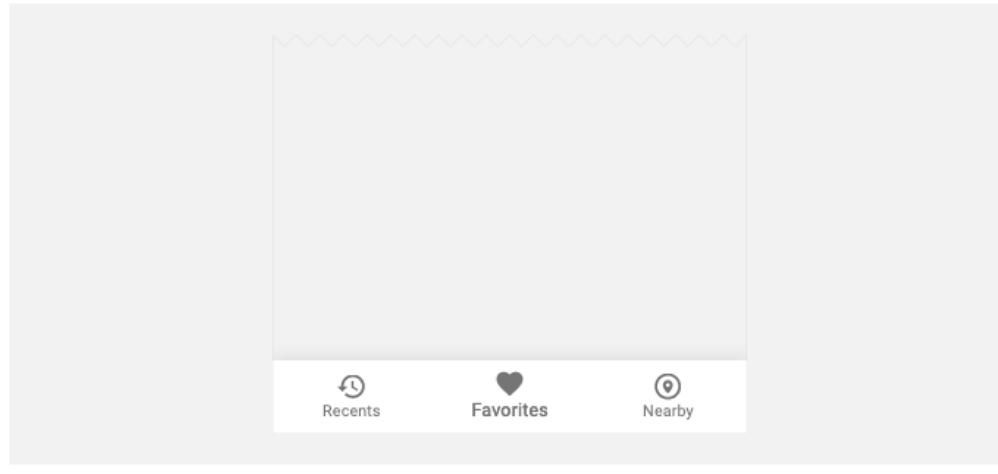
BadgeDrawable



Bottom Sheets



Bottom Navigation



Buttons

Buttons allow users to take actions, and make choices, with a single tap.

There are four types of buttons:

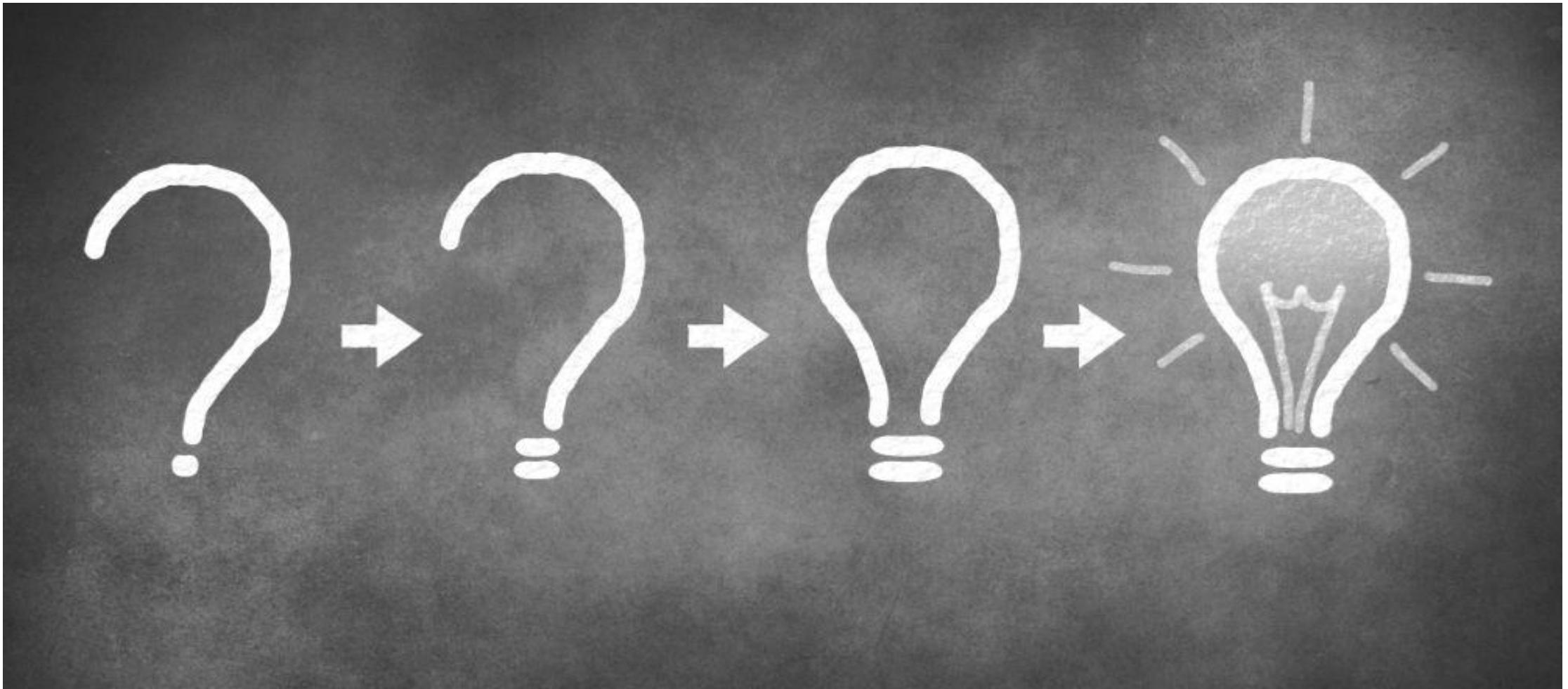
1. Text button
2. Outlined button
3. Contained button
4. Toggle button



Material design

- Vi invito a guardare un po' tutte le componenti nel caso ci sia qualcosa che faccia al caso vostro!
- <https://m3.material.io/components>

Domande?



Riferimenti

- <https://m3.material.io/>
- ...