

1 w.

Material Design Guidelines

Ivy

Material Design

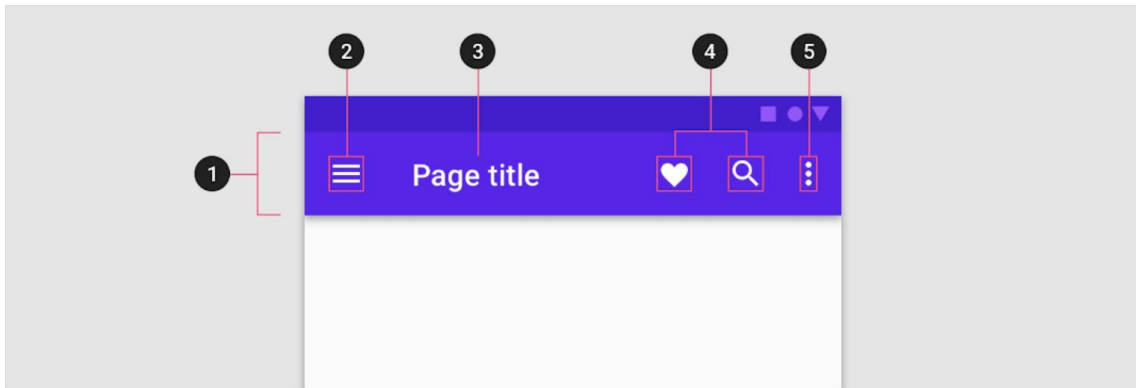
- visual, motion, interaction design 에 대한 종합적인 가이드
- Material Design 라이브러리에서 지원하는 component와 style을 사용할 수 있습니다

```
dependencies {  
    // ...  
    implementation 'com.google.android.material:material:<version>'  
    // ...  
}
```

Material Design Components

(1) App bars: top

- 현재 화면에 관계된 content, actions을 제공합니다.



1. Container
2. Navigation icon (optional)
3. Title (optional)
4. Action items (optional)
5. Overflow menu (optional)

Material Design

TYPOGRAPHY SCALE

textAppearanceHeadline1

H1

textAppearanceSubtitle1

Subtitle 1

textAppearanceBody1

Body 1

textAppearanceButton

BUTTON

textAppearanceCaption

Caption

textAppearanceOverline

OVERLINE

DIALOG

SHOW DIALOG

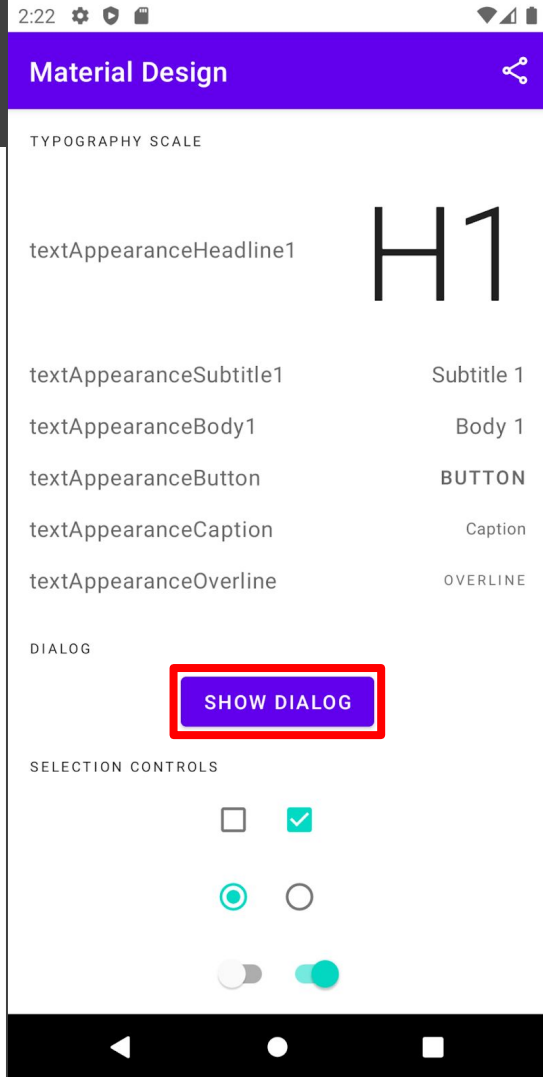
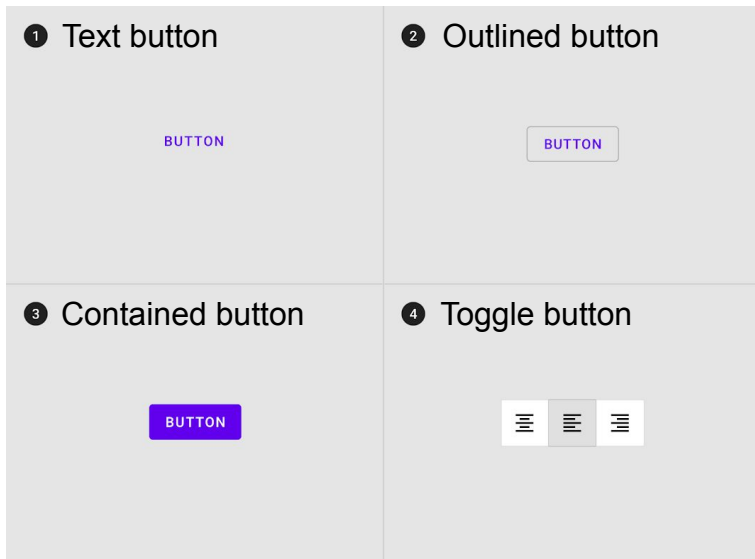
SELECTION CONTROLS



Material Design Components

(2) Buttons

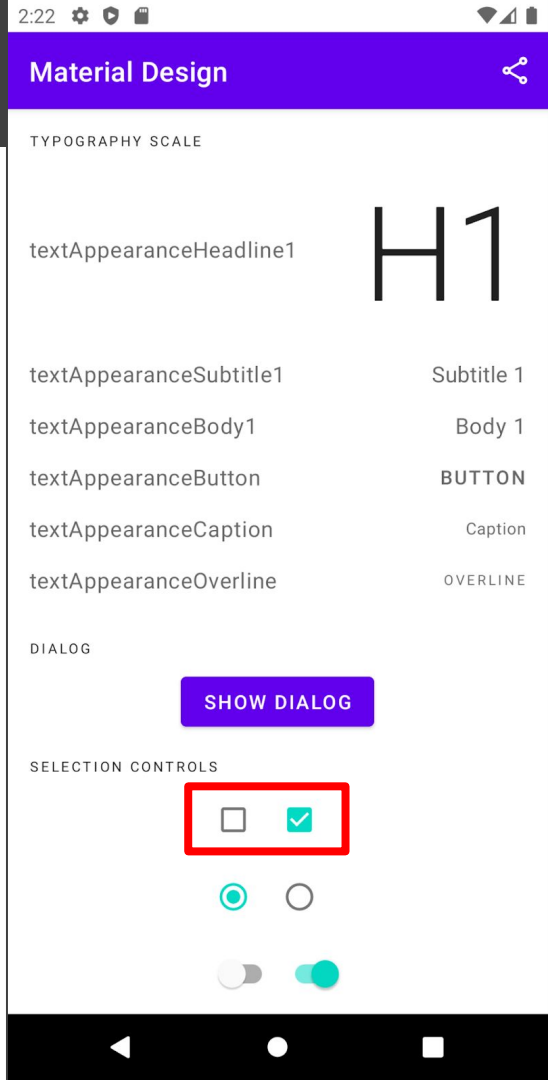
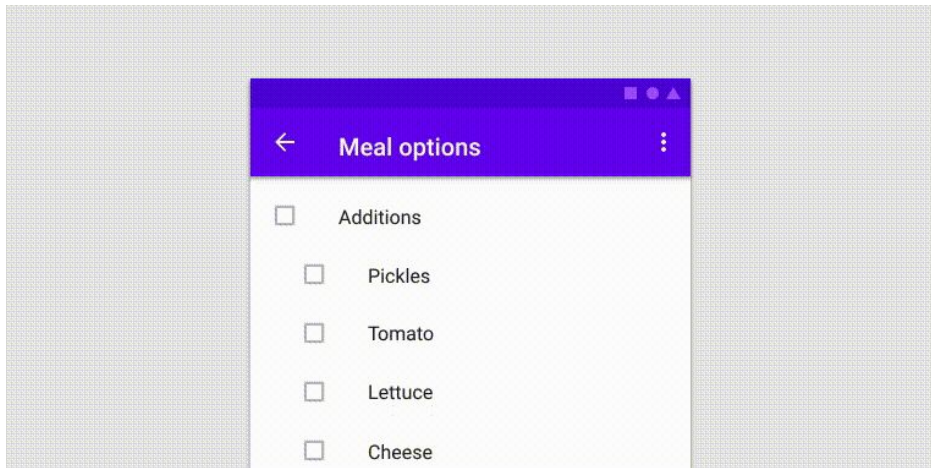
- 사용자가 수행할 수 있는 actions과 커뮤니케이션 합니다.
- Dialogs, Forms, Cards



Material Design Components

(3) Selection Controls: Checkboxes
















- 목록에서 1개 이상의 아이템을 선택하는 경우 사용합니다.

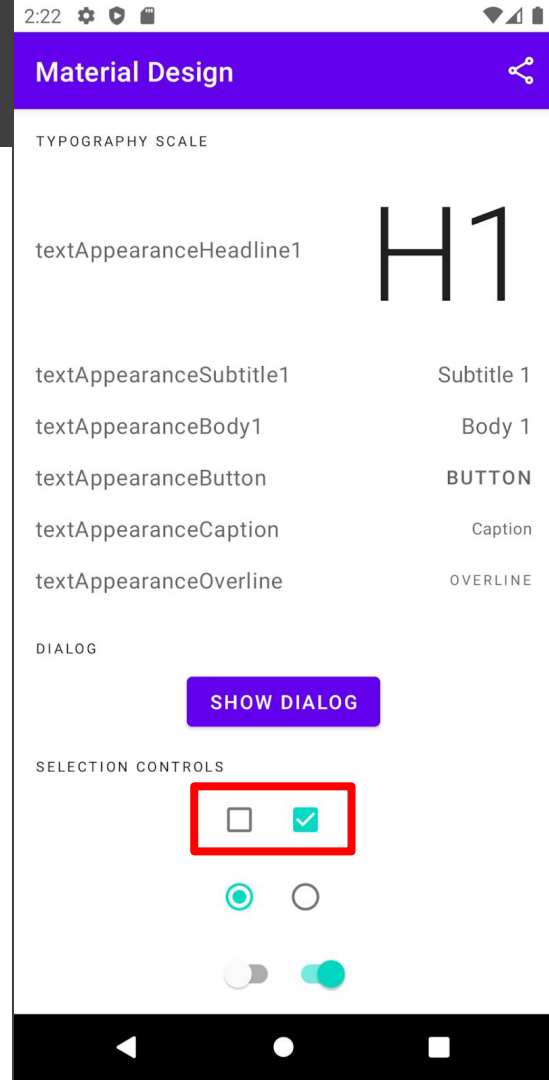


Material Design Components

(3) Selection Controls: Checkboxes

- States : Selected, Unselected, Enabled,,,

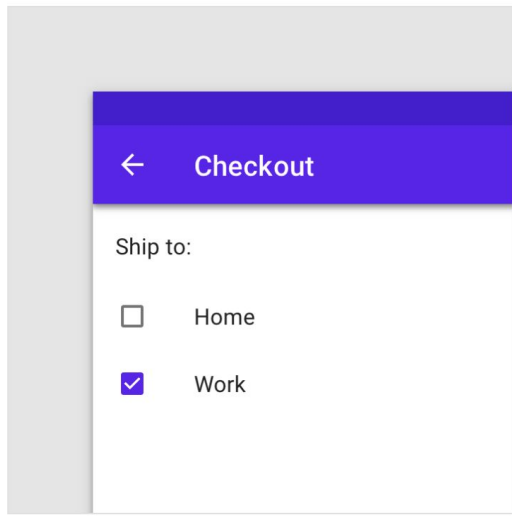
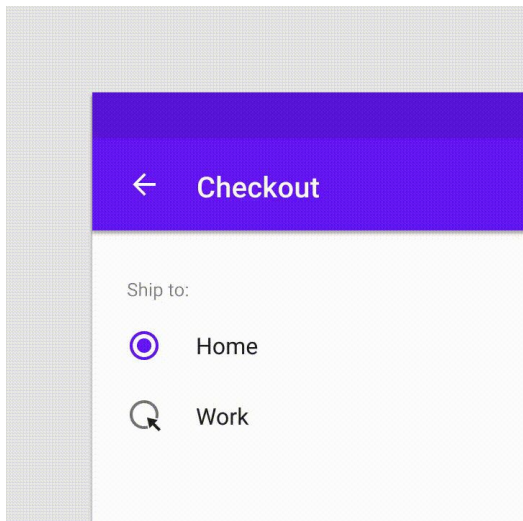
Enabled Selected	Disabled Selected	Hover Selected	Focus Selected	Pressed Selected
				
Enabled Unselected	Disabled Unselected	Hover Unselected	Focus Unselected	Pressed Unselected
				
Enabled Indeterminate	Disabled Indeterminate	Hover Indeterminate	Focus Indeterminate	Pressed Indeterminate
				



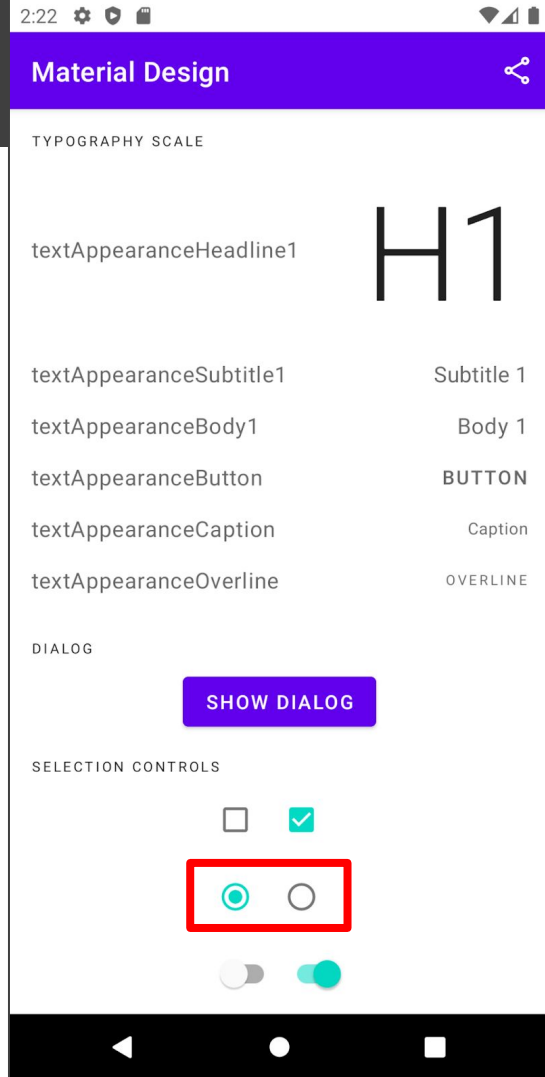
Material Design Components

(3) Selection Controls: Radio buttons

- 목록에서 1개의 아이템을 선택하는 경우 사용합니다.



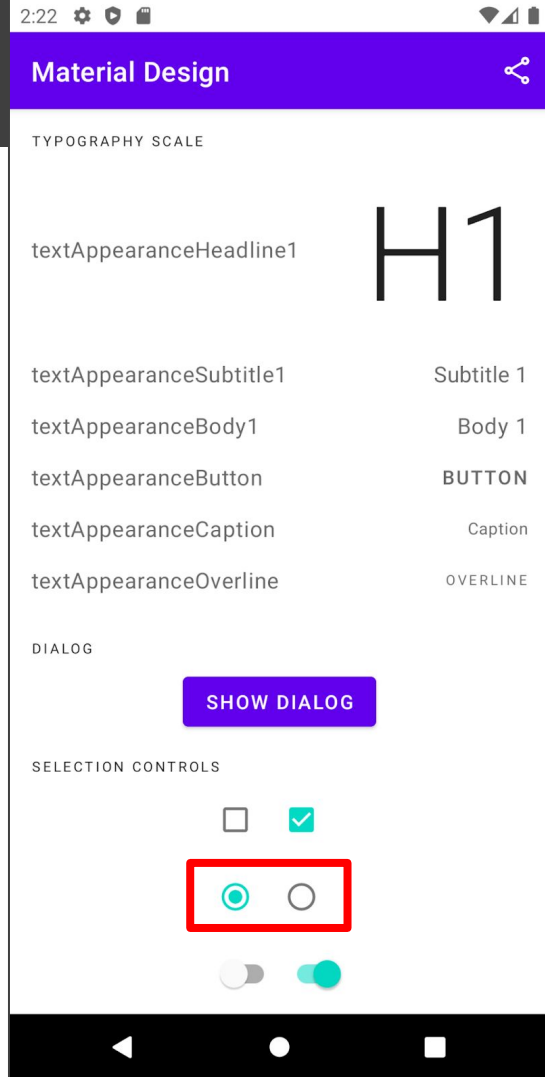
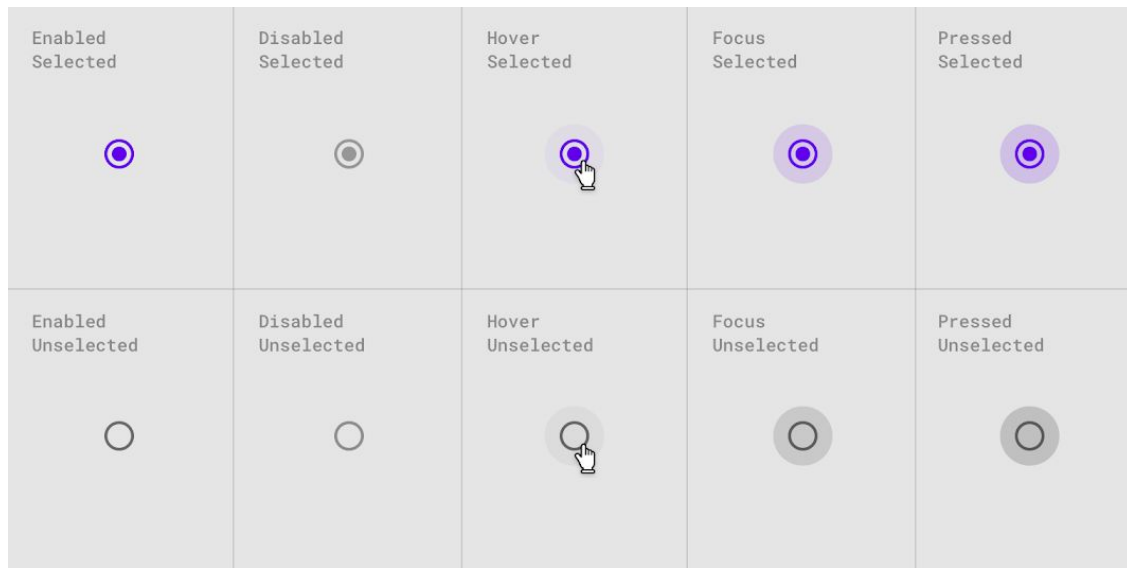
Don't



Material Design Components

(3) Selection Controls: Radio buttons

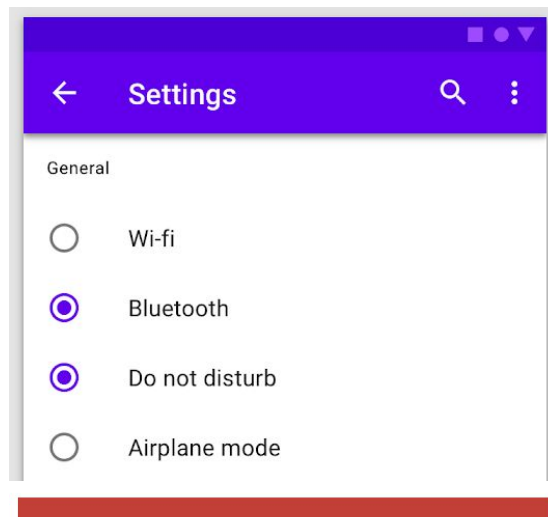
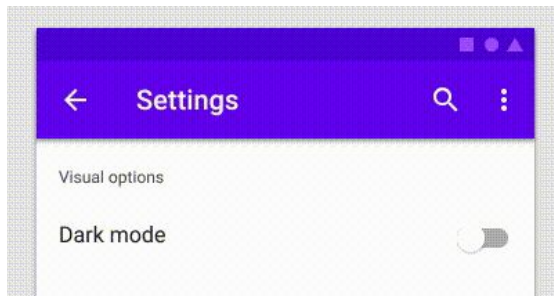
- States: Selected, Unselected, Enabled,,,



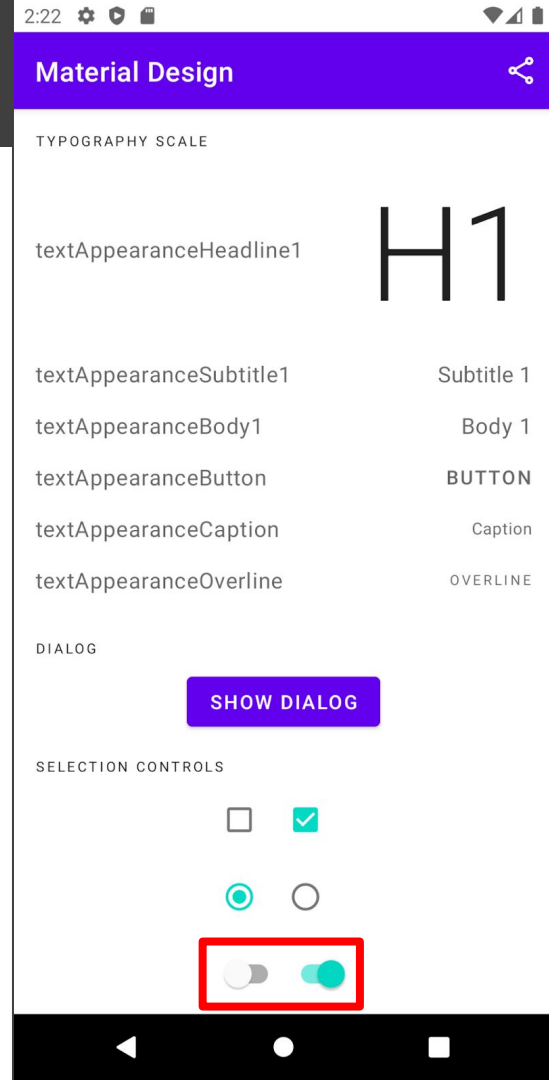
Material Design Components

(3) Selection Controls: Switches

- on/off 와 같이 2개의 값 중 선택하는 경우에 주로 사용합니다.



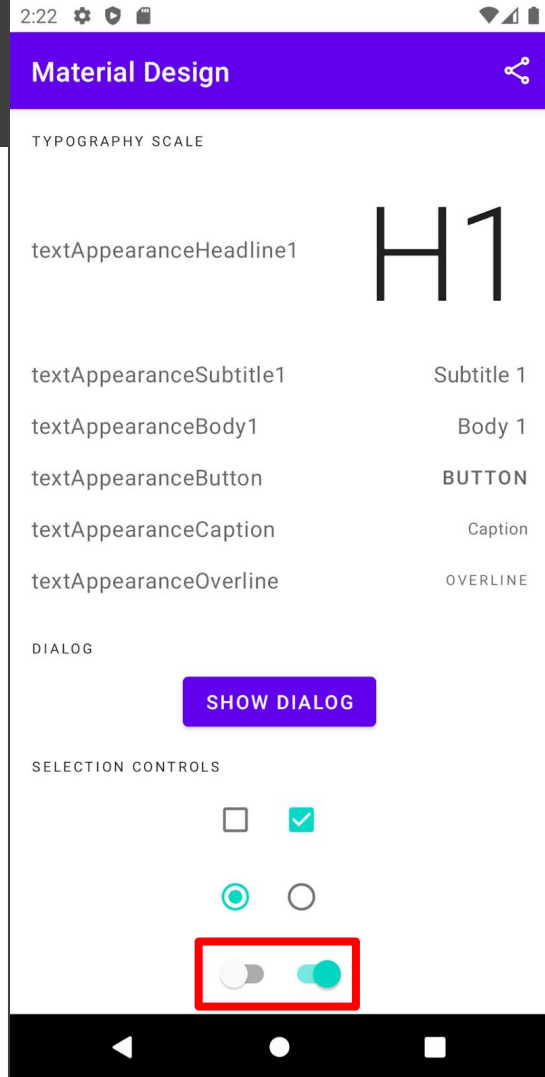
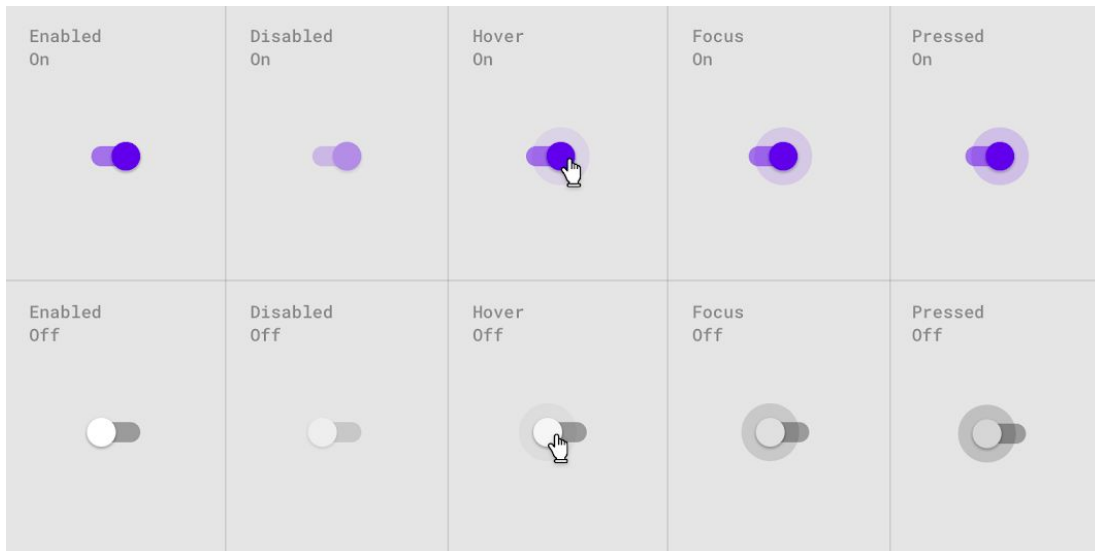
Don't



Material Design Components

(3) Selection Controls: Switches

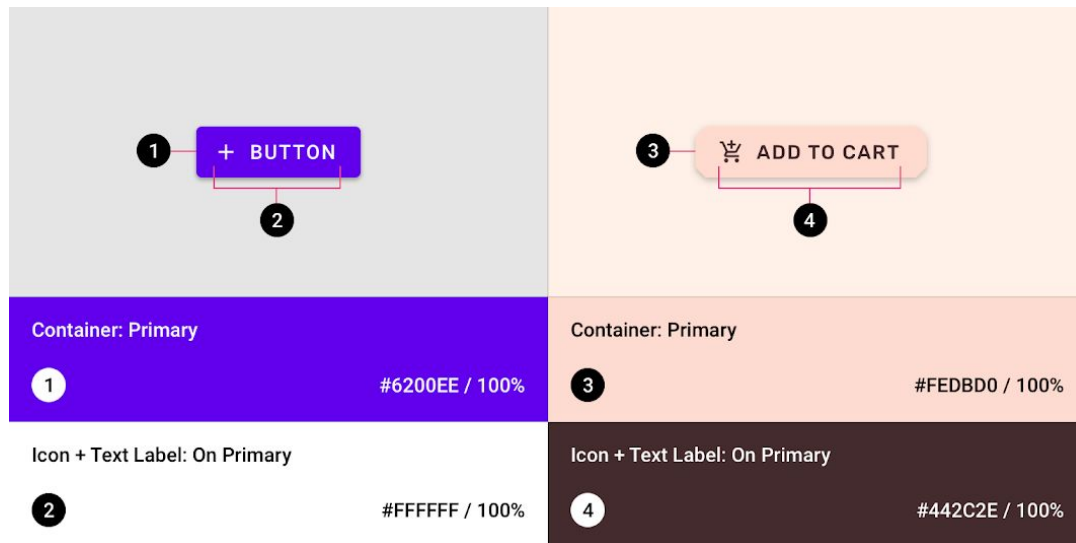
- States: On, Off, Enabled, Disabled,,,



Material Theme

Material Theme

- Material에서 제공하는 표준 UI Widget Style을 활용하여, 앱의 Style 정의를 간소화 하기 위해 Material Theme을 사용합니다.
- Color, Typography, Iconography, Shape

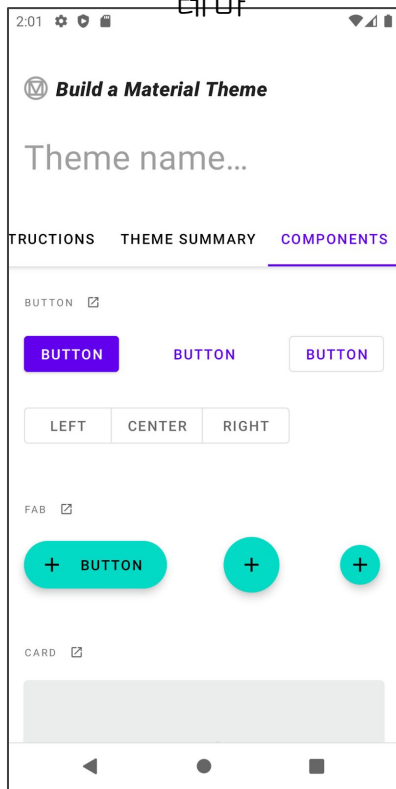


```
Theme.MaterialComponents
Theme.MaterialComponents.NoActionBar
Theme.MaterialComponents.Light
Theme.MaterialComponents.Light.NoActionBar
Theme.MaterialComponents.Light.DarkActionBar
Theme.MaterialComponents.DayNight
Theme.MaterialComponents.DayNight.NoActionBar
Theme.MaterialComponents.DayNight.DarkActionBar
```

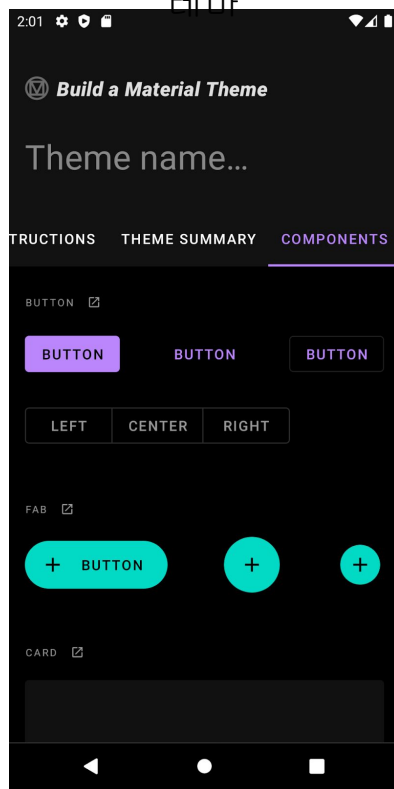
- 어두운 분위기
- .Light : 밝은 분위기
- .Light.DarkActionBar : 어두운 앱바를 갖는 밝은 분위기

Material Theme - Light / Dark

밝은
테마



어두운
테마



Material Theme - Light / Dark

Light

res/values/themes.xml

```
<style name="Theme.MyApp" parent="Theme.MaterialComponents.Light">
    <!-- ... -->
</style>
```

Dark

res/values-night/themes.xml

```
<style name="Theme.MyApp" parent="Theme.MaterialComponents">
    <!-- ... -->
</style>
```

```
<style name="Base.Theme.MyApp" parent="Base.Theme.MaterialThemeBuilder">
    <item name="colorPrimary">@color/purple_500</item>
    <item name="colorPrimaryVariant">@color/purple_700</item>
    <item name="colorSecondary">@color/green_200</item>
    <item name="colorSecondaryVariant">@color/green_500</item>
```

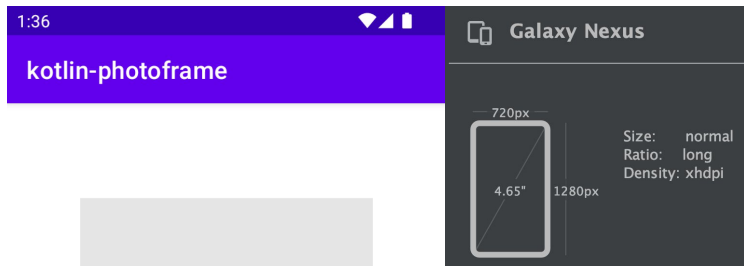
```
<style name="Theme.MyApp" parent="Base.Theme.MyApp">
    <item name="colorPrimary">@color/purple_200</item>
    <item name="colorPrimaryVariant">@color/purple_600</item>
    <item name="colorSecondary">@color/green_200</item>
    <item name="colorSecondaryVariant">@color/green_500</item>
```

```
<!--Top level DayNight theme to be used in AndroidManifest.xml-->
<style name="Theme.MyApp" parent="Base.Theme.MyApp"/>
```

Pixel Density

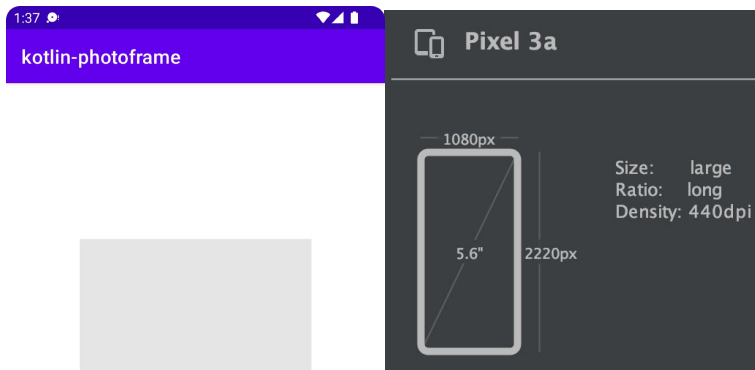
다양한 화면 크기

* Android Studio에서 Virtual Device를 추가할 수 있습니다



Ivy의 사진 액자

다음



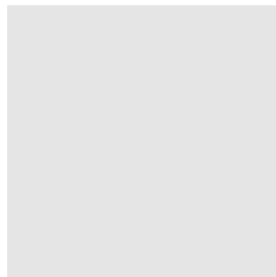
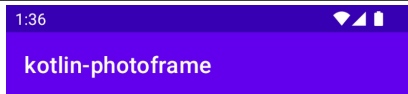
Ivy의 사진 액자

다음



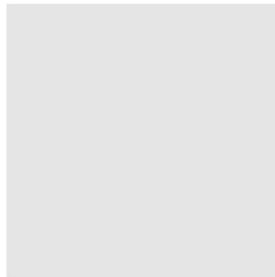
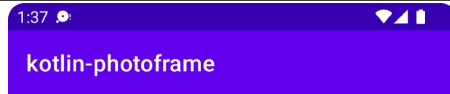
다양한 화면 크기

Q. 기기마다 화면 크기가 다른데,
어떻게 배치 해야할까?



Ivy의 사진 액자

다음



Ivy의 사진 액자

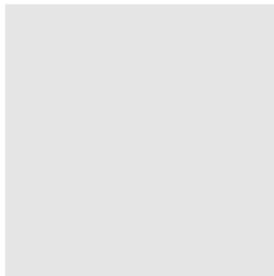
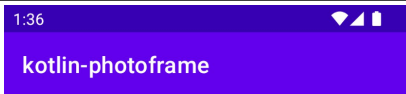
다음



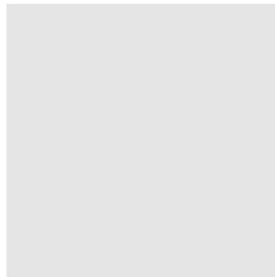
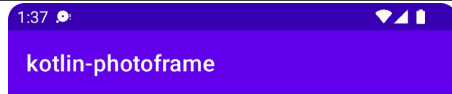
다양한 화면 크기

A. 고정된 크기를 사용하지 않고, 너비와 높이를 지정합니다.

- match_parent : 상위 뷰 내에서 최대한 확장
- wrap_content : 콘텐츠 크기를 따른다



Ivy의 사진 액자

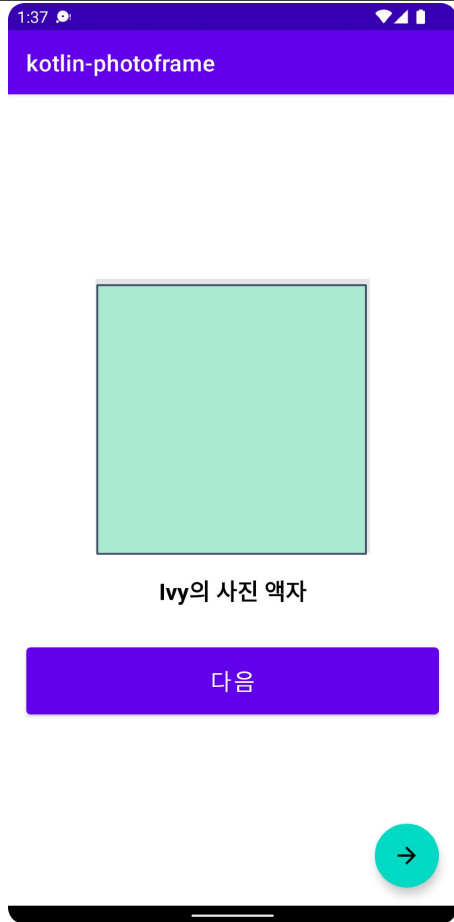
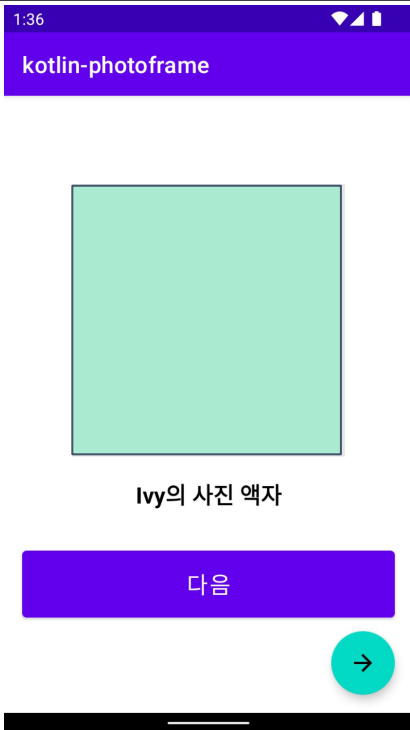


Ivy의 사진 액자



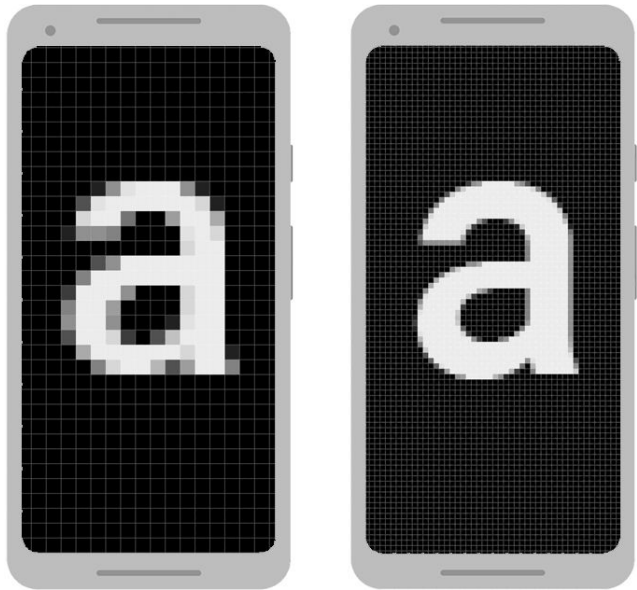
다양한 화면 크기

Q2. 화면 크기와 해상도가 다른데,
이미지와 텍스트는 어떻게 같은 크기로
보이는 걸까?

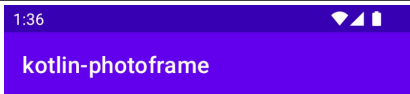


다양한 픽셀 밀도

A. 픽셀이 다른 기기에서도 동일한 크기로 표시해주는 'dp' 를 측정 단위로 사용합니다.

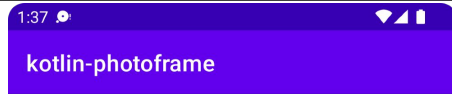


- 픽셀로 크기를 정의하면, 픽셀 밀도가 다른 기기에서는 실제 크기가 달라질 수 있습니다.



Ivy의 사진 액자

다음



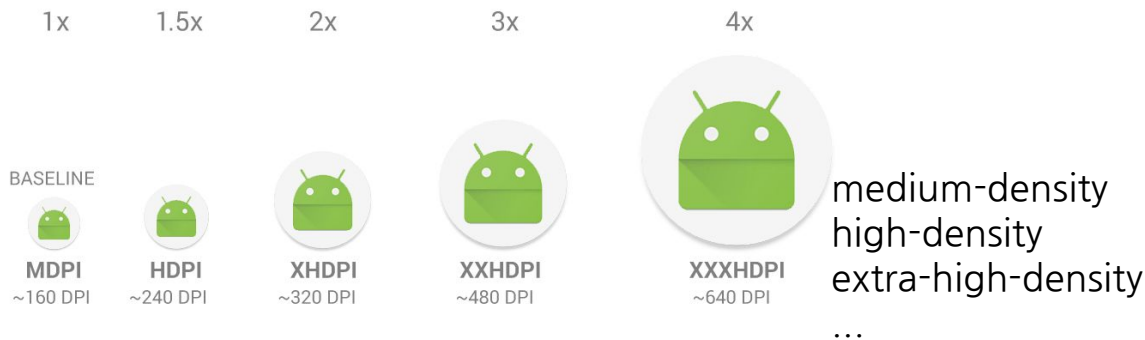
Ivy의 사진 액자

다음

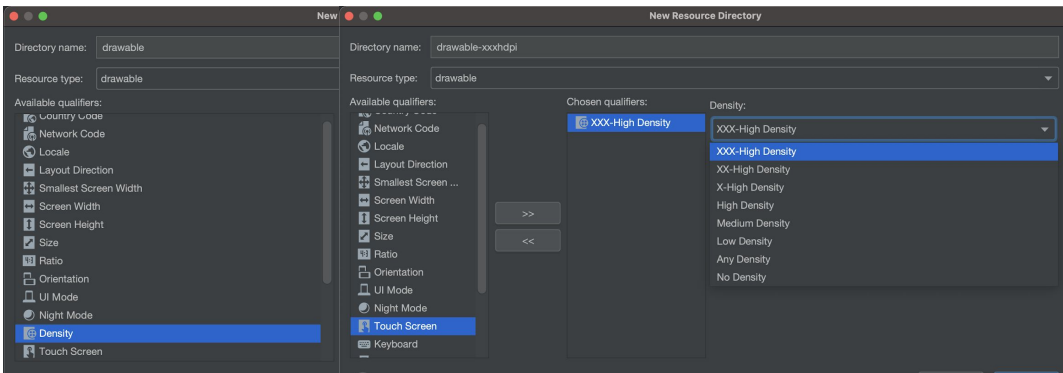


다양한 픽셀 밀도 - 대체 비트맵 제공

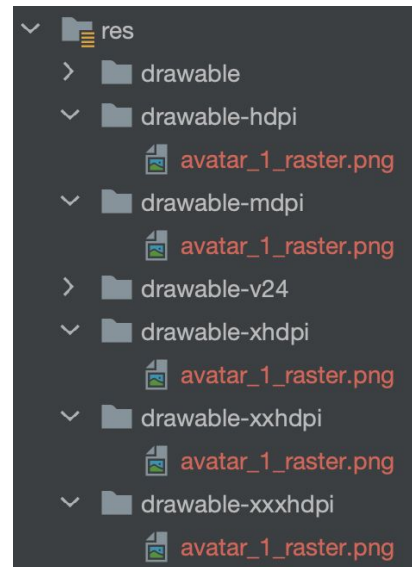
(1) 픽셀 밀도에 따른 비트맵의 상대적 크기



(2) res/ 픽셀 밀도별 하위 디렉터리 생성



(3) 기기 픽셀 밀도에 맞는 비트맵 선택



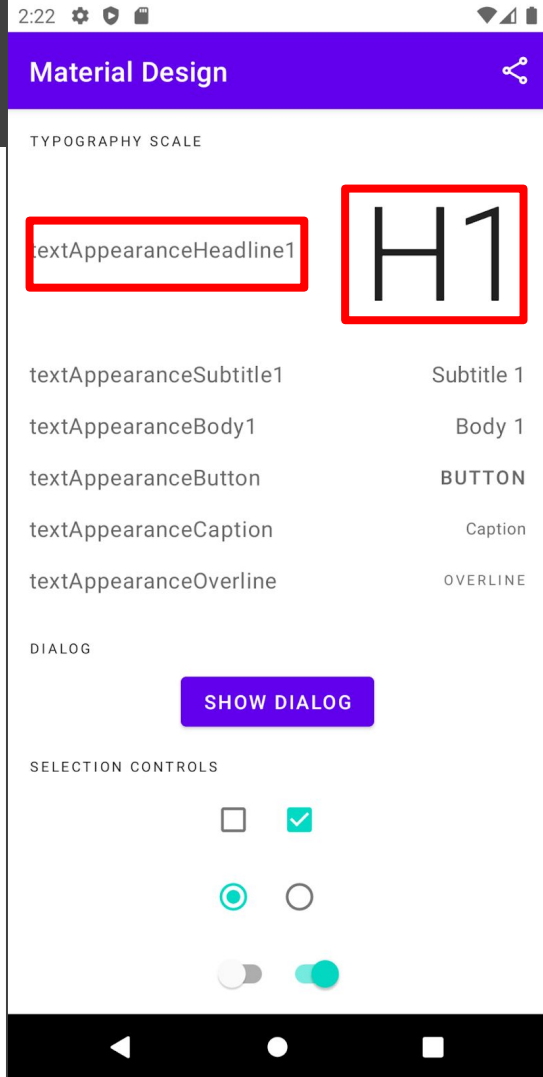
View 속성값을 지정할 때

- 텍스트 크기 = 텍스트의 픽셀 높이

→ 사용자가 기본 폰트 크기를 변경하면, 이를 반영하는 sp 단위를 사용합니다.

- margin : View 간의 간격
- padding : View 의 경계와 내부 콘텐츠 간의 간격

→ 서로 다른 화면 밀도에서도 같은 크기를 갖도록 하는 dp 단위를 사용합니다.



크기 단위

- px : pixel. 1 픽셀은 화면의 1 픽셀과 일치합니다.
- dp : density-independent pixel. 화면 밀도와 무관하게 일정한 크기를 가지므로, 화면 밀도에 맞게 픽셀을 채워야 하는 경우 dp를 사용 → margin, padding 등
- sp : scale-independent pixel. 주로 화면에 나타나는 텍스트 크기를 설정한다.

```
<Button android:layout_width="wrap_content"  
        android:layout_height="wrap_content"  
        android:text="@string/clickme"  
        android:layout_marginTop="20dp" />
```

```
<TextView android:layout_width="match_parent"  
          android:layout_height="wrap_content"  
          android:textSize="20sp" />
```