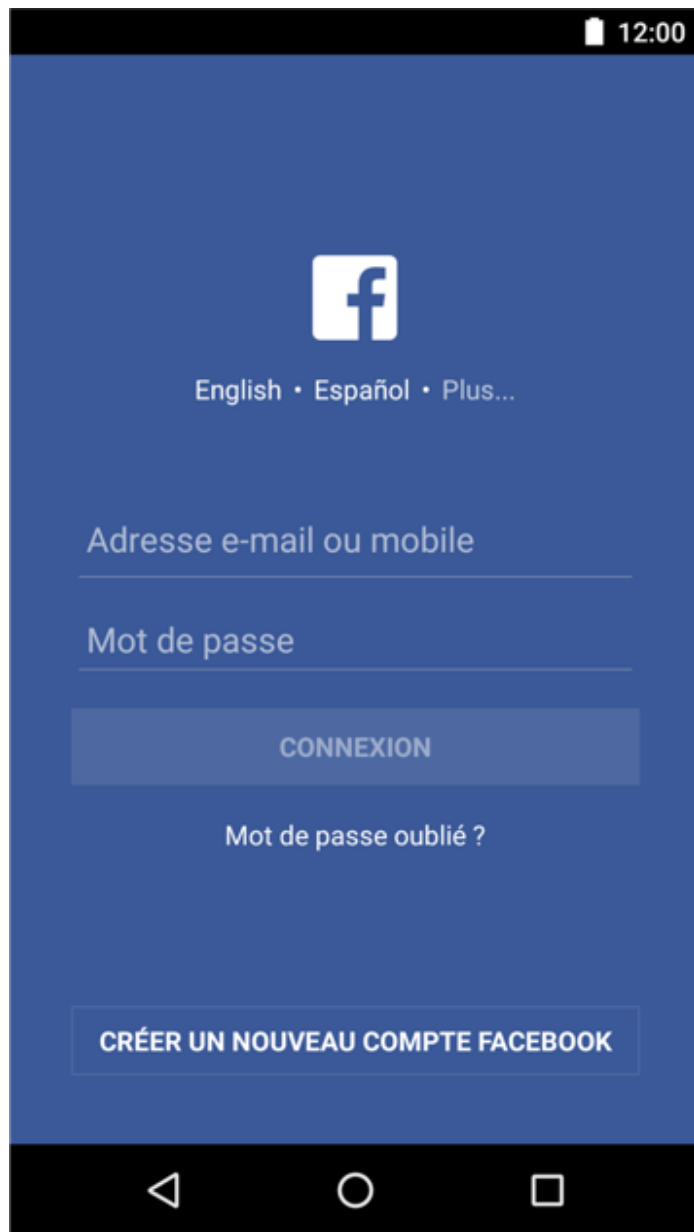
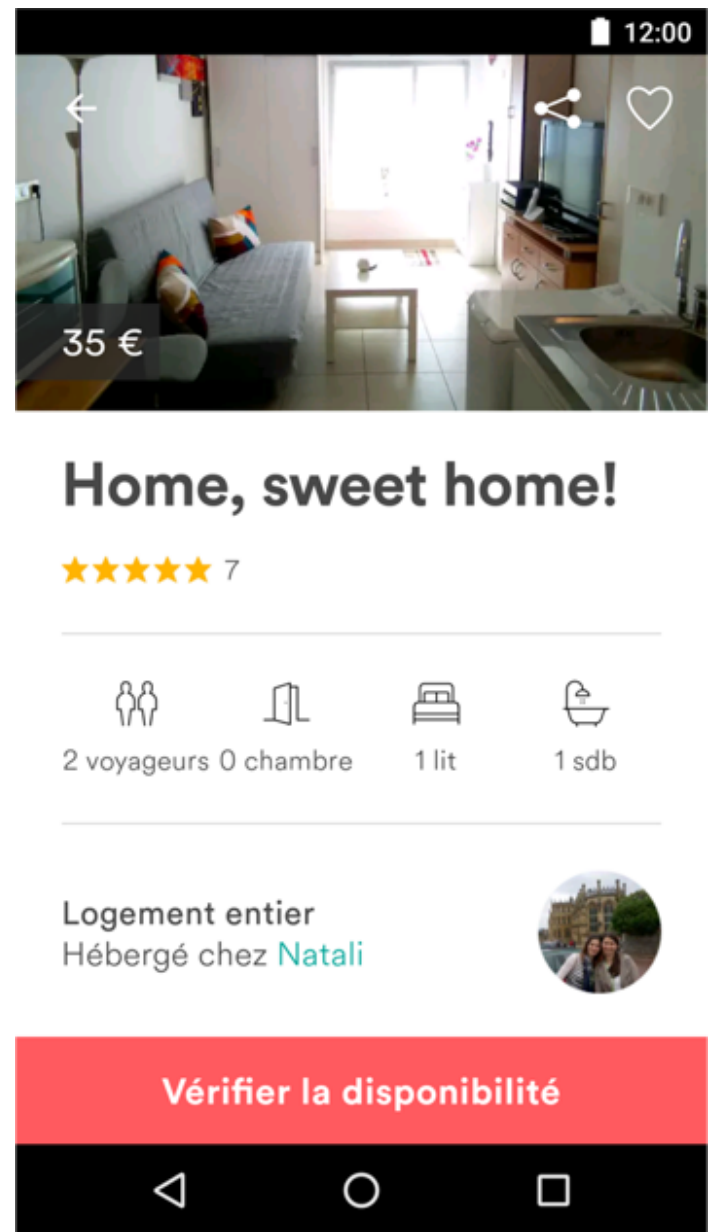


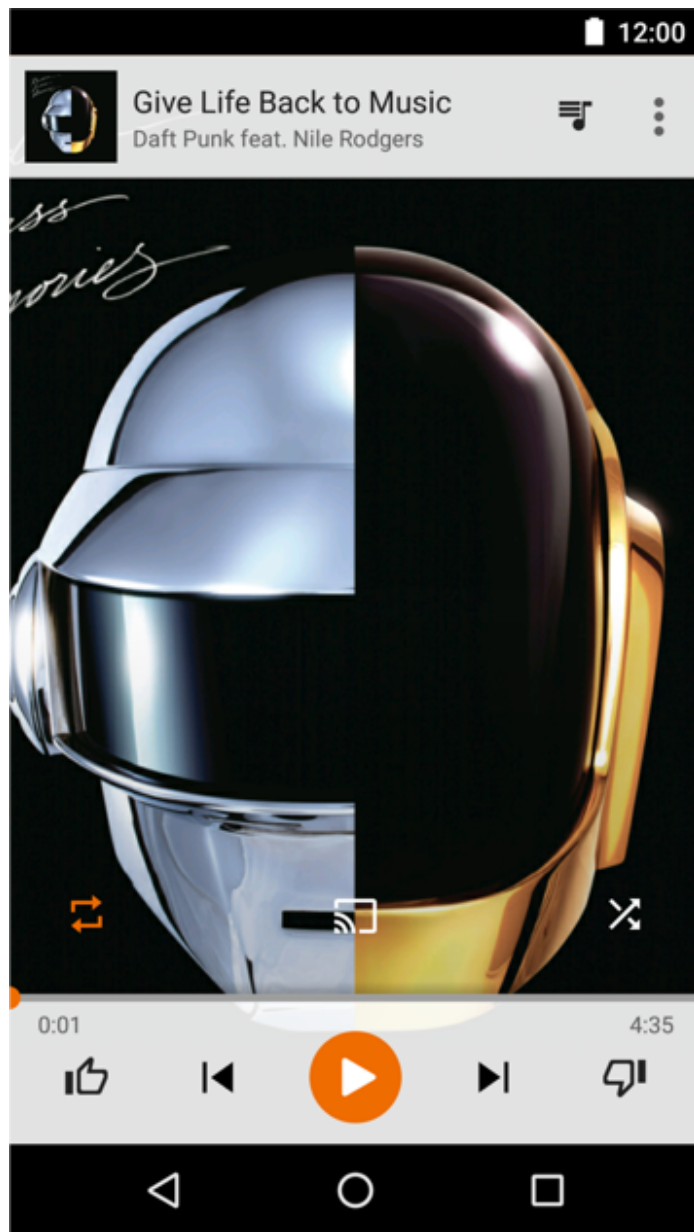
Créer des écrans simples



Facebook - Formulaire de connexion



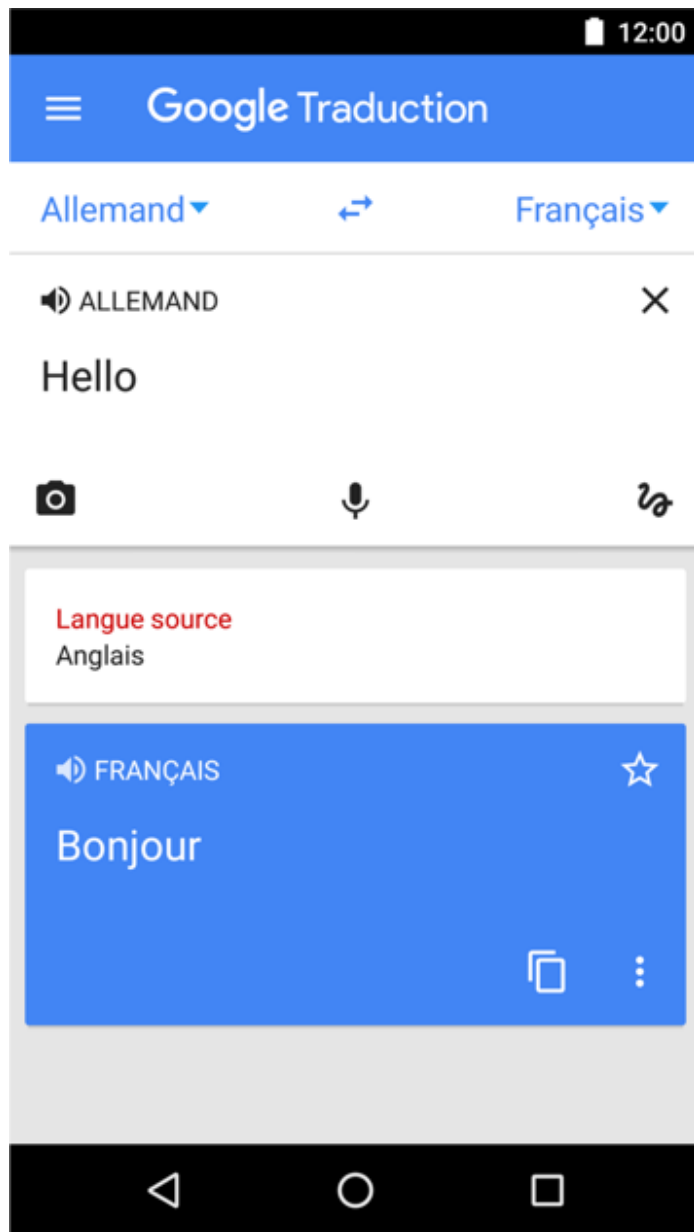
Airbnb - Page détail d'un appartement



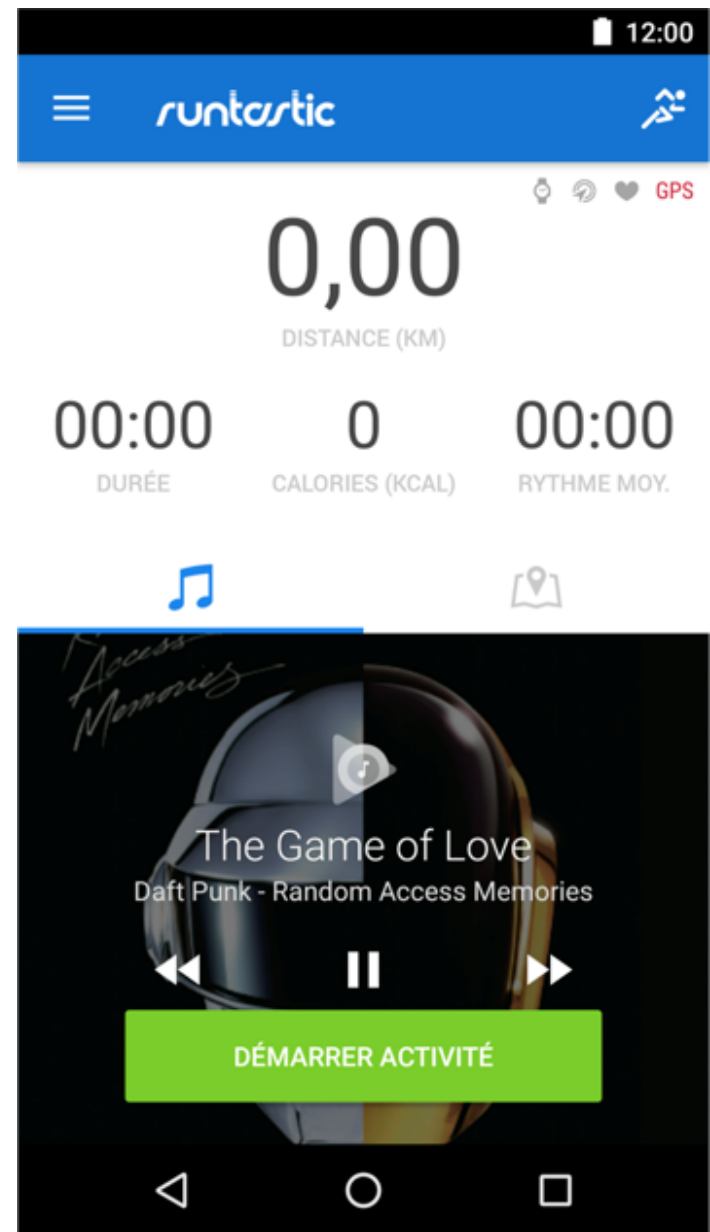
Google Play Musique - Ecran lecture



Google Play - Page détail d'une app



Google Traduction - Ecran traduction




Runtastic - Accueil

Créer des écrans simples

- Constitué de View et de ViewGroup
- Fichiers XML dans dossier res/layout

View

12:00



English • Español • Plus...

Adresse e-mail ou mobile


Mot de passe

CONNEXION

Mot de passe oublié ?

CRÉER UN NOUVEAU COMPTE FACEBOOK

12:00




35 €

Home, sweet home!

★★★★★ 7

2 voyageurs 0 chambre 1 lit 1 sdb

Logement entier
Hébergé chez [Natali](#)



Vérifier la disponibilité

View

- TextView

TextView

View

- TextView
- EditText

EditText

View

- TextView
- EditText
- Checkbox



Checkbox

View

- TextView
- EditText
- Checkbox
- Button

BUTTON

View

- TextView
- EditText
- Checkbox
- Button
- ImageView



View

- TextView
- EditText
- Checkbox
- Button
- ImageView
- Progress Bar



View

- TextView
- EditText
- Checkbox
- Button
- ImageView
- Progress Bar
- ...

Déclaration d'une view

```
<TextView
    android:id="@+id/title"
    android:layout_width="300dp"
    android:layout_height="60dp"
    android:layout_marginLeft="@dimen/spacing"
    android:background="@color/background"
    android:padding="@dimen/spacing"
    android:text="@string/title"
    android:textColor="@color/color"
    android:textSize="@dimen/textSize" />
```

Taille d'une vue

Déclaration d'une view

```
<TextView  
    android:id="@+id/title"  
    android:layout_width="300dp"  
    android:layout_height="60dp"  
    android:layout_marginLeft="@dimen/spacing"  
    android:background="@color/background"  
    android:padding="@dimen/spacing"  
    android:text="@string/title"  
    android:textColor="@color/color"  
    android:textSize="@dimen/textSize" />
```

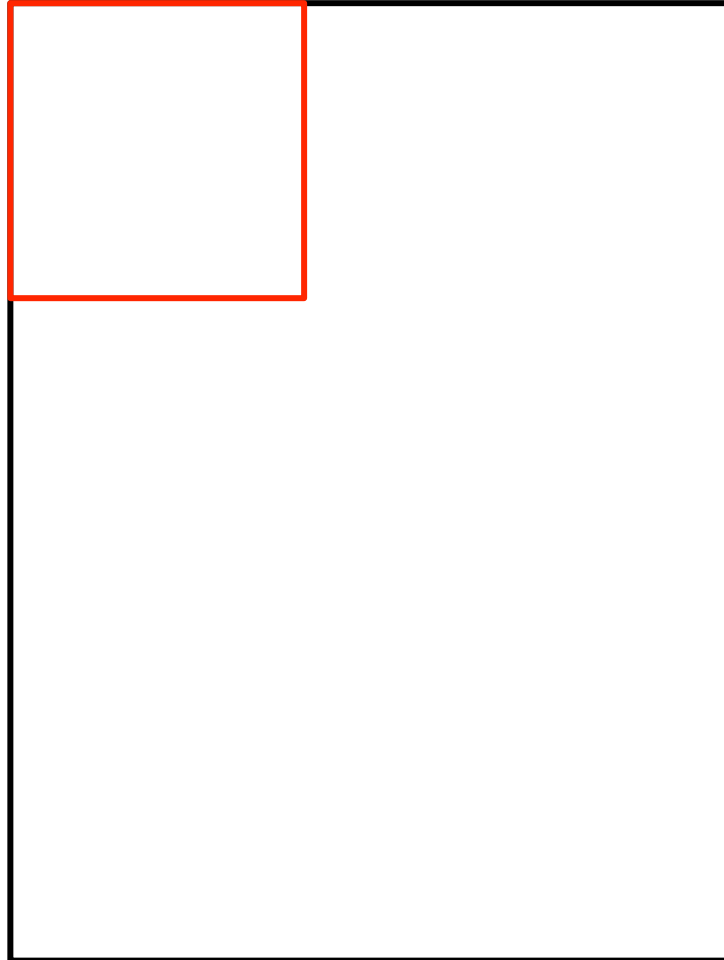
Taille d'une vue

- Unité de mesure :
 - density-independent pixel (dp)
 - scale-independent pixel (sp)

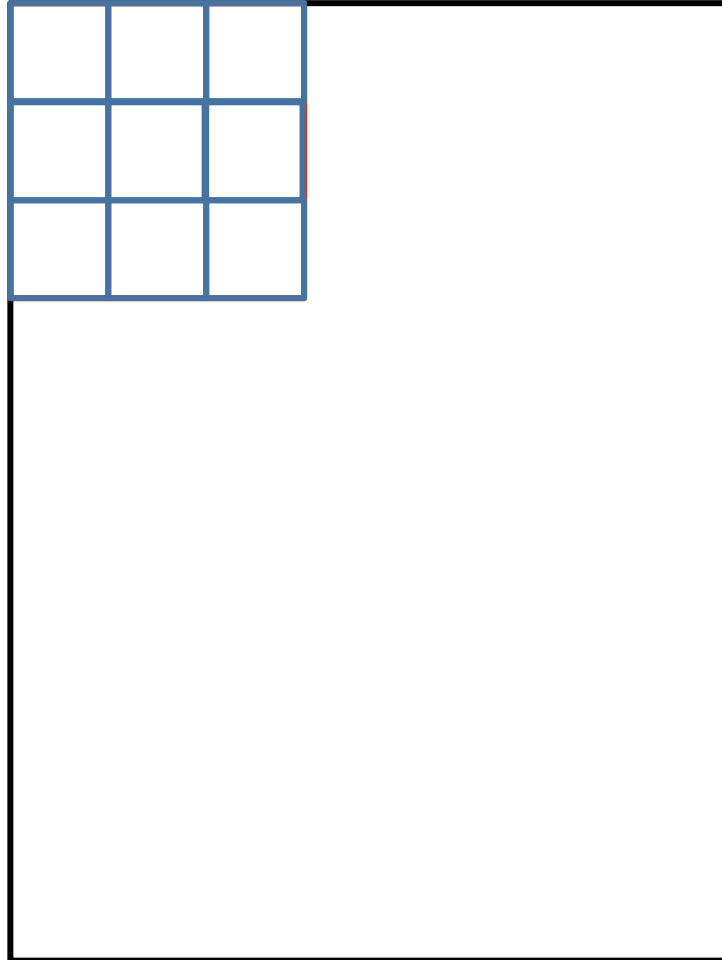
Densité d'un écran



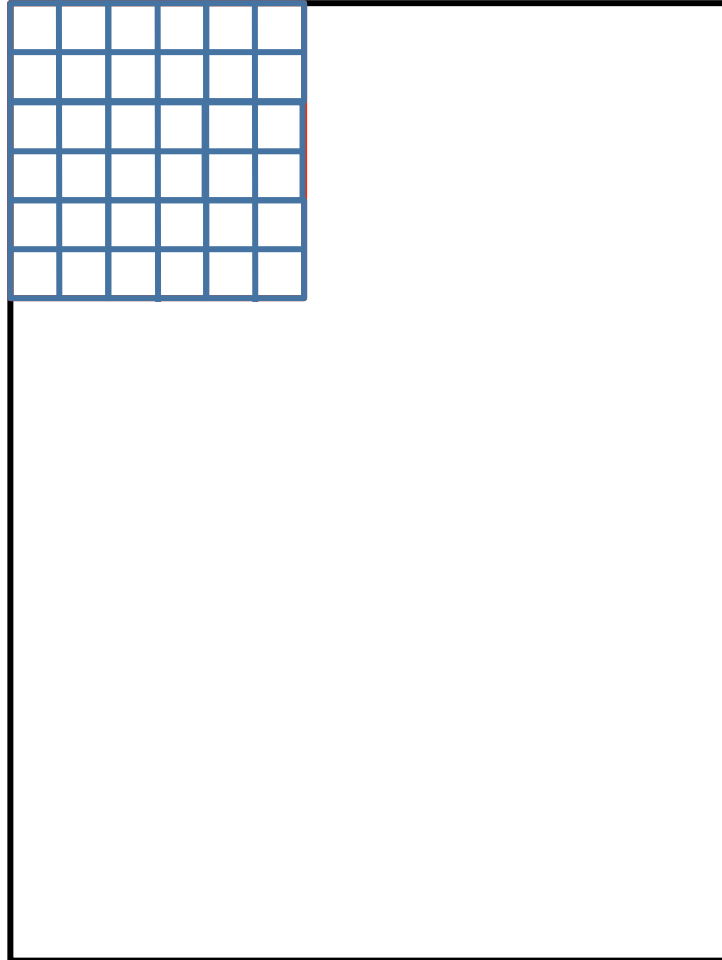
Densité d'un écran



Densité d'un écran



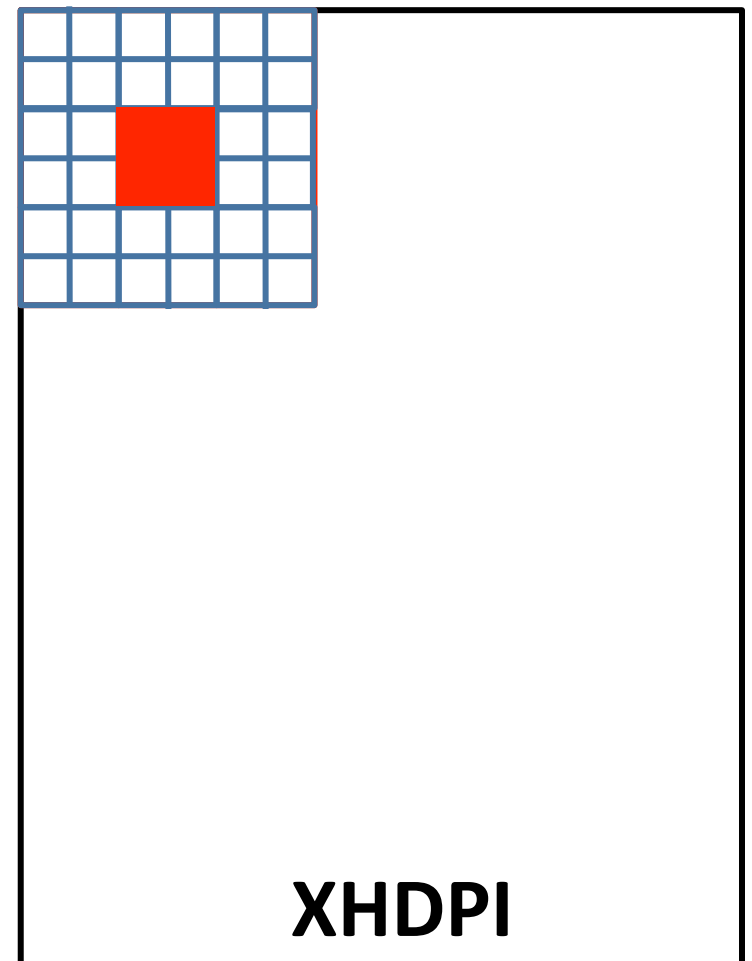
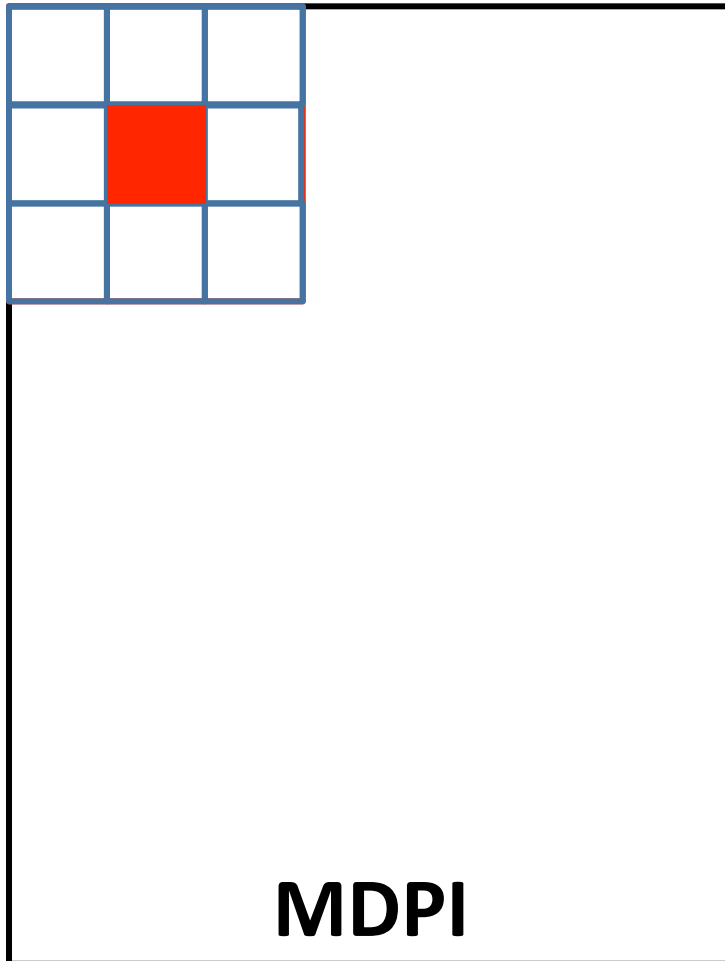
Densité d'un écran



Densité d'un écran

- LDPI - 120 dpi (x0,75)
- **MDPI - 160 dpi**
- HDPI - 240 dpi (x1,5)
- XHDPI - 320 dpi (x2)
- XXHDPI - 480 dpi (x3)
- XXXHDPI - 640 dpi (x4)

Densité d'un écran



Taille d'une view

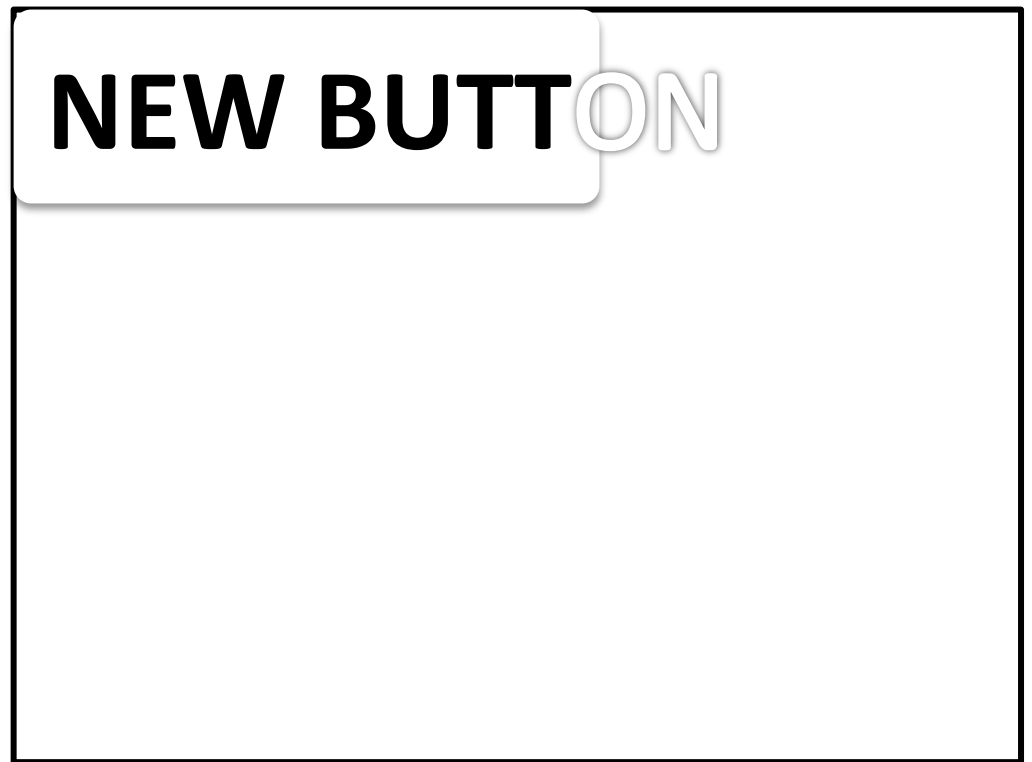
```
android:layout_width="100dp"  
android:layout_height="50dp"
```



BUTTON

Taille d'une view

```
android:layout_width="100dp"  
android:layout_height="50dp"
```



Taille d'une view

```
android:layout_width="wrap_content"  
android:layout_height="50dp"
```

A diagram illustrating the layout of a button. It consists of a large, empty rectangular box with a black border. Inside the top-left corner of this box is a smaller, white rectangular button with rounded corners and a black border. The button contains the text "NEW BUTTON" in bold, black, uppercase letters.

NEW BUTTON

Taille d'une view

```
android:layout_width="match_parent"  
android:layout_height="50dp"
```



NEW BUTTON

Taille d'une view

```
android:layout_width="wrap_content"  
android:layout_height="wrap_content"
```



TextView

Taille d'une view

```
android:layout_width="wrap_content"  
android:layout_height="wrap_content"
```



TextView

Taille d'une view

```
android:layout_width="match_parent"  
android:layout_height="wrap_content"
```



TextView

The diagram shows a rectangular view. The top portion is a horizontal bar with a red border, containing the text 'TextView'. The bottom portion is a larger rectangle with a black border, representing the content area of the view.

Taille d'une view

`android:layout_width="50dp"`

`android:layout_height="wrap_content"`



Text
View
w

Propriétés spécifiques d'une View

Déclaration d'une view

```
<TextView
    android:id="@+id/title"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="@dimen/spacing"
    android:background="@color/background"
    android:padding="@dimen/spacing"
    android:text="@string/title"
    android:textColor="@color/color"
    android:textSize="@dimen/textSize" />
```

Déclaration d'une view

```
<TextView
    android:id="@+id/title"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="@dimen/spacing"
    android:background="@color/background"
    android:padding="@dimen/spacing"
    android:text="@string/title"
    android:textColor="@color/color"
    android:textSize="@dimen/textSize" />
```

Propriété TextView

```
android:text="Hello"
```



Hello

Propriété TextView

```
android:text="Hello"  
android:textColor="FF4081"
```



Hello

Propriété TextView

```
android:text="Hello"  
android:textColor="FF4081"  
android:textSize="20sp"
```



Hello

Propriété TextView

```
android:text="Hello"  
android:textColor="FF4081"  
android:textSize="20sp"  
android:textStyle="bold"
```



Hello

Propriété TextView

```
android:text="Hello"  
android:textColor="FF4081"  
android:textSize="20sp"  
android:textStyle="bold"  
android:background="#C1C1C1"
```



Hello

Propriété TextView

```
..layout_width="wrap_content"  
..layout_height="wrap_content"  
android:text="Hello"  
android:textColor="FF4081"  
android:textSize="20sp"  
android:textStyle="bold"  
android:background="#C1C1C1"
```



Hello

Propriété TextView

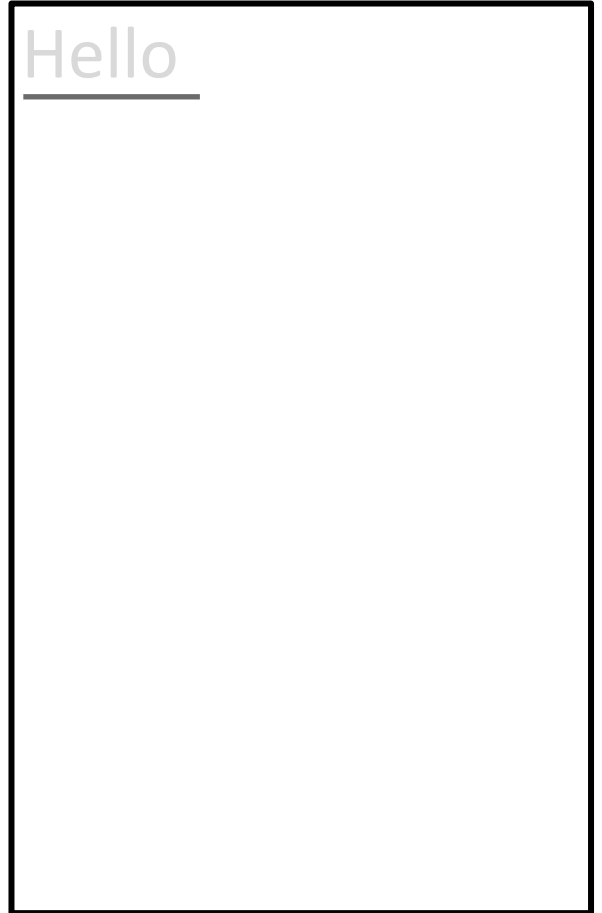
```
..layout_width="match_parent"  
..layout_height="wrap_content"  
android:text="Hello"  
android:textColor="FF4081"  
android:textSize="20sp"  
android:textStyle="bold"  
android:background="#C1C1C1"
```



Hello

Propriété EditText

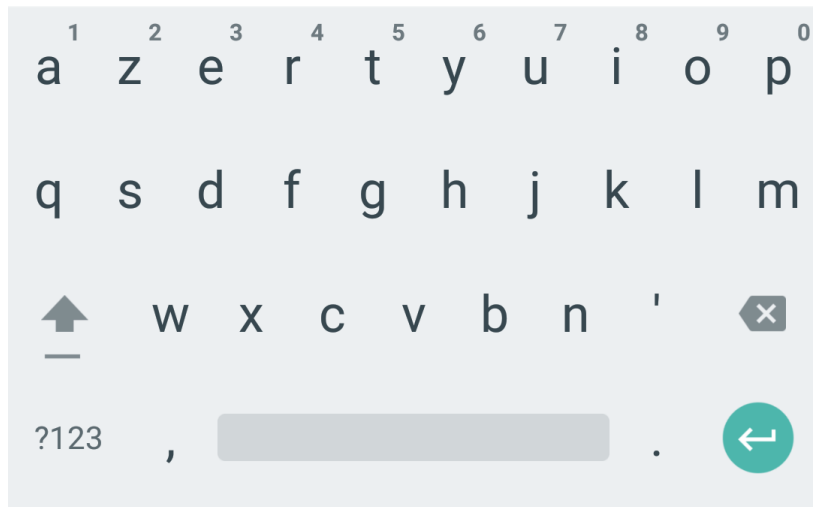
```
android:hint="Hello"
```



Hello

Propriété EditText

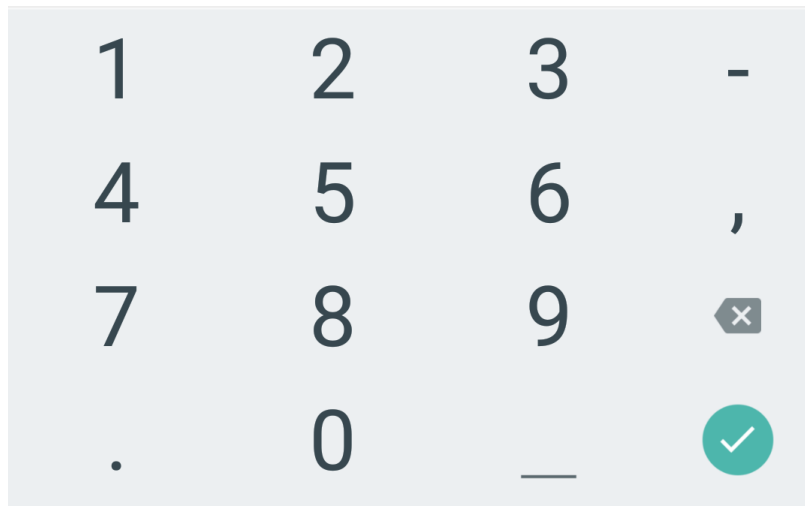
```
android:hint="Hello"
```



Propriété EditText

`android:hint="Hello"`

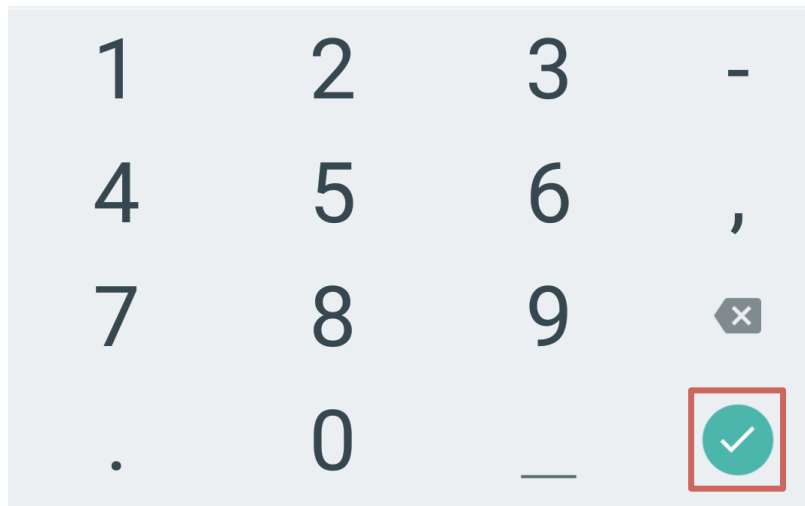
`android:inputType="number"`



Propriété EditText

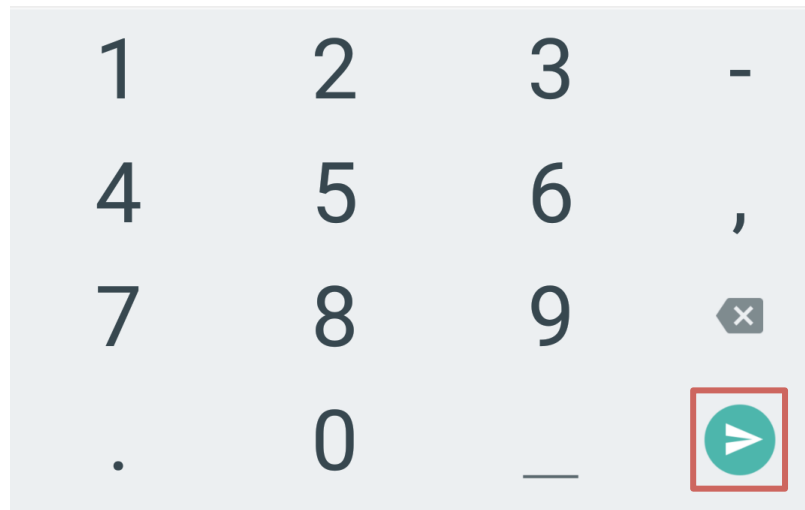
`android:hint="Hello"`

`android:inputType="number"`

A rectangular EditText field with a black border. At the top left, the word "Hello" is displayed in a light gray font, underlined, serving as a hint. The rest of the field is empty.

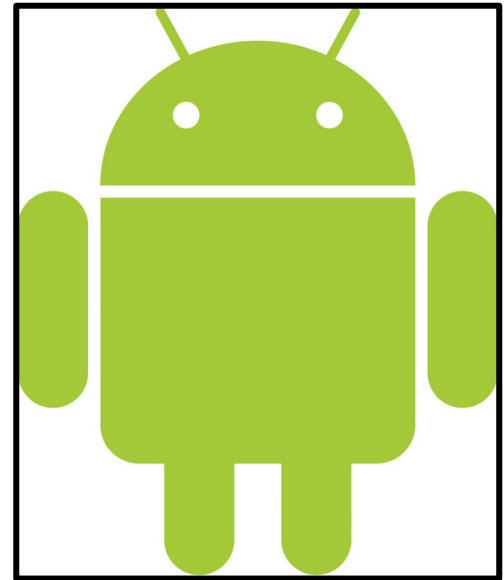
Propriété EditText

```
android:hint="Hello"  
android:imeOptions=  
"actionSend"
```

A rectangular text input field with a black border. Inside the field, the word "Hello" is displayed in a light gray font, underlined, indicating it is a hint text. The rest of the field is empty.

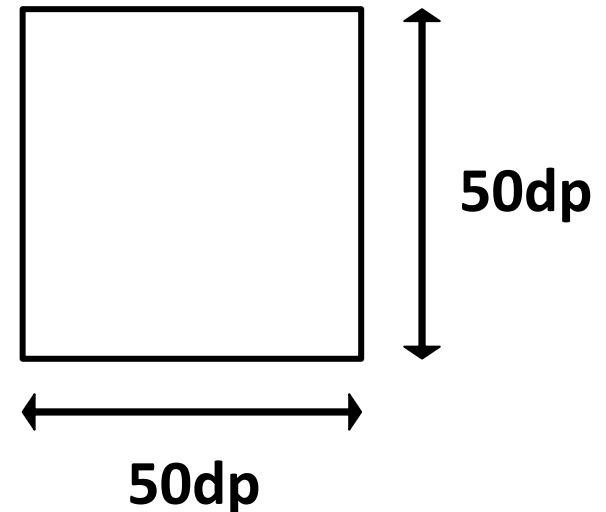
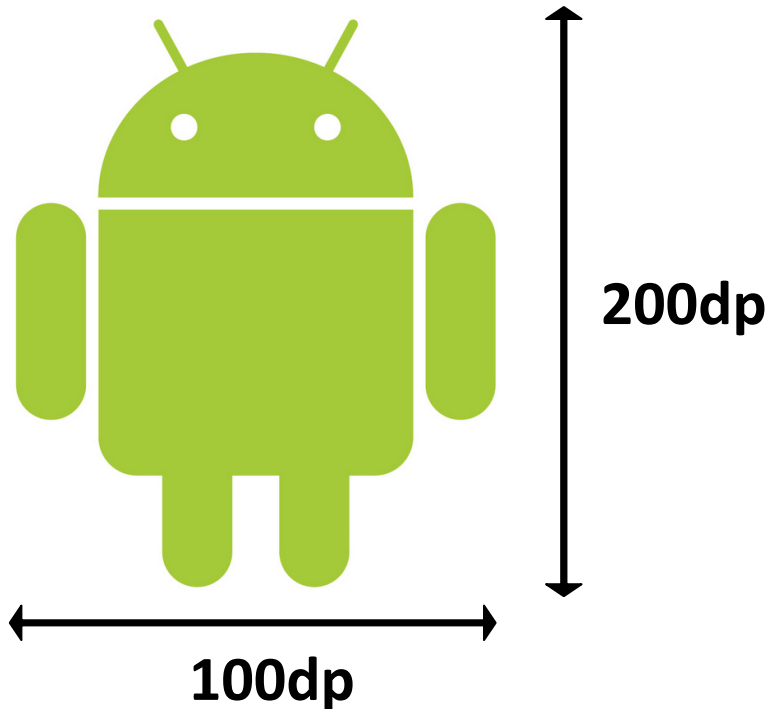
Propriété ImageView

```
android:layout_width="wrap_content"  
android:layout_height="wrap_content"  
android:src="@drawable/android"
```



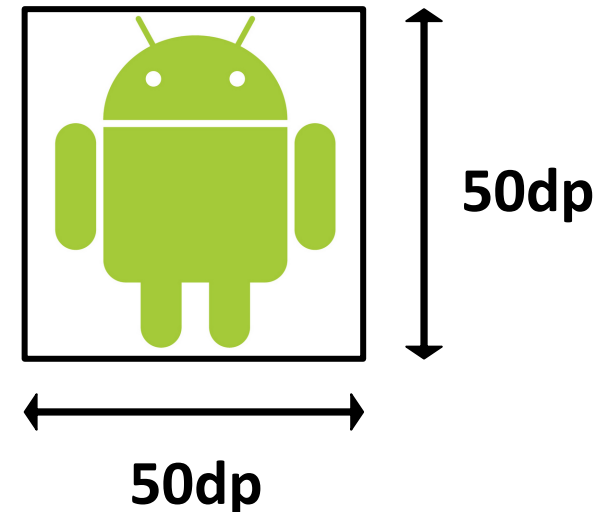
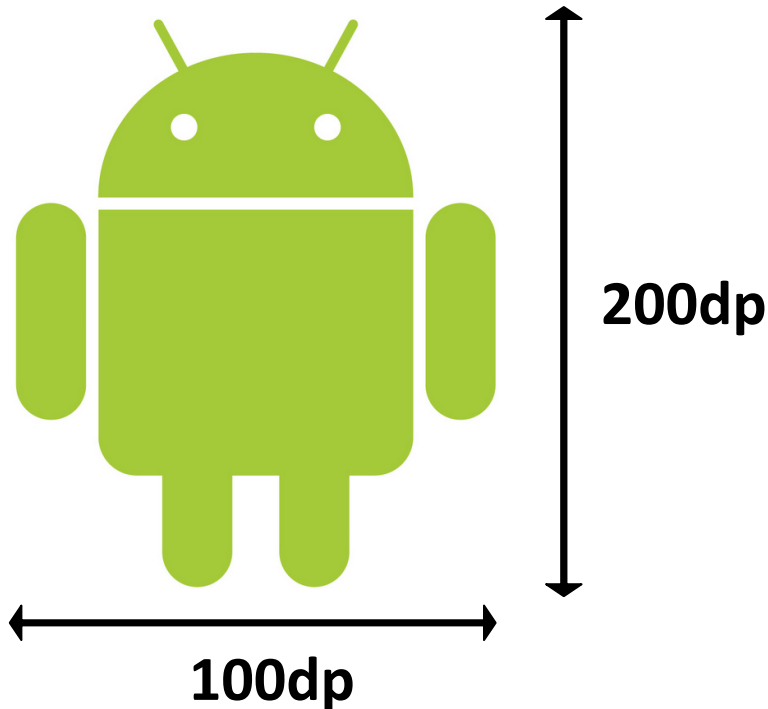
Propriété ImageView

```
android:layout_width="50dp"  
android:layout_height="50dp"
```



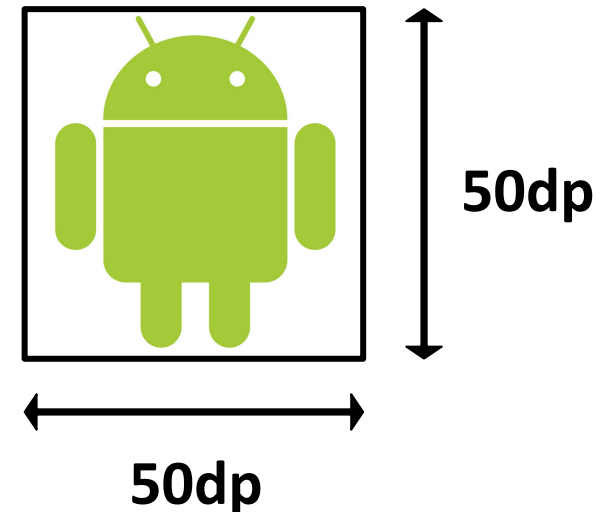
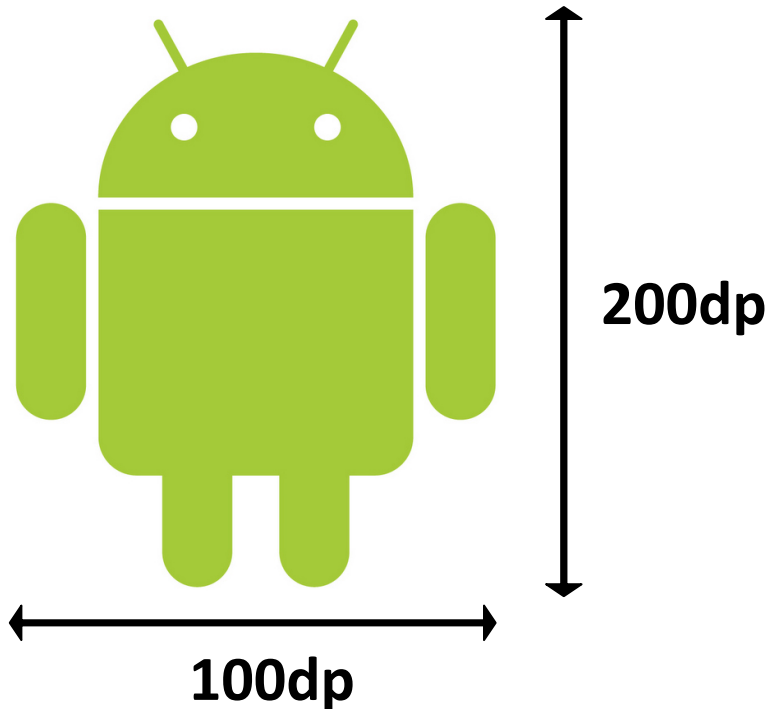
Propriété ImageView

```
android:layout_width="50dp"  
android:layout_height="50dp"  
android:scaleType="fitCenter"
```



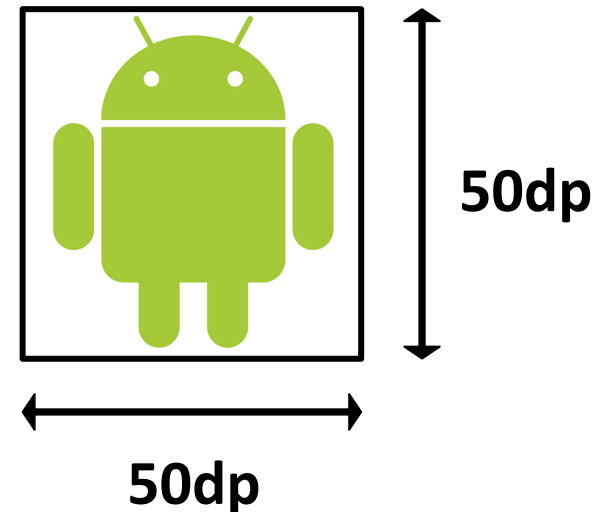
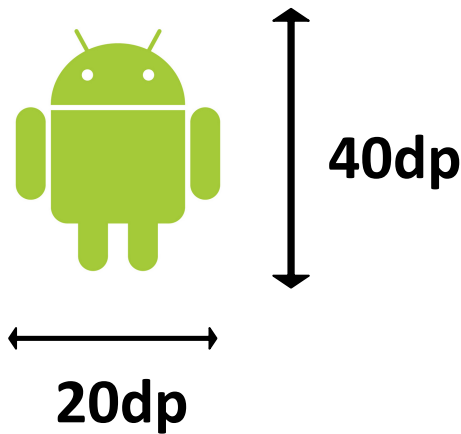
Propriété ImageView

```
android:layout_width="50dp"  
android:layout_height="50dp"  
android:scaleType="centerInside"
```



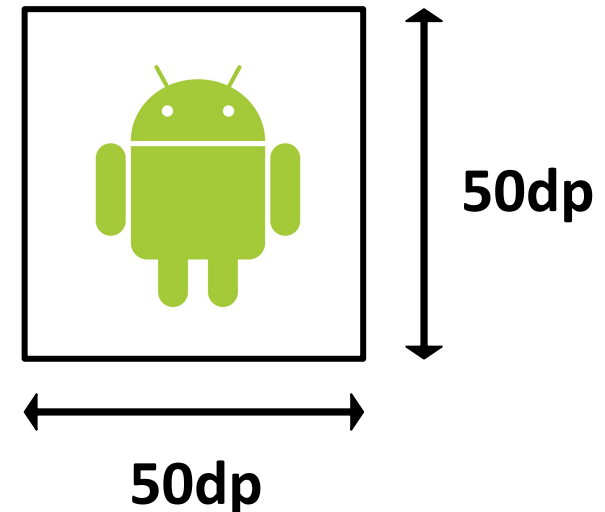
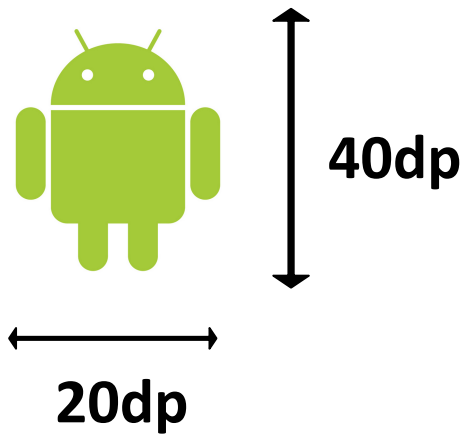
Propriété ImageView

```
android:layout_width="50dp"  
android:layout_height="50dp"  
android:scaleType="fitCenter"
```



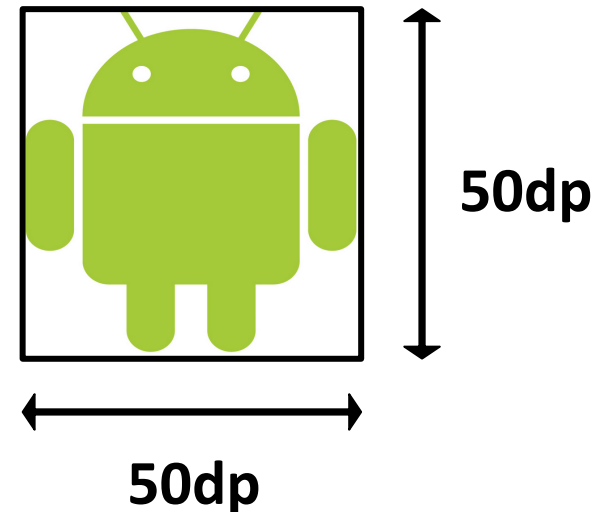
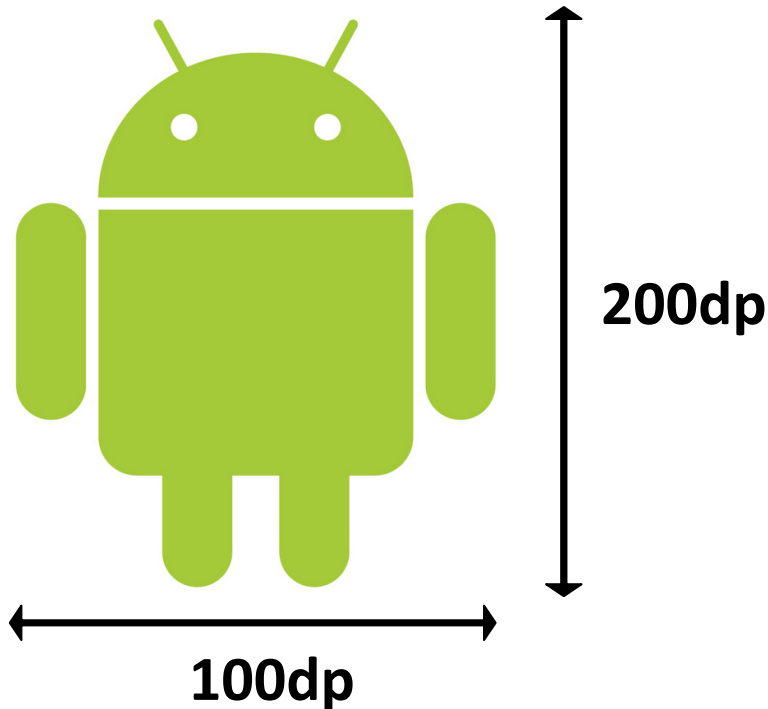
Propriété ImageView

```
android:layout_width="50dp"  
android:layout_height="50dp"  
android:scaleType="centerInside"
```



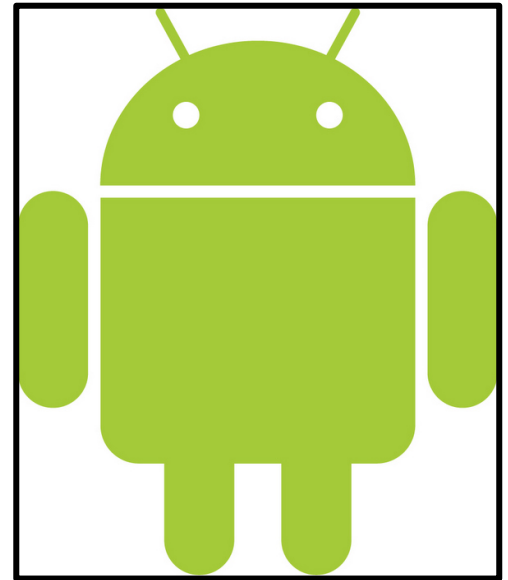
Propriété ImageView

```
android:layout_width="50dp"  
android:layout_height="50dp"  
android:scaleType="fitXY"
```



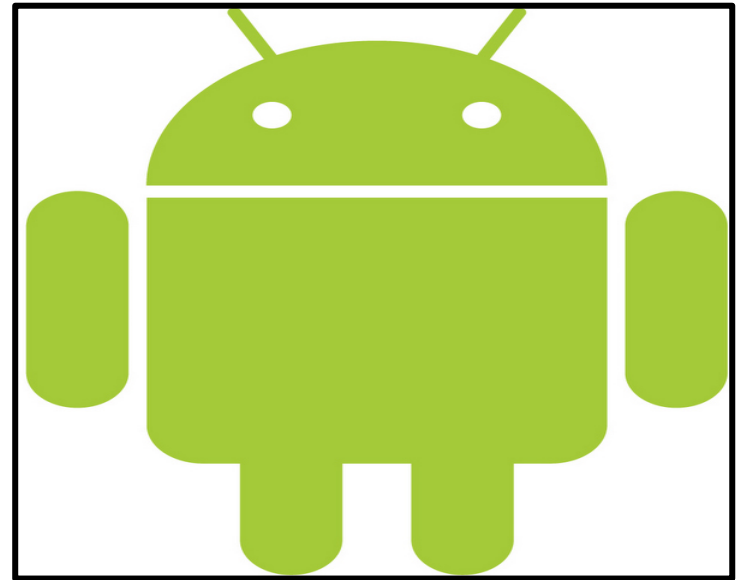
Propriété ImageView

```
android:layout_width="100dp"  
android:layout_height="200dp"  
android:background="@drawable/android"
```



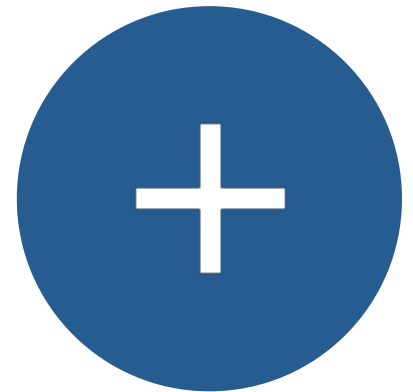
Propriété ImageView

```
android:layout_width="300dp"  
android:layout_height="200dp"  
android:background="@drawable/android"
```



Propriété ImageView

```
android:layout_width="48dp"  
android:layout_height="48dp"  
android:background="@drawable/oval"  
android:src="@drawable/plus"  
android:scaleType="centerInside"
```



Les espacements

Déclaration d'une view

```
<TextView
    android:id="@+id/title"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="@dimen/spacing"
    android:background="@color/background"
    android:padding="@dimen/spacing"
    android:text="@string/title"
    android:textColor="@color/color"
    android:textSize="@dimen/textSize" />
```

Déclaration d'une view

```
<TextView
    android:id="@+id/title"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="@dimen/spacing"
    android:background="@color/background"
    android:padding="@dimen/spacing"
    android:text="@string/title"
    android:textColor="@color/color"
    android:textSize="@dimen/textSize" />
```

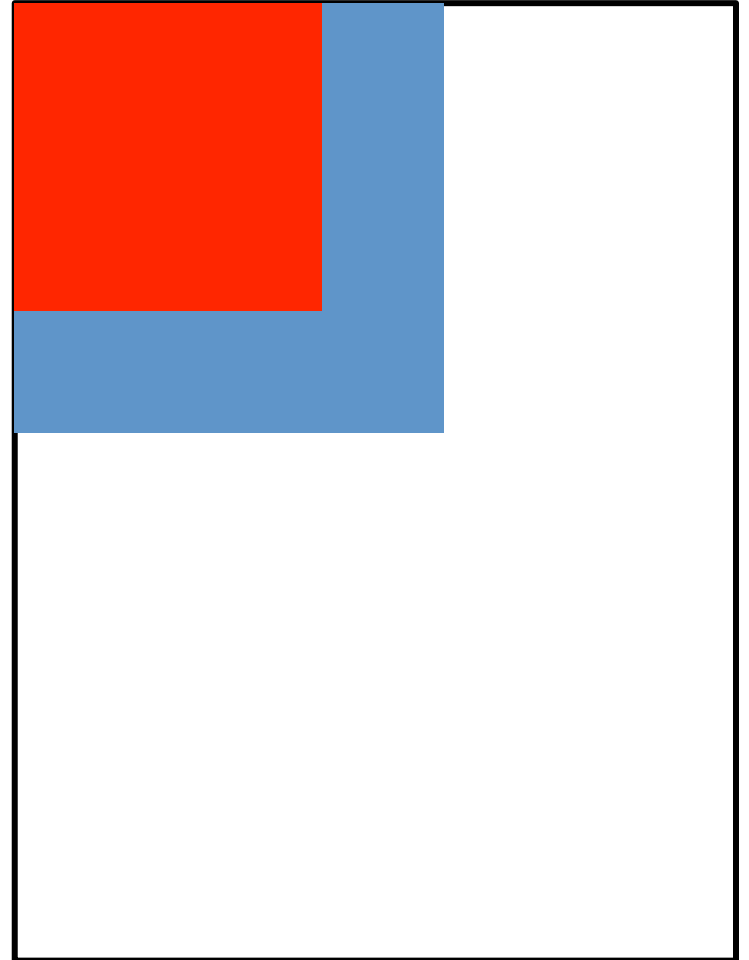
Propriétés communes

- Espacement marge
 - `android:layout_margin`
 - `android:layout_marginLeft`
 - `android:layout_marginRight`
 - `android:layout_marginTop`
 - `android:layout_marginBottom`

Propriétés communes

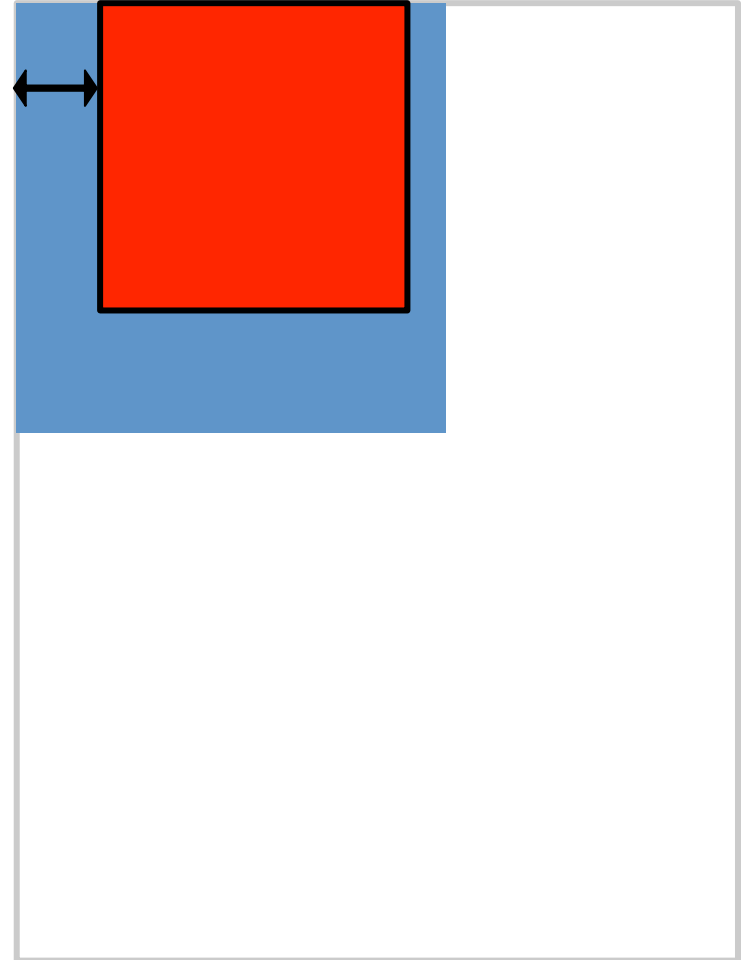
- Espacement remplissage
 - `android:padding`
 - `android:paddingLeft`
 - `android:paddingRight`
 - `android:paddingTop`
 - `android:paddingBottom`

Différence margin/padding



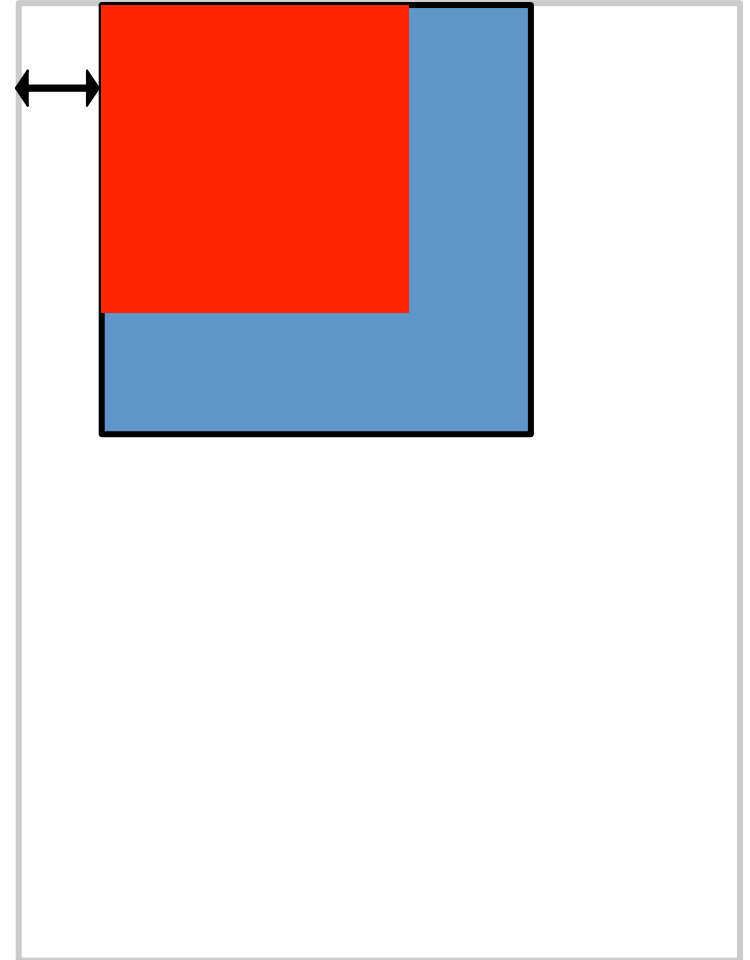
Différence margin/padding

`android:layout_marginLeft`



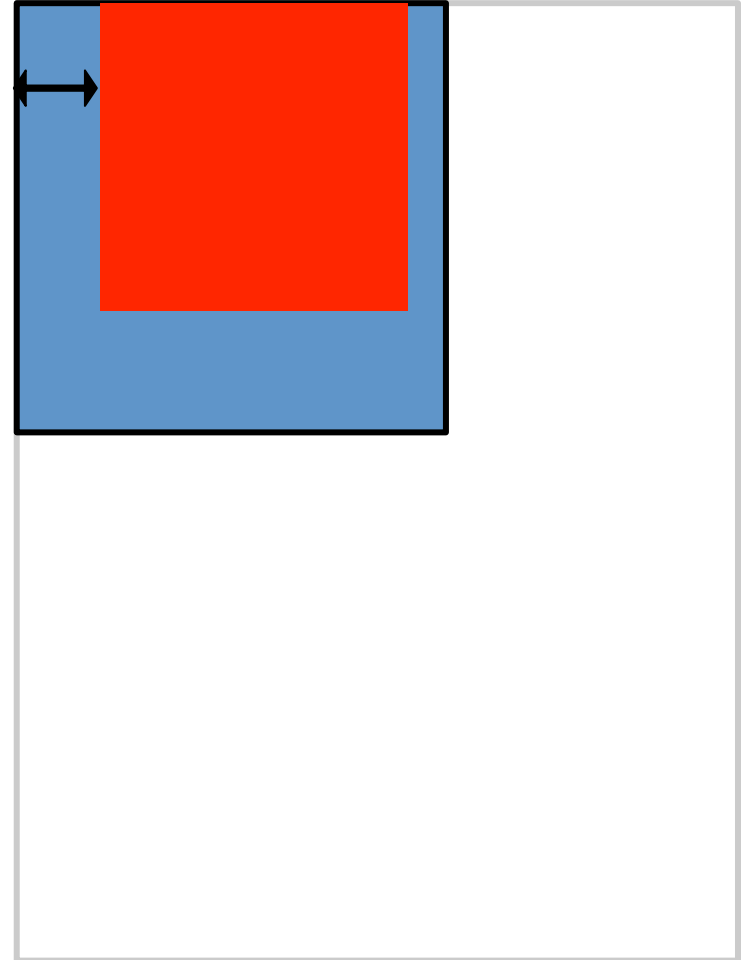
Différence margin/padding

`android:layout_marginLeft`



Différence margin/padding

`android:paddingLeft`



Différence margin/padding

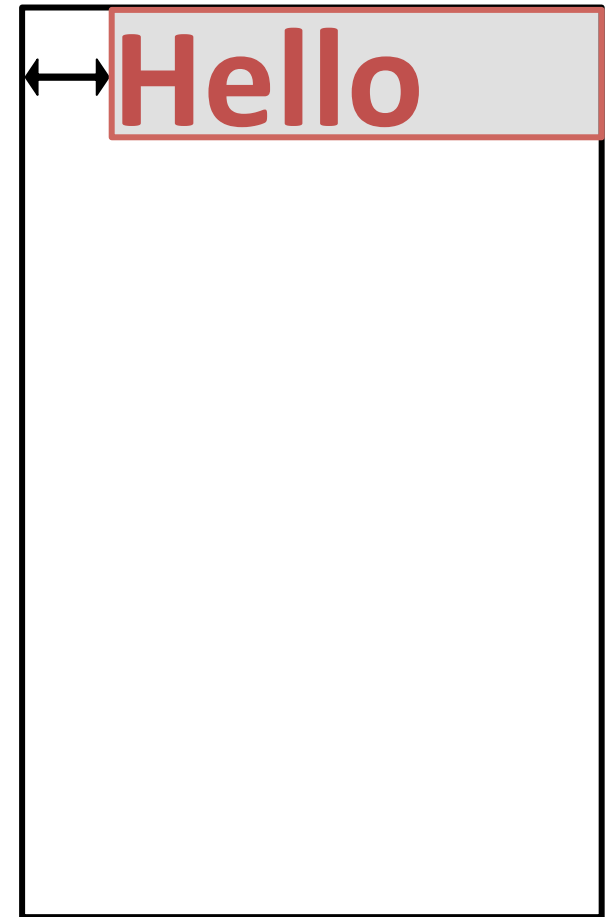
```
..layout_width="match_parent"  
..layout_height="wrap_content"  
android:text="Hello"  
android:textColor="FF4081"  
android:textSize="20sp"  
android:textStyle="bold"  
android:background="#C1C1C1"
```



Hello

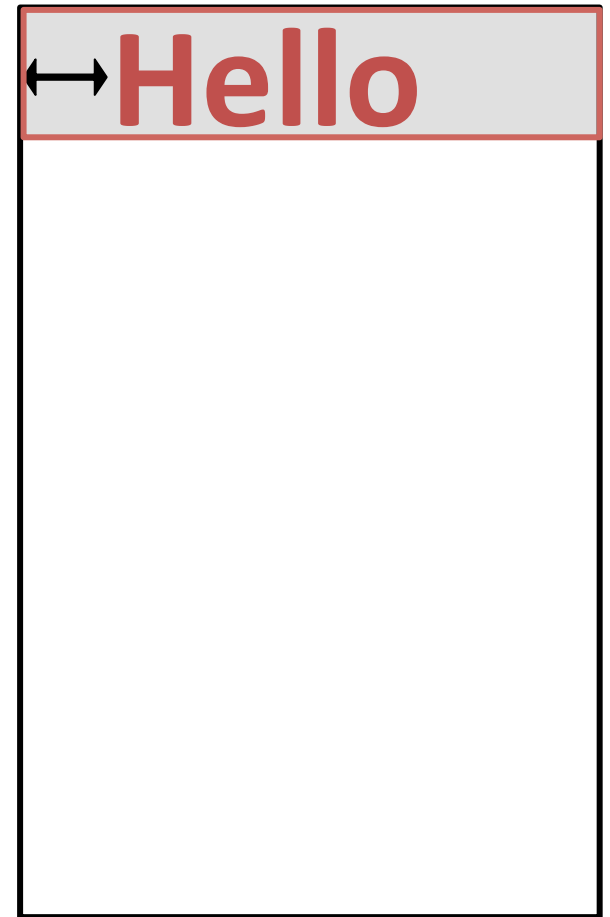
Différence margin/padding

```
..layout_width="match_parent"  
..layout_height="wrap_content"  
android:text="Hello"  
android:textColor="FF4081"  
android:textSize="20sp"  
android:textStyle="bold"  
android:background="#C1C1C1"  
..layout_marginLeft="16dp"
```



Différence margin/padding

```
..layout_width="match_parent"  
..layout_height="wrap_content"  
android:text="Hello"  
android:textColor="FF4081"  
android:textSize="20sp"  
android:textStyle="bold"  
android:background="#C1C1C1"  
android:paddingLeft="16p"
```



Les alias

Déclaration d'une view

```
<TextView
    android:id="@+id/title"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginLeft="@dimen/spacing"
    android:background="@color/background"
    android:padding="@dimen/spacing"
    android:text="@string/title"
    android:textColor="@color/color"
    android:textSize="@dimen/textSize" />
```

Alias

Dimension : @dimen/

Couleur : @color/

Texte : @string/

Image : @drawable/

Style : @style/

Dimension

@dimen/spacing

Dimension

@dimen/spacing

res/values/dimens.xml

```
<resources>  
    <dimen name="spacing">16dp</dimen>  
</resources>
```

Fichiers ressources

- `dimens.xml`
- `colors.xml`
- `strings.xml`

Les drawables

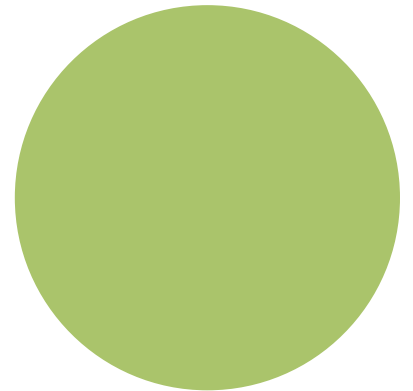
Drawable

- .png



Drawable

- .png
- Shape



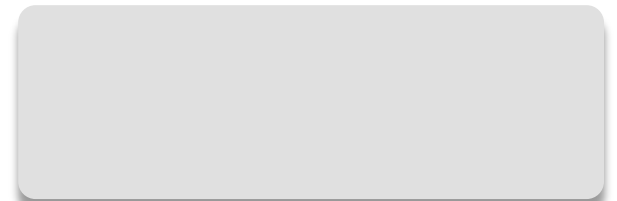
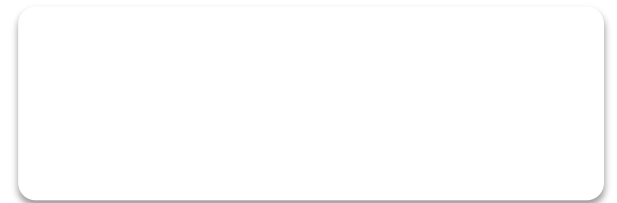
Drawable

- .png
- Shape
- Nine Patch



Drawable

- .png
- Shape
- Nine Patch
- States



Drawable

- .png
- Shape
- Nine Patch
- States
- ...

Shape

```
<shape android:shape="rectangle">  
  <solid android:color="#8BC34A"/>  
  <size  
    android:width="16dp"  
    android:height="16dp"/>  
</shape>
```



Shape

```
<shape android:shape="rectangle">  
  <stroke  
    android:width="1dp"  
    android:color="#8BC34A"/>  
  <size  
    android:width="16dp"  
    android:height="16dp"/>  
</shape>
```



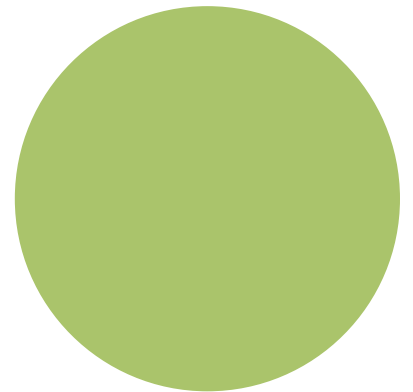
Shape

```
<shape android:shape="oval">  
  <solid android:color="#8BC34A"/>  
  <size  
    android:width="16dp"  
    android:height="16dp"/>  
</shape>
```



Shape

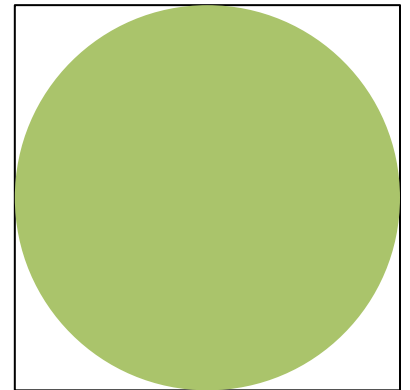
```
<shape android:shape="oval">  
    <solid android:color="#8BC34A"/>  
</shape>
```



Shape

```
<shape android:shape="oval">  
    <solid android:color="#8BC34A"/>  
</shape>
```

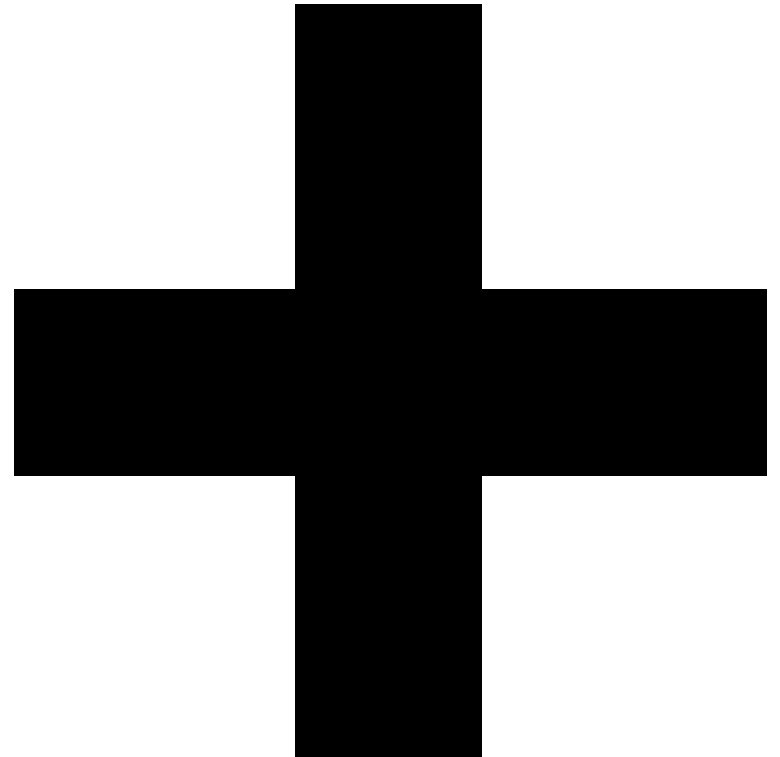
```
<ImageView  
    android:layout_width="48dp"  
    android:layout_height="48dp"  
    android:src="@drawable/oval"/>
```



Nine patch

- Image qui peut s'étendre de la manière qu'on veut
- Extension de fichier .9.png
- N'importe quel png peut être un nine patch
 - Prérequis : bord d'un pixel transparent autour de l'image
- Editeur de nine patch dans Android Studio

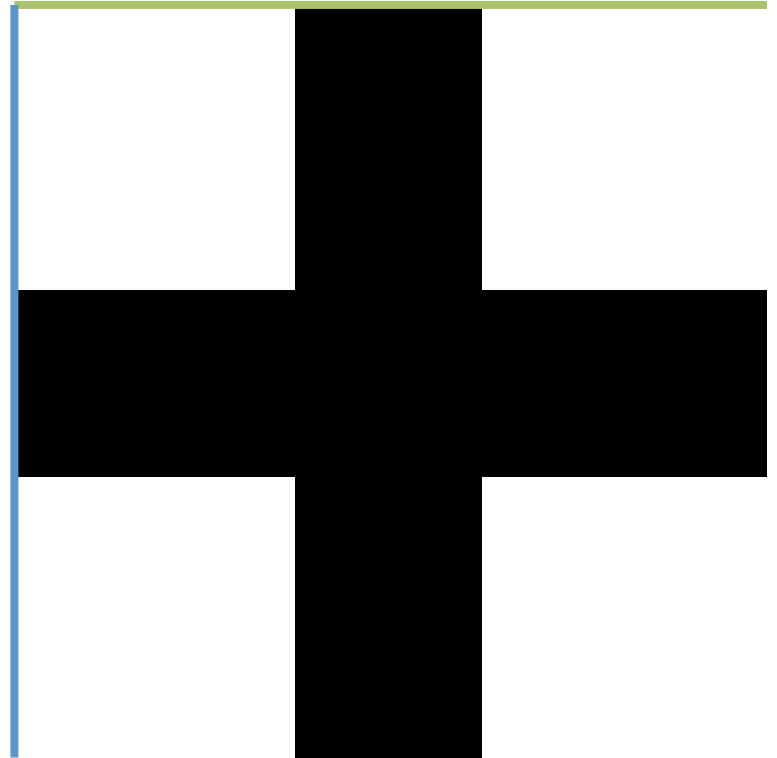
Nine patch



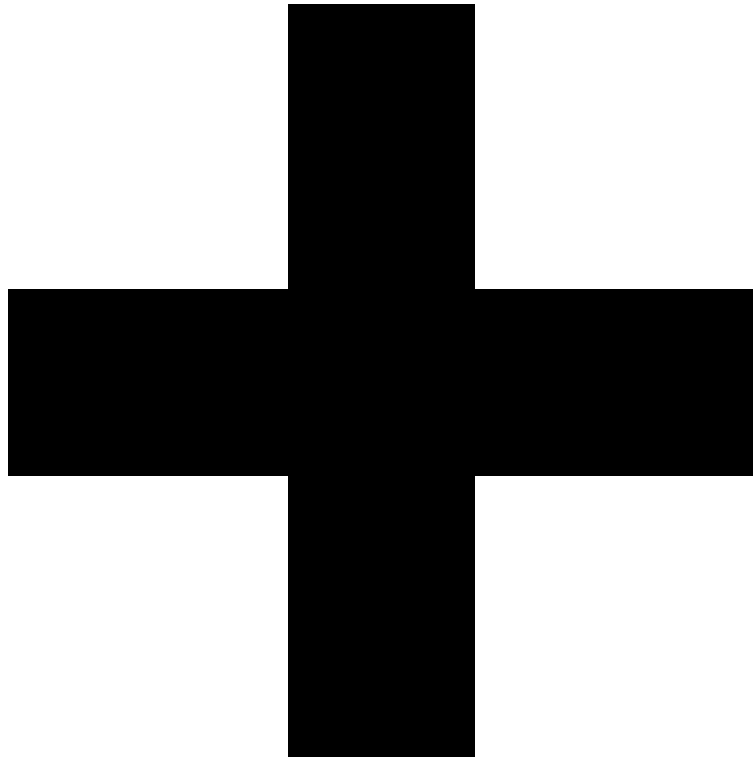
Nine patch

Zone qui s'étend horizontalement

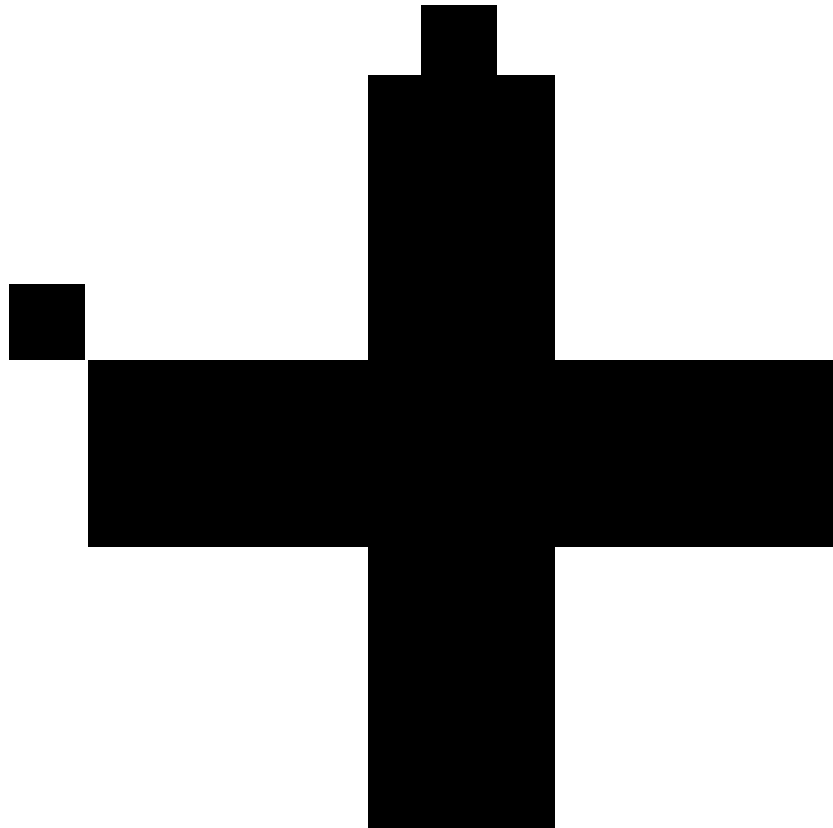
Zone qui s'étend verticalement



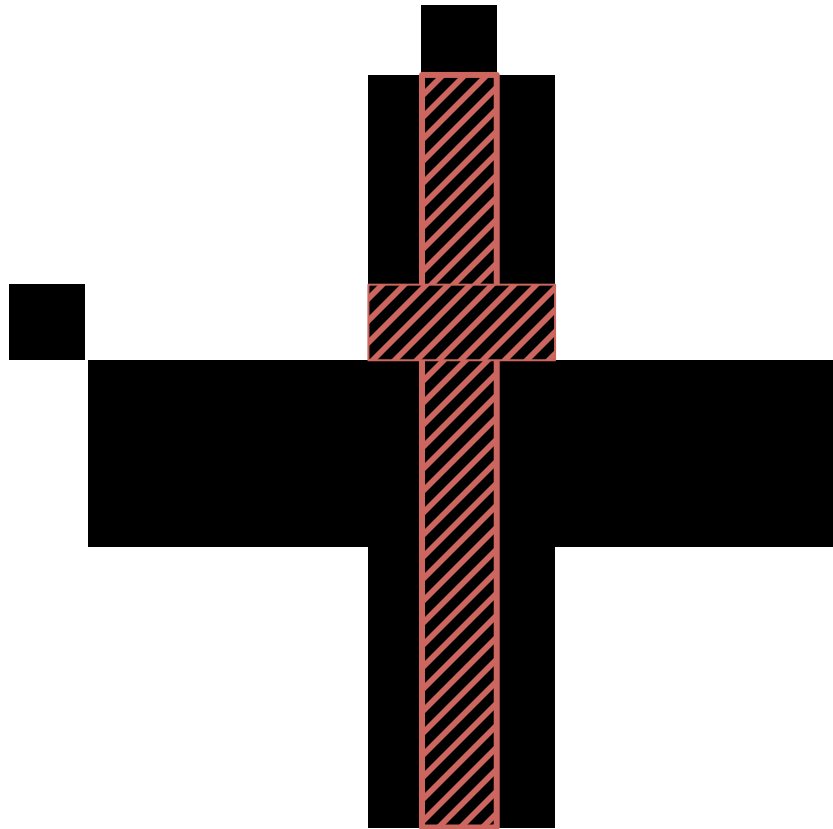
Nine patch



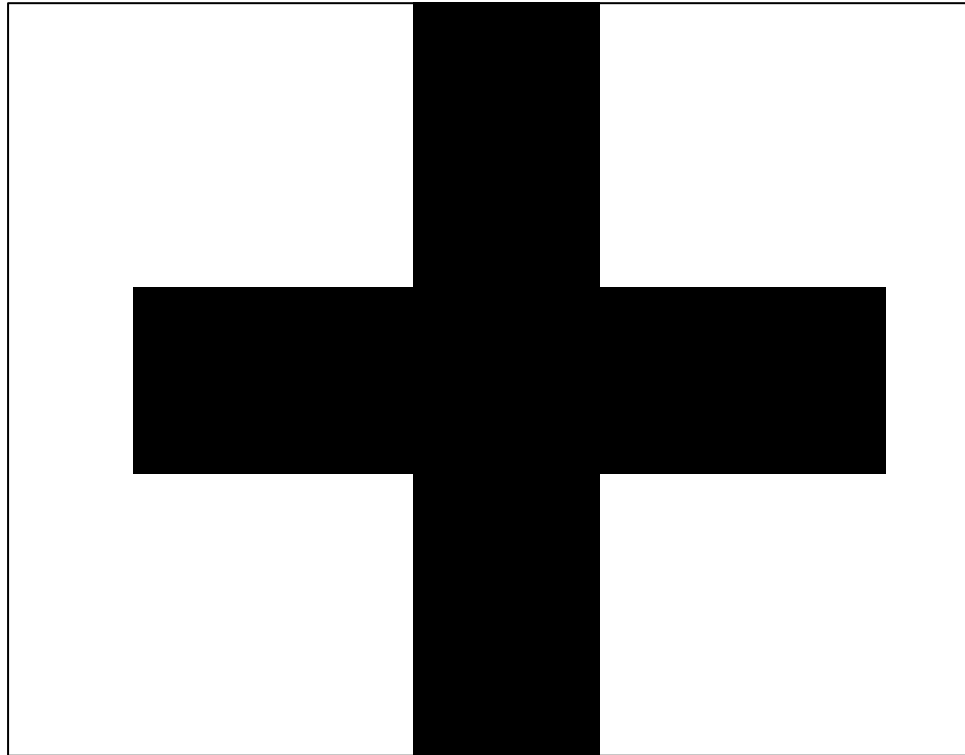
Nine patch



Nine patch

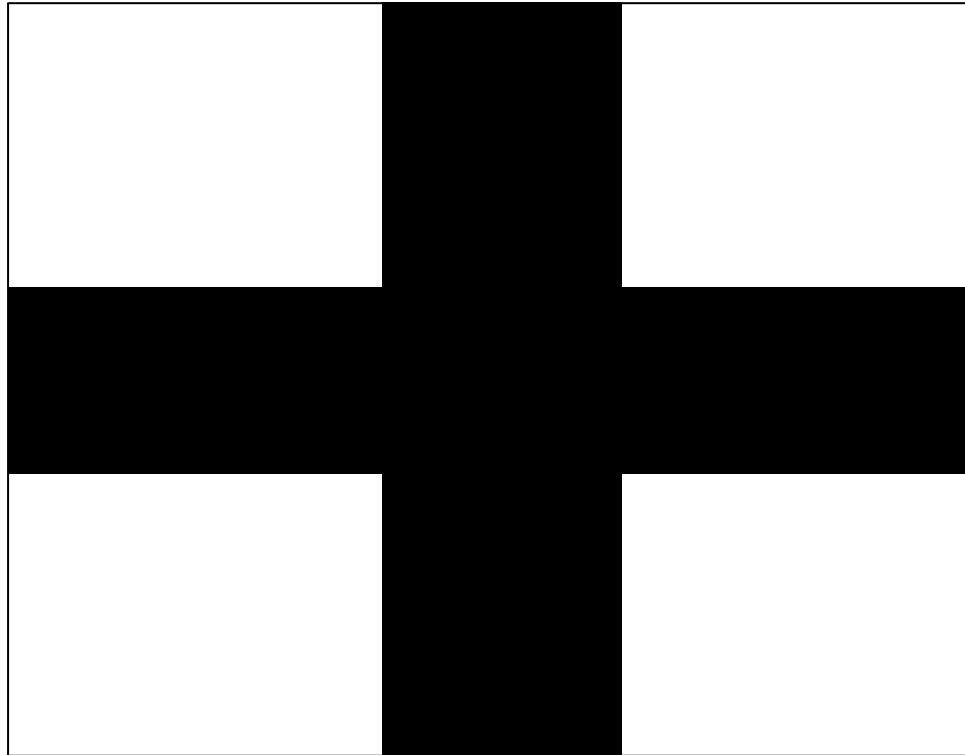


Nine patch



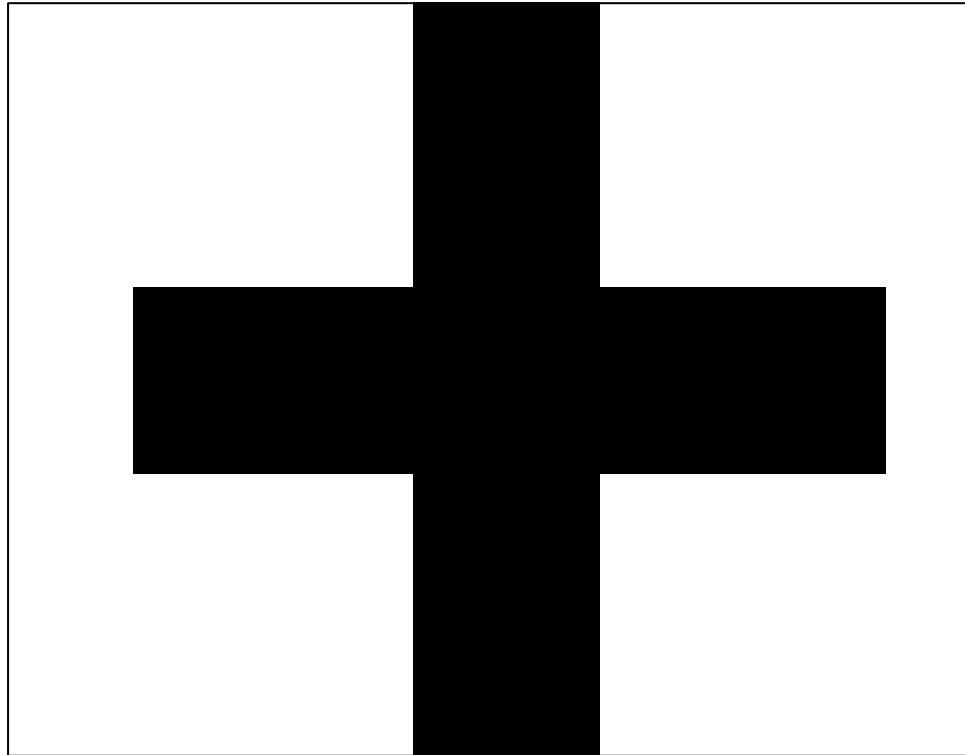
ImageView plus grande en largeur

Nine patch



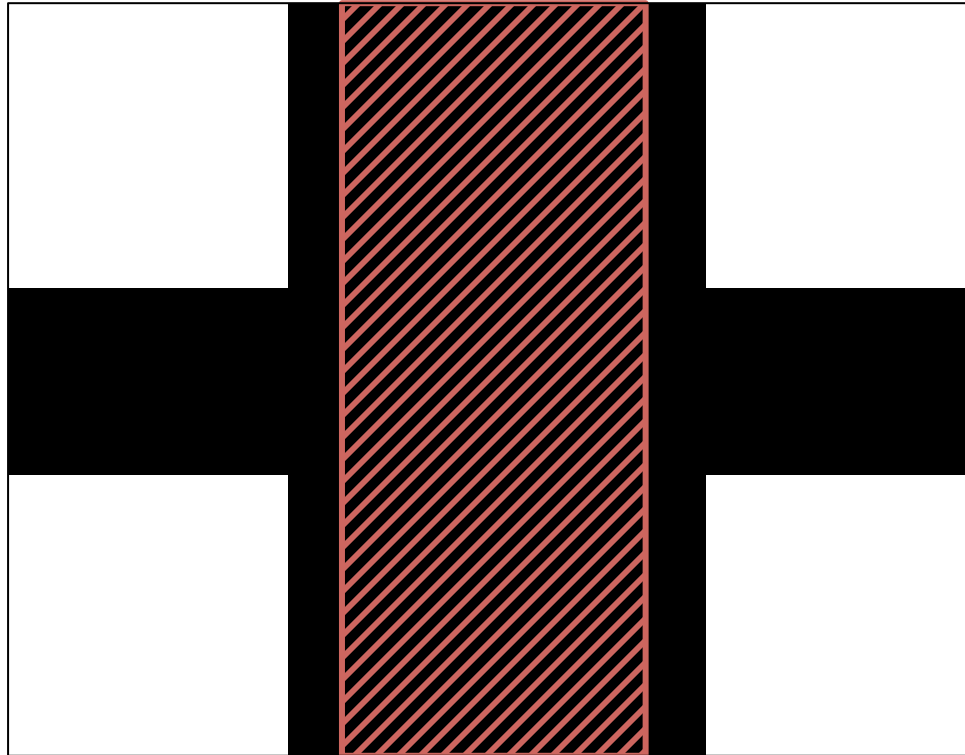
Scale d'une image PNG classique en fitXY

Nine patch



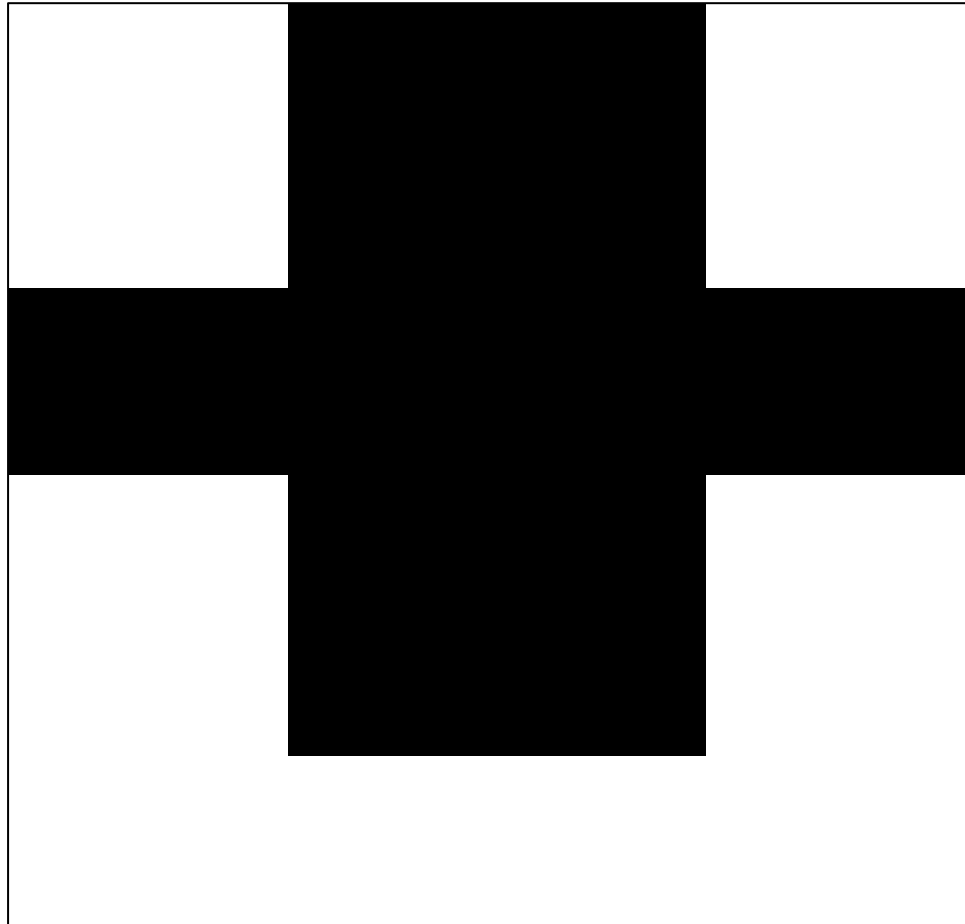
ImageView plus grande en largeur

Nine patch



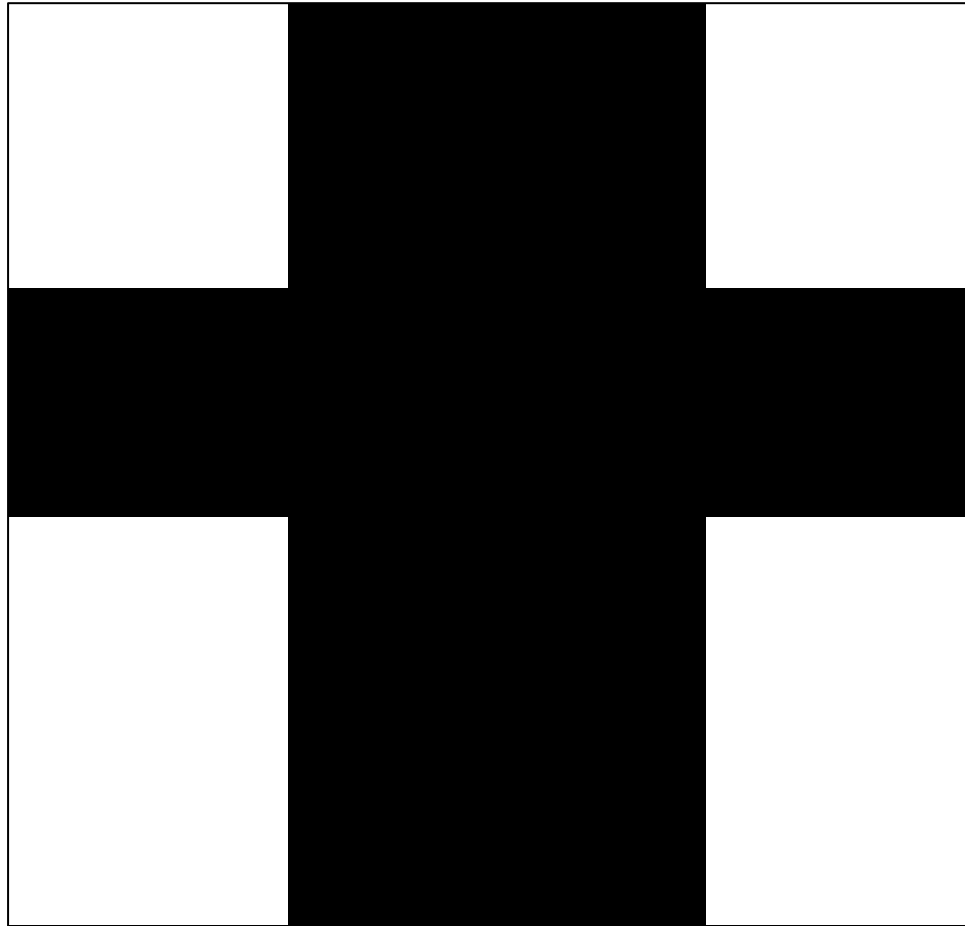
Scale du ninepatch en fitXY

Nine patch



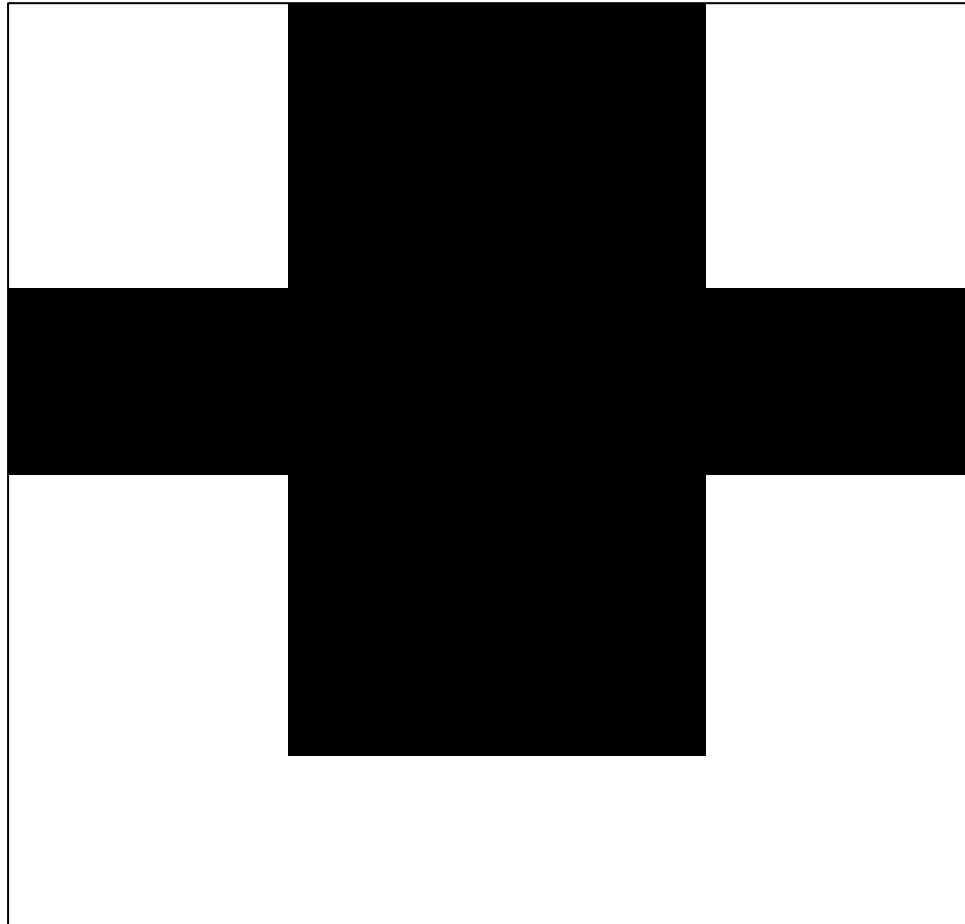
ImageView plus grande en longueur

Nine patch



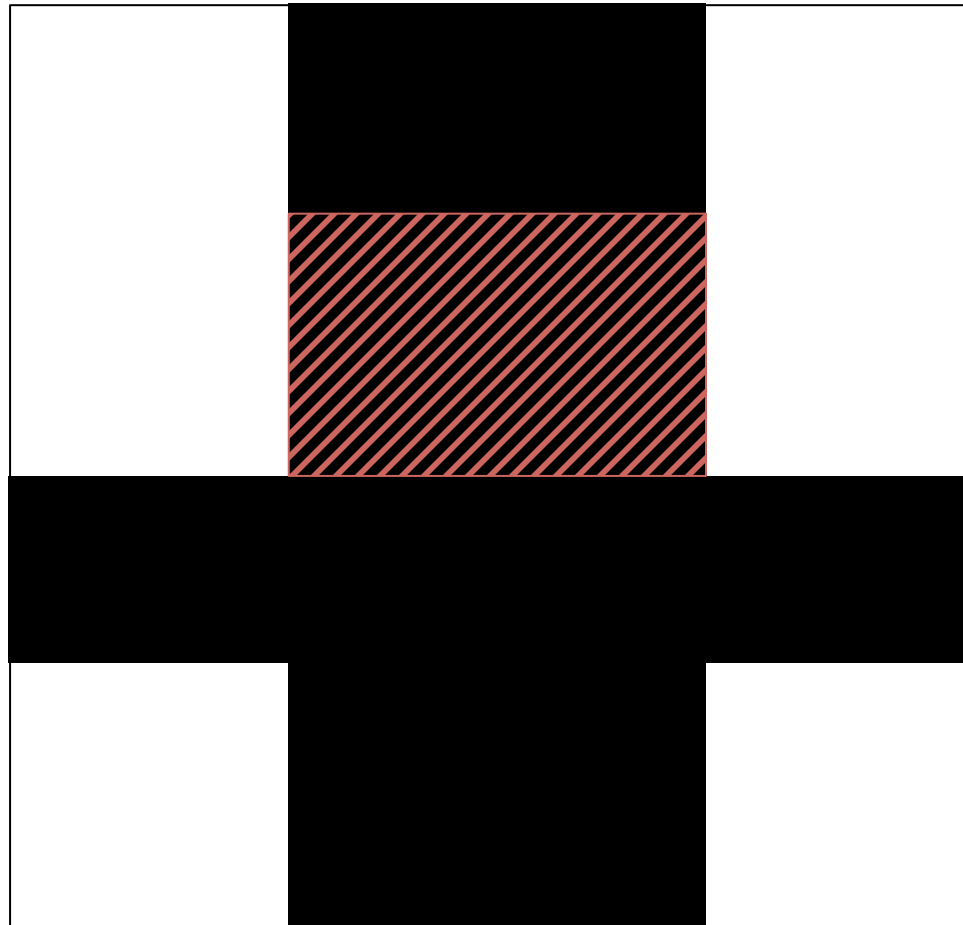
Scale d'une image PNG classique en fitXY

Nine patch



ImageView plus grande en longueur

Nine patch



Scale du ninepatch en fitXY

Nine patch

VALIDER

Nine patch



Nine patch



States

- Default

BUTTON

States

- Default
- Pressed



BUTTON



BUTTON

States

- Default
- Pressed
- Disabled

A white rectangular button with rounded corners and a subtle drop shadow. The word "BUTTON" is centered in bold black text.

BUTTON

A light gray rectangular button with rounded corners and a subtle drop shadow. The word "BUTTON" is centered in bold black text.

BUTTON

A medium gray rectangular button with rounded corners and a subtle drop shadow. The word "BUTTON" is centered in bold gray text.


BUTTON

States

```
<selector >  
  <item android:drawable="@drawable/button_pressed"  
        android:state_pressed="true" />  
  <item android:drawable="@drawable/button_focused"  
        android:state_focused="true" />  
  <item android:drawable="@drawable/button_default" />  
</selector>
```

ViewGroups

12:00



English • Español • Plus...

Adresse e-mail ou mobile




Mot de passe

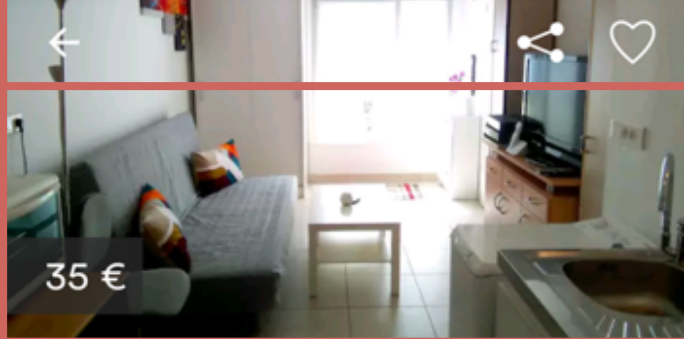
CONNEXION

Mot de passe oublié ?

CRÉER UN NOUVEAU COMPTE FACEBOOK

12:00









35 €


Home, sweet home!

★★★★★ 7



2 voyageurs 0 chambre 1 lit 1 sdb

Logement entier
Hébergé chez [Natali](#)



Vérifier la disponibilité

ViewGroups

- `LinearLayout`
 - Place les views les unes à côté des autres
- `RelativeLayout`
 - Place les views les unes par rapport aux autres
- `FrameLayout`
 - Place les views les unes au dessus des autres

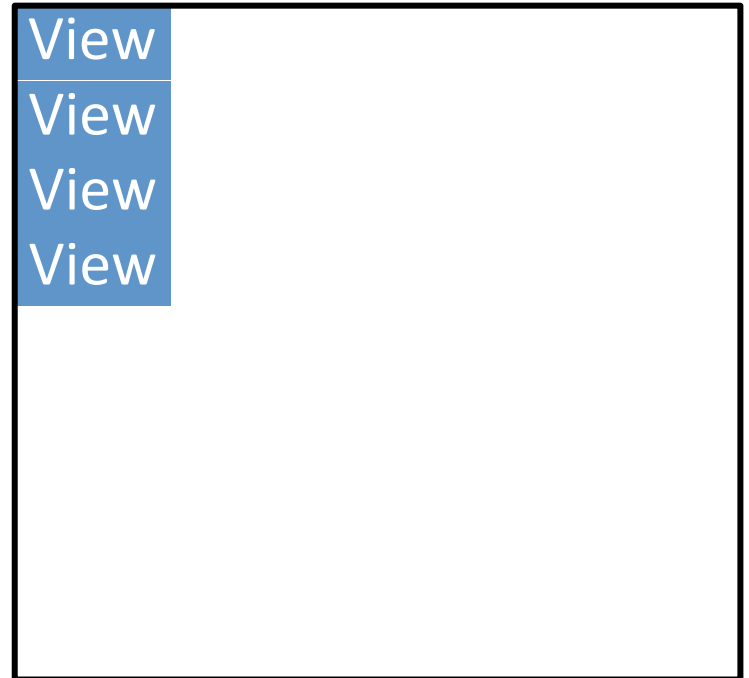
LinearLayout

```
<LinearLayout  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    android:orientation="horizontal">
```

```
</LinearLayout>
```

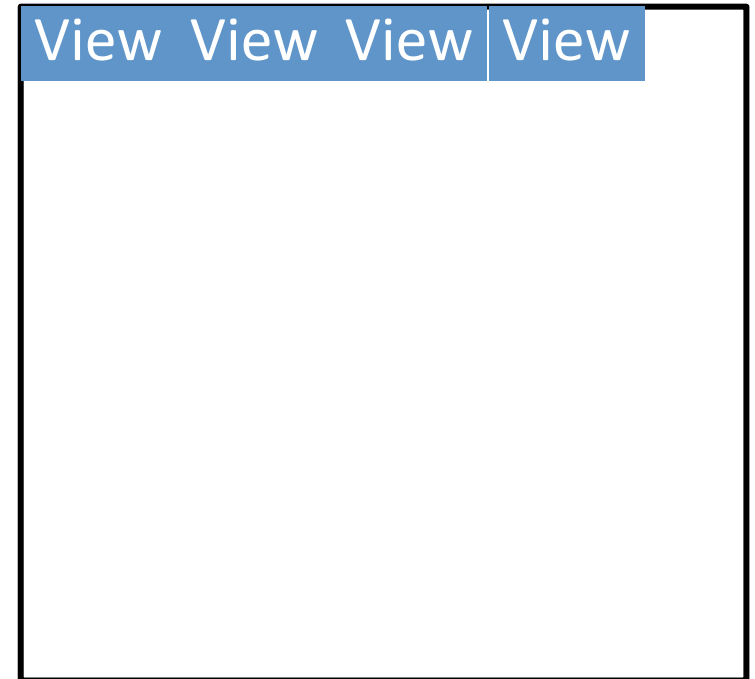
LinearLayout

`android:orientation="vertical"`



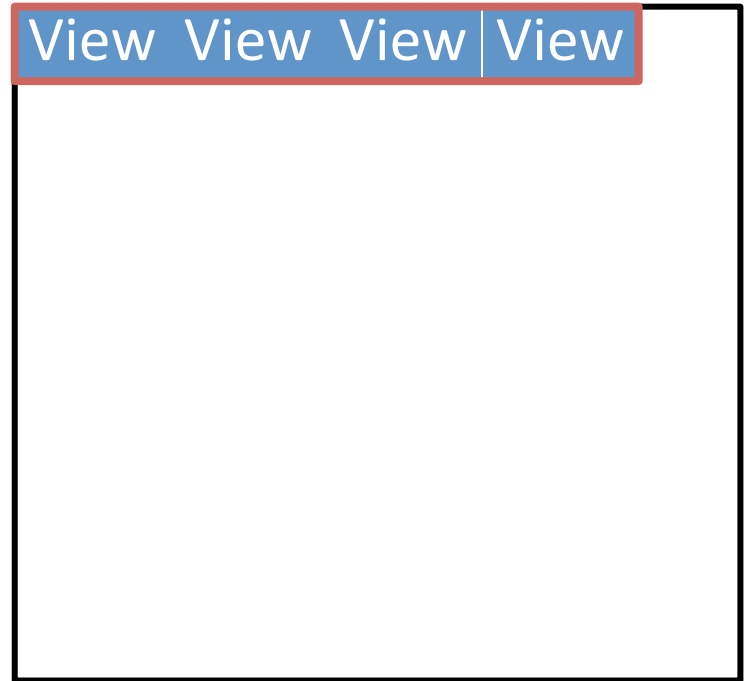
LinearLayout

`android:orientation="horizontal"`



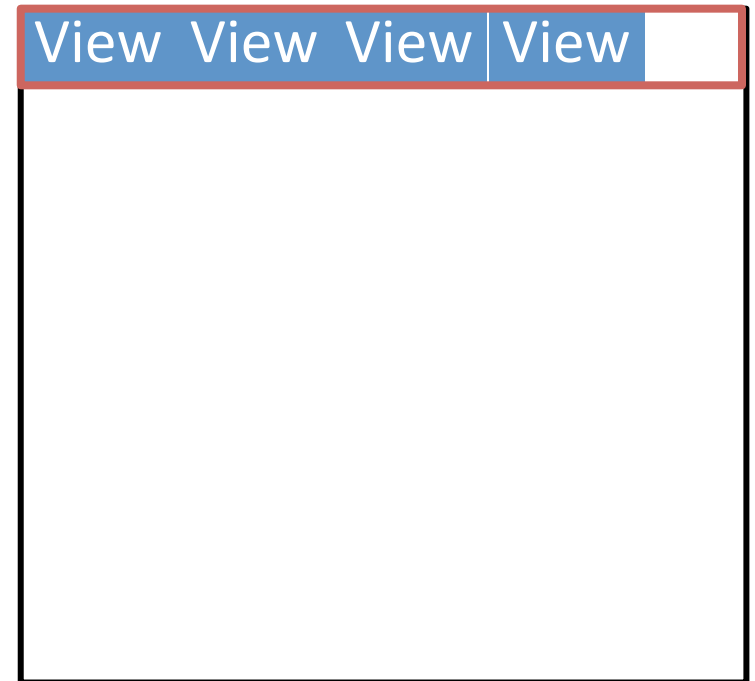
LinearLayout

```
android:layout_width="wrap_content"  
android:orientation="horizontal"
```



LinearLayout

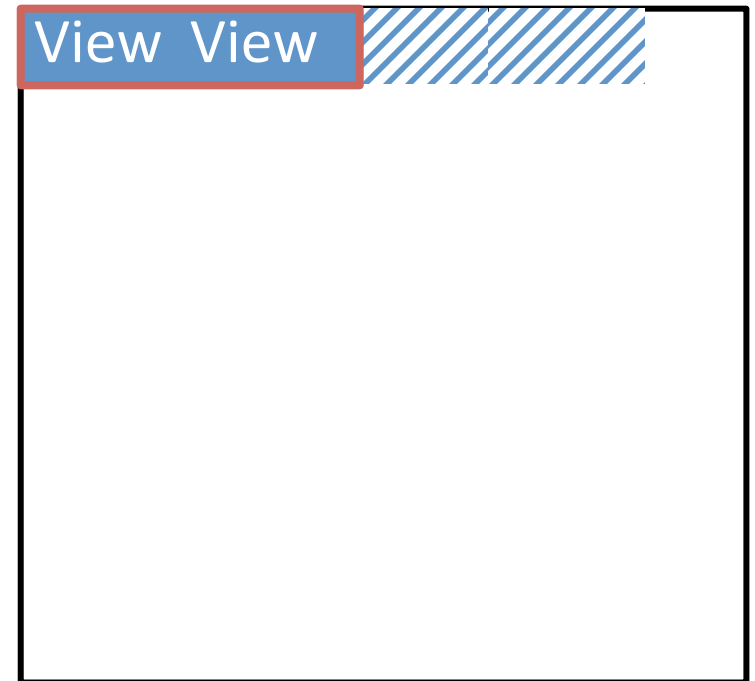
```
android:layout_width="match_parent"  
android:orientation="horizontal"
```



LinearLayout

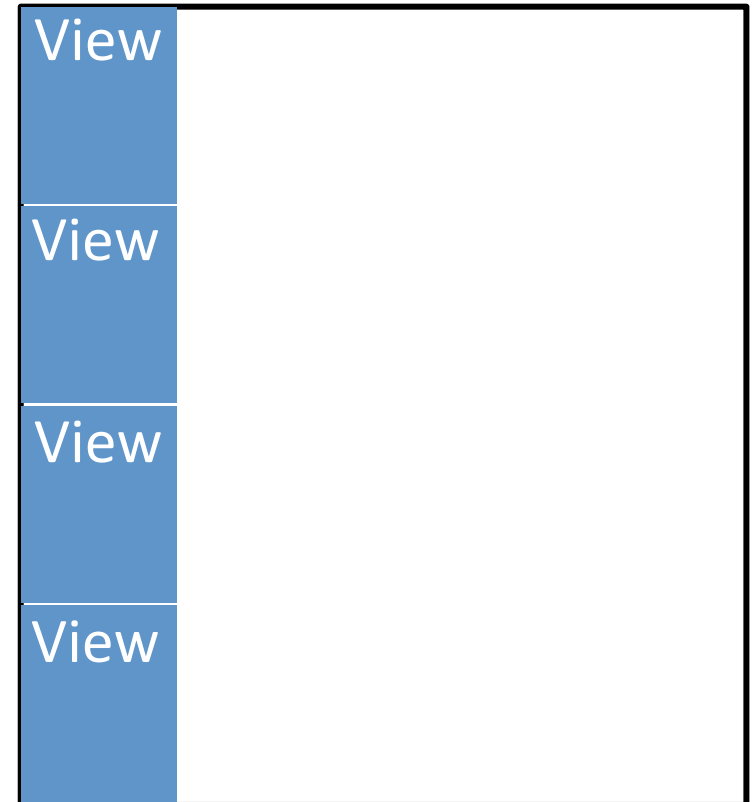
`android:layout_width="100dp"`

`android:orientation="horizontal"`



LinearLayout

```
android:orientation="vertical"  
android:layout_height="0dp"  
android:layout_weight="1"
```



LinearLayout

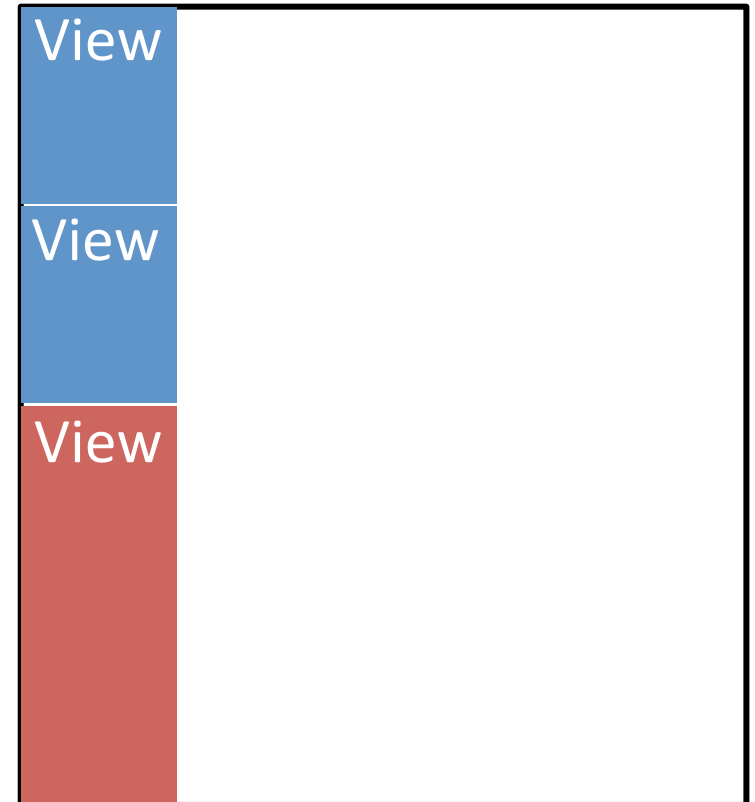
`android:orientation="vertical"`

`android:layout_height="0dp"`

`android:layout_weight="1"`

`android:layout_height="0dp"`

`android:layout_weight="2"`



LinearLayout

- Alignement des views :
 - `android:layout_gravity`
 - `android:gravity`
- Valeurs possibles :
 - center / center_horizontal / center_vertical
 - right / left / top / bottom

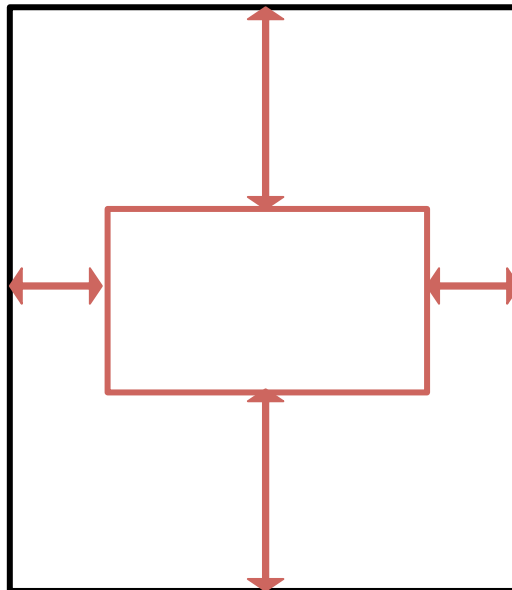
layout_gravity

- À affecter à une view enfant
- Aligne la view dans le parent

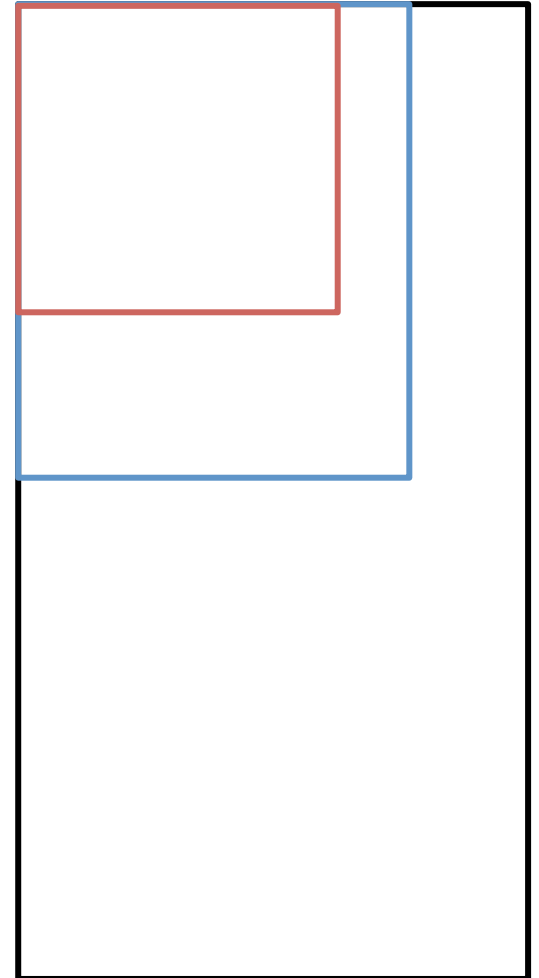
layout_gravity

- S'aligne par rapport à l'extérieur

`android:layout_gravity="center"`

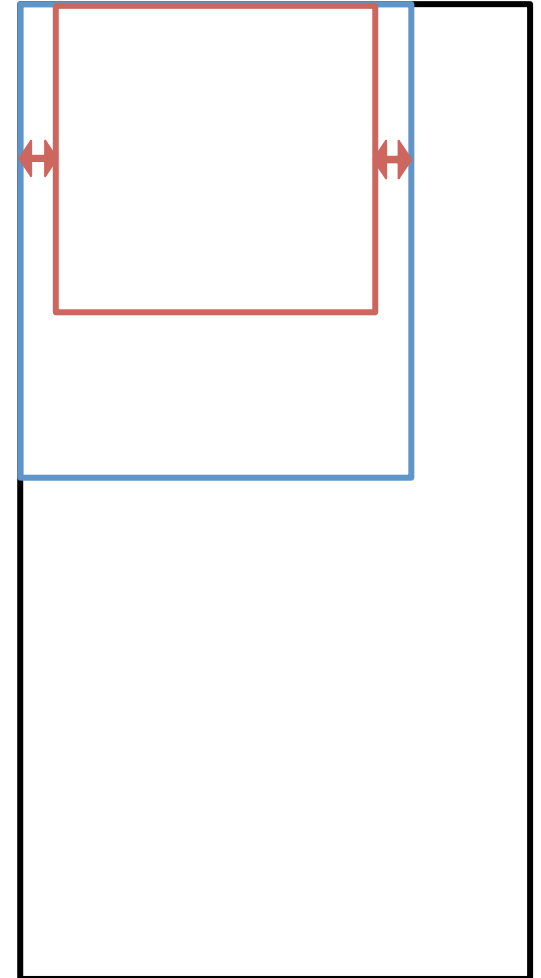


layout_gravity



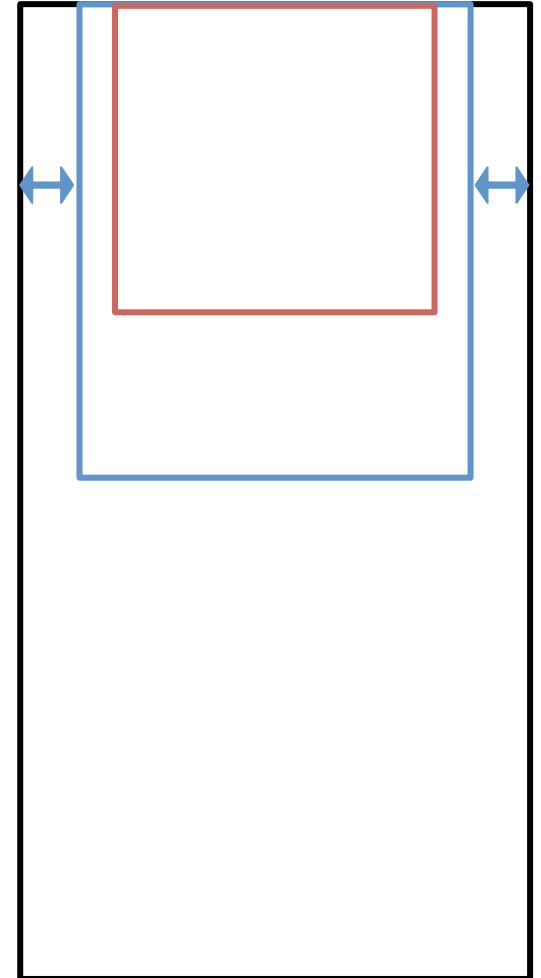
layout_gravity

`android:layout_gravity="center_horizontal"`



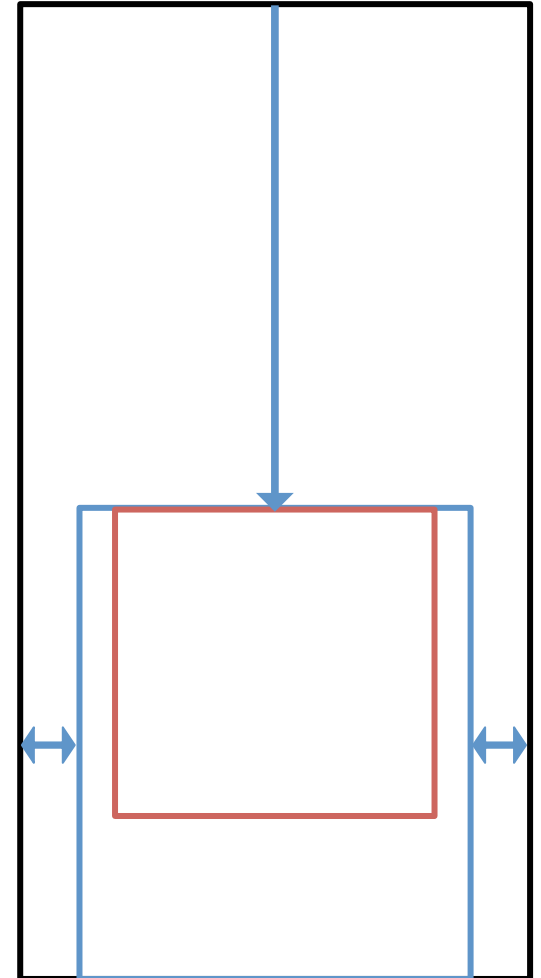
layout_gravity

`android:layout_gravity="center_horizontal"`
`android:layout_gravity="center_horizontal"`



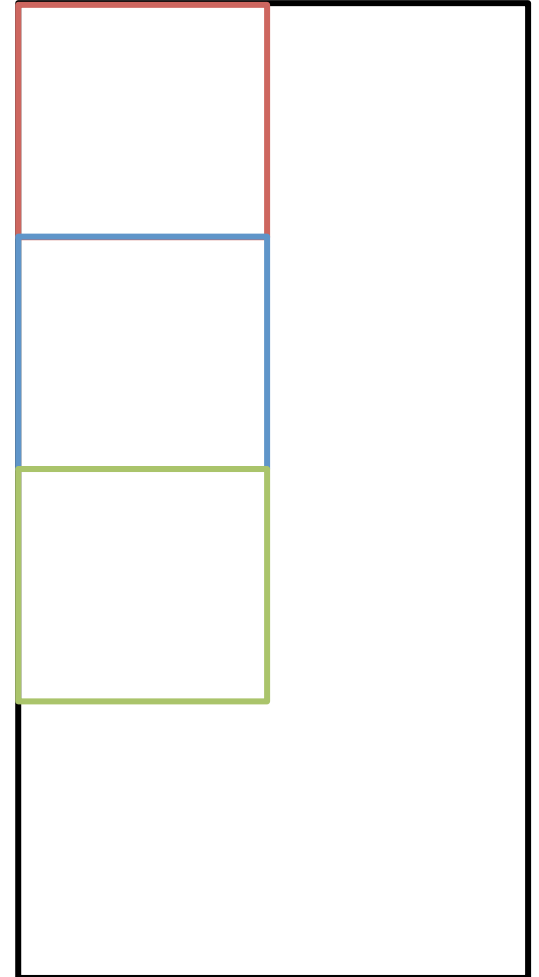
layout_gravity

```
android:layout_gravity="center_horizontal"  
android:layout_gravity="center_horizontal|  
bottom"
```



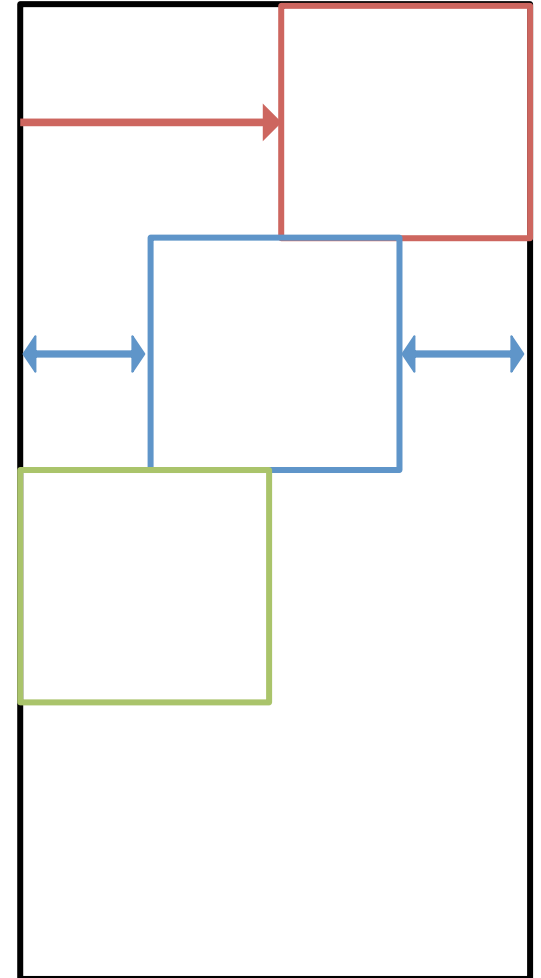
layout_gravity

`android:orientation="vertical"`



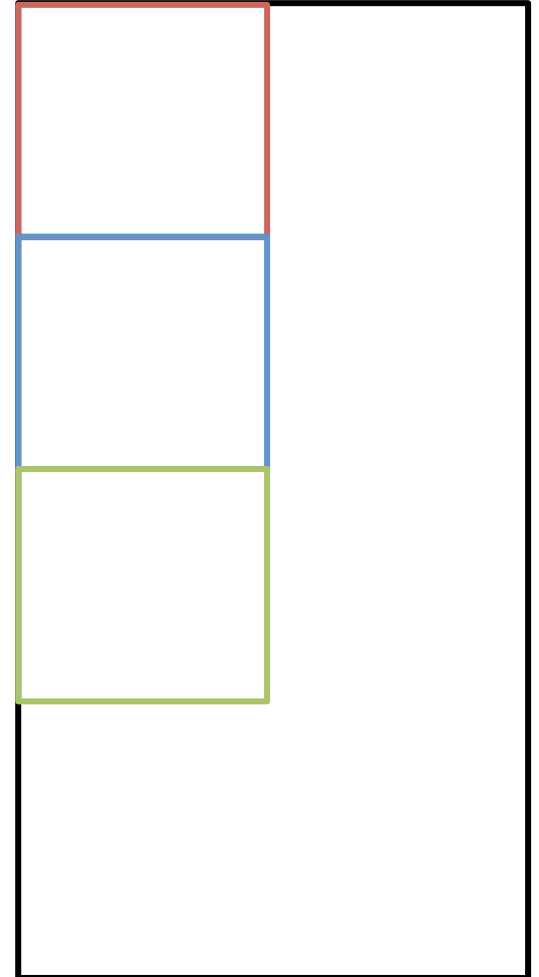
layout_gravity

```
android:orientation="vertical"  
android:layout_gravity="right"  
android:layout_gravity="center_horizontal"
```



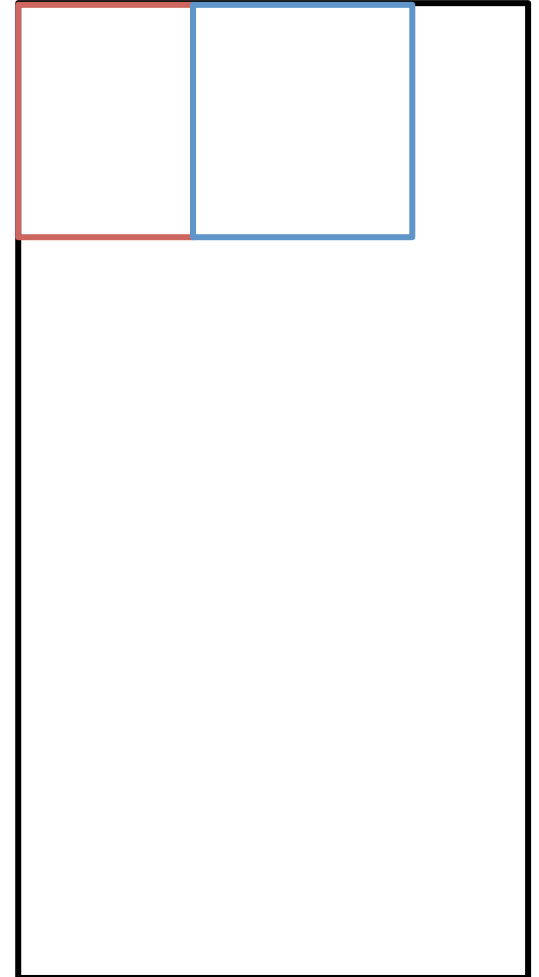
layout_gravity

```
android:orientation="vertical"  
android:layout_gravity="bottom"  
android:layout_gravity="top"
```



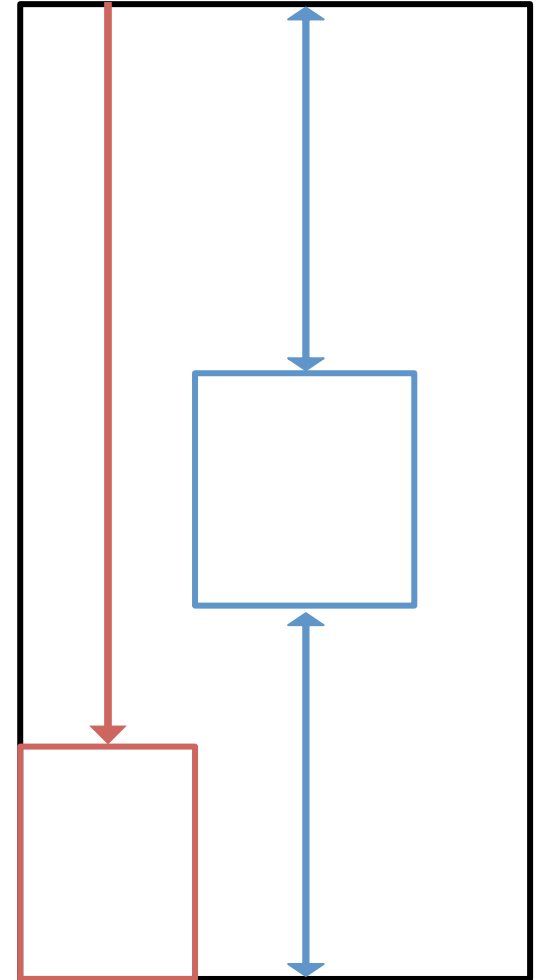
layout_gravity

`android:orientation="horizontal"`



layout_gravity

```
android:orientation="horizontal"  
android:layout_gravity="bottom"  
android:layout_gravity="center_vertical"
```

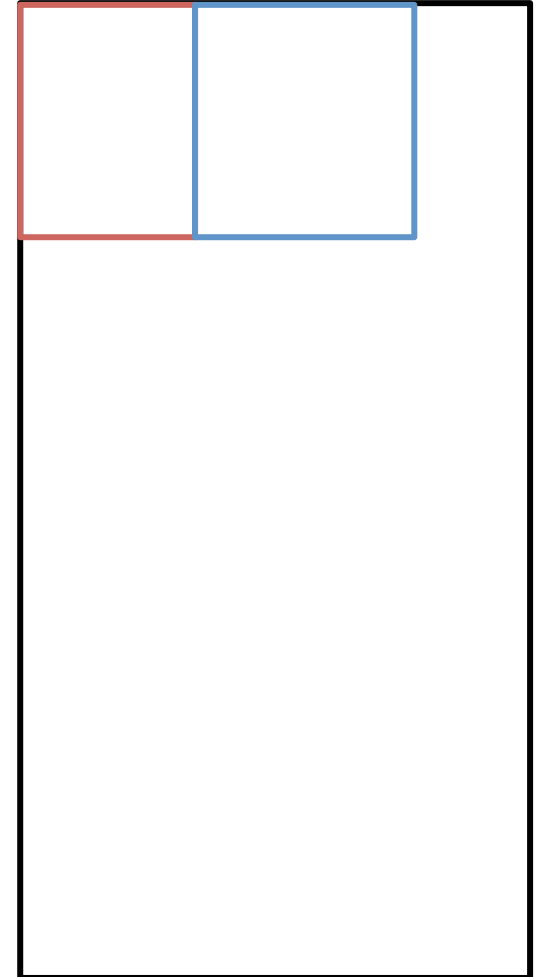


layout_gravity

`android:orientation="horizontal"`

~~`android:layout_gravity="right"`~~

~~`android:layout_gravity="center_horizontal"`~~

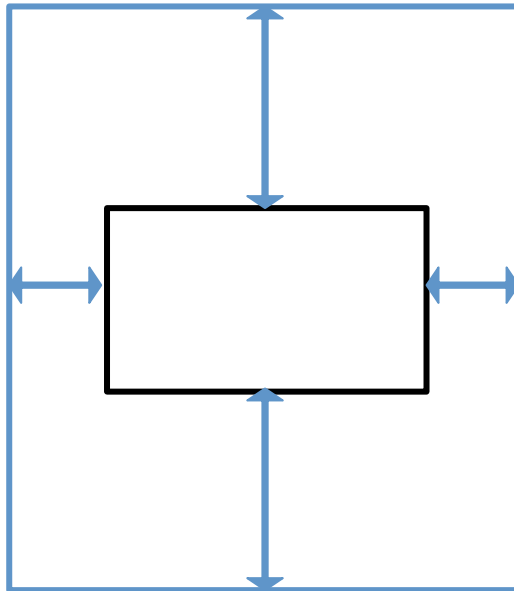


gravity

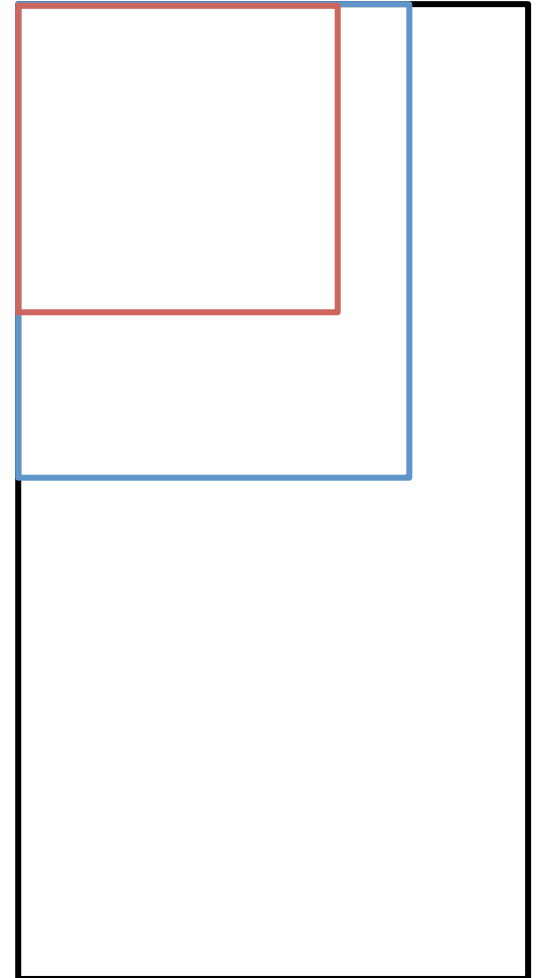
- À affecter à une view parent
- Aligne le contenu de la view enfant

gravity

`android:gravity="center"`

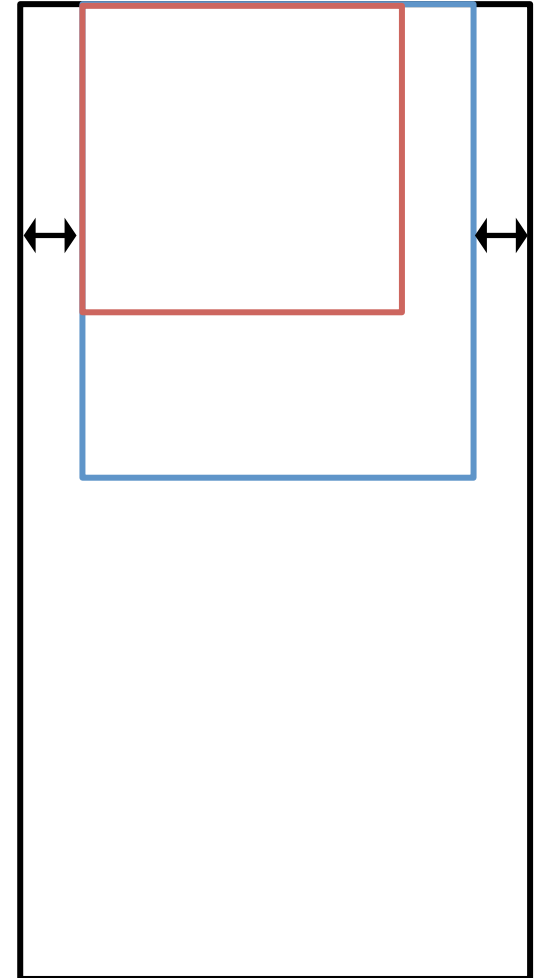


gravity



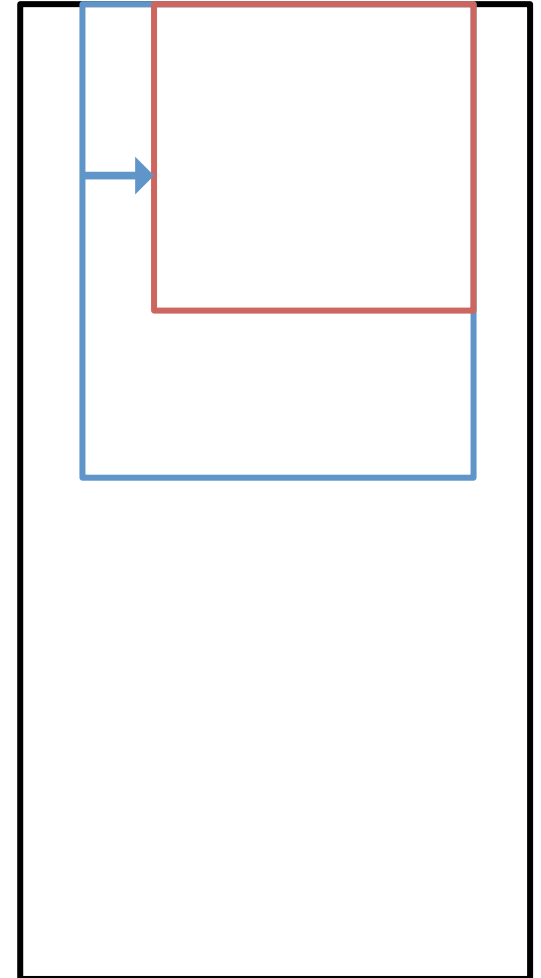
gravity

`android:gravity="center_horizontal"`



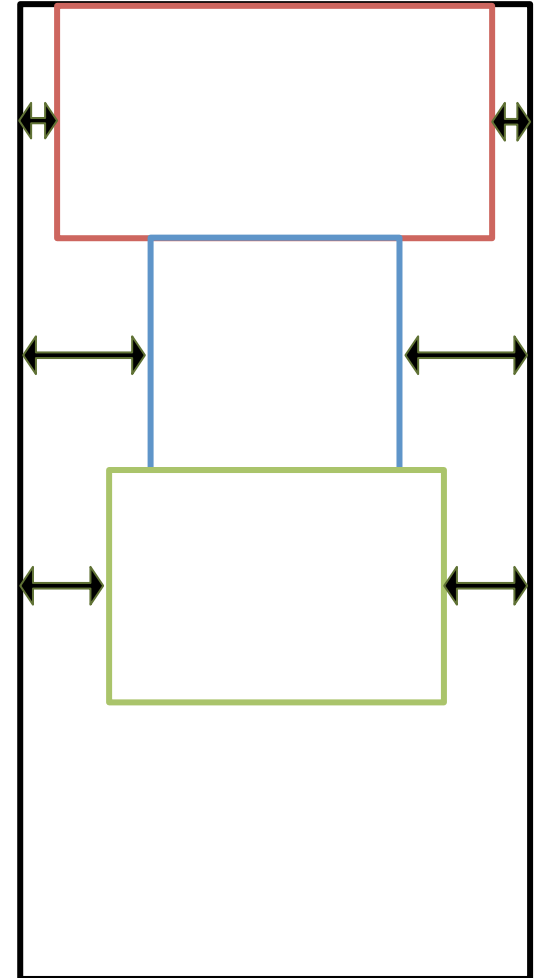
gravity

```
android:gravity="center_horizontal"  
android:gravity="right"
```



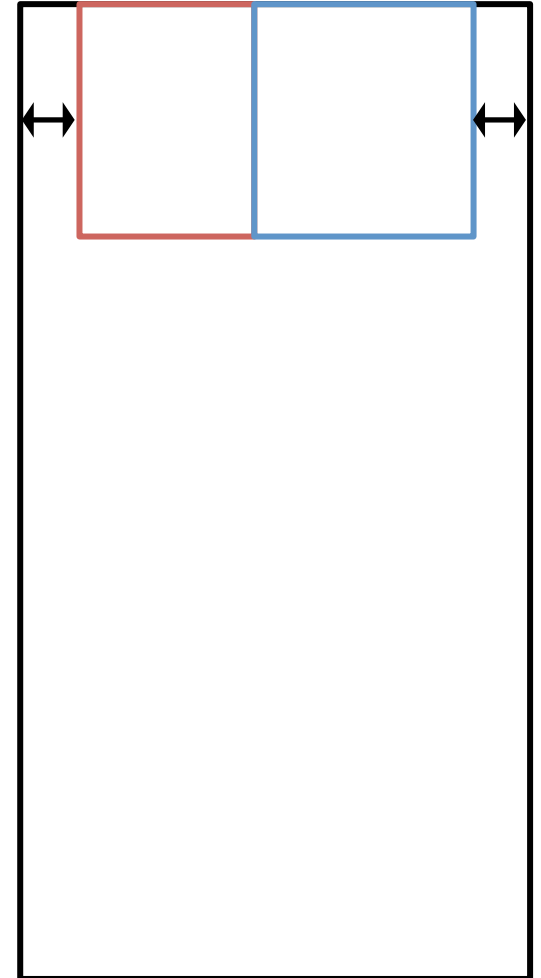
gravity

```
android:orientation="vertical"  
android:gravity="center_horizontal"
```



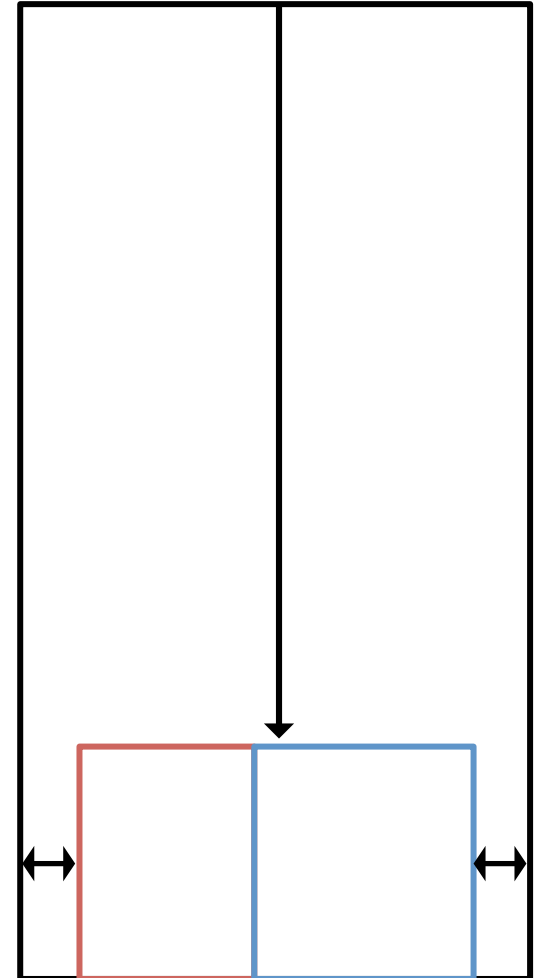
gravity

```
android:orientation="horizontal"  
android:gravity="center_horizontal"
```



gravity

```
android:orientation="horizontal"  
android:gravity="center_horizontal|bottom"
```



RelativeLayout

```
android:id="@+id/view_1"
```



View

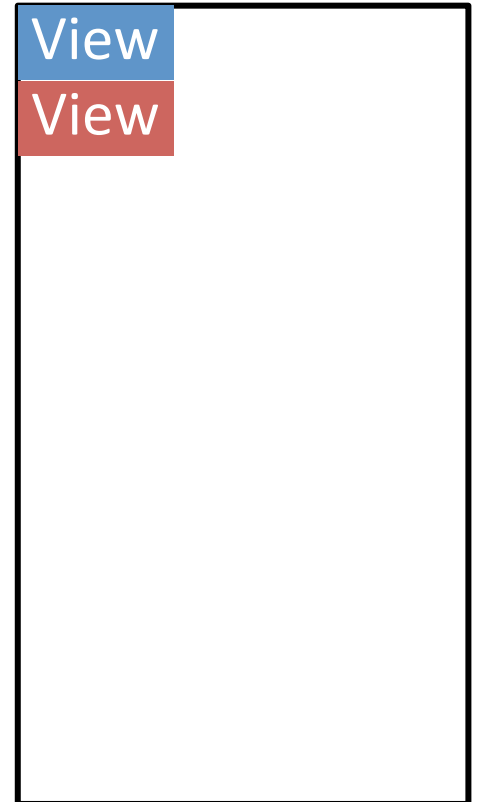
A diagram illustrating a RelativeLayout. It consists of a large, empty rectangular box with a black border. In the top-left corner of this box, there is a smaller, solid blue rectangle. The word "View" is written in white text inside this blue rectangle.

RelativeLayout

```
android:id="@+id/view_1"
```

```
android:id="@+id/view_2"
```

```
android:layout_below="@id/view_1"
```



RelativeLayout

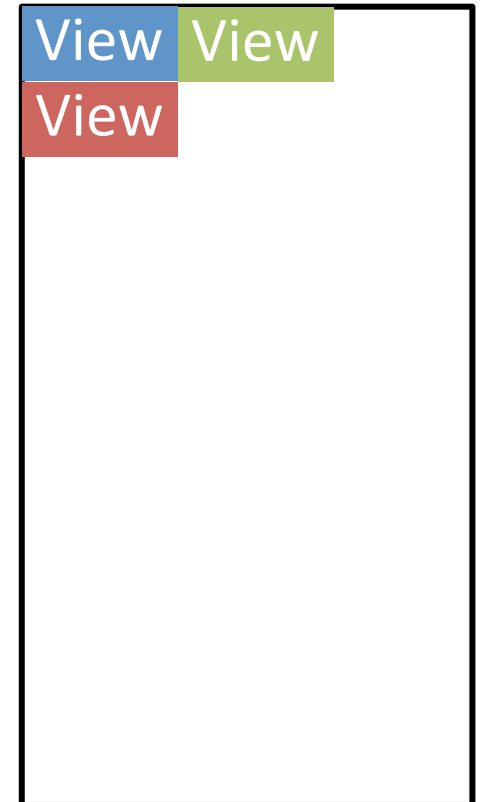
```
android:id="@+id/view_1"
```

```
android:id="@+id/view_2"
```

```
android:layout_below="@id/view_1"
```

```
android:id="@+id/view_3"
```

```
android:layout_toRightOf="@id/view_2"
```



RelativeLayout

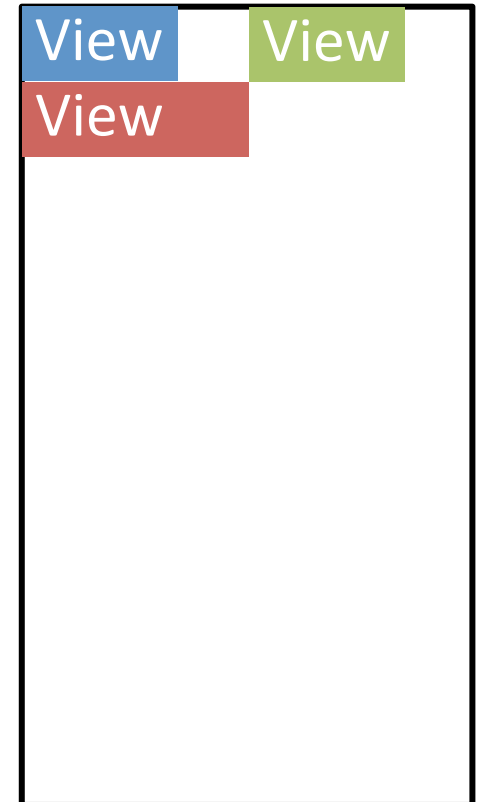
```
android:id="@+id/view_1"
```

```
android:id="@+id/view_2"
```

```
android:layout_below="@id/view_1"
```

```
android:id="@+id/view_3"
```

```
android:layout_toRightOf="@id/view_2"
```



RelativeLayout

```
android:id="@+id/view_1"
```

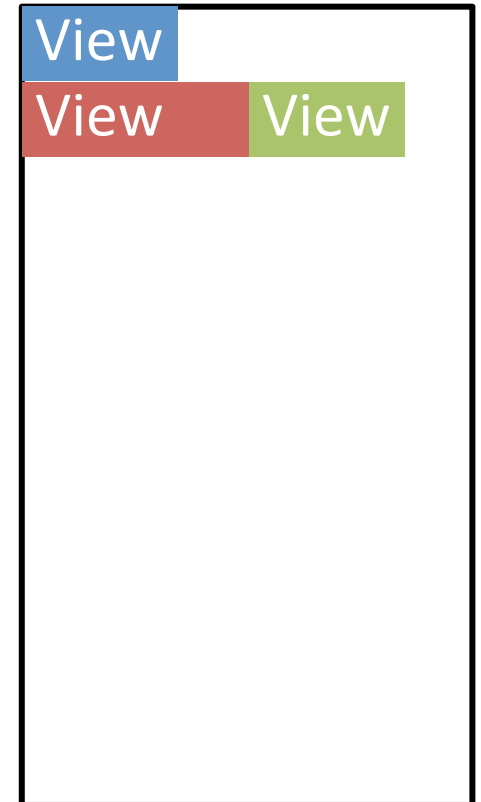
```
android:id="@+id/view_2"
```

```
android:layout_below="@id/view_1"
```

```
android:id="@+id/view_3"
```

```
android:layout_toRightOf="@id/view_2"
```

```
android:layout_below="@id/view_1"
```



RelativeLayout

```
android:id="@+id/view_1"
```

```
android:id="@+id/view_2"
```

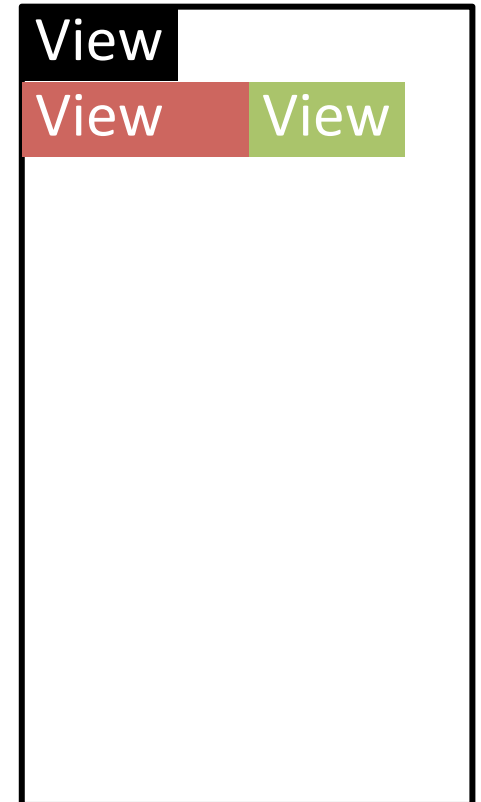
```
android:layout_below="@id/view_1"
```

```
android:id="@+id/view_3"
```

```
android:layout_toRightOf="@id/view_2"
```

```
android:layout_below="@id/view_1"
```

```
android:id="@+id/view_4"
```



RelativeLayout

```
android:id="@+id/view_1"
```

```
android:id="@+id/view_2"
```

```
android:layout_below="@id/view_1"
```

```
android:id="@+id/view_3"
```

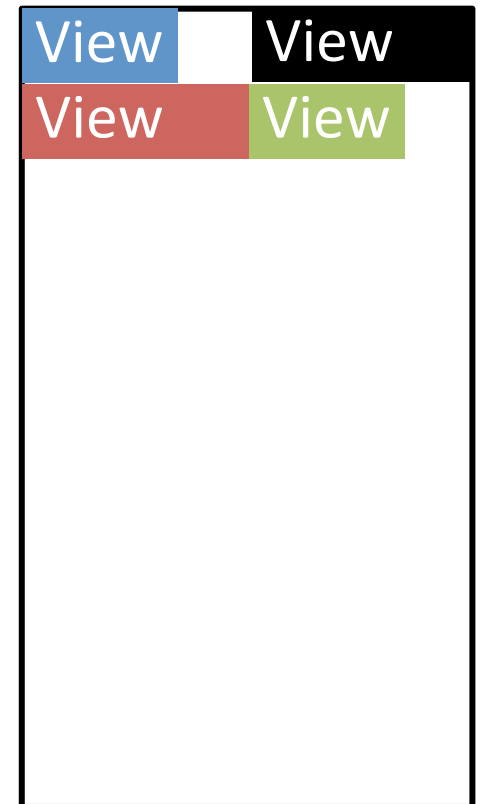
```
android:layout_toRightOf="@id/view_2"
```

```
android:layout_below="@id/view_1"
```

```
android:id="@+id/view_4"
```

```
android:layout_alignLeft="@id/view_3"
```

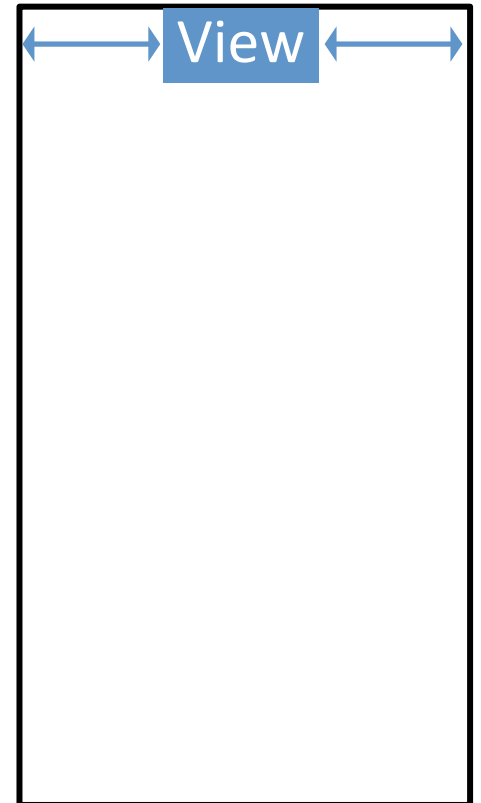
```
android:layout_alignParentRight="true"
```



RelativeLayout

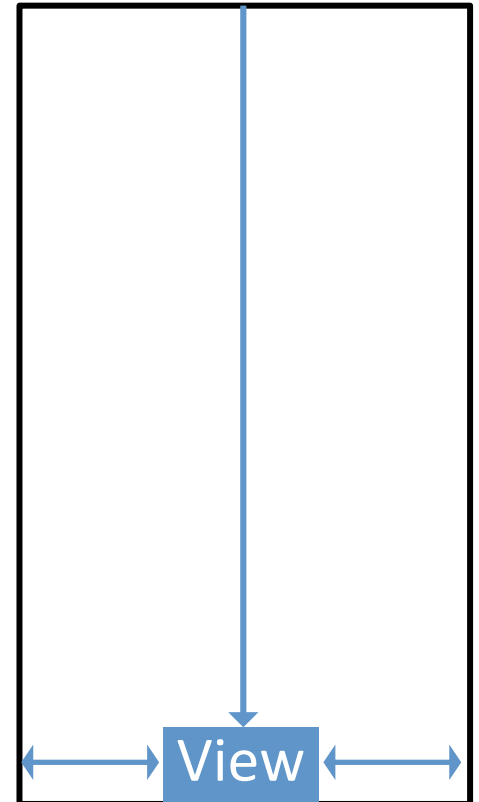
```
android:id="@+id/view_1"
```

```
android:layout_centerHorizontal="true"
```



RelativeLayout

```
android:id="@+id/view_1"  
android:layout_centerHorizontal="true"  
android:layout_alignParentBottom="true"
```



LinearLayout ou RelativeLayout ?

- Eviter un maximum d'imbriquer des ViewGroups
- Plus un layout est plat plus il sera facile pour Android de l'afficher

Qualifier

Qualifier

- Internationalisation
- Tailles d'écrans
- Résolutions des écrans
- Versions d'Android
- Orientations d'écrans

Qualifier

- values
- layout
- drawable

Qualifier

- values-**en** : Pour téléphone anglais
- layout-**land** : Pour mode paysage
- drawable-**xxhdpi** : Pour résolution d'écran
xxhdpi

Qualifier

- values-**en**
- layout-**land**
- drawable-**xxhdpi**
- value-**en-sw600dp-land-xxhdpi-v7** :

Pour téléphone anglais de largeur d'écran minimum 600dp en mode landscape avec une résolution xxhdpi sous Android v7

Qualifier

- Langage et region (en, fr, de, es, etc...)
- Taille d'écran minimum (sw600dp, sw720dp)
- Orientation de l'écran (land, port)
- Densité de l'écran (mdpi, hdpi, xhdpi, etc..)
- Version d'Android
- etc...

Qualifier

- values
 string.xml
- values-en
 string.xml

Qualifier

- values
 string.xml
- values-en
 string.xml

Téléphone en anglais

Qualifier

- values
 string.xml
- values-en
 string.xml

Téléphone en français

Qualifier

- layout

layout.xml

- layout-land-v7

layout.xml



Téléphone Android v7

Qualifier

- layout

layout.xml

- layout-land-v7

layout.xml

- Téléphone Android v7
- En landscape

Qualifier

- layout

layout.xml

- layout-land-v7

layout.xml

- Téléphone Android v7
- En landscape
- En anglais