



University of Mila
Computer Science Department

Third-year Bachelor
Mobile Applications Course

Chapter 4

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Creating graphical user interfaces

Interact with the user → **graphical elements** and **widgets** (buttons, input fields, drop-down menus, etc.).

We use a **layout** folder → it contains an **XML file** that the activity will load.

Stored in the **res/layout** directory of your project.

If it is **linked to an activity** → it is **suffixes with activity**, written in **lowercase**, and words are separated by an **underscore**.

Example: MainActivity → activity_main.xml.

Graphical Editor

Android Studio opens the editor in **Design mode**



You can place and configure the different graphical elements using your mouse



Automatically generates the XML content

Containers

Display elements on the screen



Use a **container**



A container is a special element used
to **organize the elements it contains**



LinearLayout : positions elements horizontally or vertically ;

RelativeLayout : allows elements to be positioned relative to one another ;

ConstraintLayout : provides much more powerful positioning rules.

Attributes

Each XML tag has several attributes

Two fundamental attributes: **layout_width** and **layout_height**

They determine how an element is displayed inside its container

Possible values :

- **match_parent** : occupies the maximum available space provided by its parent ;
- **wrap_content** : occupies only the space needed to display its content ;
- **Odp** : the size of the element is defined by its constraints.

Handle events on widgets

A widget is a **basic element**



Display content to the user

Interact with the application

Official Android documentation

TextView

Display a character string

EditText

Write text

Button

Simple button (it is actually a clickable TextView)

CheckBox

A box that can have two states: checked or unchecked

RadioButton et RadioGroup

Same principle as the CheckBox, except that the user can select only one option.

Events on Widgets

Managing interactions between the graphical interface and the user

Several ways to interact with a graphical interface
Clicking a button, entering text, selecting a portion of text, etc.

These interactions are called **events**

Events on Widgets

To react to an event, you need to use an **object** that detects the event and allows you to handle it. This type of object is called

Listeners

They require you to override methods, and each method is called when the associated event occurs

Events on Widgets

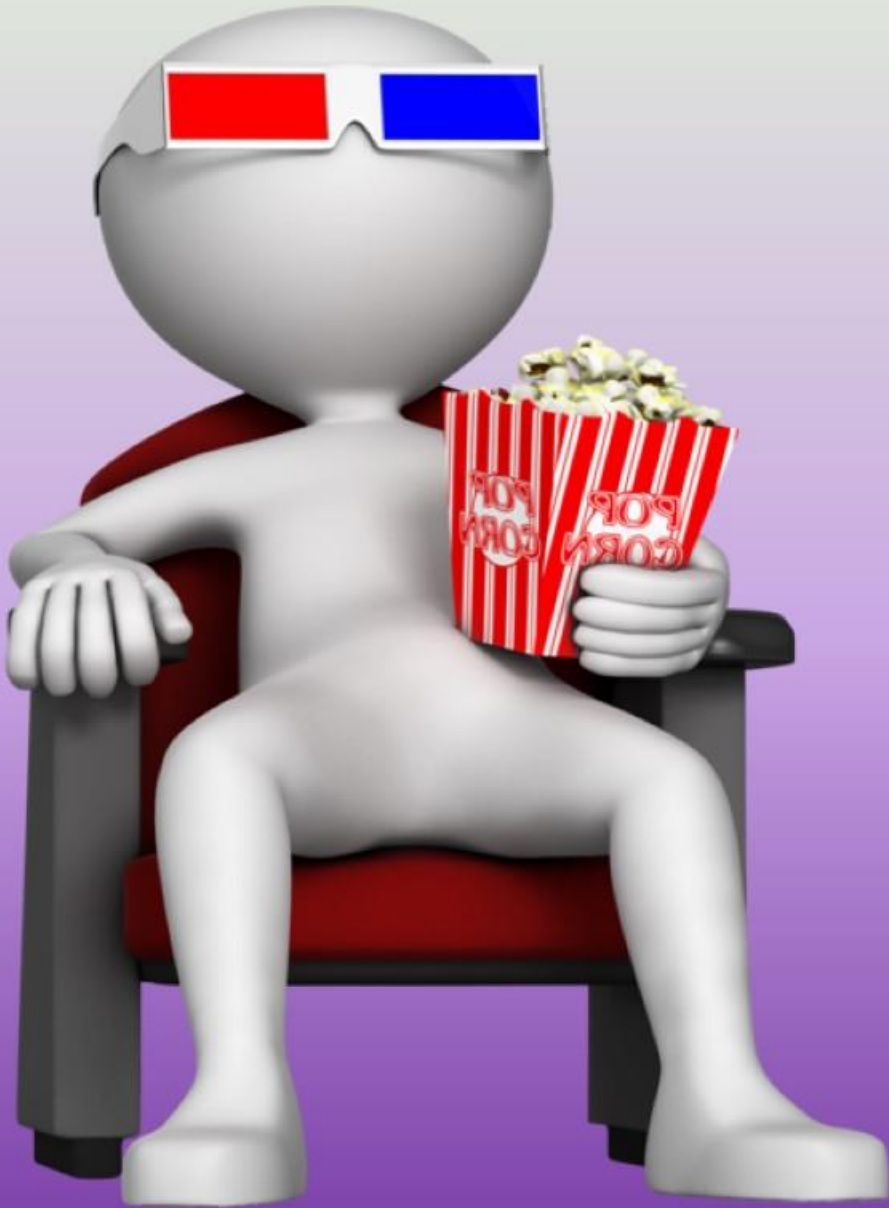
Finally, to attach a listener to a view, we use a method of the form

setOn[Event]Listener

where Event is the event in question

Example: to detect button clicks, we use

setOnClickListener



**Did you
know?**

Onboarding

I want to learn...

 Spanish >

 French >

 German >

 Italian >

 Japanese >

 Chinese >

 Russian >

 Korean >

 Portuguese >

Pick a goal

Casual5 min / day

Regular10 min / day

Serious15 min / day

Intense20 min / day



You can always change goals later.

CONTINUE

Choose a path

 Learning Spanish for the first time?
Start from scratch!

 Already know some Spanish?
Check your level here!

THINK
LESS
DO
MORE