



UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA

International ICT Week
July 8-12, 2024

Mobile Apps for Android

with MIT App Inventor 2

**Fast visual development with
media, GPS and databases**











Session 3

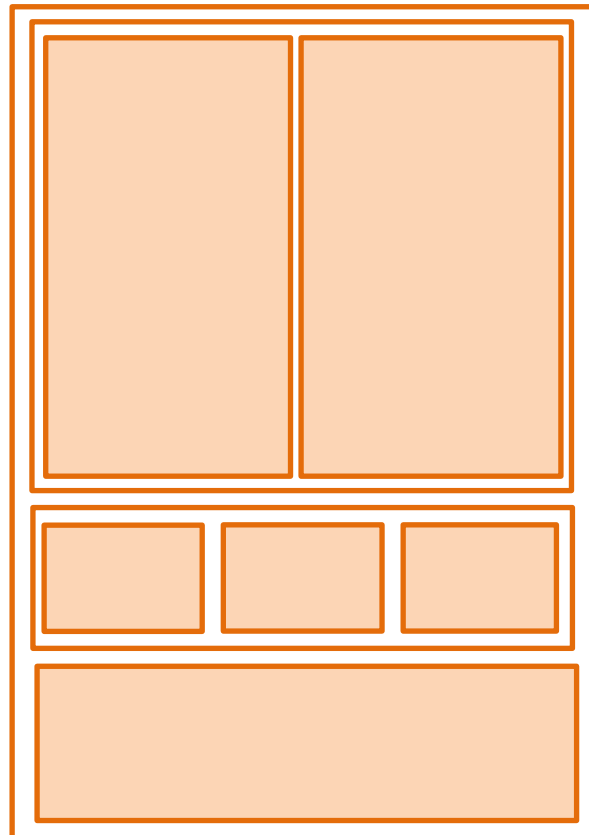
- Components. Images, audio and video
- Camera. Sensors: GPS, accelerometer...
- Programming with the Block Editor
- Distribution of elements on the screen
- User interface objects

Distribution of elements on the screen

Layout

Layout

-  HorizontalArrangement 
-  HorizontalScrollArrangement 
-  TableArrangement 
-  VerticalArrangement 
-  VerticalScrollArrangement 



“Responsive” concept

Properties

HorizontalArrangement1

AlignHorizontal

Left : 1 ▾

AlignVertical

Top : 1 ▾

BackgroundColor

 Default

Height

Automatic...

Width

☒ Automatic

☐ Fill parent

☐ pixels

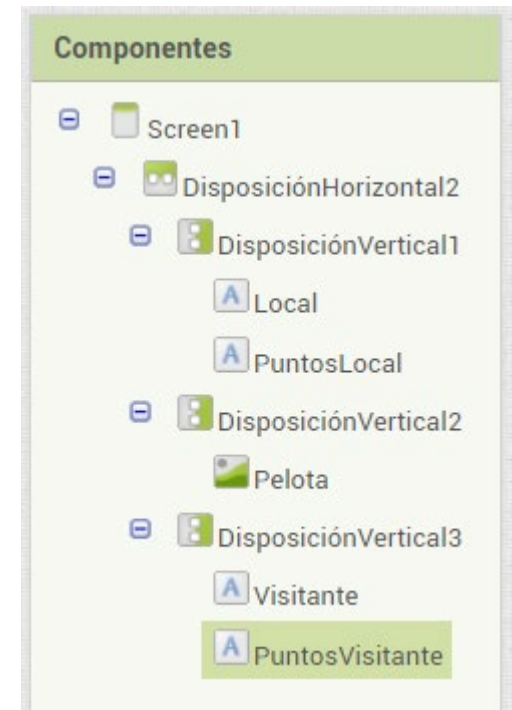
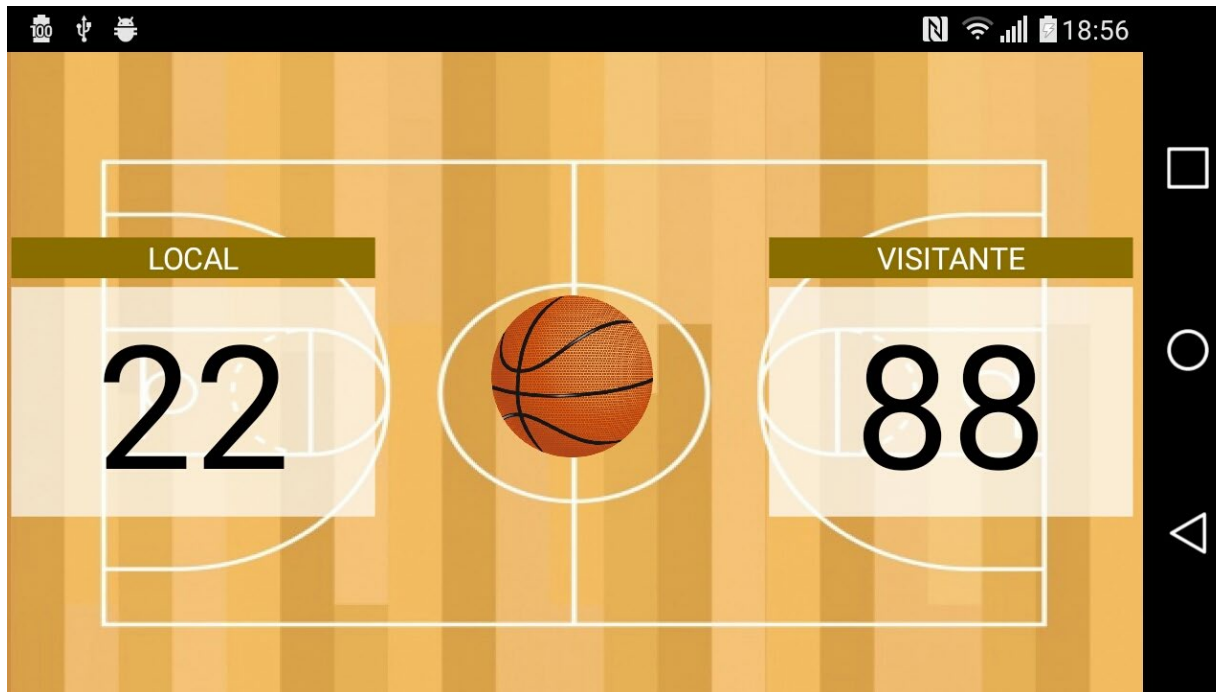
☐ percent

Cancel

OK































Distribution of elements on the screen

Practice: Achieve a screen distribution similar to this example. Here some clues...



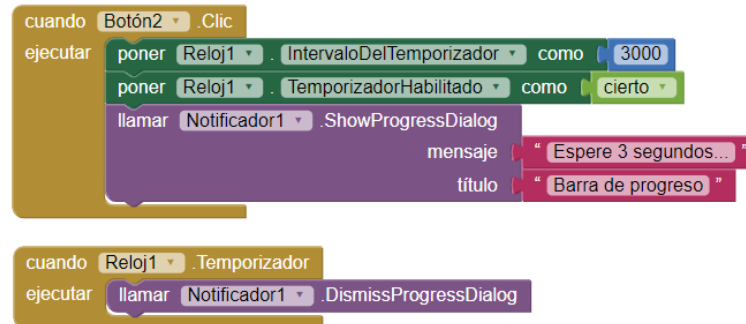
User interface objects

User Interface

	Button	
	CheckBox	
	DatePicker	
	Image	
	Label	
	ListPicker	
	ListView	
	Notifier	
	PasswordTextBox	
	Slider	
	Spinner	
	Switch	
	TextBox	
	TimePicker	
	WebView	

Practice:

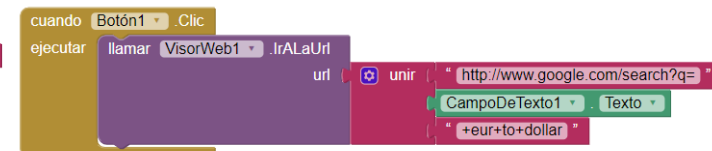
- Try all these basic elements using the available tools.
- Test Notifier with progress bar 3 seconds.





















- Make a currency converter that calls the Google converter and displays the result in a Web Viewer

Hint: Use this string for the URL and alternative methods

<https://www.google.com/search?q=100+eur+to+dollar>



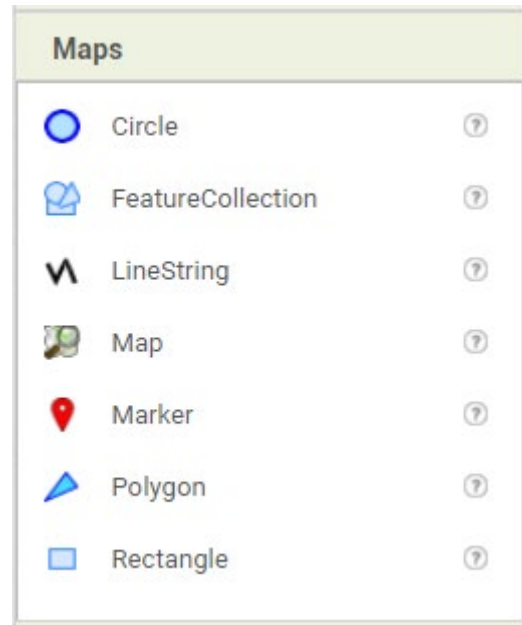
Sensor Objects

Sensors		
	AccelerometerSensor	
	BarcodeScanner	
	Clock	
	GyroscopeSensor	
	LocationSensor	
	NearField	
	OrientationSensor	
	Pedometer	
	ProximitySensor	

Practice:

- Show labels with current location and phone tilt values.
- Move a ball around the screen depending on the tilt value, as if the ball was affected by gravity.

Maps Objects



Practice: Create a map centered in user position, represented by red marker, with a green marker changing position randomly every 1 second around the user, in approximately +/- 100 meters.

For FeatureCollection use as examples the GeoJson files from Valencia Open Data:

<http://gobiernoabierto.valencia.es/es/data/?groups=medio-ambiente>

Social Objects

Social



ContactPicker



EmailPicker



PhoneCall



PhoneNumberPicker



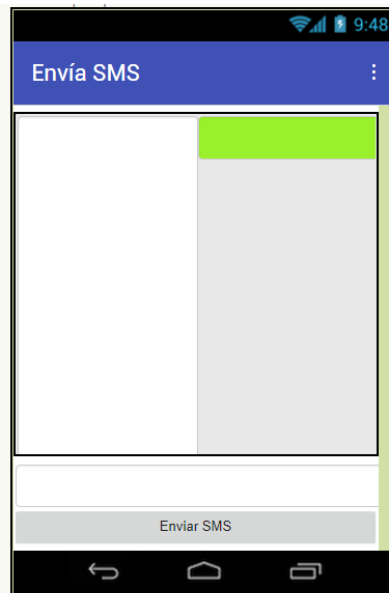
Sharing



Texting

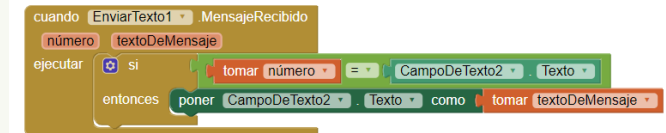
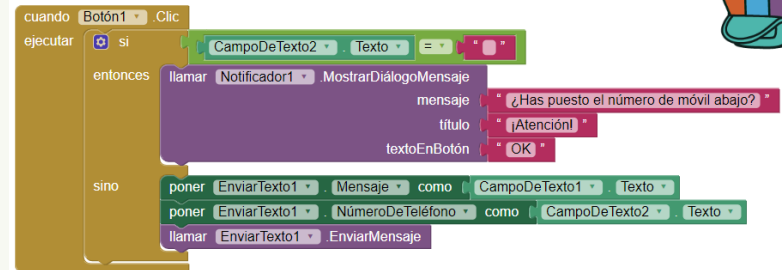


Twitter



Componentes no visibles

EnviarTexto1 Notificador1



Practice:

- Send an SMS text message to a specific number.
- Use “sharing” method to share that message on Whatsapp.

“Any component” examples

```
when Ball1 .EdgeReached
  edge
do set Ball1 . Visible to false
```

```
when Ball6 .EdgeReached
  edge
do set Ball6 . Visible to false
```

```
when Ball2 .EdgeReached
  edge
do set Ball2 . Visible to false
```

```
when Ball7 .EdgeReached
  edge
do set Ball7 . Visible to false
```

```
when Ball3 .EdgeReached
  edge
do set Ball3 . Visible to false
```

```
when Ball8 .EdgeReached
  edge
do set Ball8 . Visible to false
```

```
when Ball4 .EdgeReached
  edge
do set Ball4 . Visible to false
```

```
when Ball9 .EdgeReached
  edge
do set Ball9 . Visible to false
```

```
when Ball5 .EdgeReached
  edge
do set Ball5 . Visible to false
```

```
when Ball10 .EdgeReached
  edge
do set Ball10 . Visible to false
```

```
when any Ball.EdgeReached
  component notAlreadyHandled edge
do set Ball. Visible
  of component get component
  to false
```

“Any component” examples

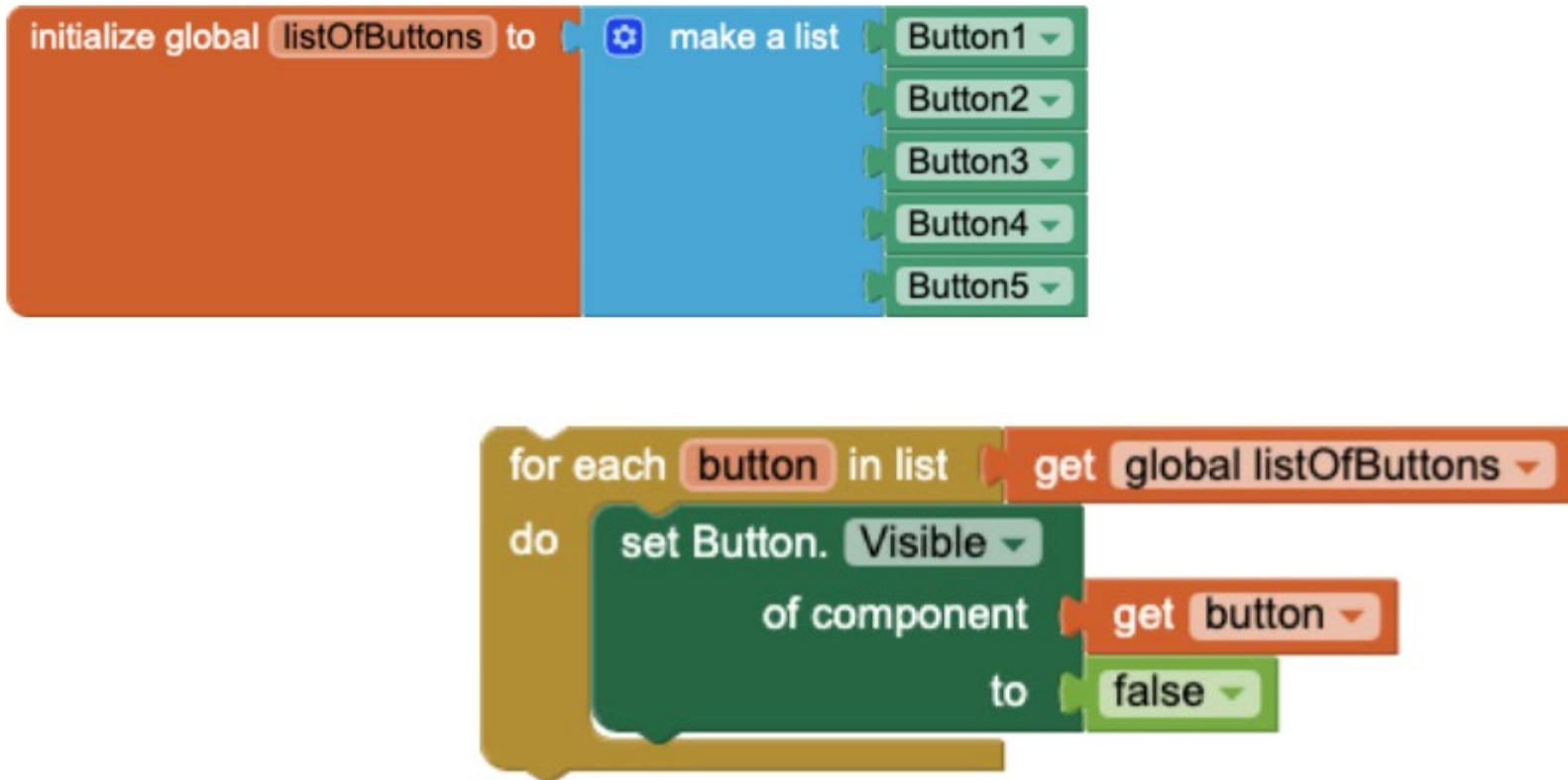


Figure 1. An example of a for loop that hides all of the buttons in a list.

“Any component” examples

Distance to Nearest Feature

Given a Map with a number of Markers, find the distance to the Marker nearest the user with the `call Marker.DistanceToPoint` block:

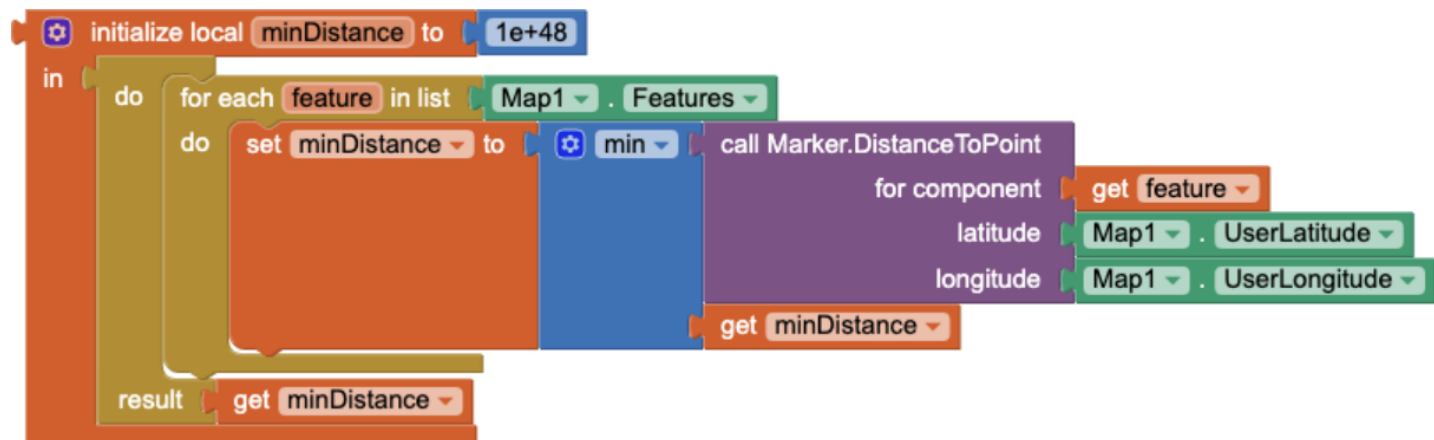
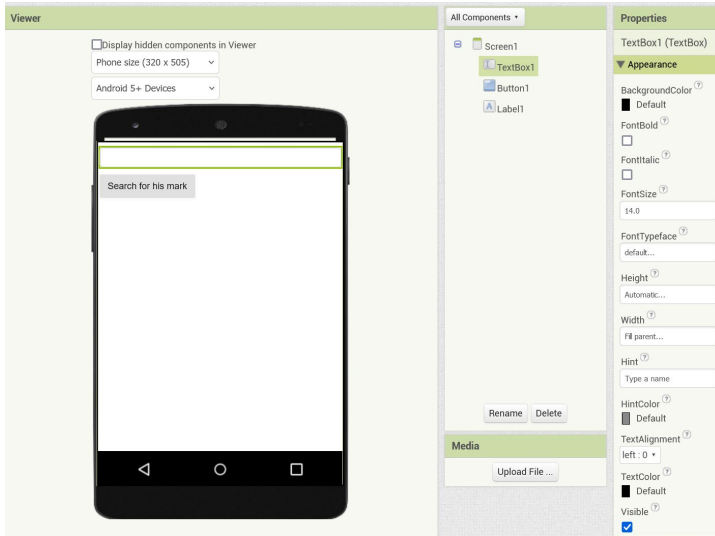
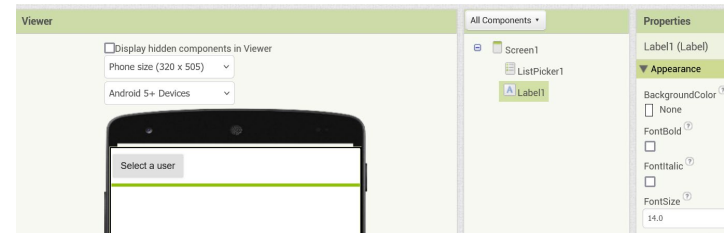


Figure 9. An example of how to find the closest Marker on a Map to the user's current location.

Lists inspiring examples



...but to minimize typing errors,
you better use ListPicker:



```
initialize global marksList to ["Peter,7.0\nTom,8.2\nJason,6.1\nMatt,4.9"]

when Button1.Click
do
  set Label1.Text to look up in pairs key TextBox1.Text
  pairs list from csv table text get global marksList
  notFound "not found"
```

This works, but...

```
initialize global marksList to ["Peter,7.0\nTom,8.2\nJason,6.1\nMatt,4.9"]

when ListPicker1.BeforePicking
do
  initialize local names to create empty list
  in for each item in list list from csv table text get global marksList
  do
    add items to list list get names
    item select list item list get item
    index 1
  set ListPicker1.Elements to get names

when ListPicker1.AfterPicking
do
  set Label1.Text to look up in pairs key ListPicker1.Selection
  pairs list from csv table text get global marksList
  notFound "not found"
```

Credits:

- **Web MIT App Inventor [Attribution-ShareAlike 3.0 Unported (CC BY-SA 3.0)]**