



UNIVERSITAT
POLITÈCNICA
DE VALÈNCIA

International ICT Week
July 3-7, 2023

Mobile Apps for Android with MIT App Inventor 2

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

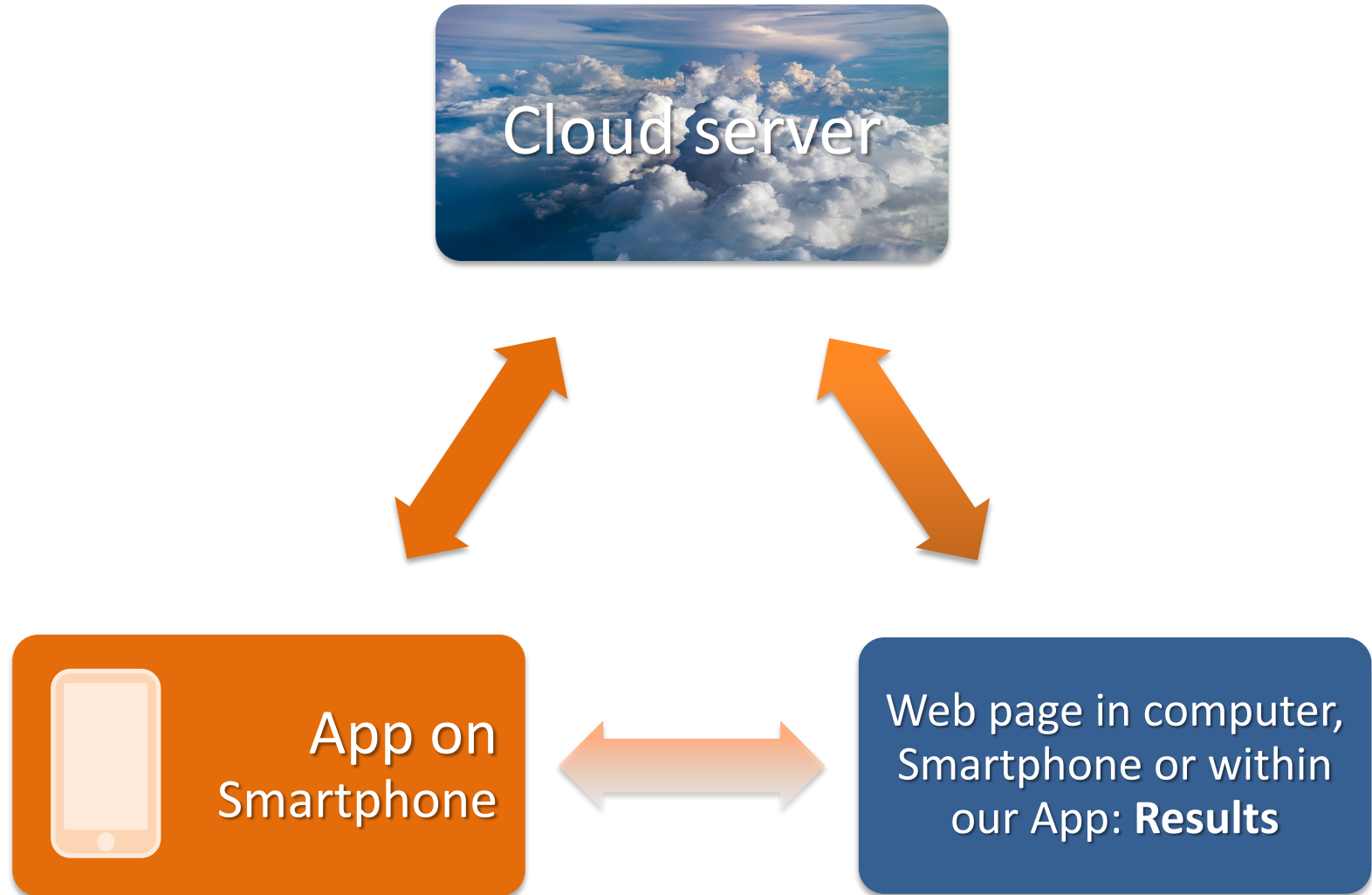
Session 4

- Working with servers: Webservices
- Technology to interact with the server
- Collection of basics scripts:
 - Collecting and storing information
 - Showing information on the web
 - Google Maps API

Webservices support

- Our app will stop being offline to be connected to the world
- We will rely on a server. It is usually done with a professional hosting service, but for this course we have our own server at the school: ictw.agr.upv.es
- It will be our personal "cloud"

Scheme App & Server



Available services on the server

at ictw.agr.upv.es you will find:

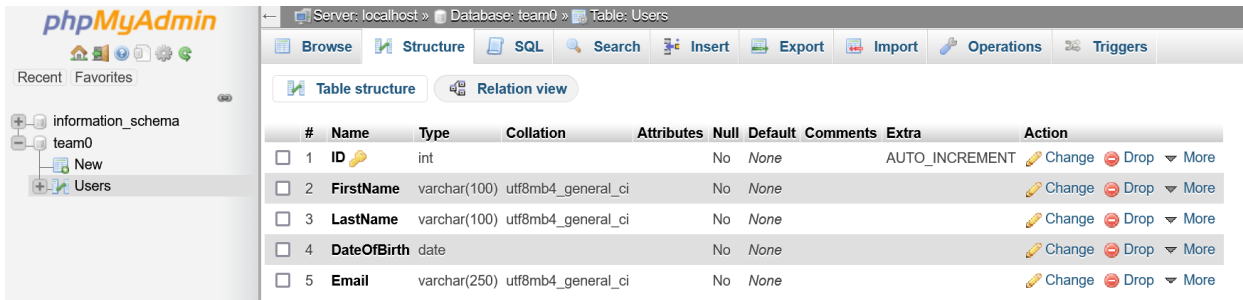
- **HTTP / HTTPS** server with **PHP** support for scripts (basically for sending / receiving data to "our cloud", as well as to represent the data captured on the web with any browser)
- **FTP** service for sending / receiving file scripts and files sent by the apps (we will use **FileZilla**)
- **SSH** service to connect by remote terminal (optional), we can use **PuTTY**
- **MySQL** database server, to store / retrieve data sent by our apps (to manage these databases we will use the **PHPMyAdmin** client installed on the same website)

Scripts

- In <http://ictw.agr.upv.es/resources/> you have a list of PHP scripts ready to be used (download them, modify them, and upload them to your personalized zone)
- There are also some sample projects (.aia files) for each test (sending files, sending data, etc.)

Steps: test the database and web to show data

1) Create a table in the DB with 5 fields and manually insert a test record (the script “**table iro-gis.sql**” will do it for you (import the file in phpMyAdmin)



#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1	ID	int		No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/>	2	FirstName	varchar(100)	utf8mb4_general_ci	No	None			Change Drop More
<input type="checkbox"/>	3	LastName	varchar(100)	utf8mb4_general_ci	No	None			Change Drop More
<input type="checkbox"/>	4	DateOfBirth	date		No	None			Change Drop More
<input type="checkbox"/>	5	Email	varchar(250)	utf8mb4_general_ci	No	None			Change Drop More

2) Review and modify the following scripts using your default web directory (/home/teamX/public_html). Use the FileZilla client to upload then. You will find these files in our web section called “Main ICTW course repository”, inside the file “Connecting to the database.zip”:



- login.php (put here your team number and password): Basic info to connect with the DB
- connection.php (nothing to change)
- PDO_read_DB.php: This is a simple script to read from the DB using the PDO method.

3) Show a map with a marker. Example: “GoogleMaps_basic.php” (Google Maps API)



Steps: saving data in DB from our app

4) Show a map with all saved markers in DB (Google Maps API):

- Create a table iro-gis in your DB using the SQL script “table iro-gis.sql”

 [table iro-gis.sql](#)

- Once you have this table, show all the GPS points on the map, using “map_extract_info.php”

 [map_extract_info.zip](#)

5) Create file reception script

-Only to receive files from our app

 [postfile_php](#)

-To receive files + data to be inserted in DB

 [postfile_insert_php](#)

6) Create an app that sends files + data using the previous script

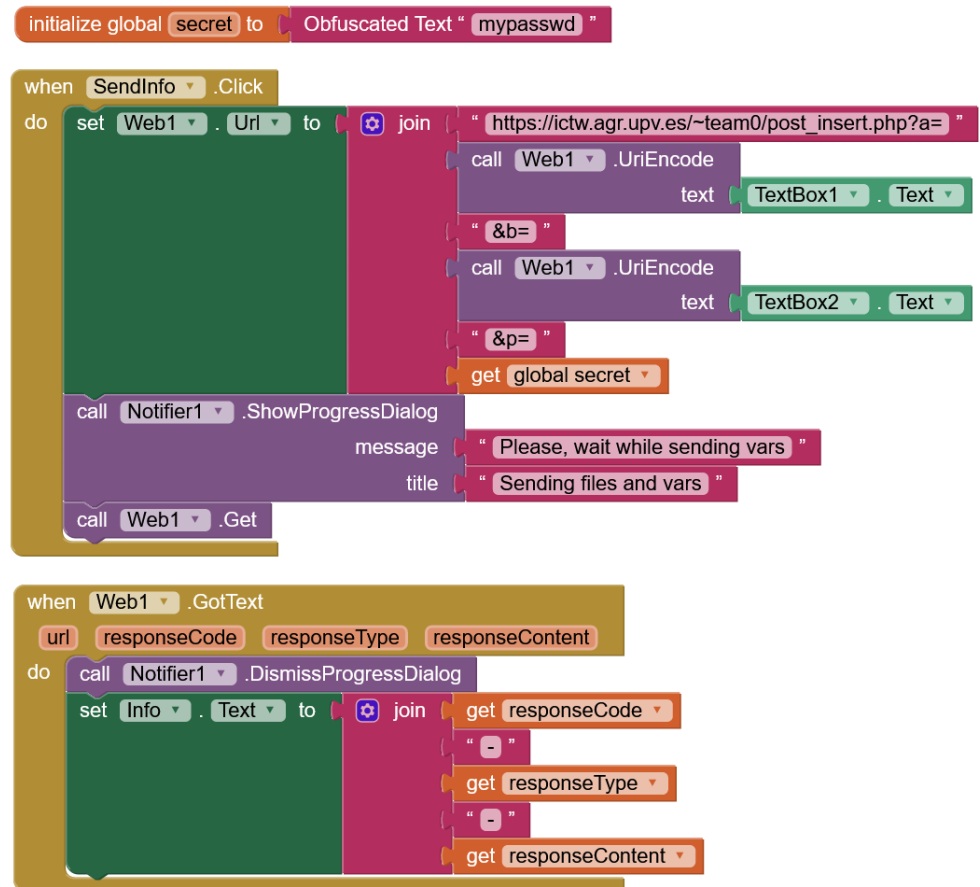
 [SendingVarsAndFile.aia](#)

SendingVars.aia

- In the server side we'll use the script "**post_insert.php**" that is going to insert the contents of the vars "a" and "b" into the database.

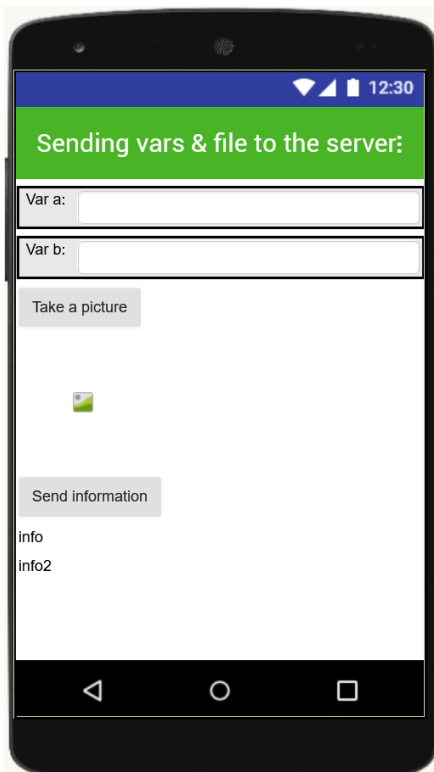


Non-visible components



SendingVarsAndFile.aia

- This is a bit more complicated, because in the server side we'll use the script **"postfile_insert.php"** that is going to store the received file while inserting the contents of the vars "a" and "b" into the database.



Non-visible components



```
initialize global secret to Obfuscated Text " mypasswd "
initialize global strFilename to " " initialize global foto to " "

when SendInfo .Click
do if not is empty get global strFilename
then set Web1 .Uri to join " https://ictw.agr.upv.es/~team0/postfile_insert.p... "
call Web1 .UriEncode text TextBox1 .Text
"&b="
call Web1 .UriEncode text TextBox2 .Text
"&p="
get global secret
"&filename="
get global strFilename
initialize local list to split text get global foto
at " / "
in set global strFilename to select list item list get list
index length of list list get list
set Info1 .Text to get global strFilename
call Notifier1 .ShowProgressDialog
message " Please, wait while sending vars "
title " Sending files and vars "
call Web1 .PostFile
path get global foto
else call Notifier1 .ShowAlert
notice " Please, make a photo before sending vars "
```

```
when TakePicture .Click
do call Camera1 .TakePicture

when Camera1 .AfterPicture
image
do set global foto to get image
set Image1 .Picture to get image
initialize local list to split text get image
at " / "
in set global strFilename to select list item list get list
index length of list list get list
```

```
when Web1 .GotText
url responseCode responseType responseContent
do call Notifier1 .DismissProgressDialog
set Info2 .Text to join get responseCode
" "
get responseType
" "
get responseContent
```

FINAL PROJECT

- Although you can choose your own project, an App that facilitates the task of collecting data in the field is proposed, replacing the following manual form with a form on the screen that then sends the data to the web, and finally the data is represented on the map or in table..
- It should store the header on one screen, and the lines on another, with large buttons that facilitate the count (qualitative, not numeric, scale 0-3)
- Each line is a sampling point from which we will take the GPS coordinates
- It can take some optional photo of the terrain (header)

GUÍA PARA EL MUESTREO DE PULGONES

Tabla 1. Estadillo de muestreo para pulgones.

Nombre: <input type="text"/>		Fecha: 28/03/2018					
Localidad: ALCÀSSER		Parcela: 16					
Cultivo: COL RIZADA		Fase:					
		Órgano de muestreo:					
Nº	Pulgón (0-3)	Enemigos naturales (0-3)					Otras plagas (0-3)
		Parasitismo	Crisopas	Coccinélidos	Sírfidos	Cecidómidos	
1	1	2	0	0	0	2	
2	1	1	0	0	0	1	
3	2	3	0	0	0	2	
4	1	1	0	0	0	2	
5	3	3	0	0	0	2	
6	2	2	0	0	0	1	
7	1	1	0	0	0	2	
8	1	3	0	0	0	2	
9	2	1	0	0	0	2	
10	2	2	0	0	0	1	
11	1	1	0	0	0	2	
12	3	1	0	0	0	1	
13	1	2	0	0	0	1	
14	1	3	0	0	0	2	
15	2	1	0	0	0	1	
16	1	2	0	0	0	2	
17	2	2	0	0	0	2	
18	2	1	0	0	0	2	
19	1	3	0	0	0	1	
20	3	1	0	0	0	2	

Credits:

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