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 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

App on Smartphone

Web page in computer, Smartphone or within our App: **Results**

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

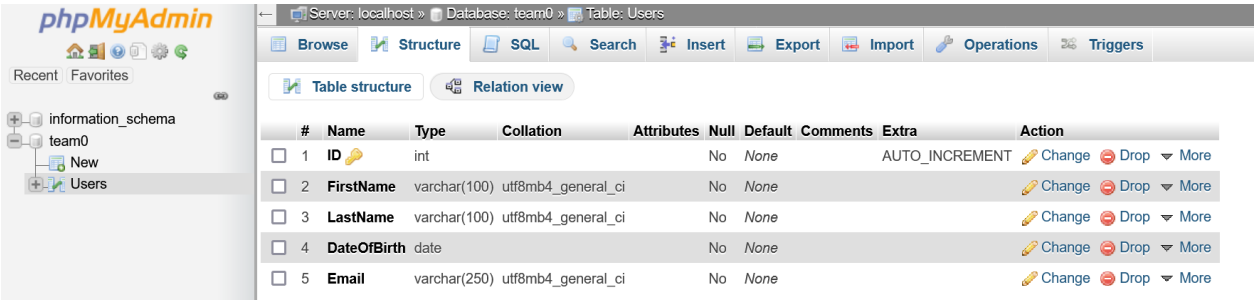
- In http://ictw.agr.upv.es/resources/ you have a list of PHP scripts ready to be used (download them, modify them, and upload them to your personalized zone)

- 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)

table iro-gis.sql



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”:

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)

GoogleMaps_basic.zip

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

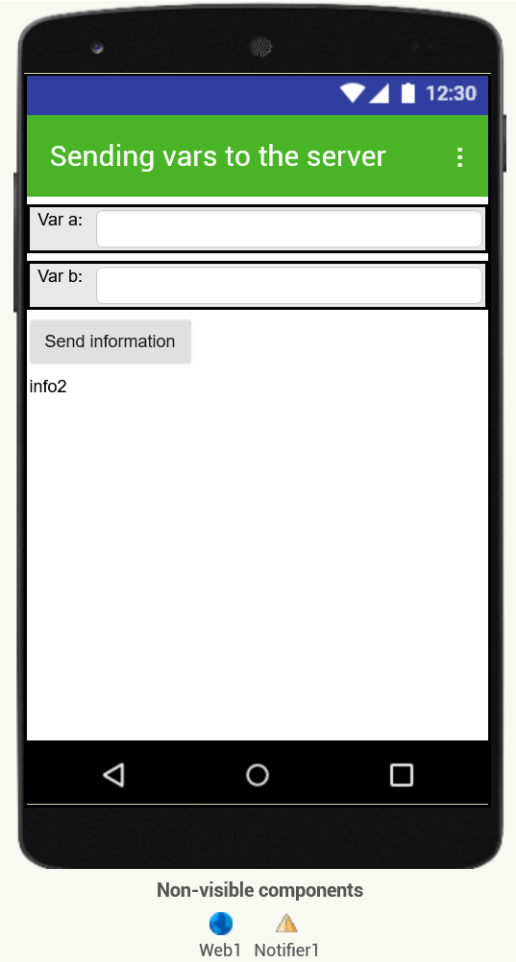
postfile_insert_php

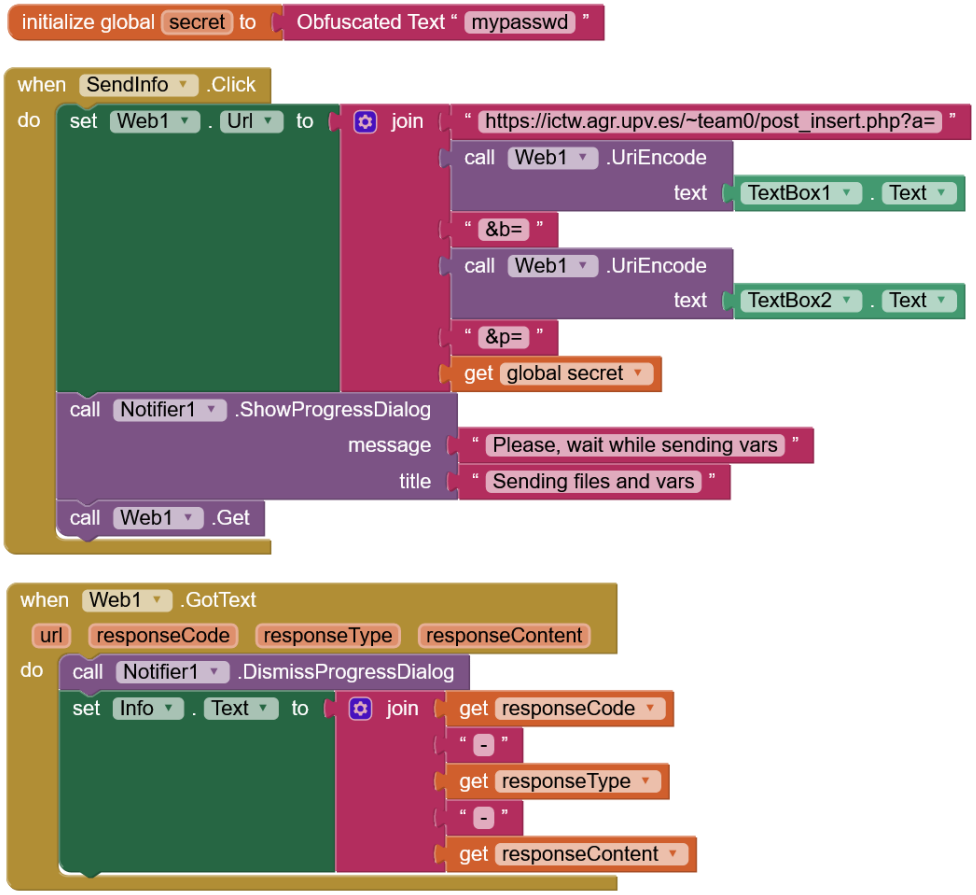
6) Create an app that sends files + data using the previous script

SendingVarsAndFile.aia

SendingVars.aia

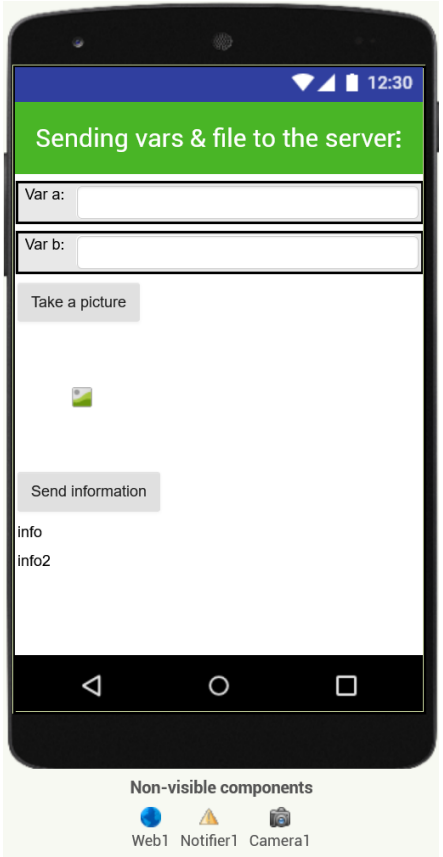
- In the server side we'll use the script "**post_insert.php**" that is going to insert the contents of the vars "a" and "b" into the database.

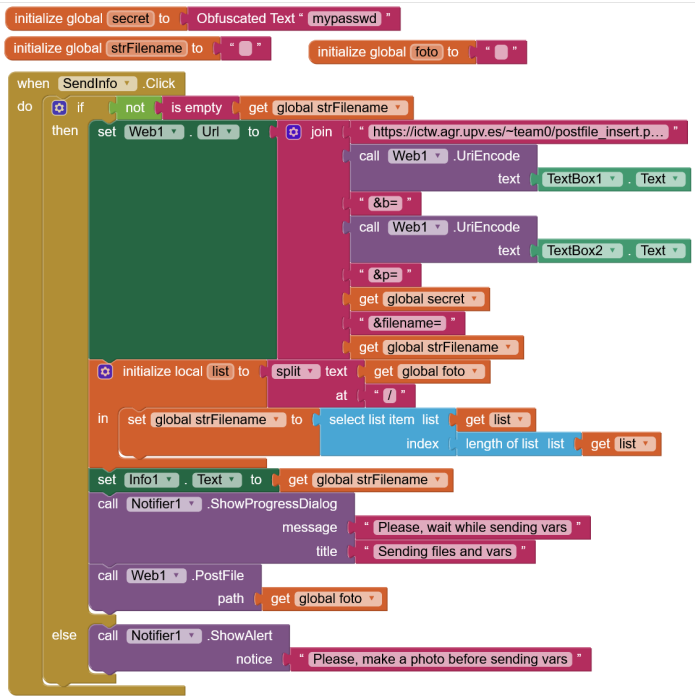


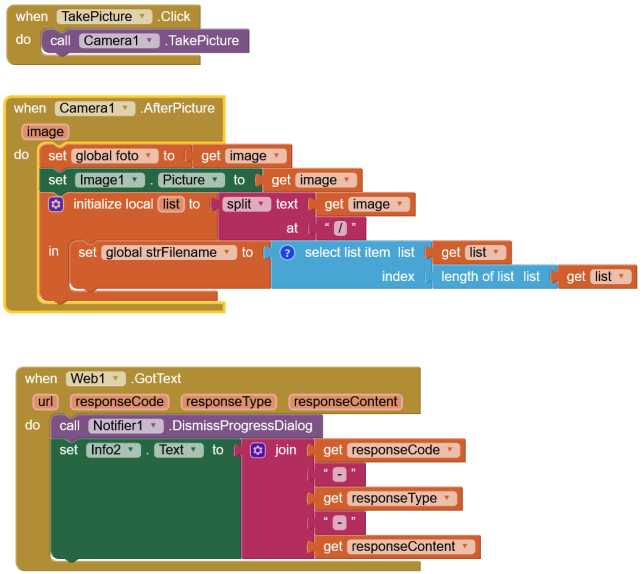


SendingVarsAndFile.aia

- 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.

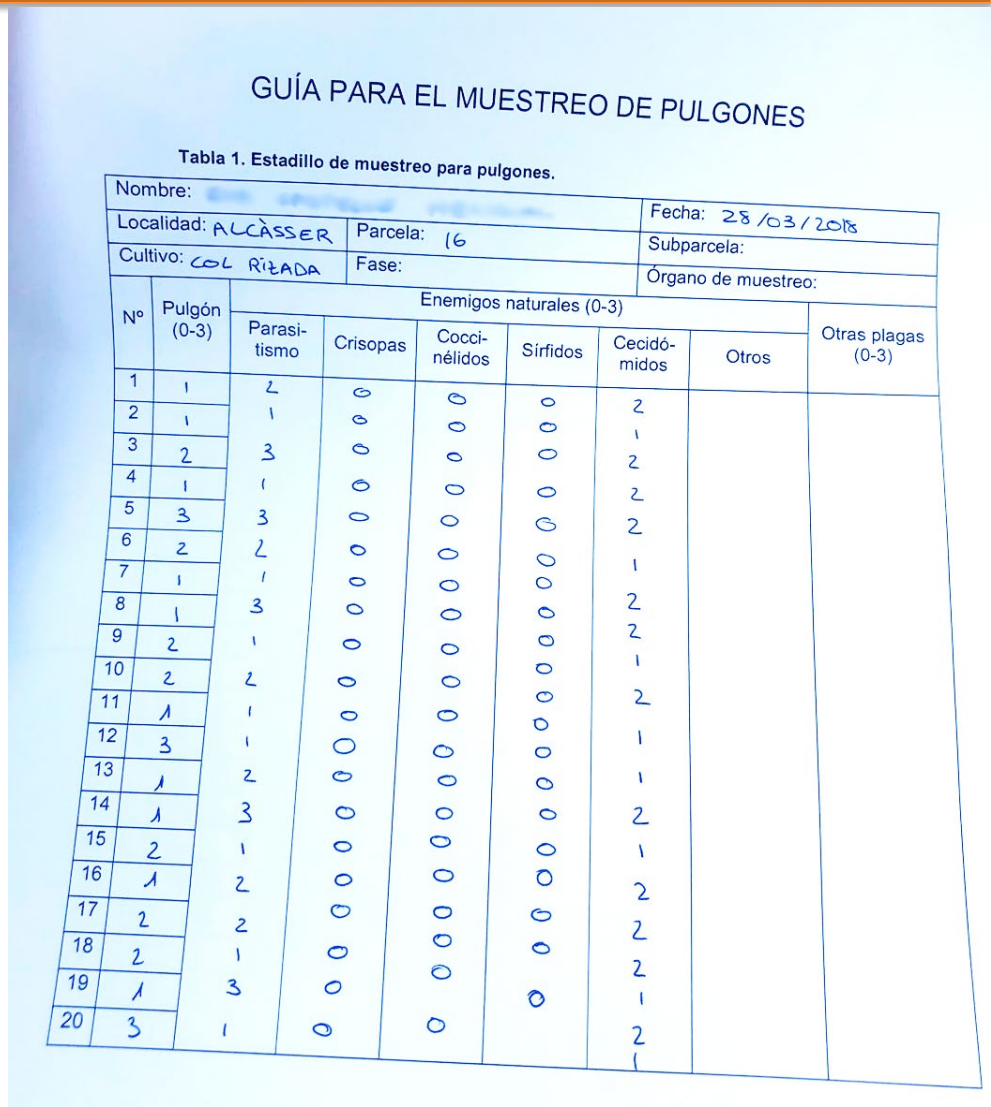






FINAL PROJECT

- 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:			Fecha: 28/03/2018
Localidad: ALCÀSSER	Parcela: 16		Subparcela:
Cultivo: COL RIZADA	Fase:		Órgano de muestreo:

Nº	Pulgón (0-3)	Enemigos naturales (0-3)						Otras plagas (0-3)
		Parasi-tismo	Crisopas	Cocci-nélidos	Sírfidos	Cecidó-midos	Otros	
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	1		
10	2	2	0	0	0	2		
11	1	1	0	0	0	1		
12	3	1	0	0	0	1		
13	1	2	0	0	0	2		
14	1	3	0	0	0	1		
15	2	1	0	0	0	2		
16	1	2	0	0	0	2		
17	2	2	0	0	0	2		
18	2	1	0	0	0	1		
19	1	3	0	0	0	2		
20	3	1	0	0		1		

Credits:

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