



WaterAPProval

Project presentation

Author:

Laura Schiatti, 904738

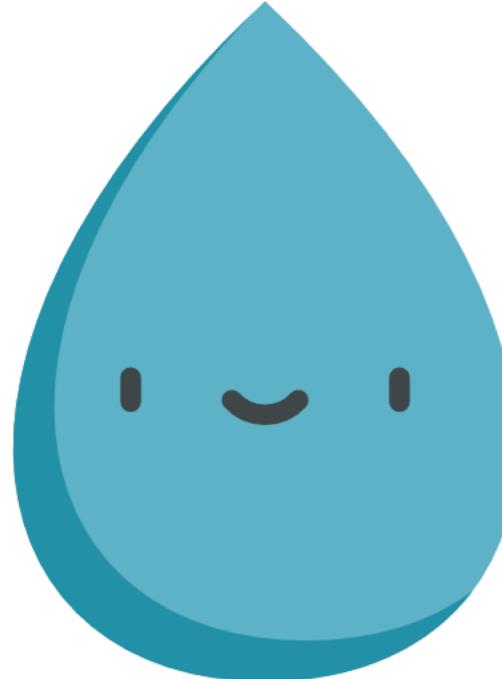
Design and Implementation of Mobile Applications
(A.Y. 2019/2020) – Politecnico di Milano

ELEVATOR PITCH!



<https://youtu.be/kHbYwKZ56fw>

Context





WaterAPProval is a mobile application that provides reliable and freely available information on physicochemical characteristics of the water bodies of the city of Cartagena de Indias, Colombia.

Requirements

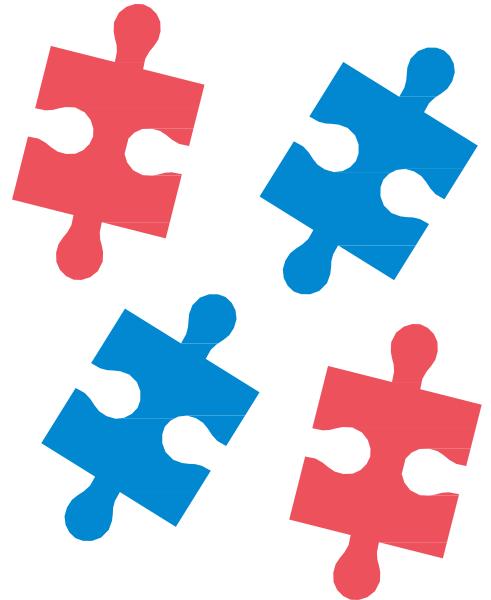
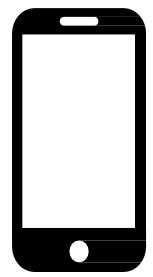
- **Map visualization** with nodes and water bodies.
- Check current nodes information.
- **Data visualization in different ways:** raw and chart
- Online ICAMPff calculator
- Encyclopedia
- **Favorites:** custom favorite list containing all the nodes of interest for future research
- Multi-language feature

Device features



- **Internationalizing feature:** device locale.
- **Data persistence:** SharedPreferences and SQLite database
- **Gesture detector:** allow widgets to detect gestures
- Keyboard type
- **URL launcher**
- **Fetch data from external services:** internet connectivity
- **Device orientation:**
- **Data visualization widgets:** Echarts
- Internet Connectivity

Design



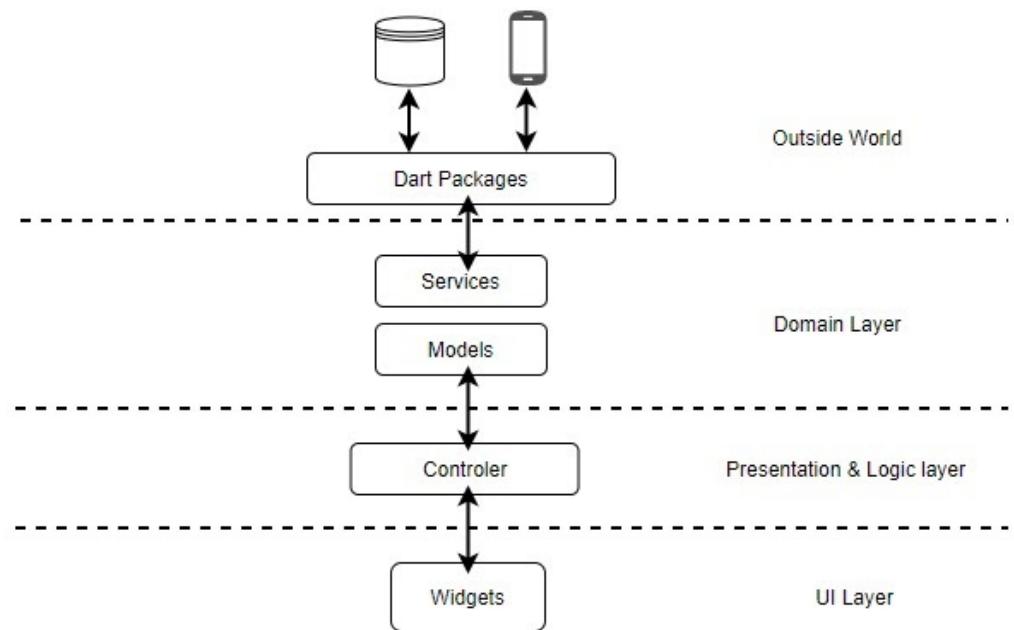
Overview: MVC

Principle of clean architecture:

“The goal is to keep core **business logic** separate from the **UI, database, network and third-party packages**”

Define separate application layers
for different areas of concern:

UI, business logic, services



Other design decisions



Flutter

External web-service APIs

Aquapp API 2.0



AquApp

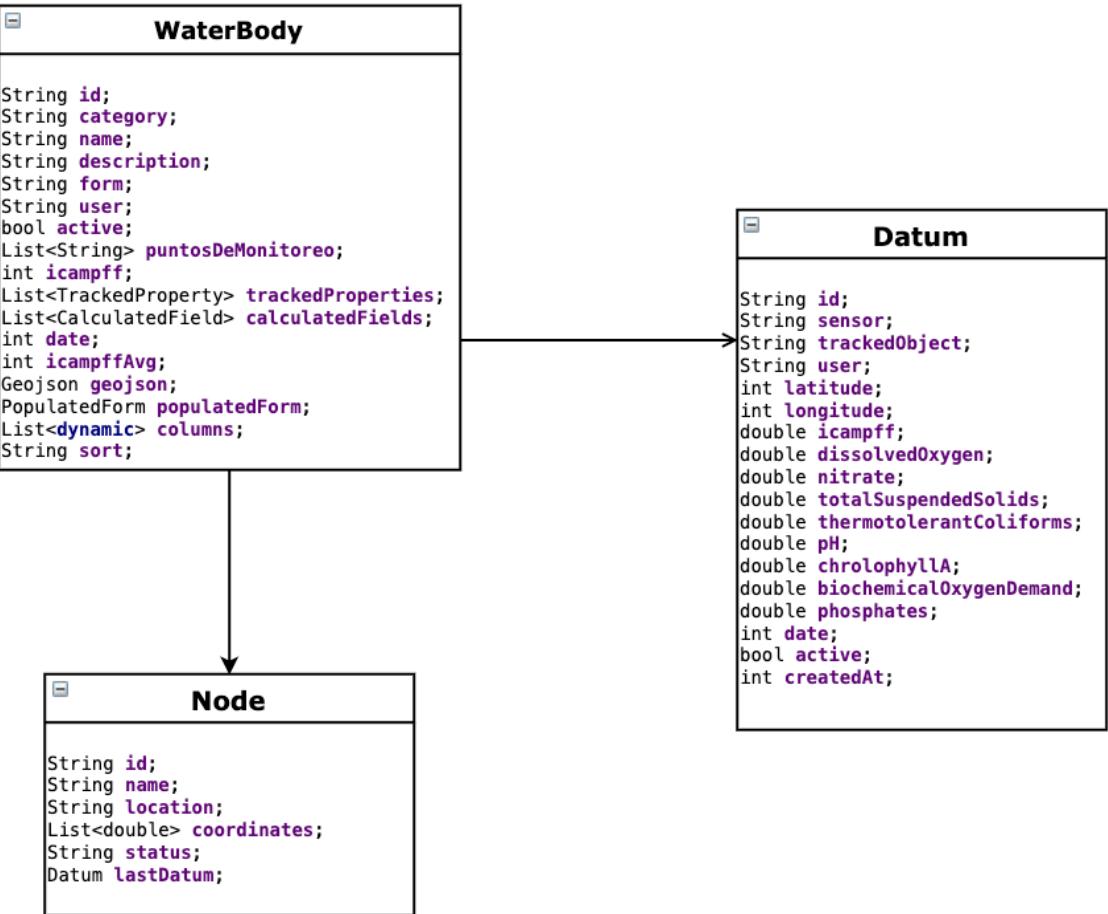
Google Maps API (v2)



Invemar ICAM web service



Local Data model



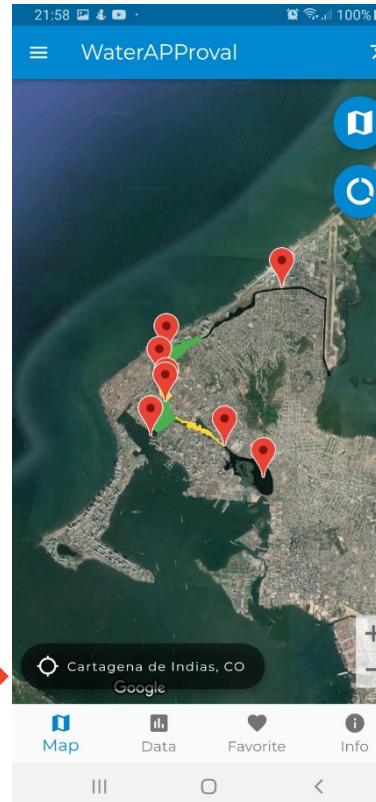
User characteristics

WaterAPProval is freely available for all users, anyone willing to access the application.



User interface



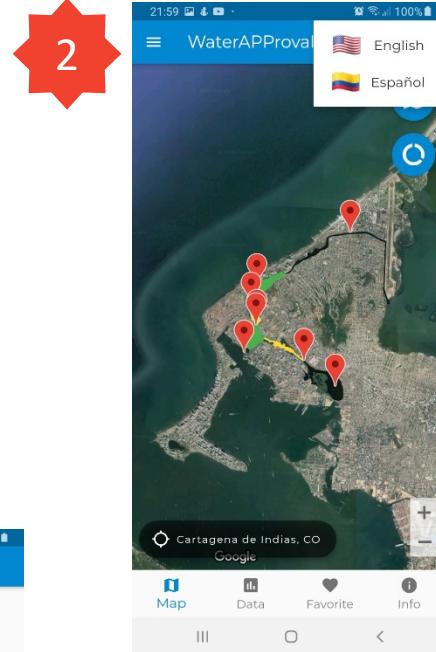


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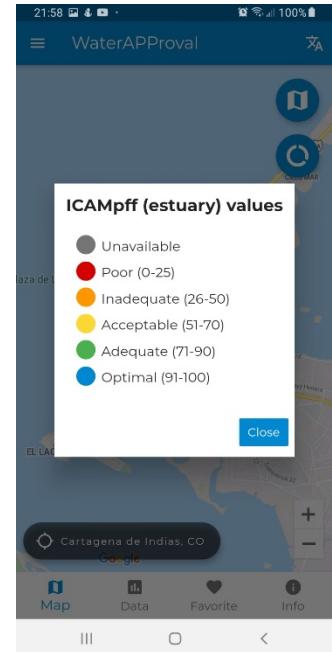
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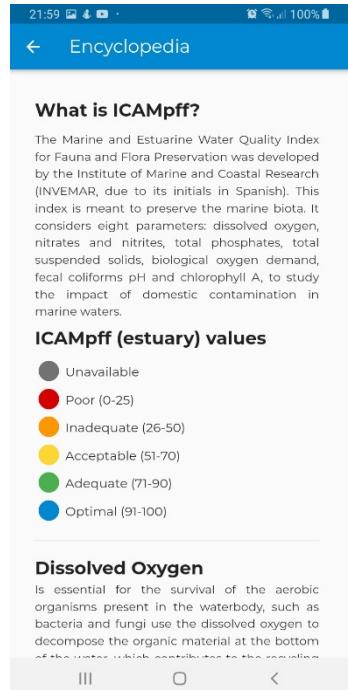
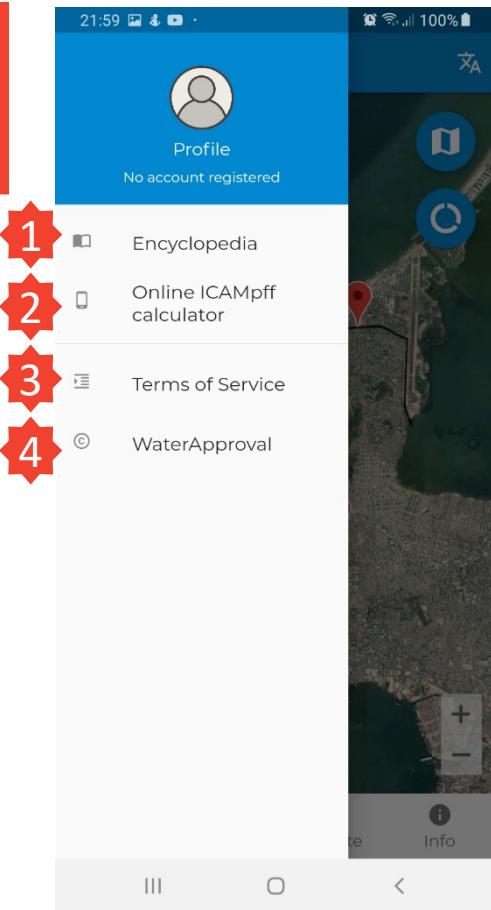
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2



3



This collage illustrates the open-source nature of the WaterApproval project. It includes:

- A screenshot of the GitHub repository page for "lauricdd/WaterApproval" showing the license information under the GNU Affero General Public License v3.0.
- A screenshot of the "Online ICAMPff calculator" page, which is identical to the one shown in the first screenshot but with a red starburst labeled "2" above it.
- A screenshot of the WaterApproval mobile application's splash screen with the text "WaterAPProv" and "Version 1.0.0".



1

Dashboard

Available water bodies: 6 Available nodes: 8

Recently collected data from water bodies

ICAMPff chart

Available nodes

Map Data Favorite Info

2

Search nodes (4)

Laguna de San Lázaro 1

Laguna de Chambacú 2

Ciénaga de las Quintas 2

Ciénaga de las Quintas 1

Map Data Favorite Info

3

Project Information

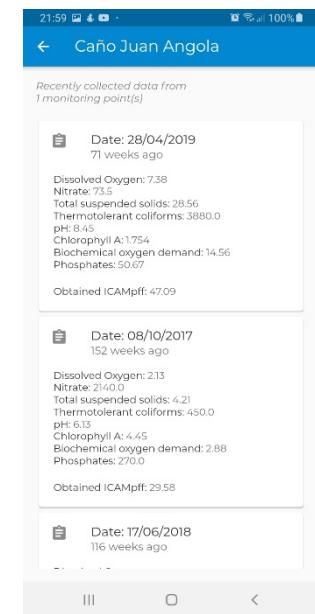
WaterAPPROval is a mobile-based platform that supports the monitoring program of the bayous and lagoons system of Cartagena de Indias. This program is freely available: you may redistribute and/or modify it under the terms of the license GNU Affero General Public License or any other subsequent version. For more information, click here to read the GNU Affero General Public License.

Features

REAL DATA
Data is collected by UTB undergraduate students through both a multiparameter probe and water samples, which are then sent to the lab. Monitoring is performed once a week, and the data for some of the parameters are expected -in a second stage of the project- to be remotely sensed so as to have real time information

NO RESTRICTIONS

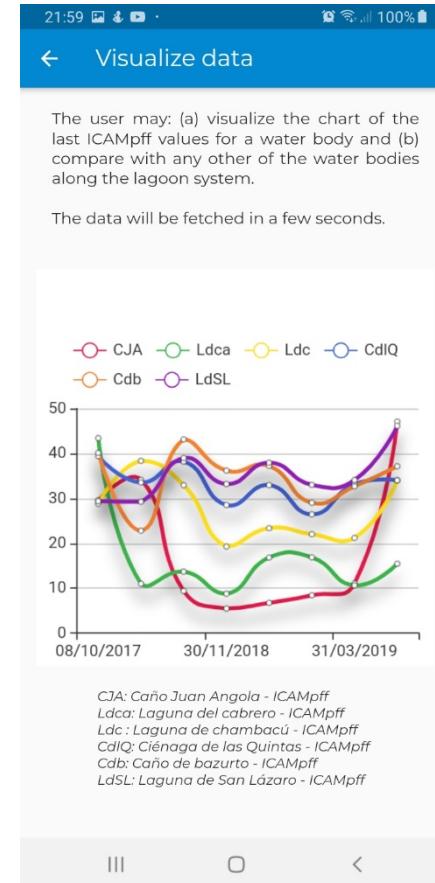
Map Data Favorite Info



1

-
- Available water bodies
- Caño Juan Angola 1a
- Laguna del cabrero >
- Laguna de chambacú >
- Ciénaga de las Quintas >
- Caño de bazurto >
- Laguna de San Lázaro >

1a



2

Available nodes

Search nodes

Status All

<p>Laguna de Chambacú 2</p> <p>Centro, Puerto Duro, Frente al Gigante del Hogar</p>
<p>Ciénaga de las Quintas 2</p> <p>Ciénaga de La Virgen</p>
<p>Ciénaga de las Quintas 1</p> <p>Debajo del Puente peatonal nuevo, Junto a la vía de Crespo</p>
<p>Laguna de San Lázaro 1</p> <p>Puente Román, Laguna de San Lázaro</p>
<p>Laguna de San Lázaro 2</p> <p>Puente Heredia, Laguna de San Lázaro</p>
<p>Laguna de Chambacú 1</p> <p>Puente de chambacú, laguna de chambacú</p>
<p>Laguna del Cabrero 1</p> <p>...</p>

3

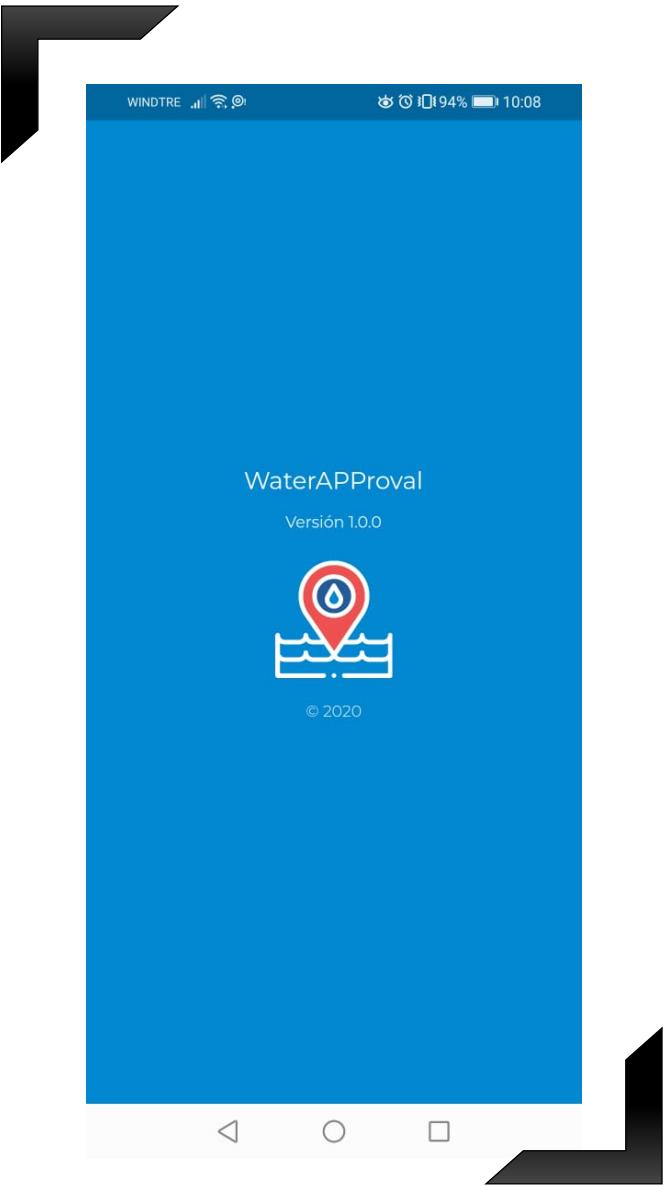
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Test plan



ID	Description	Importance
TC01	Validate data fetching from external APIs	High
TC02	Validate if the user is able to visualize the map	High
TC03	Validate if the user is able to visualize the data on the dashboard	High
TC04	Validate icampff computation done by the calculator	Medium
TC05	Validate multi-language feature	Medium
TC06	Validate data persistence of favorite nodes and selected language	Medium
TC07	Validate if the user is able to tap on the markers of the map to get node information.	Low

DEMO TIME !



QUESTIONS?

