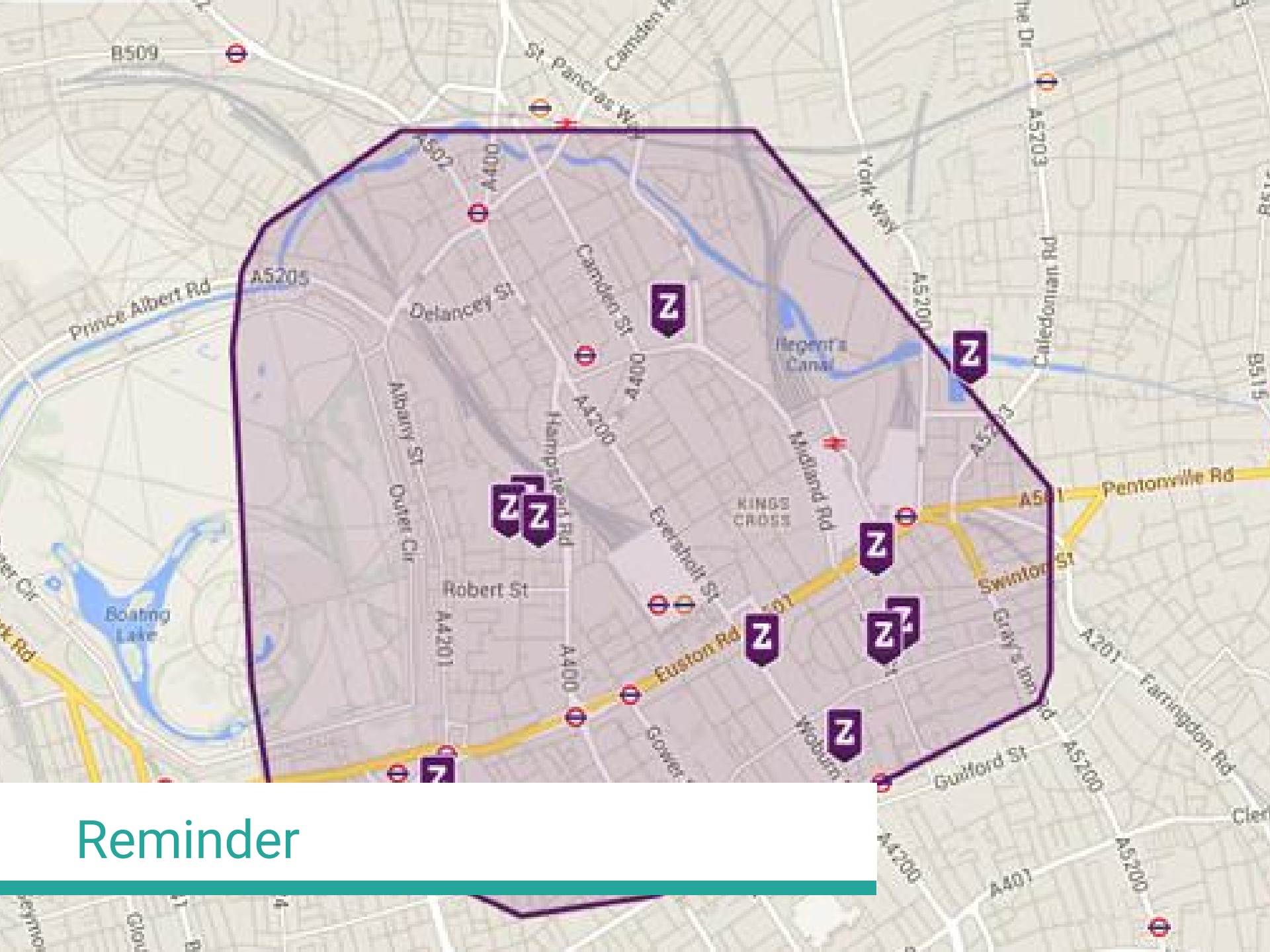
Geo Catching
Project Kick-off

12/12/2016

Cécile Camillieri/Clément Duffau


B509
A5203
Prince Albert Rd
Delancey St
Camden St
A400
A4200
Albany St
Outer Cir
Hampstead Rd
Regent's Canal
York Way
Caledonian Rd
Midland Rd
KINGS CROSS
Pentonville Rd
A501
Swinton St
Gray's Inn Rd
Euston Rd
Robert St
A4201
Boating Lake
Guilford St
A201
Farringdon Rd
A5200
A401

Reminder

Time to start!

Requirements: first version

Drawing of zones on a map to create a game field

User login and joining of a game

Geolocation of the logged player

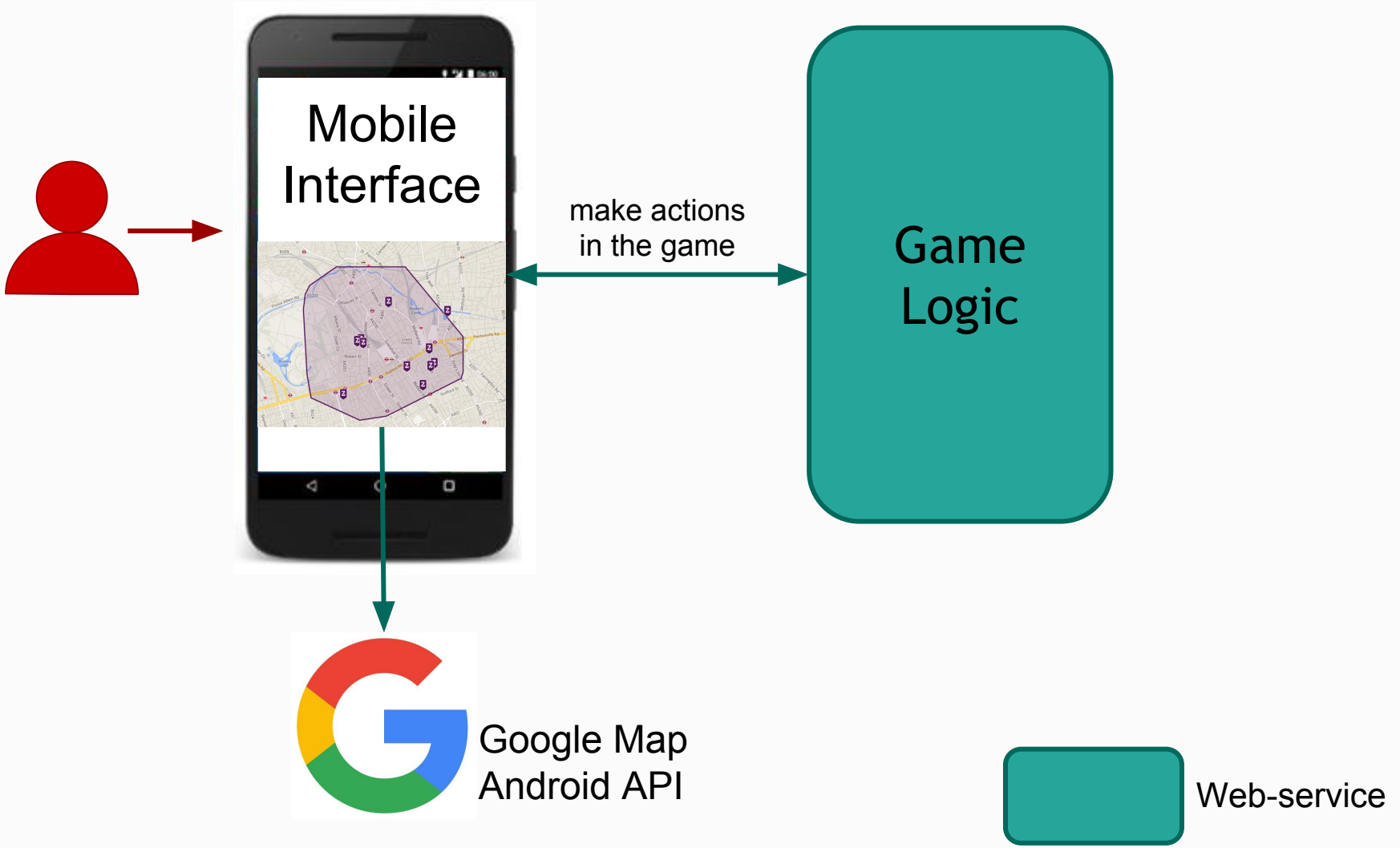
Capture of a zone when the player comes in

Display location of the other players on the map

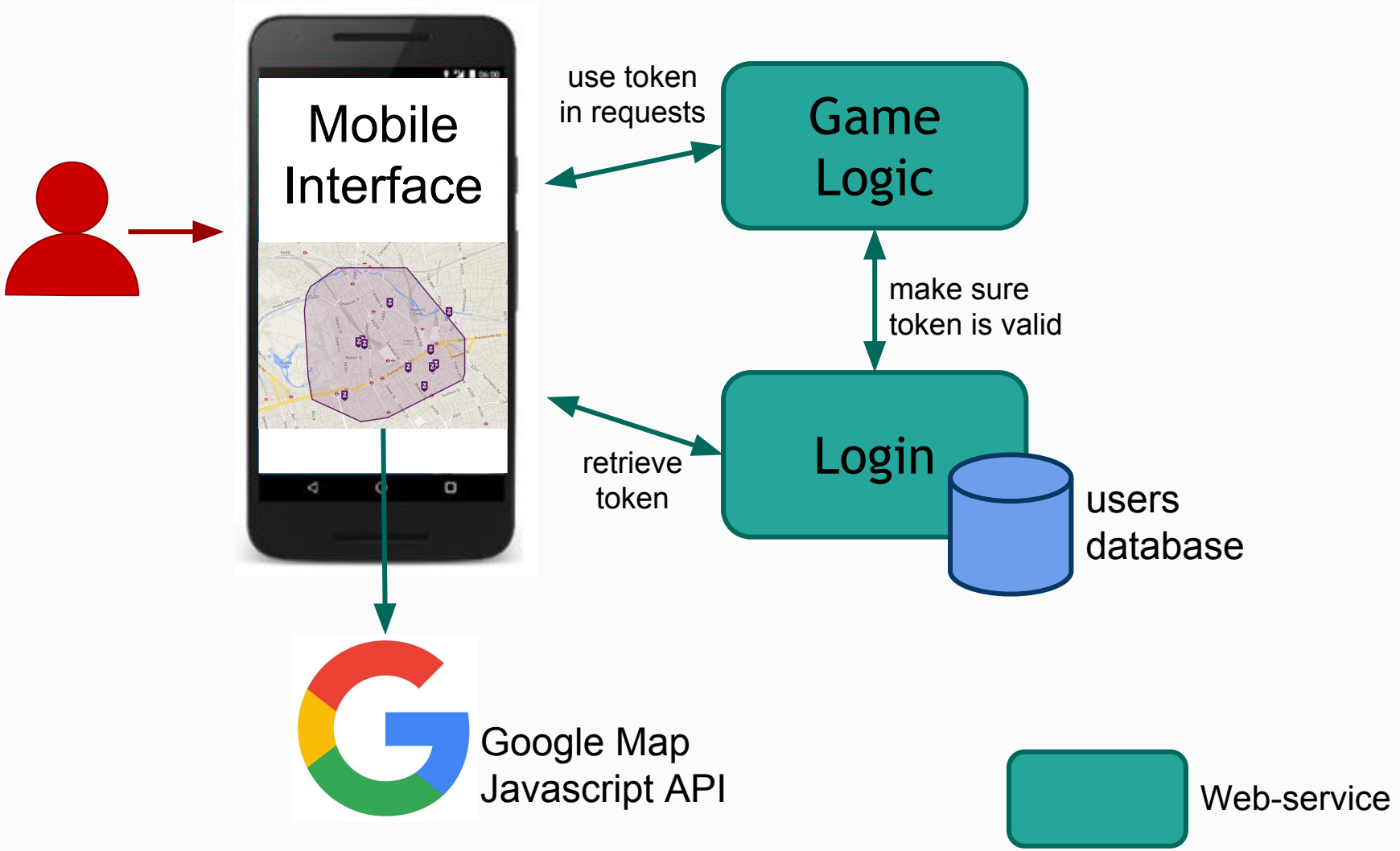
Display the name of the “owner” of a zone by clicking on it

Guidelines

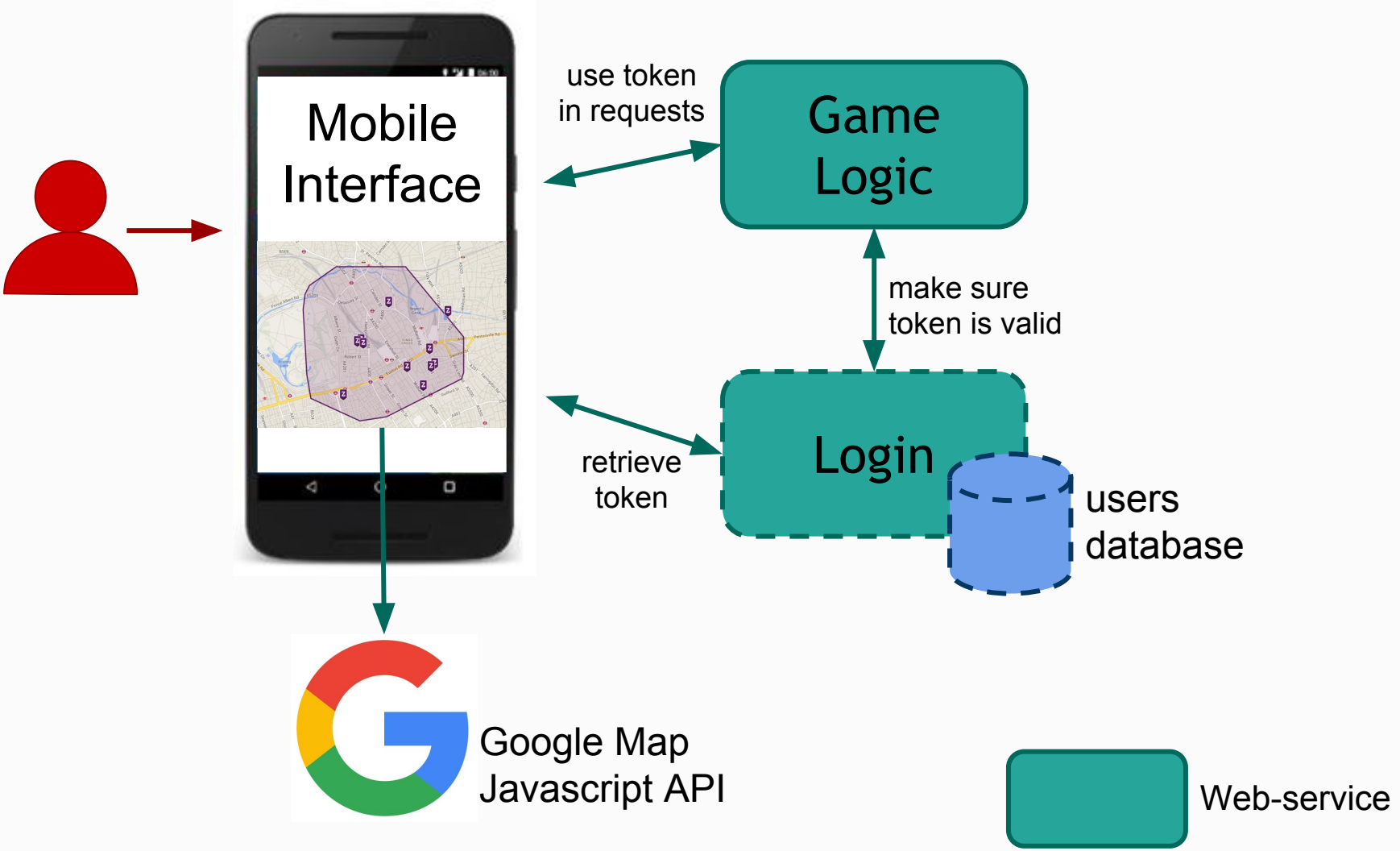
Basic Architecture



Proposed Architecture



Proposed Architecture



Implementation

A Java web-service to handle the logic of the game

- Knows who the players are
- Knows the zones for the game
- Tracks location of players
- Checks if a player is in a zone

Connect to the login web-service

An Android user interface using Google Map's API and the web-services above.

General Guidelines

Don’t forget about project management !

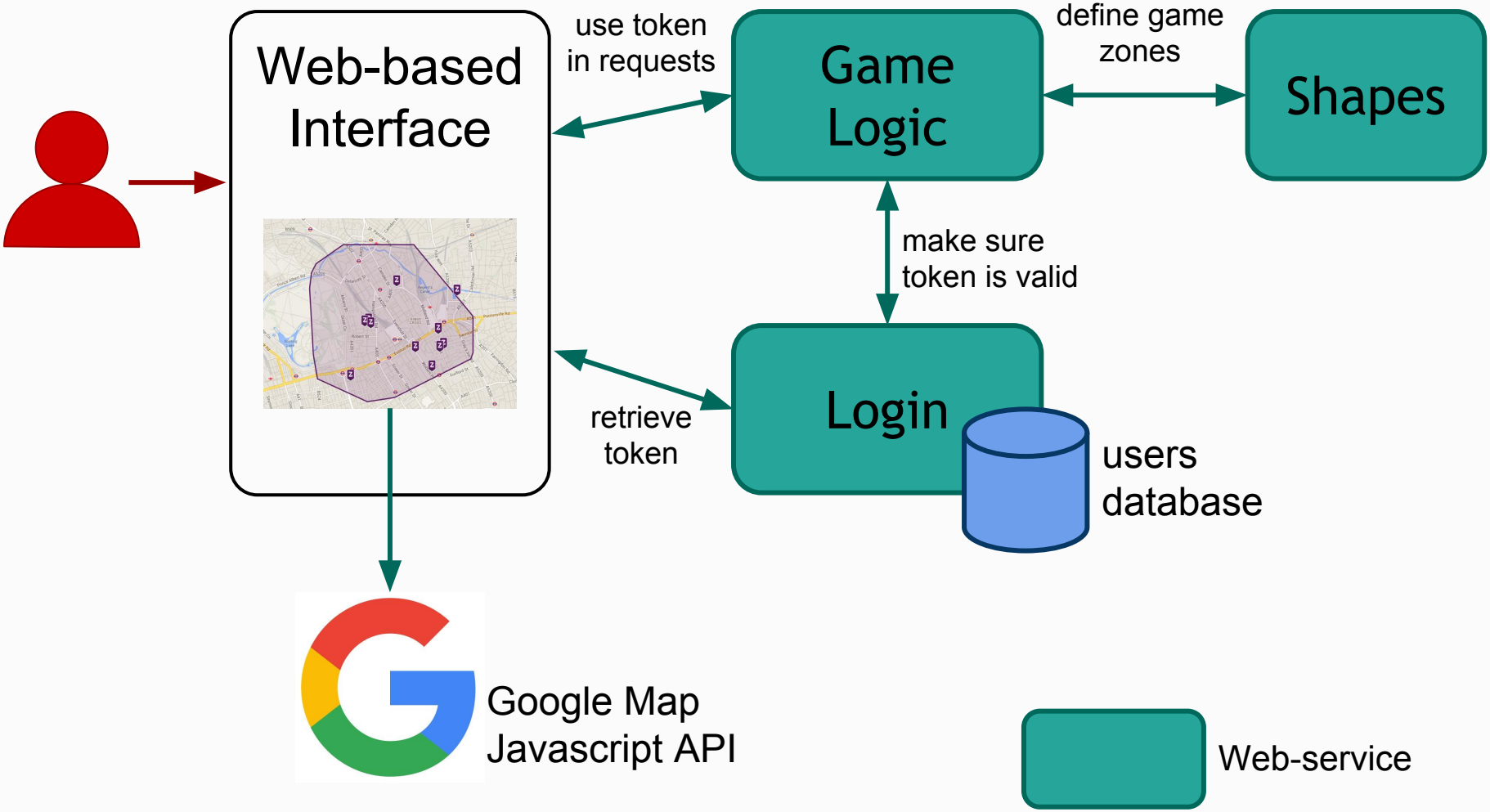
Define and share your tasks properly.

Commits should correspond to tasks in Jira

- Example : “MyTaskId: Fix map display bug on Safari”

How to...
Handle login

Reminder: Proposed Architecture



Token-based Authentication

1- User provides their username and password

2- User Interface queries **authentication Web-Service**

3- **Web-Service** checks the credentials and generates a unique session token

4- Every time a request that requires authentication is made to **your service**, the token is passed as a parameter

5- **Your web service** must check with the **authentication service** that the token is valid.

6- If so, the request can continue as normal.

First step

- Provided for the first sprint:
  - Log user and generate token
  - Checks that a token is valid
  - Service is deployed, you just have to query it
- Each of you has an account:
  - login and password: your student id
- In the future (sprint 2):
  - we may or may not give you the source code
  - you have to re reimplement/improve the service

Operations: login

- http://iut-outils-gl.i3s.unice.fr/jetty/**authentication**/

- Method: **POST**
- Content-Type: **application/x-www-form-urlencoded**

- Parameters (in request body):
  - username
  - password, hashed with MD5 algorithm

- Response:
  - success: code 200 (ok) + token
  - failure: code 401 (unauthorized)

Operations: token validation

- http://iut-outils-gl.i3s.unice.fr/jetty/**authentication**/**session**

- Method: **POST**
- Content-Type: **application/x-www-form-urlencoded**

- Parameters (in request body):
  - token

- Response:
  - success: code 204 (no content)
  - failure: code 401 (unauthorized)

How to…
Deploy your web service

Back to: Plugins for custom goals

mvn jetty:run

run a jetty (server) instance based on the configuration

```
<configuration>
    <scanIntervalSeconds>10</scanIntervalSeconds>
    <webApp>
        <contextPath>/</contextPath>
        <descriptor> [...] web.xml</descriptor>
    </webApp>
</configuration>
```

Contains configuration for the web-service

Back to: Plugins for custom goals

mvn jetty:run

run a jetty (server) instance based on the configuration

=> Deploy the war on a jetty instance

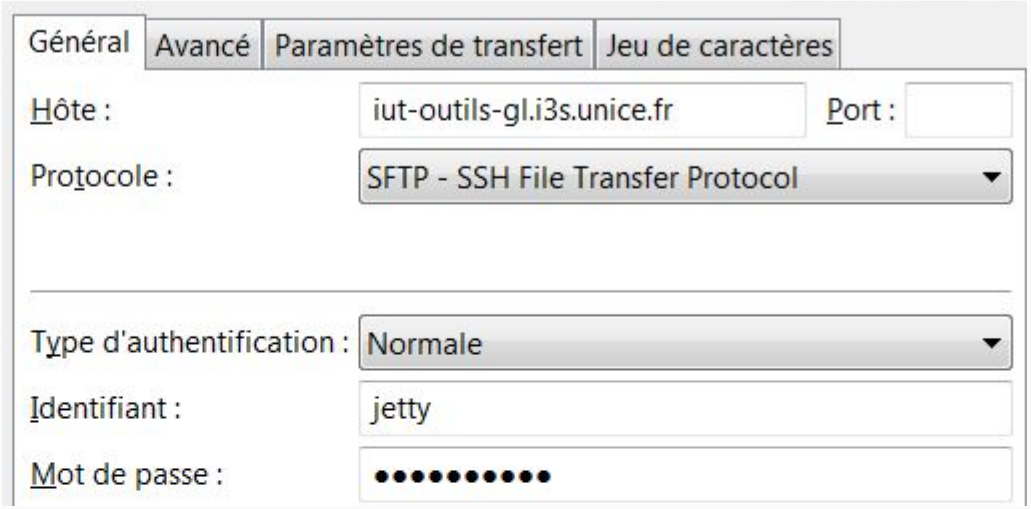
=> Available at localhost:8080

Deploying the war on a server

- Jetty server available at http://iut-outils-gl.i3s.unice.fr/jetty/

Username: 'jetty' **Password**: 'deploy2016'

- Deployment:
  - **Command line:** `scp /path/to/war jetty@iut-outils-gl.i3s.unice.fr:/opt/jetty/webapp/my.war`
  - **Using a tool** like FileZilla:



Deploying the war on a server

- Your war must be directly in the folder **/opt/jetty/webapp/**
  - No sub-folder

- Only upload a single war
  - Always use the same name for your war

- The name of your war must follow this pattern
  - Start with 'dam-x' where x is the id of your team (a to f)
  - A file 'dam-z.war' will result in your web-service to be deployed at the url:

http://iut-outils-gl/jetty/dam-z/{whats/defined/in/your/war}

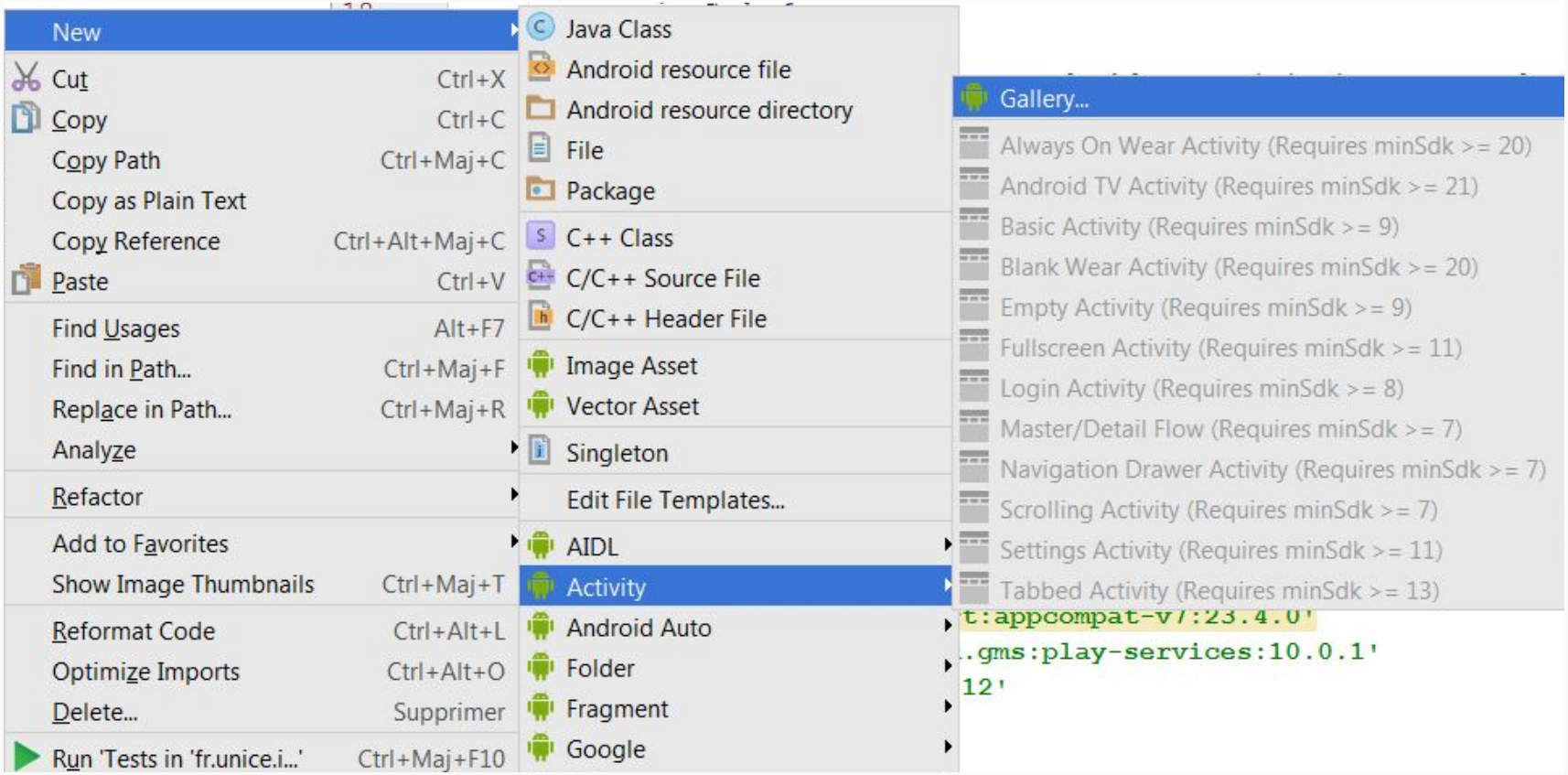
How to...
Maps API

For Android...


WHOOPS...
memecrunch.com

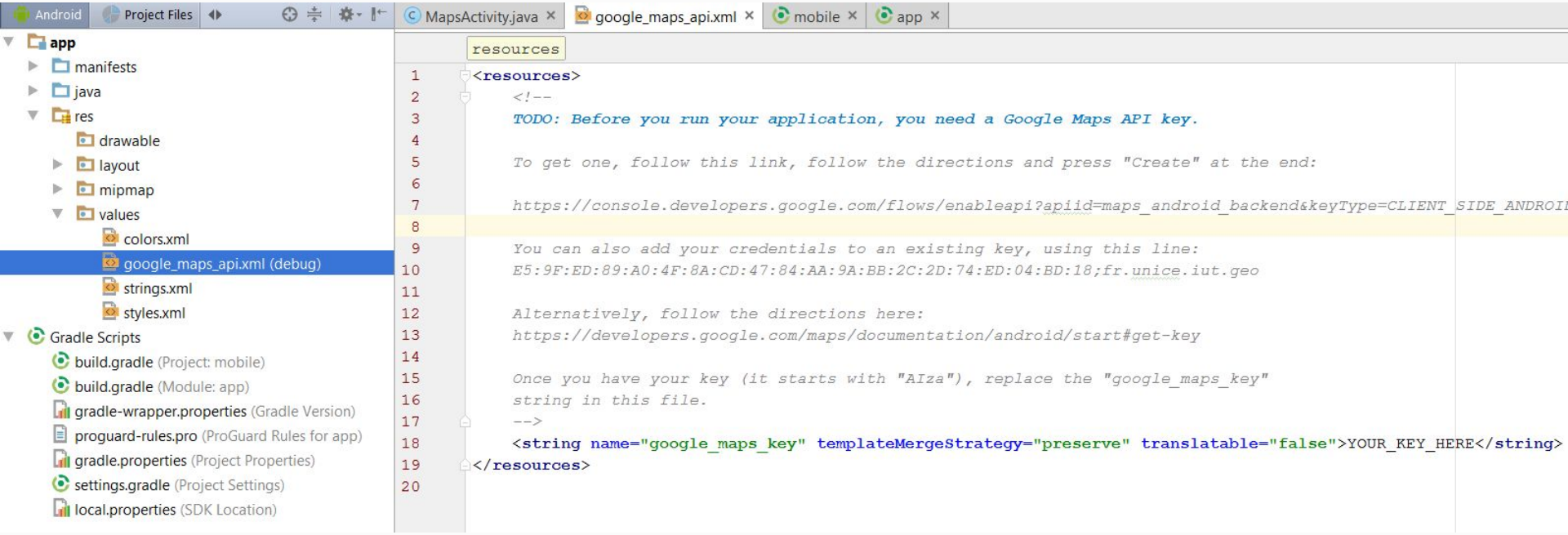
Setting up with an existing project

- Create a new Google Maps Activity



Setting up with an existing project

- A file ‘google_maps_api.xml’ will be added in your resources



Setting up with an existing project

- Follow this link to get a key

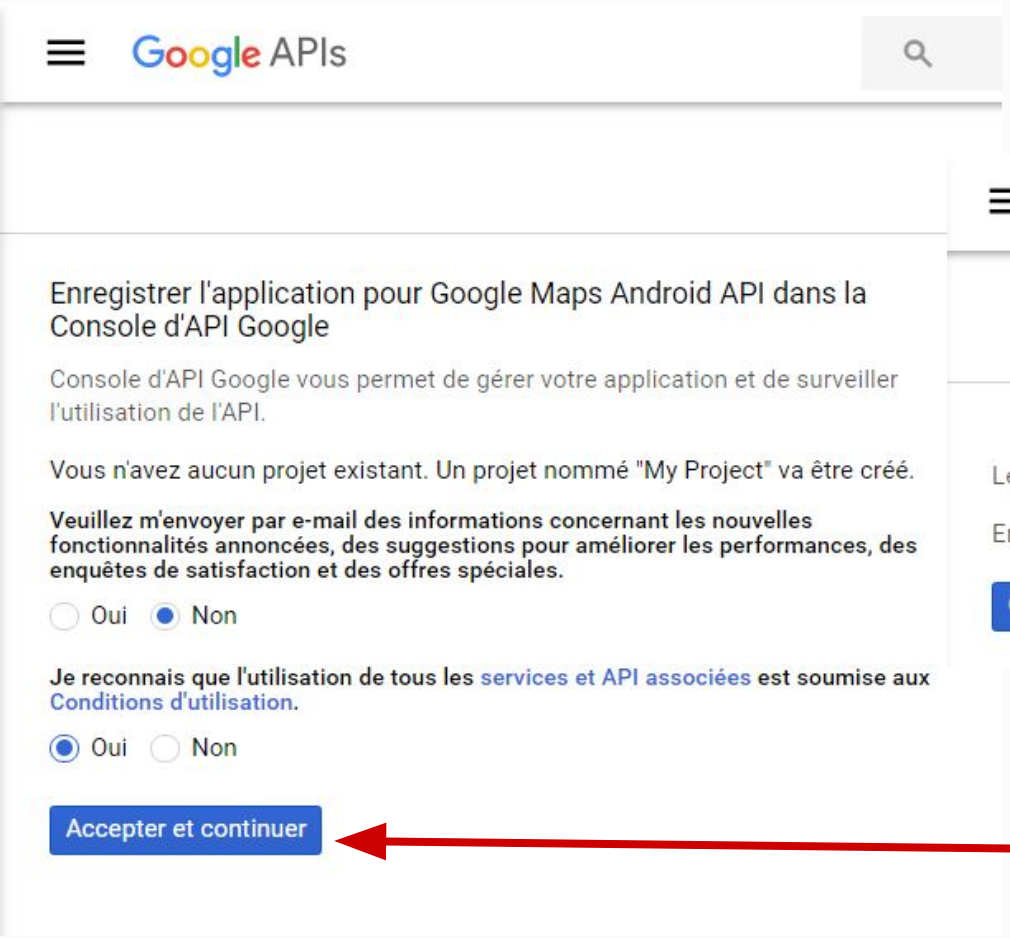
ctivity.java × | google_maps_api.xml × | mobile × | app ×

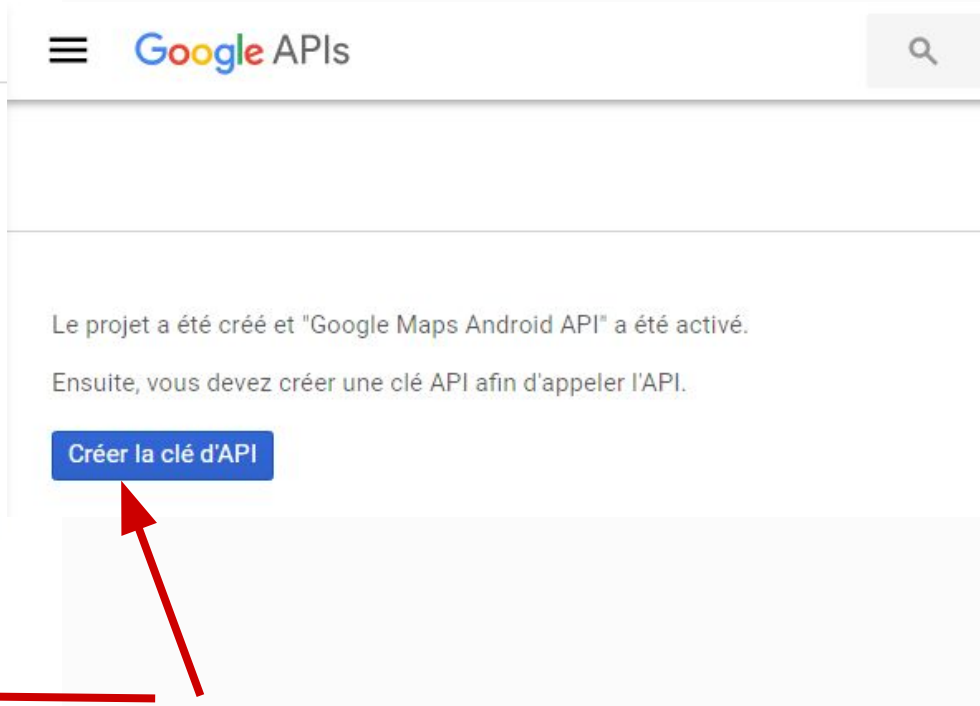
resources

```
<resources>
    <!--
    TODO: Before you run your application, you need a Google Maps API key.

    To get one, follow this link, follow the directions and press "Create" at the end:

    https://console.developers.google.com/flows/enableapi?apiid=maps_android_backend&keyType=CLIENT_SIDE_ANDROI

    You can also add your credentials to an existing key, using this line:
    E5:9F:ED:89:A0:4F:8A:CD:47:84:AA:9A:BB:2C:2D:74:ED:04:BD:18;fr.unice.iut.geo

    Alternatively, follow the directions here:
    https://developers.google.com/maps/documentation/android/start#get-key

    Once you have your key (it starts with "AIza"), replace the "google_maps_key"
    string in this file.
    -->
    <string name="google_maps_key" templateMergeStrategy="preserve" translatable="false">YOUR_KEY_HERE</string>
</resources>
```

Setting up with an existing project

- Follow the instructions





Setting up with an existing project

- Put your key in the file

ctivity.java × | google_maps_api.xml × | mobile × | app ×

resources

```
<resources>
    <!--
    TODO: Before you run your application, you need a Google Maps API key.

    To get one, follow this link, follow the directions and press "Create" at the end:

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    E5:9F:ED:89:A0:4F:8A:CD:47:84:AA:9A:BB:2C:2D:74:ED:04:BD:18;fr.unice.iut.geo

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    <string name="google_maps_key" templateMergeStrategy="preserve" translatable="false">YOUR_KEY_HERE</string>
</resources>
```

Project configuration

- **build.gradle** should have a google play services dependency

```
compile 'com.google.android.gms:play-services:10.0.1'
```

- **the manifest** should define the proper permissions

```
<uses-permission android:name="android.permission.ACCESS_FINE_LOCATION" />
<uses-permission android:name="android.permission.INTERNET" />
```

- **the manifest** should define the key and play services version

```
<meta-data
    android:name="com.google.android.geo.API_KEY"
    android:value="@string/google_maps_key" />
<meta-data
    android:name="com.google.android.gms.version"
    android:value="@integer/google_play_services_version" />
```

Setting up without Android Studio

- Detailed instructions
  - https://developers.google.com/maps/documentation/android-api/config?hl=fr
  - https://developers.google.com/maps/documentation/android-api/signup?hl=fr#obtenir_une_cle_dapi_android
- For Xamarin
  - https://developer.xamarin.com/guides/android/platform_features/maps_and_location/maps/part_2_-_maps_api/
  - https://developer.xamarin.com/guides/android/platform_features/maps_and_location/maps/obtaining_a_google_maps_api_key/
- Documentation
  - https://developers.google.com/maps/documentation/android-api/intro?hl=fr

How to... Emulate Android

With Genymotion

- Genymotion is a free, powerful Android emulator
  - Create a free account: https://www.genymotion.com/
  - Download & Install
  - Launch emulation for pre-existing devices

- Plugin for Android Studio
  - Use from Android Studio: https://www.genymotion.com/plugins/

- Enable use of Google Play Services (needed for maps)
  - https://inthecheesefactory.com/blog/how-to-install-google-services-on-genymotion/en

How to... Continuous integration

Jenkinsfile at repository root

```
node ('master'){

    stage('back-maven') {
      checkout scm
      sh 'mvn -f mavenfolder/pom.xml clean package'
    }

    stage('front-android') {
      checkout scm
      sh 'cd androidfolder; gradle assemble'
    }

 }
```

Summary

What's expected - Functionalities

Drawing of zones on a map to create a game field

User login and joining of a game

Geolocation of the logged player

Capture of a zone when the player comes in

Display location of the other players on the map

Display the name of the "owner" of a zone by clicking on it

Some references

- Drawing of zones (Polygones) on the map
  - https://developers.google.com/maps/documentation/android-api/shapes?hl=en
- Geolocation of the player
  - https://developers.google.com/maps/documentation/android-api/location?hl=fr
- Display other players location
  - https://developers.google.com/maps/documentation/android-api/marker?hl=fr
  - https://developers.google.com/maps/documentation/android-api/infowindows
- HTTP Requests in Android
  - https://developer.android.com/training/volley/index.html
  - https://developer.android.com/reference/java/net/HttpURLConnection.html
- MD5 Hashing in Android
  - http://www.kospol.gr/204/create-md5-hashes-in-android/

What's expected - Release

- Deploy your web-service on the provided server.
- Release on Github **and** Jira.
- The repository should contain:
  - A folder with your android project
  - A folder with your game logic web-service
  - A docs/ folder with your slides for this sprint
  - A readme file saying how to run the project and describing what is done and the contents on the repository
  - A Jenkinsfile setting a pipeline for your maven and android project
- Repository is queried by a script. **Any problem → 0**
- We only grade what's on the **master** branch.
- We get the tag **"sprint-1"**. **No tag → 0**
- Deadline is **January 15 at 23:59**. **Late → 0**

What’s expected - defense

January 17

10 minutes to present your work and a short demo
10 minutes of questions

Minimal content

- Current state of the project (including demo)
- Pros/Cons of your solution
- What’s next

Too much to do!!

- Start early
- Start small
- Use mocks
- Share tasks
- Set deadlines

- The following are not problems (for now):
  - Interface doesn’t look nice on all devices
  - Network issues are not handled properly
  - No persistence


GO!!
stump8.deviantart.com