

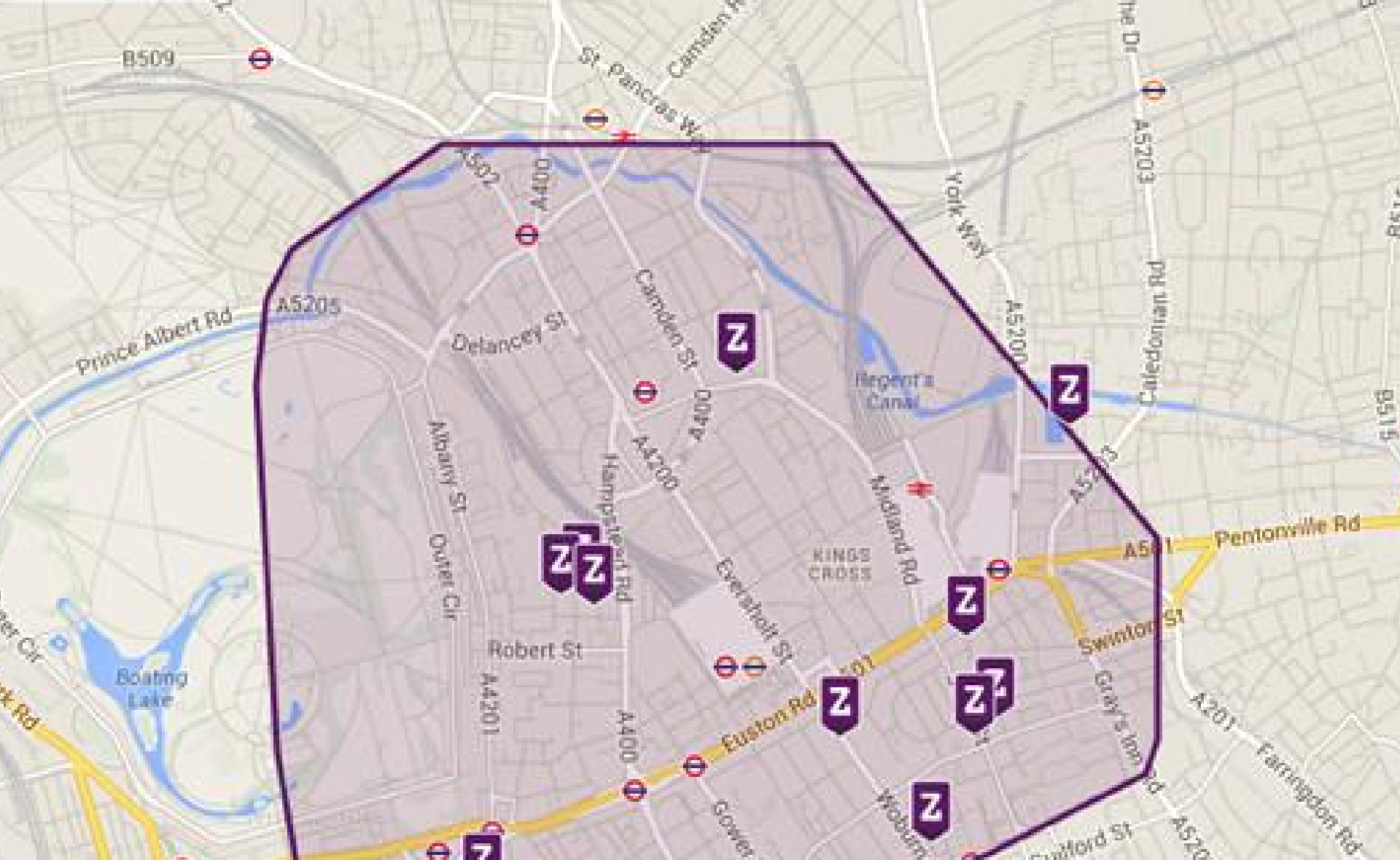
Web services

Shapes definition service

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Reminder

Objectives

- Display game zones on a map (using Google's API)

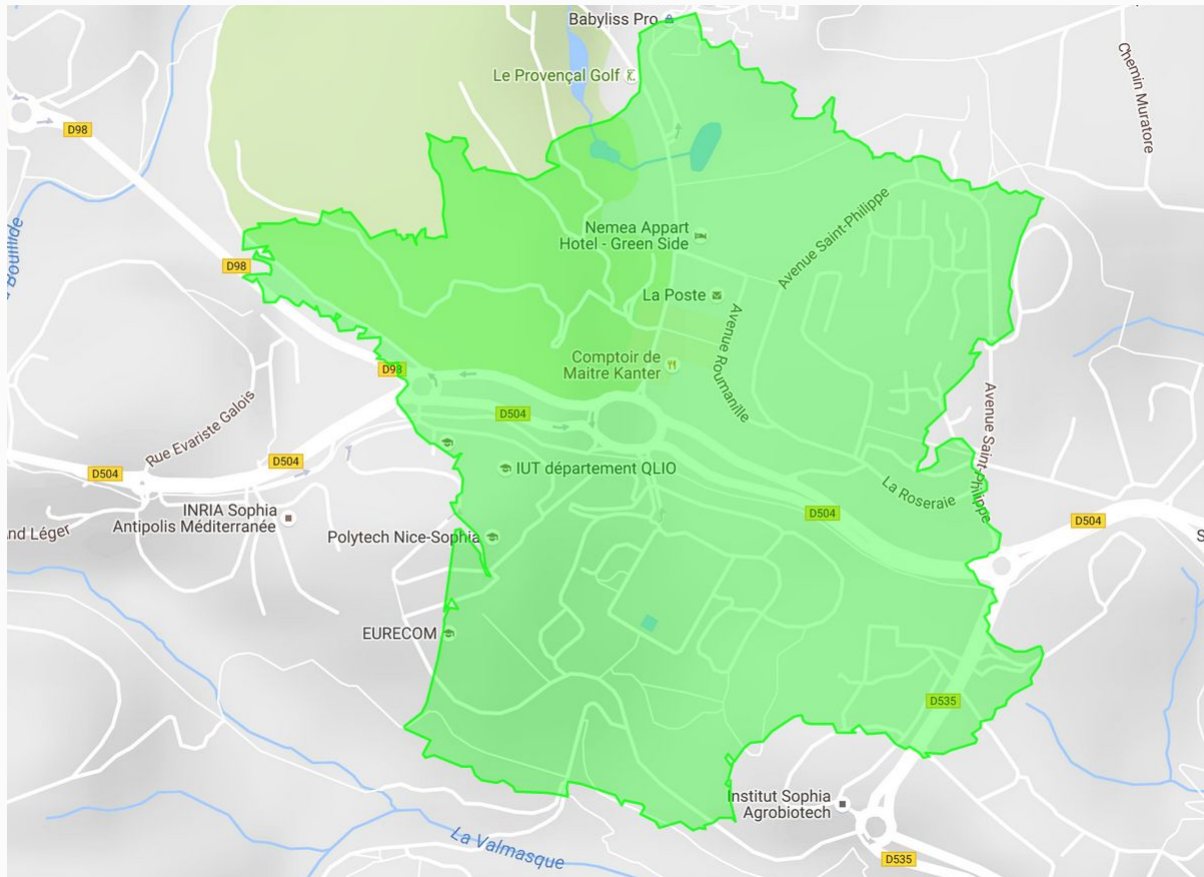




Boring...

What about... ?

- Fighting over the French regions at Sophia's scale?

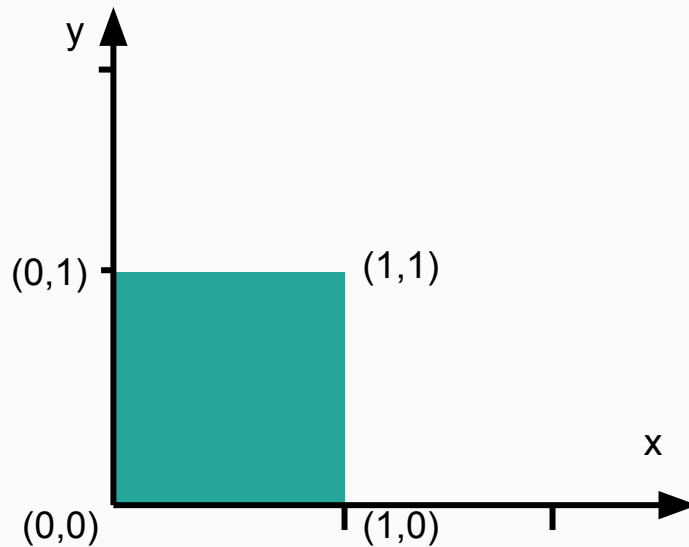


Objectives

- Build a web-service allowing to:
 - Define new shapes
 - Retrieve a shape, and get coordinates to place it anywhere on a map of the earth, at any scale
- How to retrieve the shape:
 - Give the desired geographic coordinates of the first vertex
 - Give the desired length of the first edge of the Polygon
 - Optionally, give a rotation angle for the shape

Shapes

- A list of ordered Points:
- Points = (x,y) coordinates
- Example: Square



Points:

$(0,0)$

$(1,0)$

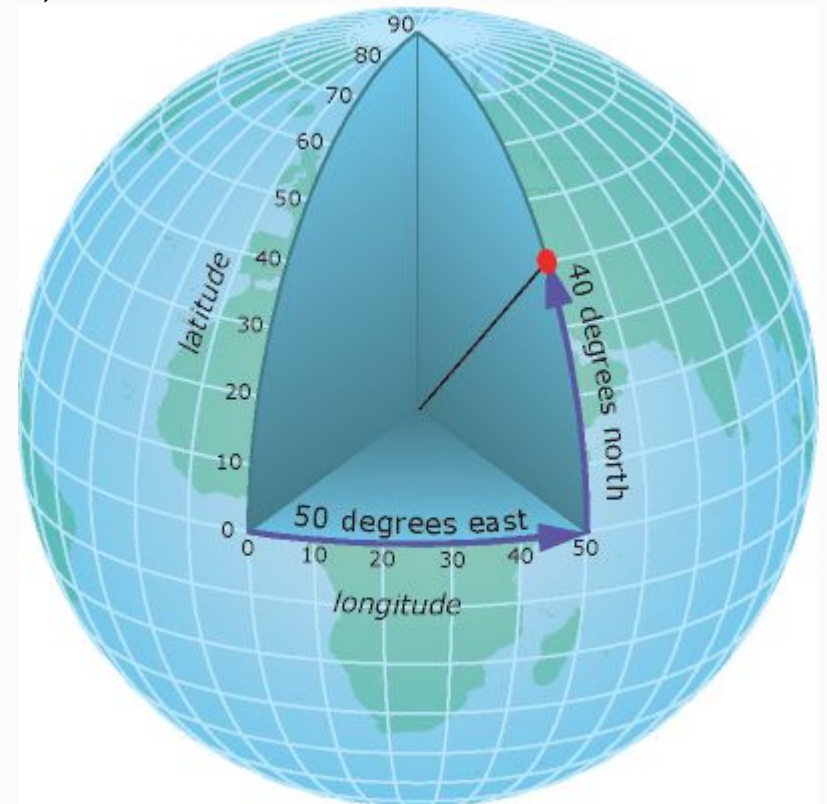
$(1,1)$

$(0,1)$

Geographic coordinates

- LatLng objects:
 - Latitude: $[-90, 90]$
 - Longitude: $[-180, 180]$ (wraps around)

- When drawing Polygons on the map, we have to send a list of LatLng objects.

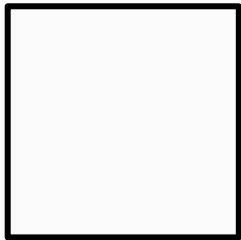


From shape to Polygon

Shape

Points:

(0, 0)
(1, 0)
(1, 1)
(0, 1)



Input

Origin:

(20, 120)

Length:

10



Output

Points:

(20, 120)
(30, 120)
(30, 130)
(20, 130)



... Or not



Expected



Actual

... Or not



Earth is round (I swear!)

- To represent geographic coordinates on a flat surface, Google uses a projection (Mercator's projection)
- We need to do the same to have correct proportions
 - Convert the origin LatLng point to a flat surface
 - Compute the points location "flat"
 - Convert obtained result to LatLng with the projection

Your job

Instructions

- Groups of two
- Get the base code on the course website
- Follow the PDF instructions
- Send by email to **both** teachers before October 2nd 23h59 (French time)
 - Late = 0
 - 1 non-respected instruction = -1 point

Base code

- Partial interface for the service
- Partial implementation of the service
- Model objects (partial)
 - Shapes and Points to define shape models
 - GeoPoints and GeoPolygon for the shapes in geographic coordinates
- Helper methods to:
 - Transform a Point to a GeoPoint and back
 - Transform a Shape into a GeoPolygon
- An HTML file that queries your service for validation



WAIT A MINUTE!

Let's go !

