

Putting Design On The Map

“A map does not just chart, it unlocks and formulates meaning; it forms bridges between here and there, between disparate ideas that we did not know were previously connected.”

Reif Larsen, The Selected Works of T.S. Spivet

GISPortal

- Plymouth Marine Laboratory
- Audience: Scientists, Government advisors and general public
- Uses OpenLayers 2, but Open Layers 3 is far better!
- PML work on multiple forks, with various different target audiences
- <https://github.com/pmlrsg/GISportal>

Indicators

Layers



Adult Cod - North East Atlantic - Cefas



Scale - Tonnes / km2



0.2 0.2 0.2 0.2 0.3

Provider Cefas

Interval Daily

Ecosystem
element Fish

EU MSFD
Descriptor Foodwebs, Commercial
Fisheries

Bounding box 61.67 N, 9.83 E, 51 S, -6 W

Date range 1991-02-02 to 2009-11-13

[more information](#)

About

Share

Adult Cod - North East Atlantic

1990

1992

1994

1996

1998

2000

2002

2004

2006

2008

2010

2012

Open Geospatial Consortium (OGC)

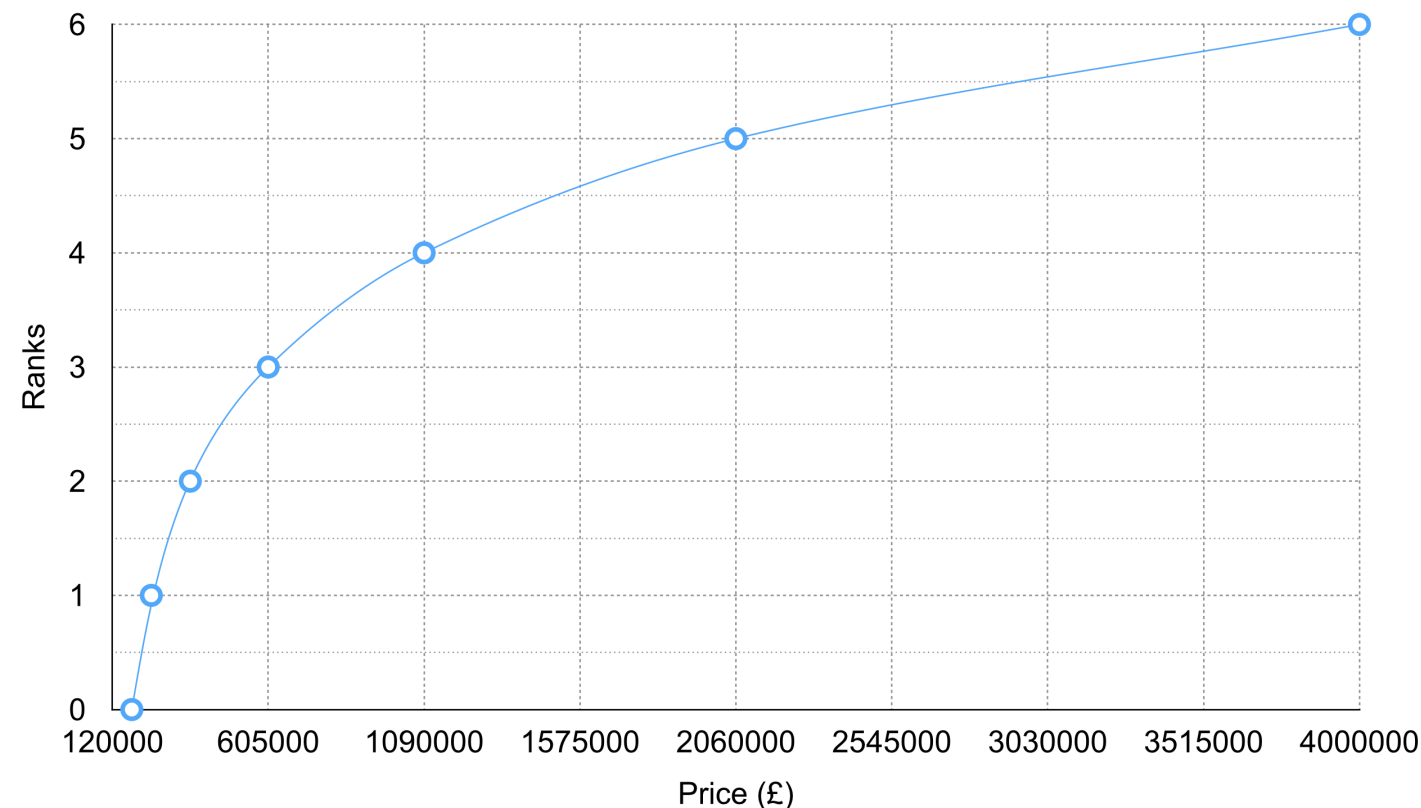
- Web Mapping Service (WMS)—Raster data
- Web Feature Service (WFS)—Vector features
- Web Coverage Service (WCS)—Raw data
- Web Map Tile Service (WMTS)—Pre-rendered Tiles

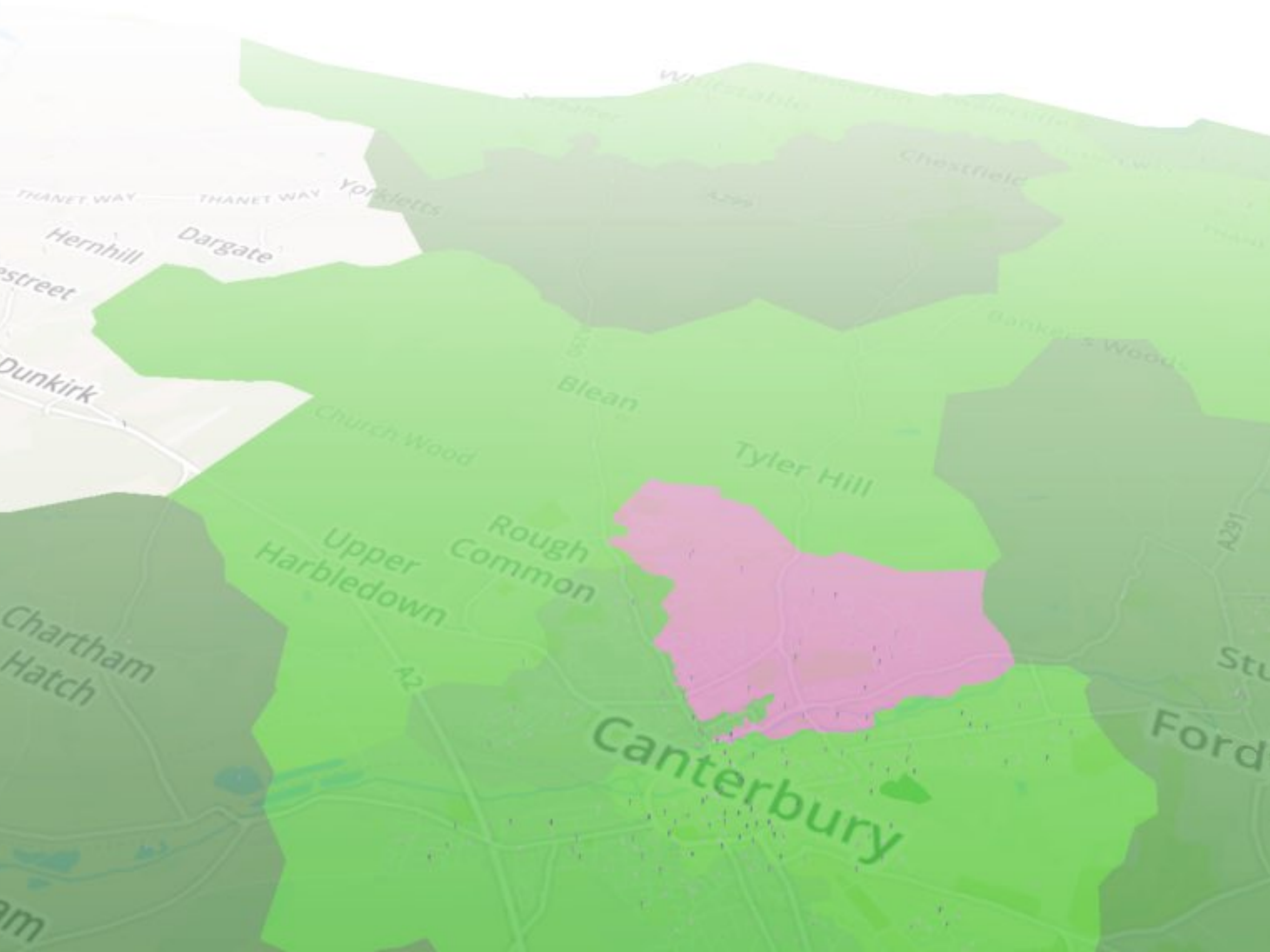
GeoRanking

- Ranks postcodes based on desirability for specific people
- Audience: People of any age looking to buy or rent property
- Uses ViziCities to show data in 3D
- Data from data.gov.uk
- Worked with Edward Oliver Greer

Ranks

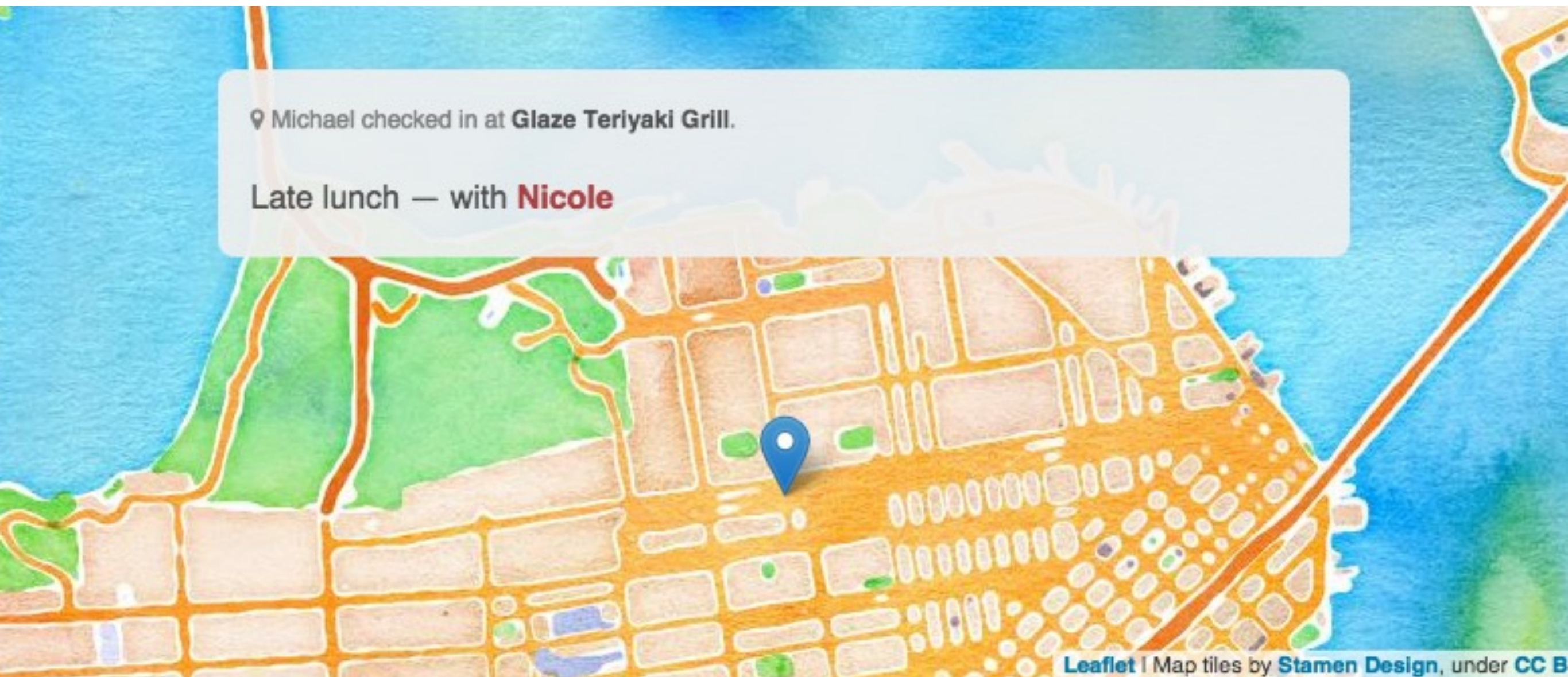
- By splitting each dataset into rank boundaries, we are left with ranks that can be compared to each other.
- They are then weighted based on importance defined by each person.





“But that’s too niche”

- I work on large projects, but every single venue (pub, restaurant, swimming pool) has a map on their website.
- I can almost guarantee they use a default Google Map.



A check out page on Michael K Owens' website

<https://mowens.com/checkins/2014/11/23/1/late-lunch-with-nicole>

Tiles

- The map itself is called the base layer.
- Can be satellite imagery, earth model, vector road maps... basically anything that shows the geography.
- It is split up into a grid of tiles, allowing you to use different tiles for zoom levels.
- Generally people use an XYZ URL such as:
`http://{s}.tile.openstreetmap.org{z}/{x}/{y}.png`
- There is also the WMTS

Context

- It is probably obvious but make sure the map is in the right context for the user.
- For instance, the GISPortal was updated to use a base map that shows the underwater terrain instead of just the land.

Performance

- Tiles are your friend, load the larger tiles first and add detail afterwards.
- Only render the viewport.
- Load a buffer of tiles so that it feels instant as the user pans around the map.

“Features are represented by means of lines or colors; and the effective use of lines or colors requires more than knowledge of the subject – it requires artistic judgement.”

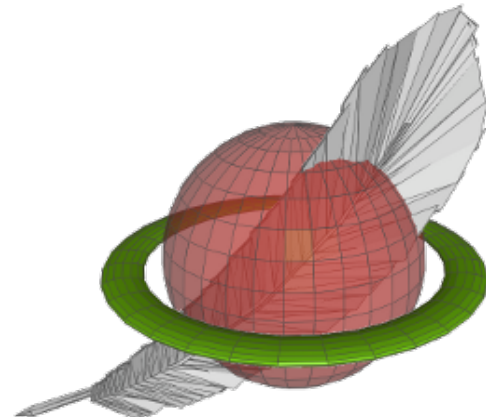
Erwin Josephus Raisz, cartographer (1893–1968)

Colour

- Most visualisations show data as colour on the map, this is hard to understand.
- Often better to show colour as a spectrum of shades rather than hues.
- Dark or light makes sense (there are only two directions) whereas various colours could mean anything.
- Users often want to see the actual values too!

Database

- Use the well supported and documented databases.
- PostGIS has a learning curve but is better long term.
- One of the worst decisions on GeoRanking was to use Spatialite over PostGIS.



Front-end Tools

- Google
- Leaflet
- Mapbox
- Open Layers
- Open Street Map
- ViziCities

Google Styled Maps

- You have almost certainly used a Google map, but probably not customised it a lot.
- You heavily customise the base map with “Styled Maps”, using a JavaScript object to change colours, hide labels etc.
- <https://developers.google.com/maps/documentation/javascript/styling>



Leaflet

- Self hosted JavaScript library
- Lightweight
- Can use base maps from anywhere, defaults to Open Street Map.
- I recommend for most projects where you want control but nothing too advanced.



Mapbox

- Mapbox is a great service for customising maps, with built in data sources and storage for base maps.
- Mapbox Studio is open source software for making vector base maps using stylesheets similar to CSS. It is the successor to Tile Mill.

Open Layers 3

- Self hosted JavaScript library
- Very powerful and much faster than previous versions.
- Complete control over everything, eg. CSS for UI.



Open Street Map

- Openly licensed map of the world.
- Road maps, building data etc.



ViziCities

- Open source 3D geospatial visualisation platform.
- Developed by Robin Hawkes.
- Very early in development!



Thanks!

@shanehudson

<https://shanehudson.net>

Links

- <https://shanehudson.net>
- <https://twitter.com/ShaneHudson>
- <http://24ways.org/2014/putting-design-on-the-map>
- <https://github.com/pmlrsg/GISportal>
- <http://portal.marineopec.eu/>
- <http://data.gov.uk/>
- <https://mowens.com/checkins/2014/11/23/1/late-lunch-with-nicole>
- <http://www.opengeospatial.org/standards/wms>
- <http://www.opengeospatial.org/standards/wcs>
- <http://www.opengeospatial.org/standards/wfs>

Links

- <http://www.gaia-gis.it/gaia-sins/>
- <http://postgis.net/>
- <https://developers.google.com/maps/documentation/javascript/styling>
- <http://leafletjs.com/features.html>
- <https://www.mapbox.com/>
- <http://openlayers.org/>
- <http://wiki.openstreetmap.org/>
- <http://vizicities.com/>
- <http://cartodb.com/basemaps/>