

Working with Data

A Workshop on Understanding, Visualising and Mapping Data

Chennai, 3-5 August 2012

Second day

4th August 2012

- | | |
|--|---------------|
| 1. Presentation by Open Knowledge Foundation | [10:30-11:00] |
| 2. What is data visualisation? | [11:15-12:15] |
| 3. Tools for spatial data collection | [13:30-14:15] |
| 4. Introduction to tools | [14:15-14:30] |
| 5. Session on geo/visualisation tools #1 | [14:45-16:00] |
| 6. Session on geo/visualisation tools #2 | [16:15-17:30] |

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6. Session on geo/visualisation tools #2 [16:15-17:30]

Data Organising Tools

Google Refine

Google refine students Permalink Open... Export ▾ Help

Facet / Filter Undo / Redo 60 410 rows Extensions: Freebase ▾

Refresh Reset All Remove All Show as: rows records Show: 5 10 25 50 rows « first < previous 1 - 50 next > last »

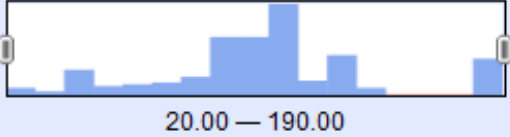
Graduate University: judgment change invert reset

1 choices Sort by: name count

matched 410 exclude

Facet by choice counts

Graduate University: best candidate's score change reset



Numeric 409 Non-numeric 0 Blank 0

Error 1

All Full Name Graduate University

Facet

Text filter

Edit cells

Edit column

Transpose

Sort...

View

Reconcile

Choose new match

George Washington Un

Choose new match

Brown University

Choose new match

University College Lond

Choose new match

University of Maryland,

Choose new match

Johns Hopkins University

Choose new match

University of Pennsylvania

Choose new match

George Washington University

Choose new match

Split into several columns...

Add column based on this column...

Add column by fetching URLs...

Add columns from Freebase ...

Rename this column

Remove this column

Move column to beginning

Move column to end

Move column left

Move column right

javascript:⌘

Data Organising Tools

Data Wrangler

Split Cut Extract Edit Fill Translate Drop Merge Wrap Delete Promote Fold Unfold Transpose

after before column max on positions quote character result row

once

column

rows: 408 prev next

#	split	#	split1
1	Reported crime in Alabama		
2			
3	2004		4029.3
4	2005		3900
5	2006		3937
6	2007		3974.9
7	2008		4081.9
8			
9	Reported crime in Alaska		
10			
11	2004		3370.9
12	2005		3615
13	2006		3582
14	2007		3373.9
15	2008		2928.3
16			
17	Reported crime in Arizona		
18			
19	2004		5073.3
20	2005		4827
21	2006		4741.6
22	2007		4502.6
23	2008		4087.3
24			
25	Reported crime in Arkansas		

Suggestions

Script Export

- Split data repeatedly on newline into rows
- Split data repeatedly on ','

Data Organising Tools

Mr. Data Converter

Mr. Data Converter

I will convert your Excel data into one of several web-friendly formats, including HTML, JSON and XML.

Email me at mr.dataconverter@gmail.com.

News and updates available via [Twitter](#).

Source available on [github](#).

SETTINGS

Delimiter: Auto Comma Tab

First row is the header

Transform: lowercase upcase none

Include white space in output

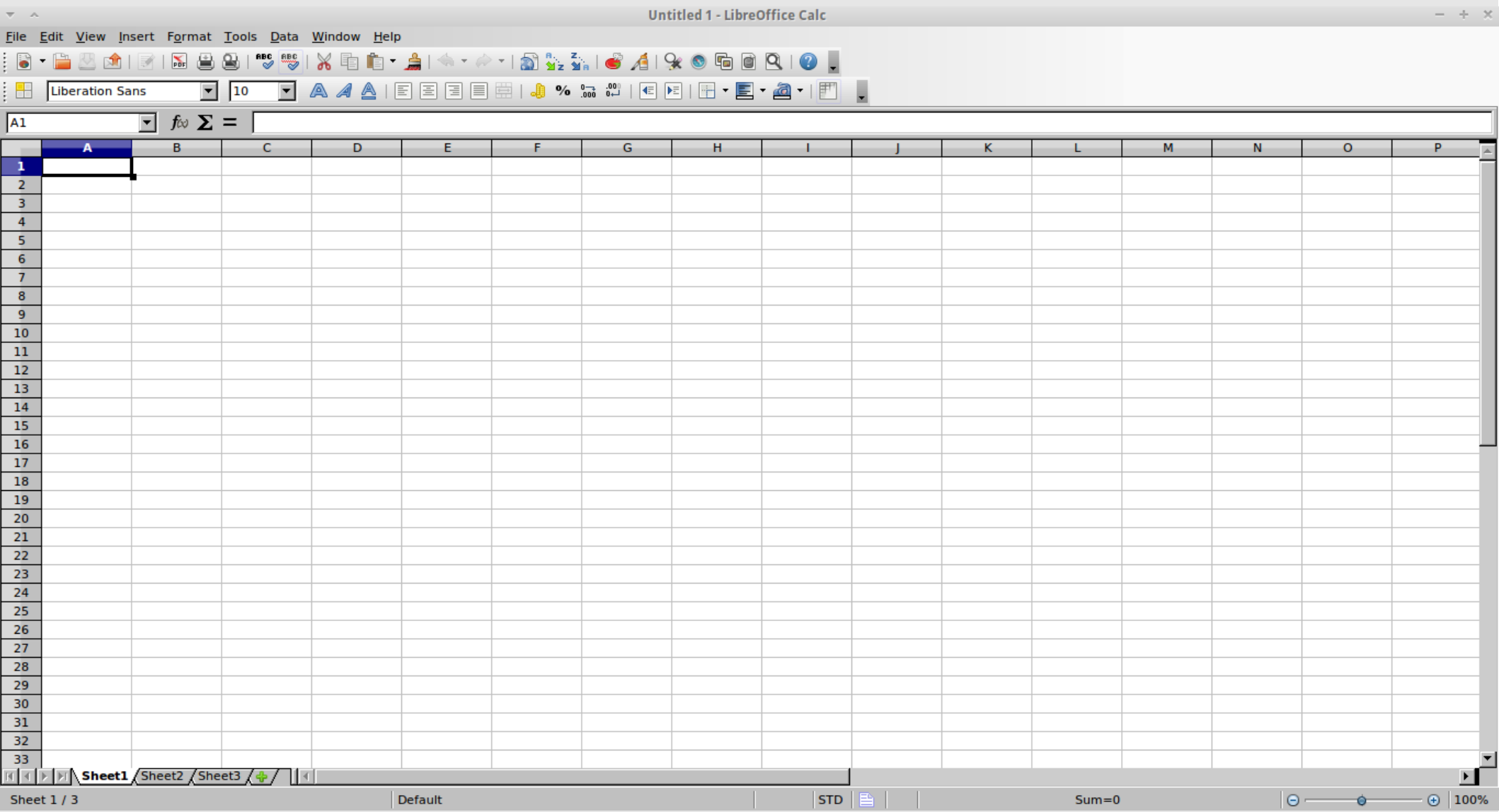
Indent with: tabs spaces

Input CSV or tab-delimited data. Using Excel? Simply copy and paste. No data on hand? [Use sample](#)

Output as XML - Nodes

Data Analysis Tools

LibreOffice Calc



Data Analysis Tools

Gnumeric

Book1.gnumeric - Gnumeric

File Edit View Insert Format Tools Statistics Data Help

Sans 10

A1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1																				
2																				
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30																				
31																				

Sheet1 Sheet2 Sheet3

Sum=0

Data Analysis Tools

R

The image shows the RStudio application window. At the top is the menu bar with options: File, Edit, Code, View, Project, Workspace, Plots, Tools, Help. Below the menu bar is a toolbar with icons for file operations and a search bar labeled 'Go to file/function'. The main workspace is divided into several panels. The top-left panel is the 'Source' editor, showing a file named 'Untitled1 *' with a single line of code '1 |'. The top-right panel is the 'Workspace' and 'History' panel, which is currently empty. The bottom-left panel is the 'Console', displaying the R startup message: 'R version 2.15.1 (2012-06-22) -- "Roasted Marshmallows" Copyright (C) 2012 The R Foundation for Statistical Computing ISBN 3-900051-07-0 Platform: x86_64-pc-linux-gnu (64-bit) R is free software and comes with ABSOLUTELY NO WARRANTY. You are welcome to redistribute it under certain conditions. Type 'license()' or 'licence()' for distribution details. Natural language support but running in an English locale R is a collaborative project with many contributors. Type 'contributors()' for more information and 'citation()' on how to cite R or R packages in publications. Type 'demo()' for some demos, 'help()' for on-line help, or 'help.start()' for an HTML browser interface to help. Type 'q()' to quit R. > |'. The bottom-right panel is the 'Files', 'Plots', 'Packages', and 'Help' panel, which is currently empty.

RStudio

File Edit Code View Project Workspace Plots Tools Help

Go to file/function Project: (None)

Workspace History

Load Save Import Dataset Clear All

1 |

1:1 (Top Level) R Script

Console

```
R version 2.15.1 (2012-06-22) -- "Roasted Marshmallows"
Copyright (C) 2012 The R Foundation for Statistical Computing
ISBN 3-900051-07-0
Platform: x86_64-pc-linux-gnu (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

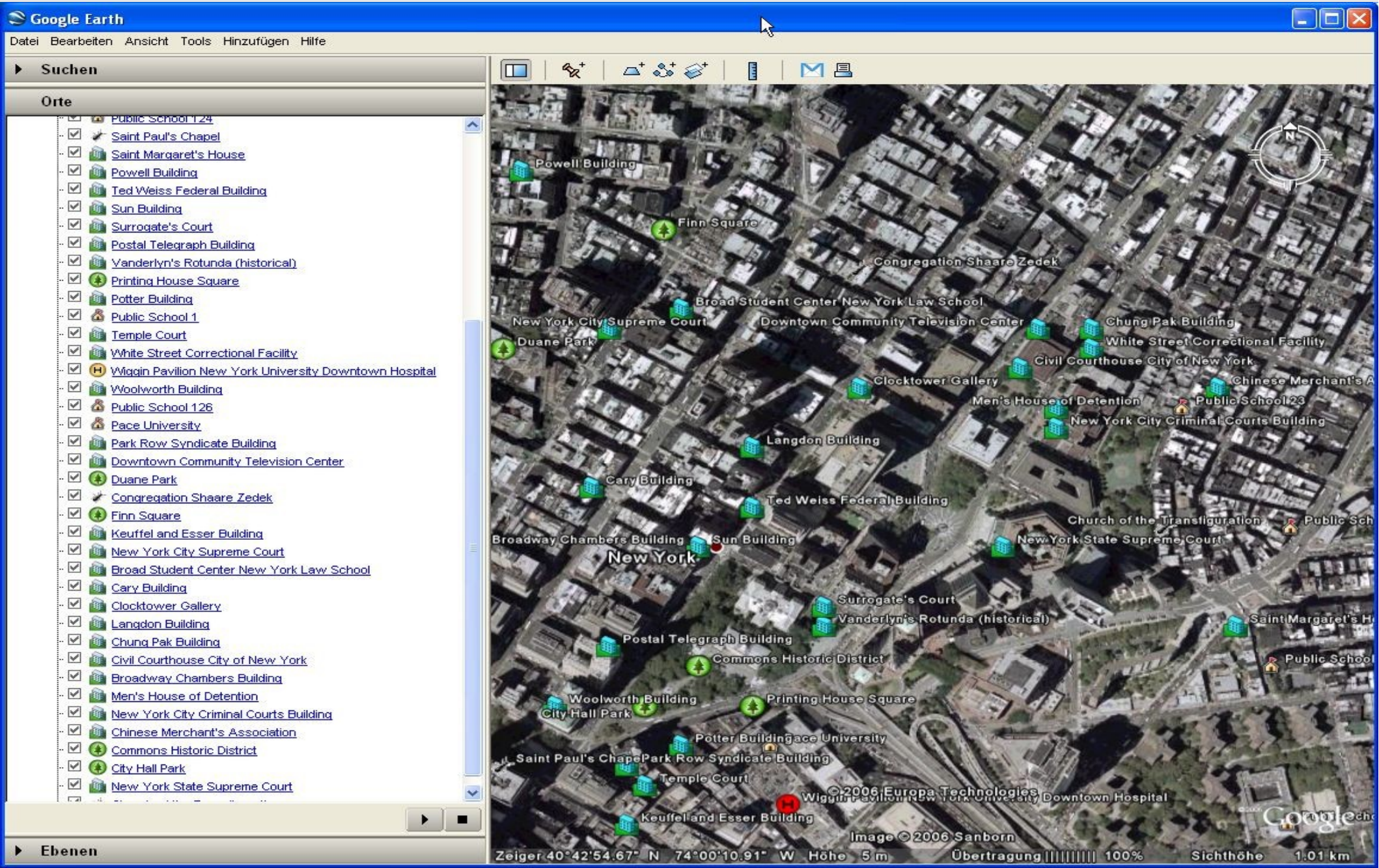
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> |
```

Files Plots Packages Help

Spatial Data Tools

Google Earth



Spatial Data Tools

GRASS

The screenshot displays the GRASS GIS software interface. The main window is titled "GRASS GIS Map Display: 0 - Location: nc_spm_06". The map shows a colorful terrain with roads and water bodies. The "GRASS GIS Layer Manager - nc.grc" window is open, showing three layers: "soils_wake@PERMANENT" (40), "roadsmajor@PERMANENT" (100), and "slope@PERMANENT" (100). The "roadsmajor@PERMANENT" layer is selected. The "GRASS GIS Attribute Table Manager - vector map layer <roadsmajor@PERMANENT>" window is open, showing a table of road data. A context menu is open over the table, with "Display selected" highlighted. The table has columns: cat, MAJORRDS_, ROAD_NAME, MULTILAN, PROPYEAR, OBJECTID, and SHAPE_LEN. The data rows are numbered 10 to 22. The "SQL Query" section is set to "Simple" and shows a partial query: "SELECT". The "SQL Builder" button is visible. The "Coordinates" field at the bottom left shows "640595.27,220432.01". The system tray on the right shows the time "16:13:01" and the date "Sun, Feb 17".

GRASS GIS Map Display: 0 - Location: nc_spm_06

GRASS GIS Layer Manager - nc.grc

Display 0

- soils_wake@PERMANENT 40
- roadsmajor@PERMANENT 100
- slope@PERMANENT 100

GRASS GIS Attribute Table Manager - vector map layer <roadsmajor@PERMANENT>

Layer 1

Attribute data - right-click to edit/manage records

cat	MAJORRDS_	ROAD_NAME	MULTILAN	PROPYEAR	OBJECTID	SHAPE_LEN
10	10.0	NC-98	no	0	10	8446.822876
11	11.0	NC-98	no	0	11	14876.323626
12	12.0	NC-98	no	0	12	11610.268716
13	13.0		no	0	13	11828.121704
14	14.0		no	0	14	5524.875869
15	15.0	NC-98	no	0	15	4739.53603
16	16.0	NC-96	no	0	16	8586.517385
17	17.0		no	0	17	12073.33628
18	18.0		no	0	18	10178.42291
19	19.0		no	0	19	4375.530882
20	20.0		no	0	20	6491.037831
21	21.0		no	2025	21	9781.033301
22	22.0		yes	0	22	12315.177857

SQL Query

Simple Advanced

Display selected

Extract selected

Reload

SQL Builder

Browse data | Manage tables | Manage layers | Settings

Quit Apply

640595.27,220432.01 Coordinates

Spatial Data Tools

Quantum GIS

The screenshot displays the Quantum GIS 1.4.0-Enceladus interface. The main window shows a map of Barcelona with a Digital Elevation Model (DEM) layer. A mouse cursor is hovering over a specific point on the map, which has triggered an identification dialog box. The dialog box, titled "Identifikationsergebnis", shows the following information:

Objekt	Wert
▼ barcelona_transformed_dem Layer	
▼ Raster	
▶ (abgeleitet)	
Kanal 1	52

The interface also includes a menu bar (Datei, Bearbeiten, Ansicht, Layer, Erweiterungen, Vektor, Hilfe), a toolbar with various GIS tools, and a layer list on the left showing "barcelona-osm" and "barcelona_transformed...". The status bar at the bottom displays the coordinate "1085430,769061", the scale "1:333508331", and the "Zeichnen" (Draw) tool icon.

Spatial Data Tools

TileMill

The screenshot displays the TileMill web application interface. At the top, the browser address bar shows the URL `localhost:8889/#!/project/geography-class`. The application title is "TileMill" and the current project is "Geography Class". The main area features a world map with various countries colored and labeled with their three-letter codes. A zoom control in the top left shows "ZOOM 3". On the right, there are tabs for "style.mss", "labels.mss", and "rainbow.mss". The "style.mss" tab is active, showing a code editor with the following content:

```
1 /*****
2
3 'Geography Class'
4 =====
5
6 mac.softpedia.com|
7
8 Note that this map doing some rather complex things thus
9 slowish rendering should not be surprising. A pre-rendered
10 demo is online at <http://mapbox.com/tileset/geography-class>
11
12 Hover Interaction & Embedded Data
13 -----
14
15 When you move your cursor around the map you should see the
16 name and flag of the country you are hovering over appear
17 in the top left. You can pull any attributes from a data
18 layer to form tooltips like this. Here, we are pulling a
19 text attribute and a base64-encoded PNG image from a GeoJSON
20 file of country polygons. Click on the settings wrench at the
21 top right, then on the 'Interaction' tab to see how this was
22 set up.
23
24 Layers overview
25 -----
26
```

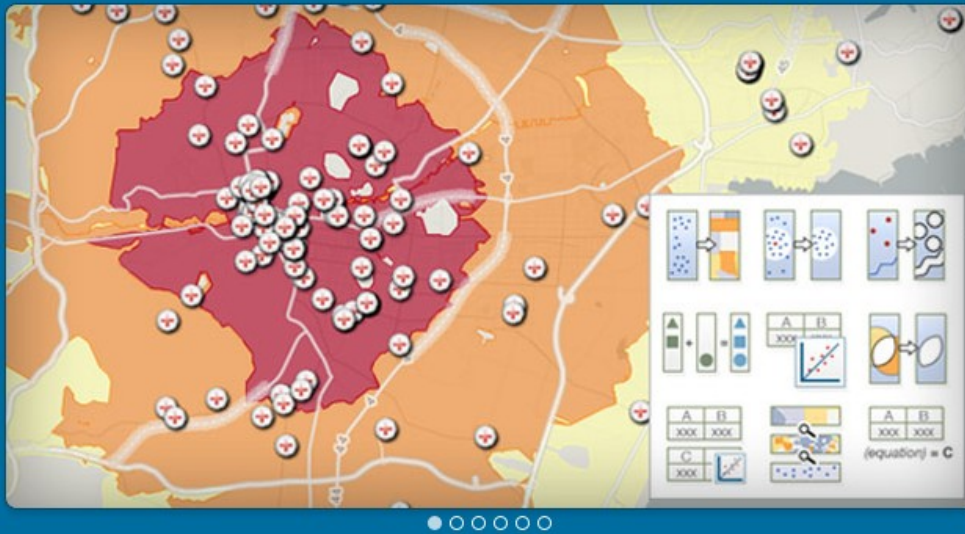
On the left side, there is a layer list with the following items:

- #country-interaction
- #paper
- #cities
- #country-name
- #geo-lines
- #glacier
- #admin-0-line-land.border.country
- #admin-0-line-disputed.border.disputed
- ★ country capital city

Spatial Data Tools GeoCommons



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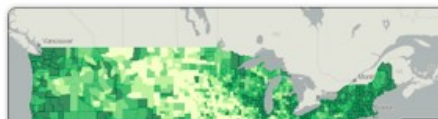


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Data Visualisation Tools

Many Eyes

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- Topic centers

Participate

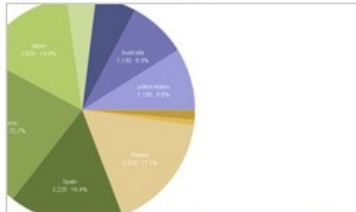
- Create a visualization
- Upload a data set
- Create a topic center
- Register

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Amount of people that smoke in a number of countries



Amount of people that smoke in a number of countries

by Taylah

Interstate arrivals Australia 1981-1985



Interstate arrivals Australia 1981-1985

by wyattc

Policy on Evolution Education



By state - 2012

by walkmagazine

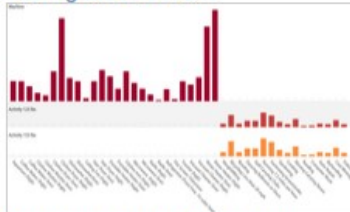
Number of unimmunized infants against DTP3



By country and continent - 2011

by StuartW

Feeling the BTU burn



Energy burned by machine and body

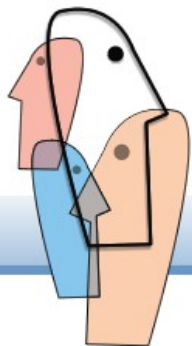
by IanS

Digital Government Strategy 2013



Phrase Net visualization for Digital Government Strategy - May 2013.

by TLissauer



Data Visualisation Tools

D3.js

[Overview](#) [Examples](#) [Documentation](#) [Source](#)

Data-Driven Documents

Fork me on GitHub



D3.js is a JavaScript library for manipulating documents based on data. **D3** helps you bring data to life using HTML, SVG and CSS. D3's emphasis on web standards gives you the full capabilities of modern browsers without tying yourself to a proprietary framework, combining powerful visualization components and a data-driven approach to DOM manipulation.

See [more examples](#).

Download the latest version here:

- [d3.v2.js](#) - development
- [d3.v2.min.js](#) - production (minified)

Data Visualisation Tools

Recline.js

Grid Graph Map Transform 6 records « 0 – 100 » Go » Filters Fields

id	date	x	y	z	Country	Title	lat	lon
0	2011-01-01	1	2	3	DE	first	52.56	13.4
1	2011-02-02	2	4	24	UK	second	54.97	-1.6
2	2011-03-03	3	6	9	US	third	40	-75.5
3	2011-04-04	4	8	6	UK	fourth	57.27	-6.2
4	2011-05-04	5	10	15	UK	fifth	51.58	0
5	2011-06-02	6	12	18	DE	sixth	51.04	7.9

Filters
Add filter

Fields +

- id string »
- date date »
- x string »
- y string »
- z string »
- Country string »
- Title string »
- lat string »
- lon string »



Use the Library »

Recline.js is freely redistributable under the terms of the MIT license.



• The DataHub

- Open Knowledge Foundation Labs
- Open Definition
- Open Knowledge Foundation

Contacts
@ReclineJS
@maxogden
@rufuspollock

Data Visualisation Tools

Google Chart Tools

Home **Products** Events Showcase Live Groups

Google Chart Tools

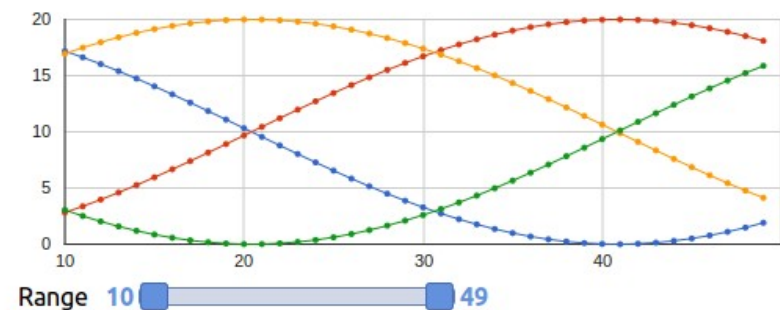
- ▶ Overview
- ▶ Examples and Tools
- ▶ Community
- ▶ About Chart Tools
- ▶ Related Chart Tools
- Terms of Service

Display live data on your site

Google chart tools are powerful, simple to use, and free. Try out our rich gallery of interactive charts and data tools.

Get Started

Controls and Dashboards - [view source](#)



      [more](#)

Rich Gallery

Choose from a variety of charts. From simple scatter plots to hierarchical treemaps, find the best fit for your data.

Customizable

Make the charts your own. Configure an extensive set of options to perfectly match the look and feel of your website.

HTML5 / SVG

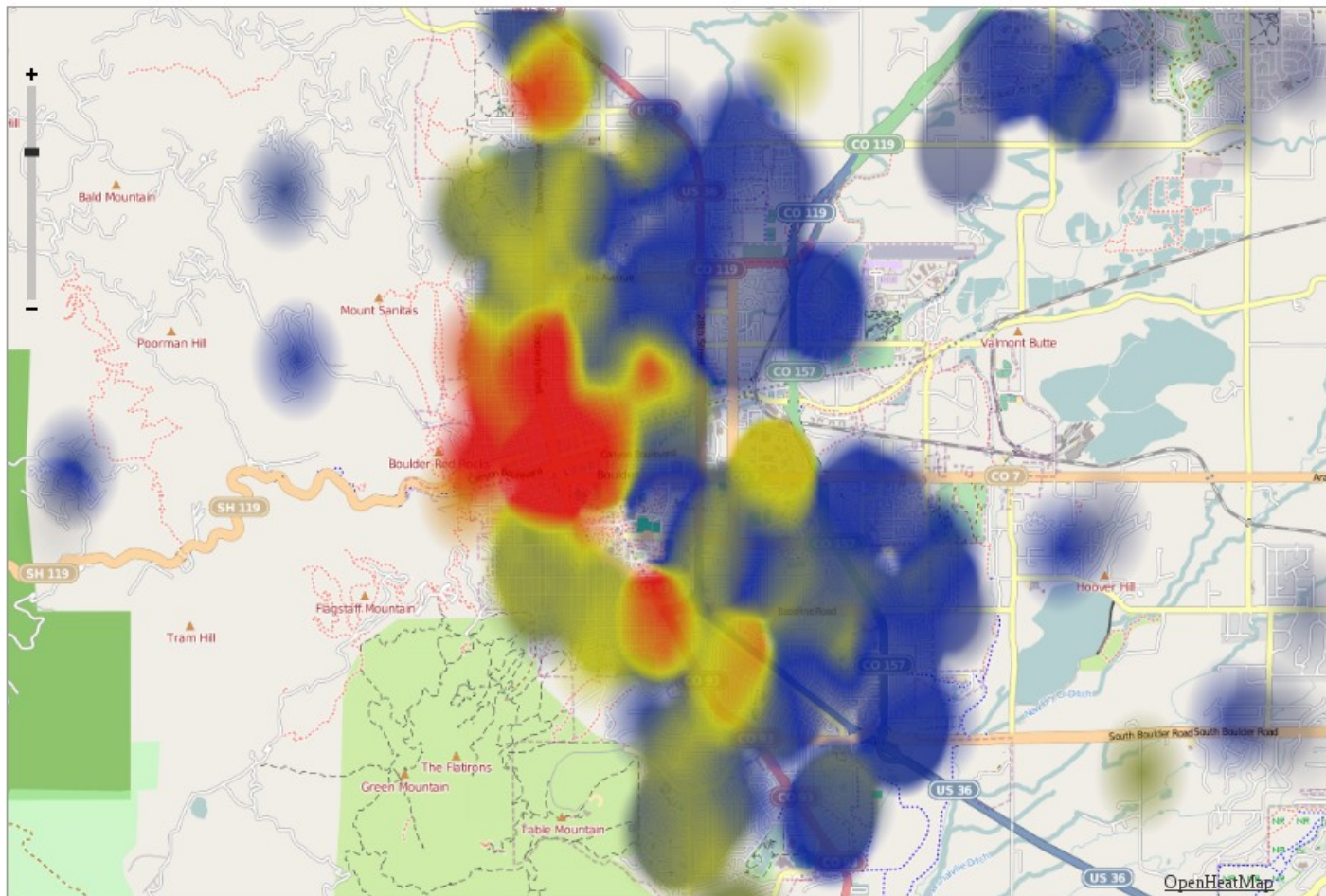
Cross-browser compatibility (adopting VML for older IE versions) and cross-platform portability to iOS and new Android releases. No plugins are needed.

Data Visualisation Tools

OpenHeatMap

Boulder Real Estate

OPENHEATMAP



\$ Per Square Foot

100

255

410

Data Visualisation Tools

Wordle

Wordle™

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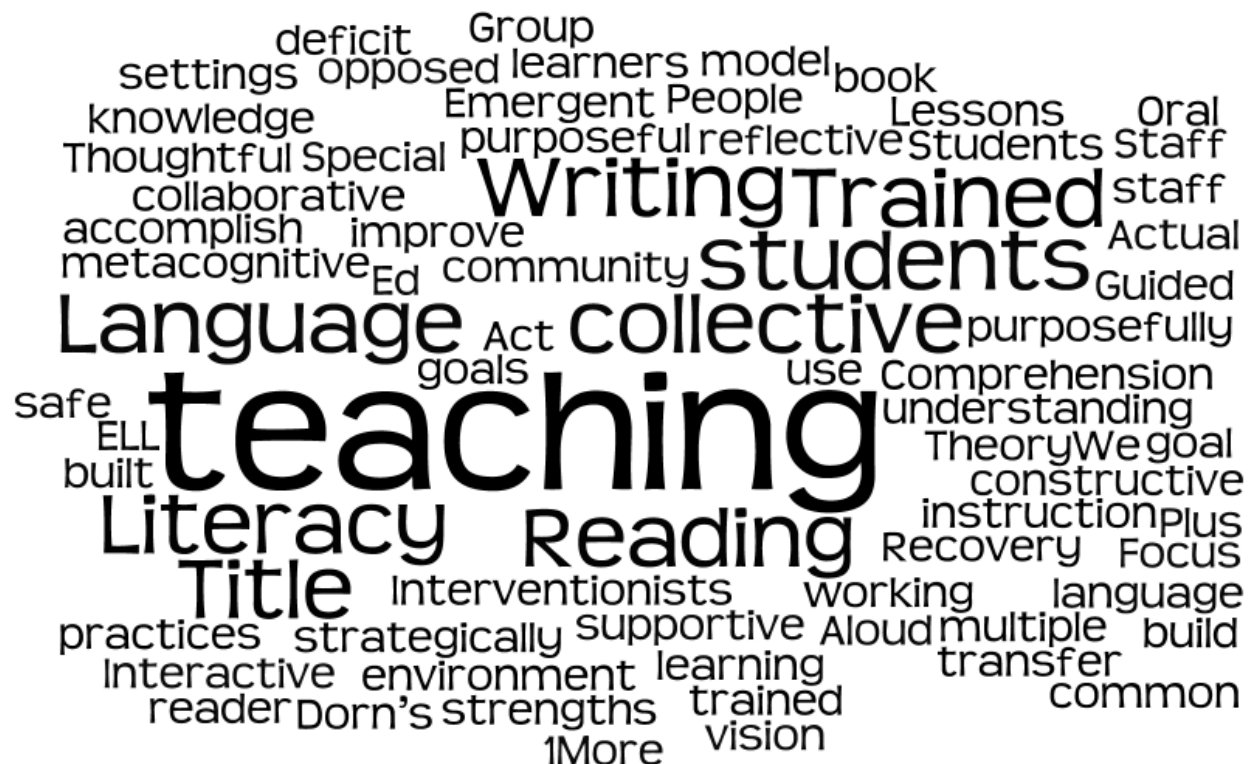
[Advanced](#)

[«newer](#)

[random](#)

[older»](#)

“Untitled” by [Anonymous](#) 15 minutes ago



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Graphic Design Tools

Inkscape

