

# Doing data science with F#

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PhD Student at Cambridge & Coordinator of <http://fsharp.org>

software stacks

trainings teaching F# user groups snippets

mac and linux community books and tutorials

# F# Software Foundation

consulting open-source MonoDevelop


<http://www.fsharp.org>

contributions research support

cross-platform mailing lists


## New York, NY

Founded Nov 3, 2010

F#ers	557
Group reviews	31
Upcoming Meetups	2
Past Meetups	32
Our calendar	

## Minsk, Belarus


Founded Aug 20, 2013

Fsharpers	57
Group reviews	2
Upcoming Meetups	2
Past Meetups	2
Our calendar	

**F#unctional**  
**Londoners**

## London, United Kingdom

Founded Feb 4, 2010

Members	645
Group reviews	22
Upcoming Meetups	6
Past Meetups	54
Our calendar	

data acquisition  
statistics data cleaning machine learning  
data transformation visualization type providers  
**F# Data Science Working Group**  
kaggle vega grammar data sources presentation  
R provider [www.fslab.org](http://www.fslab.org) visualization  
time-series data aggregation



# The Data





THE WORLD BANK  
Working for a World Free of Poverty

English Español Français Русский عربي 中文

GO

ABOUT DATA RESEARCH LEARNING NEWS PROJECTS & OPERATIONS PUBLICATIONS COUNTRIES TOPICS

## Data

By Country By Topic Indicators Data Catalog Microdata Blog News About For Developers Products

This page in English Español Français العربية 中文



### Bono and data beyond 2015: How can the Bank measure up?

Grant Cameron | Posted on 16 Nov 2012

Speaking at the World Bank on Wednesday, musician and activist Bono made the call for "open data and transparency" to "turbocharge the fight against poverty." [Read More >>](#)

### 7 tips for data visualization

Tariq Khokhar | Posted on 14 Oct 2012

Last week, the World Bank Data team descended on New York City for Visualized - a two day event exploring the "evolution of communication at the intersection of big data, storytelling and design." [Read More >>](#)

### New data resources on poverty, gender, jobs, health and more

Maryna Taran | Posted on 7 Nov 2012

Discover Open Data specialized dashboards and tools that help investigate and compare indicators, showcase creative visualizations and reveal the stories behind the numbers. [Read More >>](#)

### Updates

#### Doing Business

Updated 25 October 2012

#### Open Government Data Toolkit

Updated 10 July 2012

### Open Data Services

**8,000+**

[Time series indicators in dataBank >>](#)

**850+**

[Datasets in Finances >>](#)

**11,000+**

[Activities in Projects & Operations >>](#)

**700+**

[Surveys in Microdata >>](#)

← → <https://www.google.co.uk/#hl=> [population of london - Goo...](#) [population of london - Goo...](#) [population of london - Goo...](#)

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population of the world  
population of london I'm Feeling Lucky »  
population of china  
population of uk

**8,174,100 (2011)**  
London, Population

[London - Wikipedia, the free encyclopedia](#)  
[en.wikipedia.org/wiki/London](http://en.wikipedia.org/wiki/London)  
In March 2011, **London** had an official **population** of 8,174,100, making it the most populous municipality in the European Union, and accounting for 12.5% of the ...  
[Greater London - City of London - History of London - Demographics of London](#)





**Demo:** Understanding the world





## **F# Data type providers**

First-class data

CSV, REST, WorldBank...

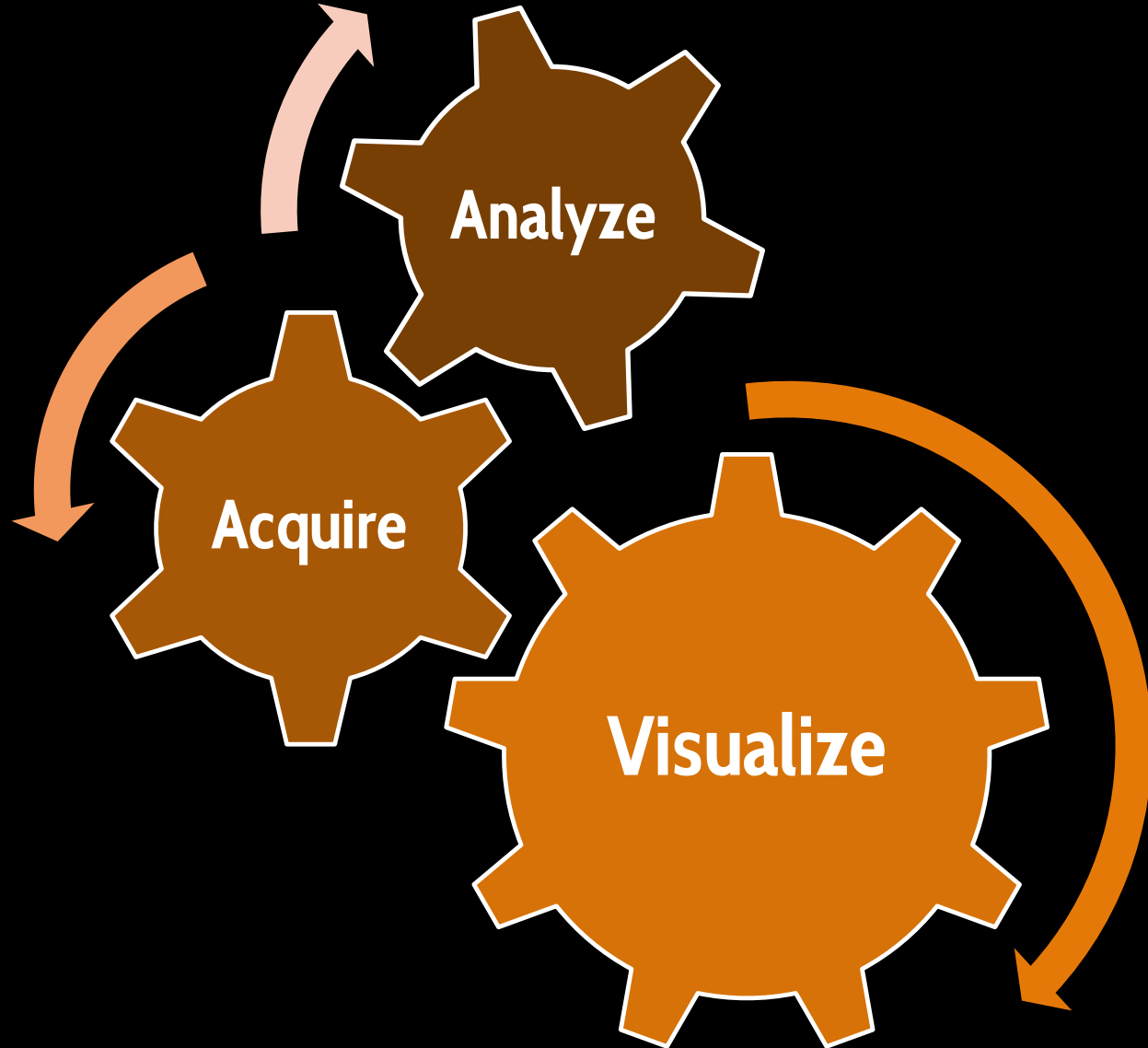


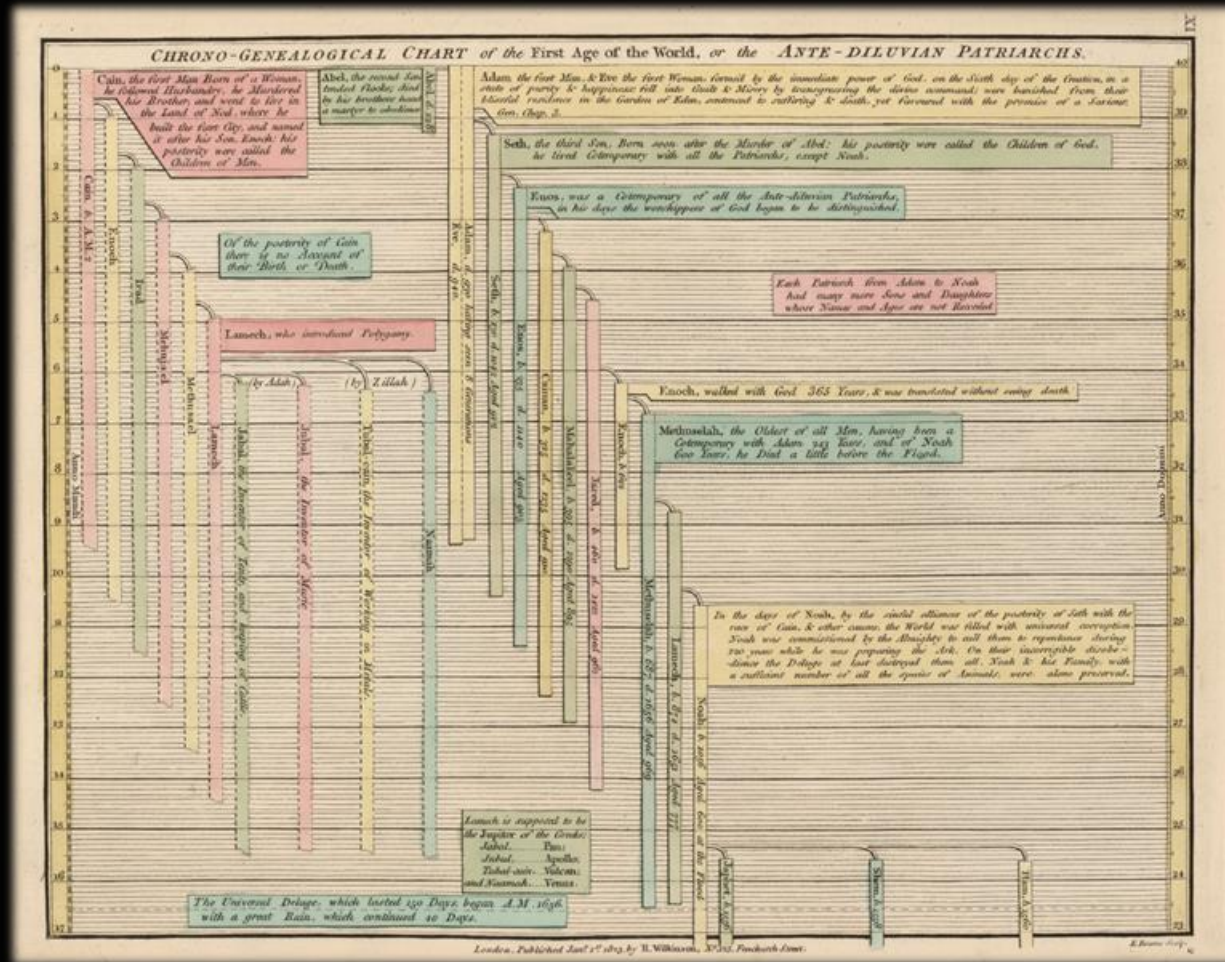
## **R Type provider**

Statistics & visualization

5000 tested packages

[www.fslab.org](http://www.fslab.org)





**Demo:** Interactive visualizations





## **F# Charting library**

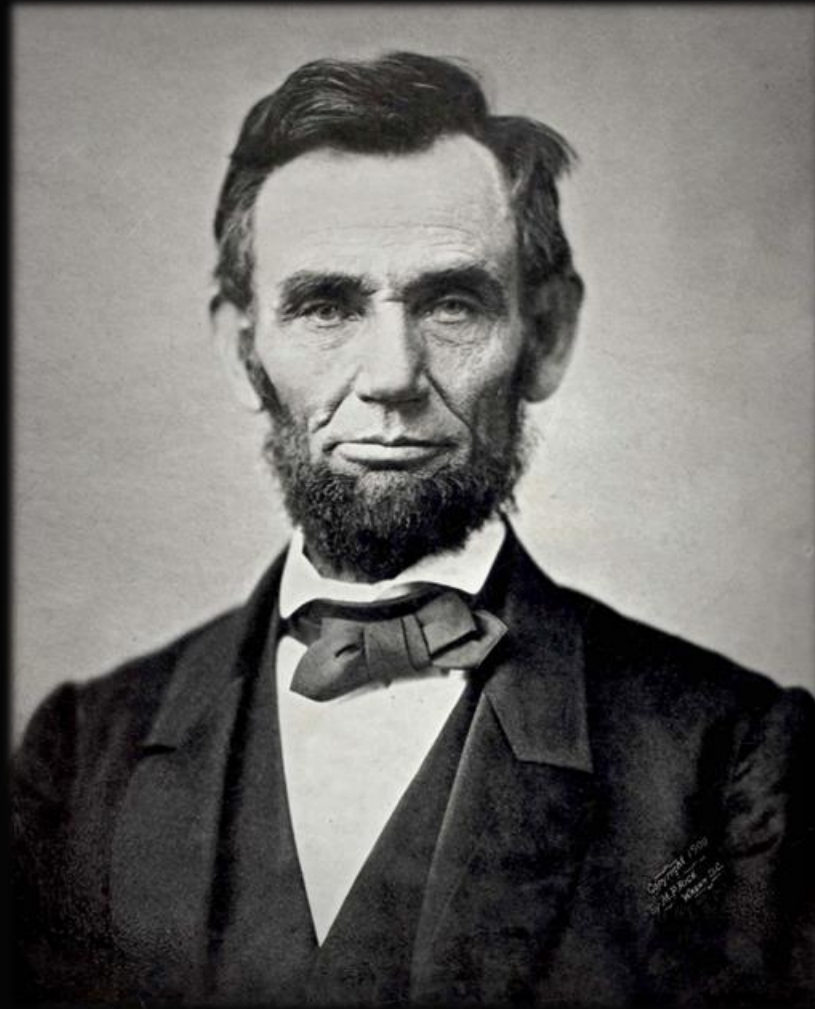
Simple & composable  
Interactive style



## **F# to JS with FunScript**

Type-safe JS interop  
Type provider support

[www.fslab.org](http://www.fslab.org)



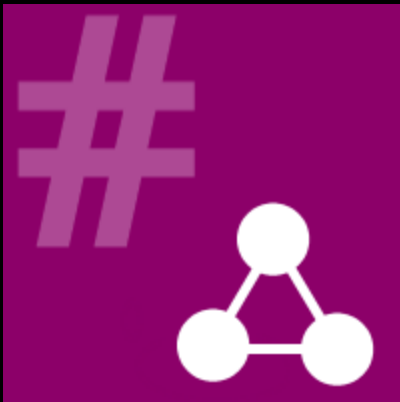
**Demo:** US debt over the last century



## Deedle data frame

Time-series alignment

Data transformations



## Vega visualization

F# wrapper for Vega

Pre-alpha version

[www.fslab.org](http://www.fslab.org)



# F# for Data Science

acquire, analyze, visualize

interactive experience

safety and efficiency of .net

ready for production

@tomaspetricek

# Going forward

Use #fsharp for fun & profit

Join local user groups

Help us build data science tools

[fsharp.org](http://fsharp.org) | [fslab.org](http://fslab.org) | [tomasp.net](http://tomasp.net)

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