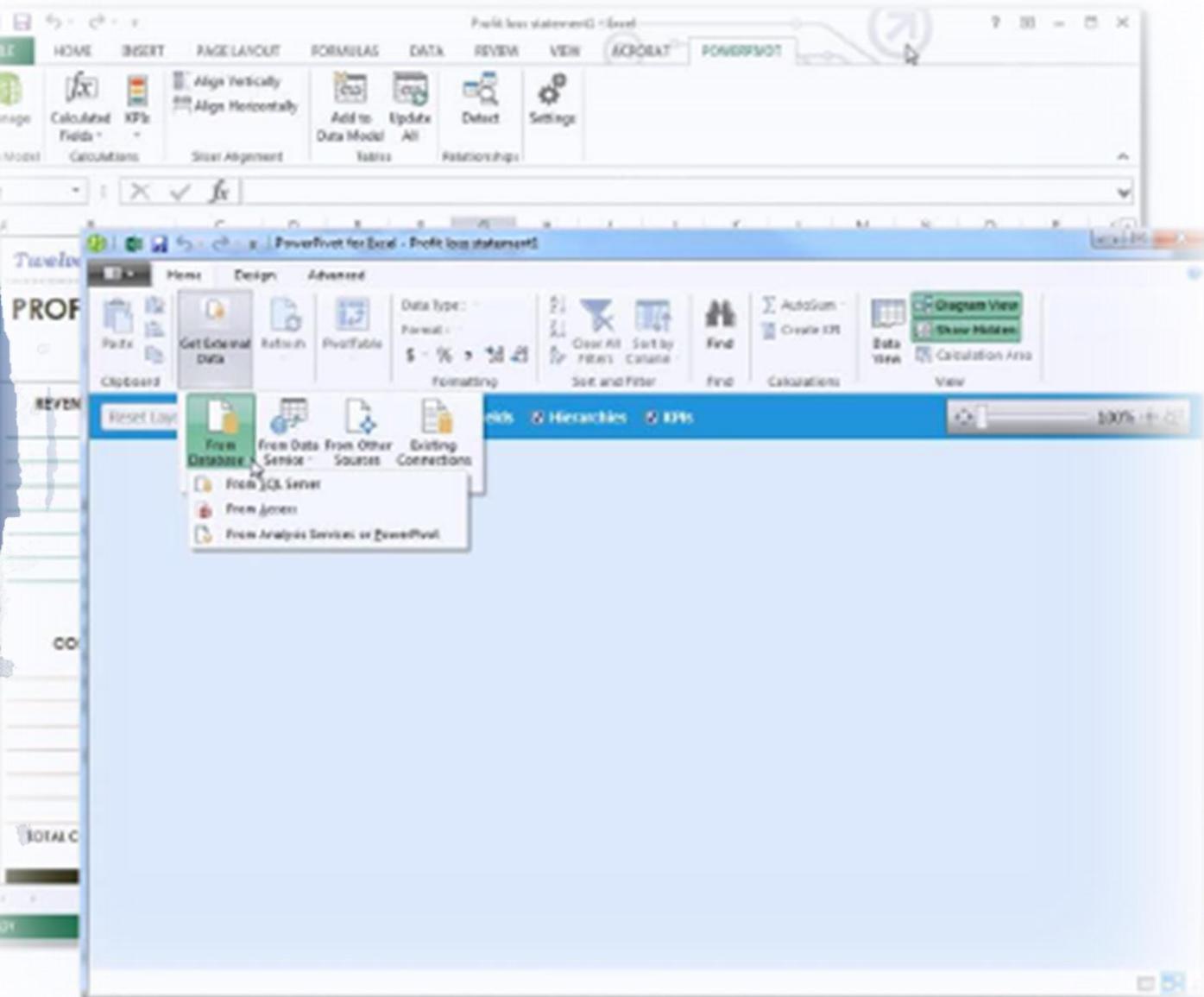


Data Visualization

Fundamentals of Visualization

Tools for Data Visualization

Microsoft Excel and PowerPivot



Microsoft Excel and PowerPivot

Excel Options

General
Macros
Proofing
Save
Language
Advanced
Customize Ribbon
Quick Access Toolbar
Add-Ins
Trust Center

View and manage Microsoft Office Add-ins.

Add-ins

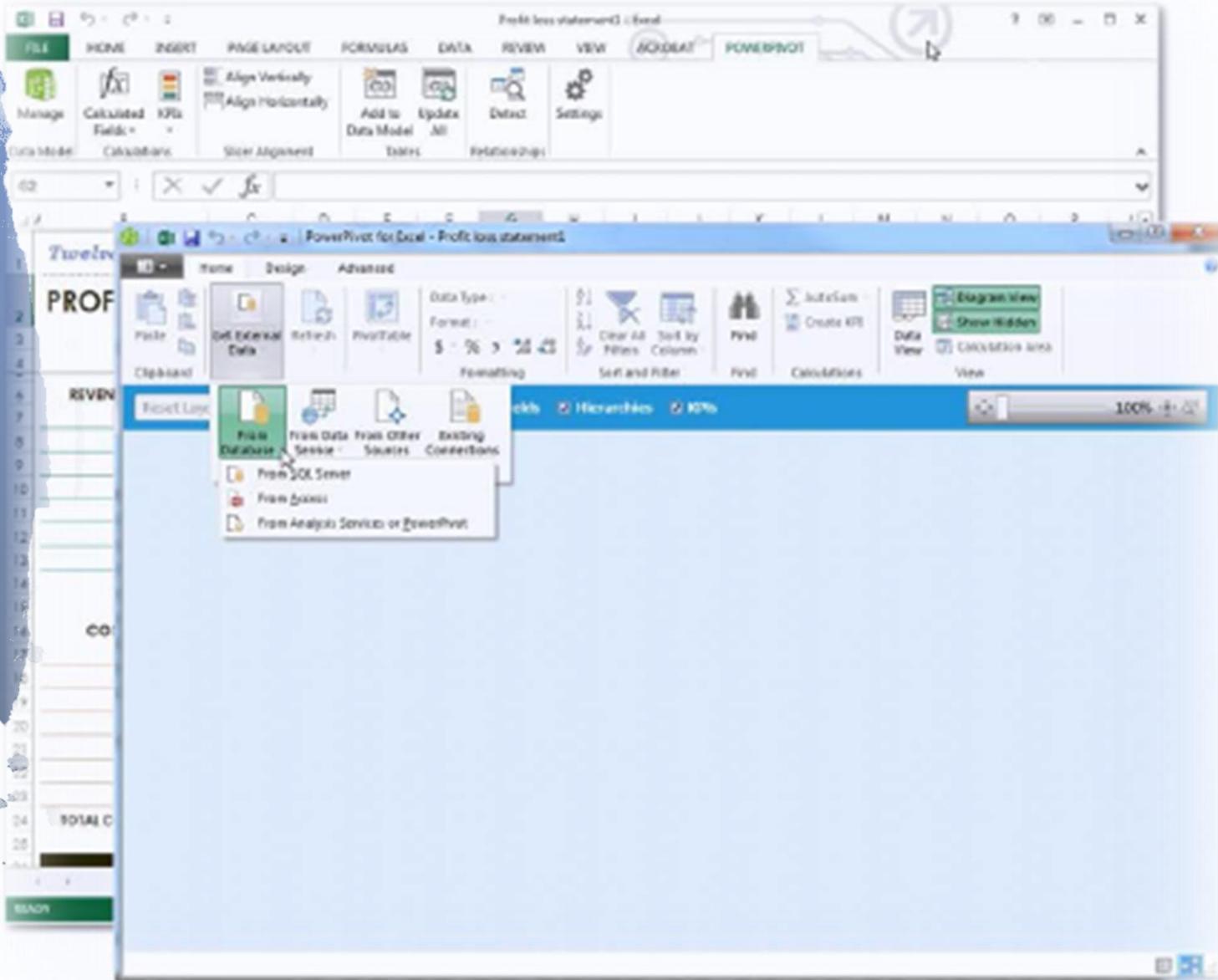
Name	Location	Type
Active Application Add-ins		
Acrobat PDFMaker Office COM Addin	C:\...\DFMaker\Office\PDFMOfficeAddin.dll	COM Add-in
Microsoft Office PowerPivot for Excel 2013	C:\...\dd-in\PowerPivotExcelClientAddIn.dll	COM Add-in
Power View	C:\...\Add-in\AdHocReportingExcelClient.dll	COM Add-in
Inactive Application Add-ins		
Analysis ToolPak	C:\...\fice15\Library\Analysis\ANALYS32.XLL	Excel Add-in
Analysis ToolPak - VBA	C:\...\e15\Library\Analysis\ATPVBAENXLAM	Excel Add-in
Date (XML)	C:\...\icrosoft shared\Smart Tag\MOFLDLL	Action
Euro Currency Tools	C:\...\13\Office15\Library\EUROTOOL.XLAM	Excel Add-in
Inquire	C:\...\fice 2013\Office15\DCP\NativeShim.dll	COM Add-in
Microsoft Actions Pane 3		
Solver Add-in	C:\...\ffice15\Library\ISOLVER\SOLVER.XLAM	XML Expansion Pack
Document Related Add-ins		
No Document Related Add-ins		
Disabled Application Add-ins		
Add-in:	Microsoft Office PowerPivot for Excel 2013	
Publisher:	Microsoft Corporation	
Compatibility:	No compatibility information available	
Location:	C:\Program Files (x86)\Microsoft Office\2013\Office15\ADDINS\PowerPivot Excel Add-in\PowerPivotExcelClientAddIn.dll	
Description:	Microsoft Office PowerPivot for Excel 2013	

Manage: COM Add-ins Go... OK Cancel

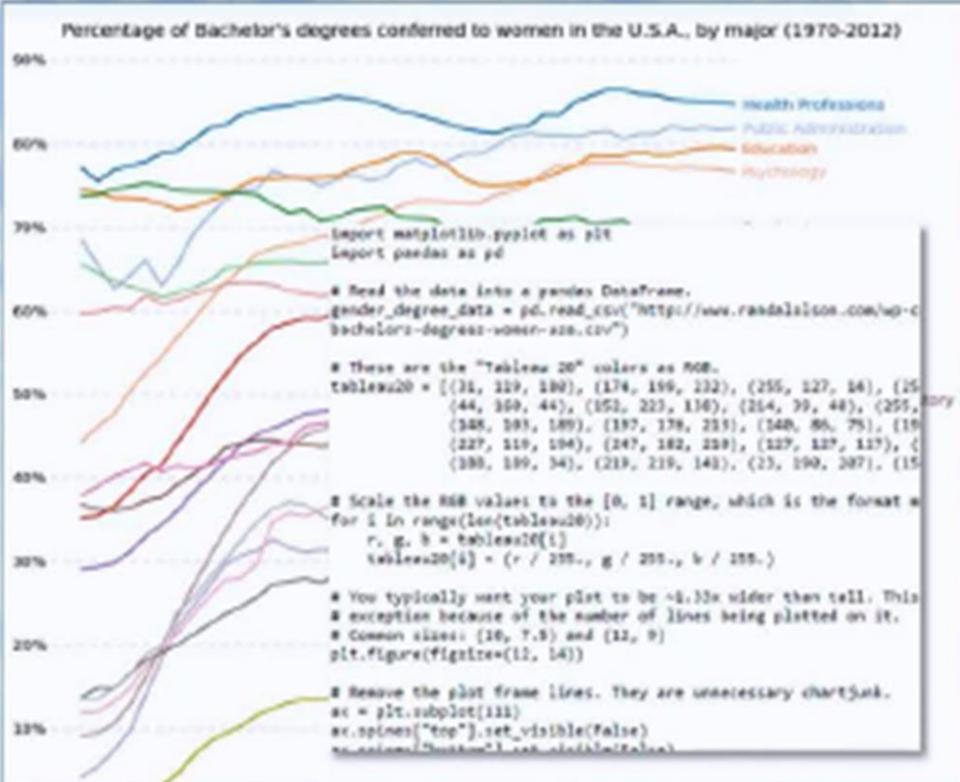
Microsoft Excel and PowerPivot

May be difficult to learn

Powerful for those using
Microsoft architecture
(SharePoint, PowerBI)



Python and R

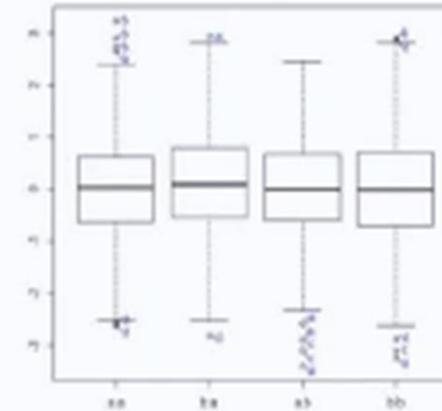


Python

```

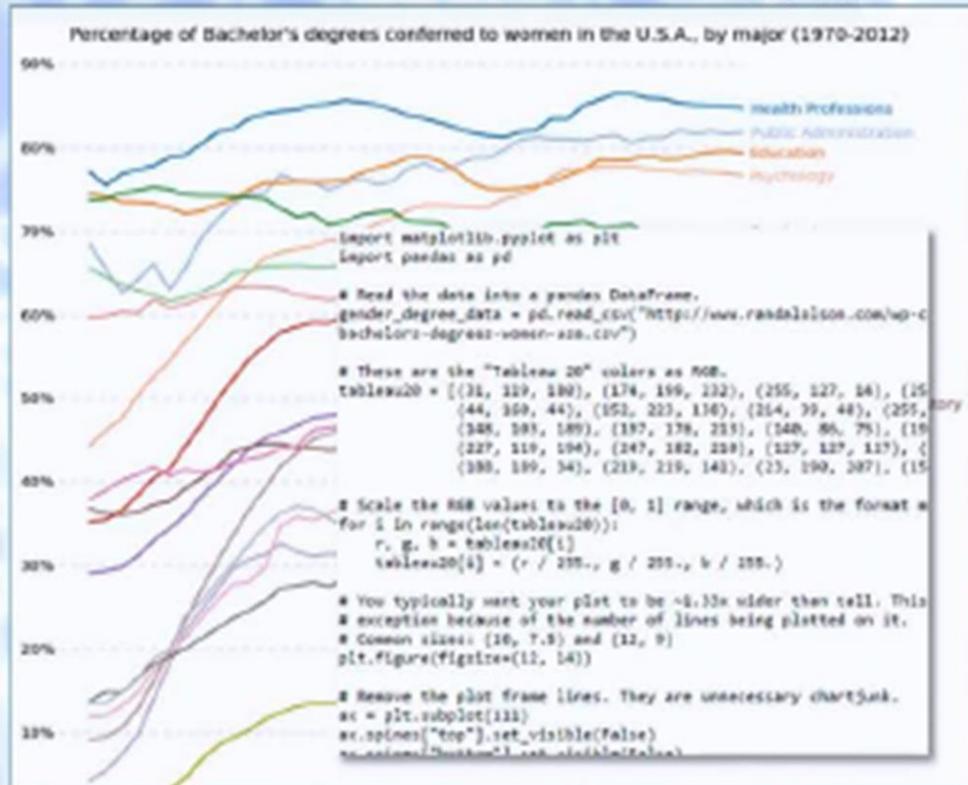
source("https://raw.githubusercontent.com/talgalili/R-code-snippets/master/boxplot.with.outlier.label.r") # Load the function
# sample some points and labels for us:
set.seed(892)
y <- rnorm(2000)
x1 <- sample(letters[1:1], 2000,T)
x2 <- sample(letters[1:2], 2000,T)
lab_y <- sample(letters[1:4], 2000,T)
# plot a boxplot with interactions:
boxplot.with.outlier.label(y~x2*x1, lab_y)

```



R

Powerful and free, but difficult to learn

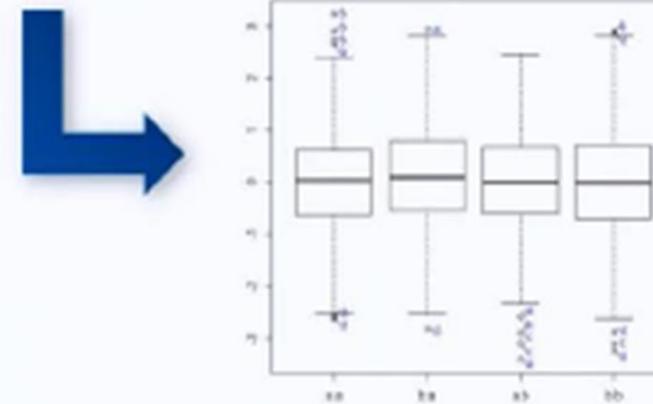


Python

```

source("https://raw.githubusercontent.com/talgalili/R-code-
scripts/master/boxplot.with.outlier.label.r") # Load the function
# sample some points and labels for us:
set.seed(491)
y <- rnorm(2000)
x2 <- sample(letters[1:2], 2000,T)
x3 <- sample(letters[1:2], 2000,T)
lab_y <- sample(letters[1:4], 2000,T)
# plot a boxplot with interactions:
boxplot.with.outlier.label(y~x2*x3, lab_y)

```



R



Tableau Public, Tableau Desktop, Tableau Server, Tableau Online

Tableau Public

Create visualizations
with public data and
share it with anyone

Data can be
downloaded by
anyone

Files cannot be saved locally

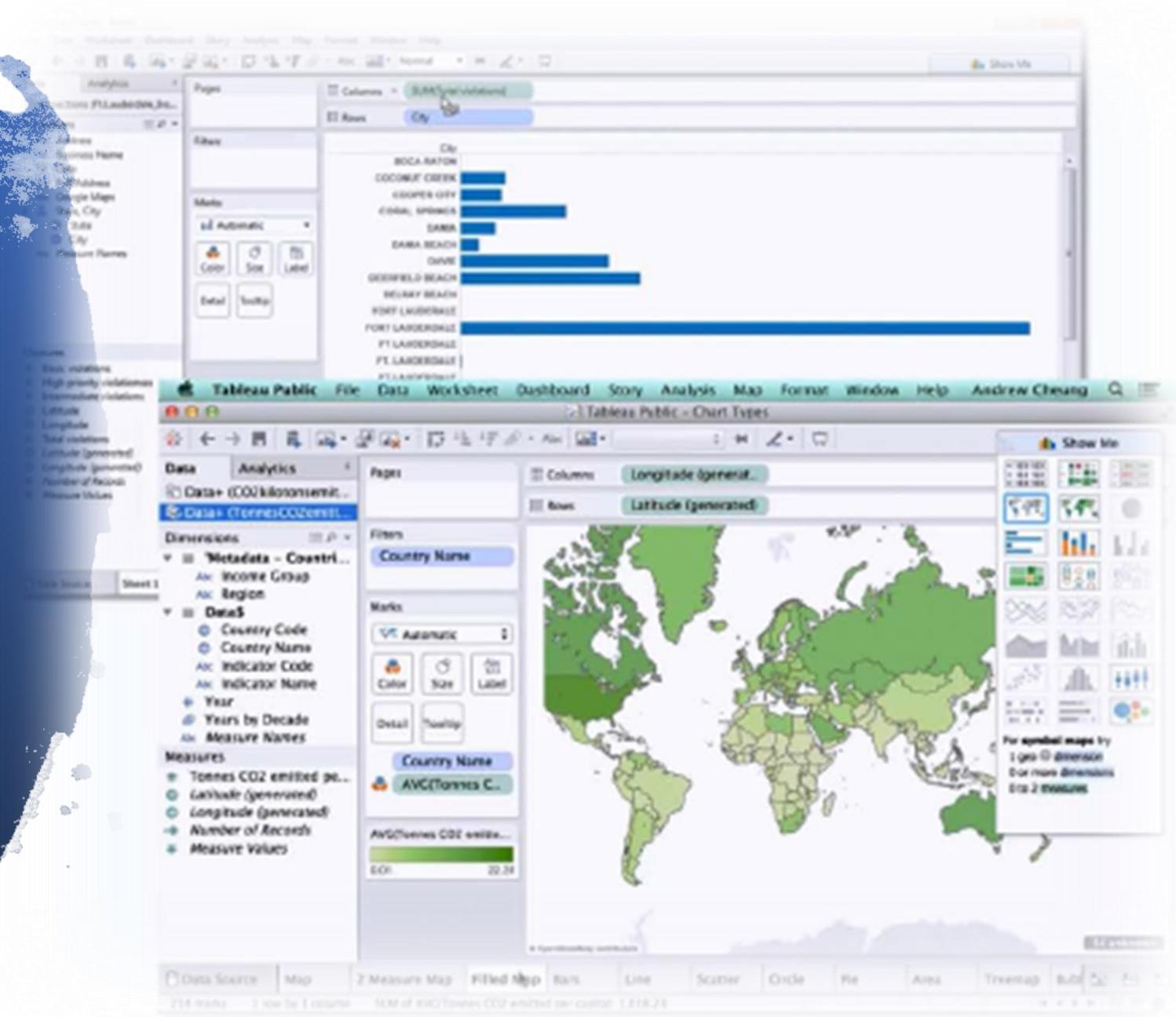


Tableau Desktop

Connect to data sources and save locally

Full version of Tableau Public



Tableau Server

Requires major corporate investment in local server

Full software capability and data control

The screenshot displays the Tableau Server interface with several panels:

- Data Sources:** A table listing data sources. One entry is selected: "Marketing Campaign Members" (Microsoft SQL Server). Other entries include "Tableau Attendance" (Excel) and "Salesforce" (Salesforce.com).
- Permissions:** A table showing permissions for the view "Clinic Analytics". It lists users and groups with their respective permissions for View, Interact, and Edit.
- User Permissions - Manager (17):** A table showing user permissions, categorized by role (Administrator, Custom).
- London Home Sales:** A map-based workbook showing home sales data. The interface includes a sidebar for dimensions like Location, Date, and Property Type, and a marks card for Price Paid. A "Save Workbook" dialog box is open, asking if changes should be saved.

Tableau Online

Store visualizations
in the cloud

Can only share with
people who have a
Tableau Online
license

The screenshot displays the Tableau Online web application interface. At the top, there are navigation tabs: Projects (37), Workbooks (3,397), Views (13,303), and Data Sources (464). The Data Sources tab is currently selected.

On the left side, there is a sidebar titled "Permissions" which lists users and groups with their respective permissions for a view named "Clinic Analytics". The "Edit" column shows a grid of icons for each user/group combination.

The main content area shows a "London Home Sales" workbook. On the right, there is a "Save Workbook" dialog box asking if the user wants to save changes. The dialog has "Don't Save" and "Save" buttons.

The central part of the screen shows a map visualization of London home sales data. The map uses color-coded bubbles to represent different categories or values. The legend on the right side of the map indicates the following color mapping:

- Light Blue: 0 - 100,000
- Medium Blue: 100,000 - 250,000
- Dark Blue: 250,000 - 500,000
- Orange: 500,000 - 1,000,000
- Red: 1,000,000 +

The map also includes various controls and filters, such as "Data", "Analytics", "Columns", and "Rows".

Data Visualization

Fundamentals of Visualization

Importing Visualization

London's 1854 Cholera Outbreak: Data Mapping Halts an Epidemic



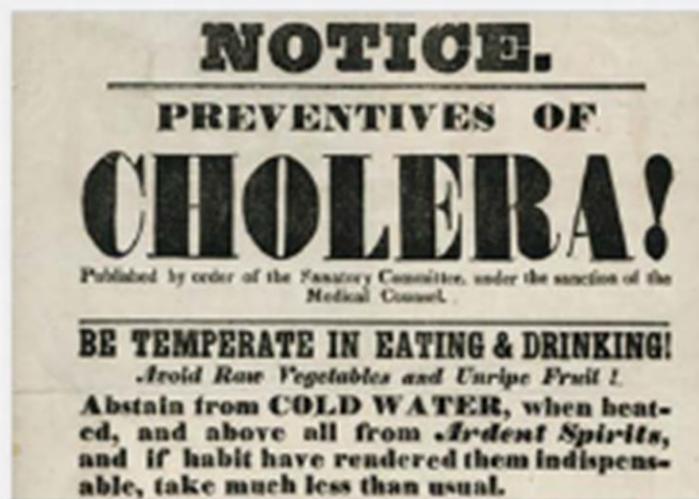
An Outbreak Begins

Collecting the Data

Mapping the Results

Snow's Analysis:
Focus on Broad St.

Ending an Epidemic



In 1854, a Cholera outbreak swept through the Soho neighborhood of London.

616 people died.

Physician John Snow was skeptical of existing theories of disease transmission, which often blamed "miasmas," or bad air. The germ theory of disease circulation had not yet been outlined.

A story is a way to explain your data in a systematic way

London's 1854 Cholera Outbreak: Data Mapping Halts an Epidemic



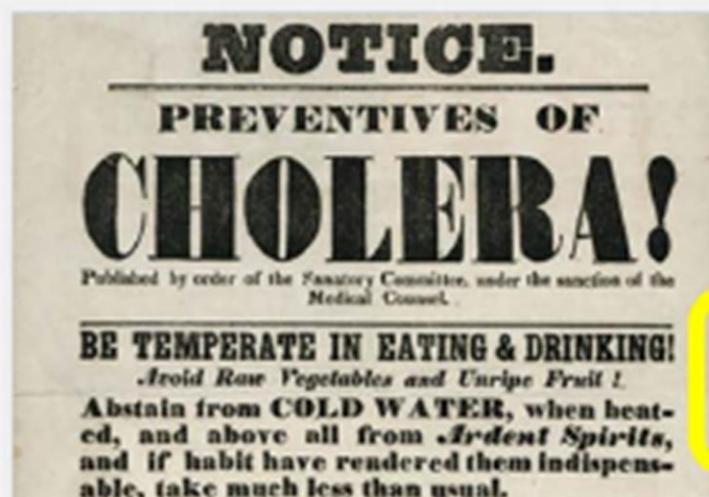
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Victorian medical advice was frequently off the mark by modern standards.

Gallery



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London's 1854 Cholera Outbreak: Data Mapping Halts an Epidemic

An Outbreak Begins

Mapping the Results

Snow's Analysis: Focus on Board St.

Ending an Epidemic

This is Boser's original table showing the chronology of drafts and their result. The rows that end all drafts have enclosed asterisks; thus, his data set is partially incomplete.

Dr. Snow canvassed the neighborhood. He collected the addresses of those who died, noted the number of deaths at each location, and tabulated the results.



Subscribe

London's 1854 Cholera Outbreak: Data Mapping Halts an Epidemic



Then, Snow mapped these data points onto a map of the Soho neighborhood.

The results were startling.

NB: The map reprinted here is Snow's original. I geocoded the addresses, introduced the number of deaths as a dimension in the dataset, and uploaded the map as a background image. Then, I conformed the dimensions of the map to the appropriate lat/long. Thus, the locations appear as they would have on Snow's map.





< Gallery

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tableau
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Mapping the 1854 Cholera Outbreak

Author: Tim Deak

Originally Published on: Tableau Public

Tim Deak of Panoptical uses Tableau to re-visit John Snow's classic mapping of the 1854 Cholera outbreak in London.



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Mapping the 1854 Cholera Outbreak

Author: Tim Deak

Originally Published on: Tableau Public

Tim Deak of Panoptical uses Tableau to re-visit John Snow's classic mapping of the 1854 Cholera outbreak in London.

Like 51

Tweet

in share 3

Or 1 1

Boards and Worksheets
 Death Addresses
 Cholera Cases and Pumps
 Broad Street Detail
 Background

Addresses
 Map of Outbreak
 Broad Street
 Conclusion

London's 1854 Cholera Outbreak: Data Mapping Halts an Epidemic

An Outbreak Begins

Collecting the Data

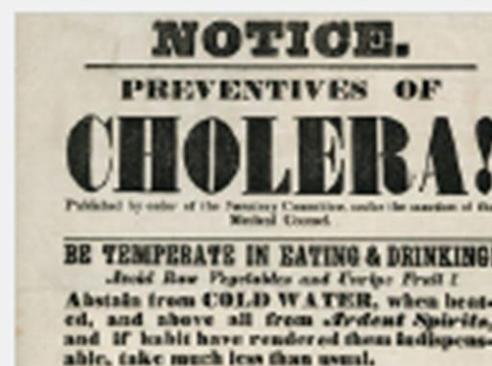
Mapping the Results

Snow's Analysis:
 Focus on Broad St.

Ending an Epidemic

New Blank Point

Duplicate



Victorian medical advice was frequently off the mark by modern standards.

In 1854, a Cholera outbreak swept through the Soho neighborhood of London.

616 people died.

Physician John Snow was skeptical of existing theories of disease transmission, which often blamed "miasmas," or bad air. The germ theory of disease circulation had not yet been outlined.

Descriptions

Tables

Show Back/Forward Buttons

Empty

2006 0 N 405 0

Show Title

Data Source

Death Addresses

Cholera Cases and Pumps

Broad Street Detail

Background

Addresses

Map of Outbreak

Broad Street

Conclusion

Cholera Analysis

Home Public - 1854 Cholera Outbreak - Snow's Map

Data Worksheet Dashboard Story Format Window Help

Boards and Worksheets

- Death Addresses
- Cholera Cases and Pumps
- Broad Street Detail
- Background Addresses
- Map of Outbreak
- Broad Street
- Conclusion

London's 1854 Cholera Outbreak:
Data Mapping Halts an Epidemic

Collecting the Data Mapping the Results Snow's Analysis: Focus on Broad St. Ending an Epidemic Add a caption New Blank Point Duplicate

Then, Snow mapped these data points onto a map of the Soho neighborhood.

The results were startling.

NB: The map repeated here is Snow's original. I geocoded the addresses, associated the number of deaths as a dimension in the dataset, and rendered the results as a background image. Then, I confirmed the dimensions of the map in the appropriate layers. Thus, the locations appear as they would have on Snow's map.

Map: Deaths at Addresses

1	5	10	15
1	5	10	15
1	5	10	15

Water Pump

- Oval
- Defecated

Descriptions

Show Back/Forward Buttons

Exactly

0.000 0.000

Show Title

Info Source Death Addresses Cholera Cases and Pumps Broad Street Detail Background Addresses Map of Outbreak Broad Street Conclusion Cholera Analysis

