

Curso de Data Analytics con Power BI

Segunda Clase

Por Ignacio Sampedro

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Power BI



Documentos con los que vamos a trabajar

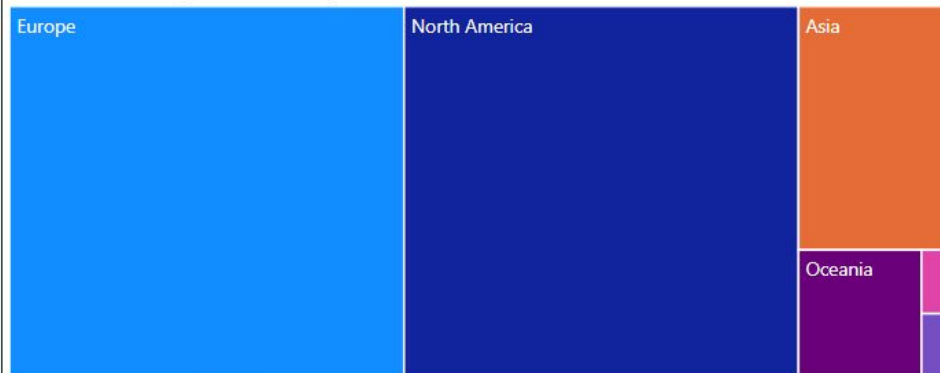
Carpeta

Datasets/Education/Universities
del [repositorio del curso](#)



Continent	Country	Number of Students		World Ranking		Universities Times	Universities CWUR
All	All	0	83236	1	200	200	100

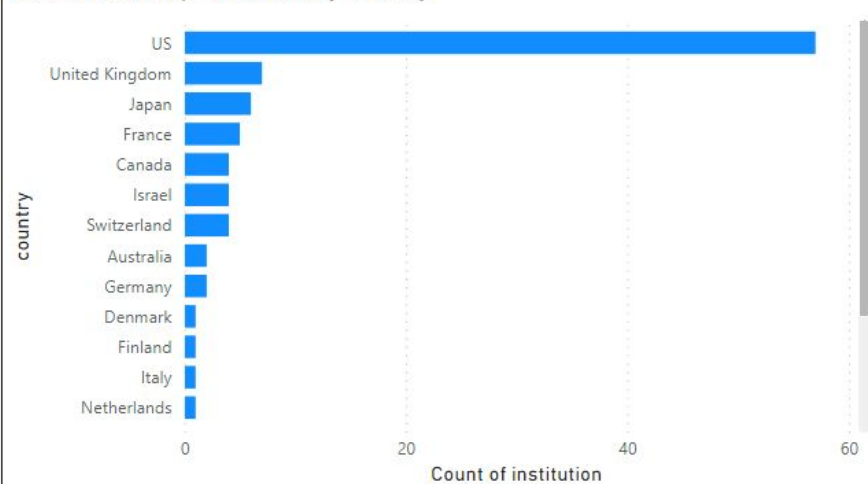
Institutions in top 200 Times by Continent



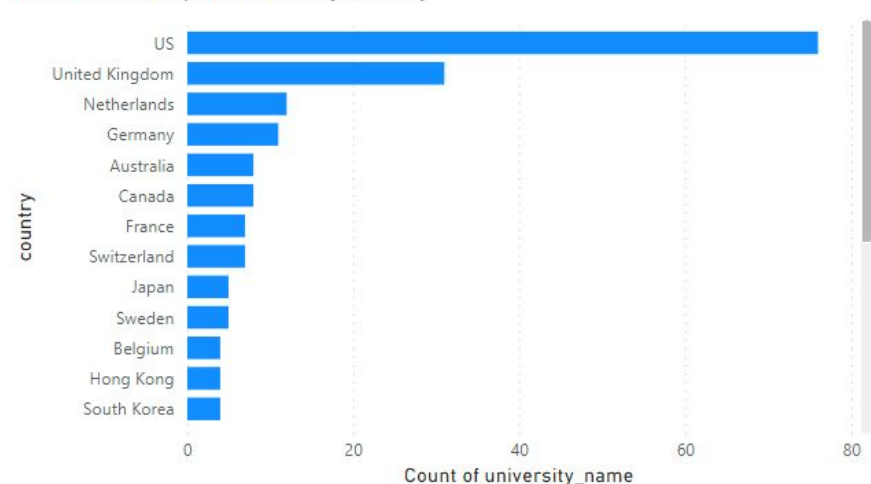
Count of university_name by Country



Institutions in top 100 CWUR by Country



Institutions in top 200 Times by Country



Relaciones entre tablas

Es una relación entre elementos de 2 tablas distintas

Pueden ser 1 a 1, 1 a muchos, o muchos a muchos



★ 1 a 1 ->

Para cada x hay un y .

Para cada y hay un x .

★ 1 a muchos ->

Para cada x hay uno o más y .

Para cada y hay un x

★ Muchos a muchos ->

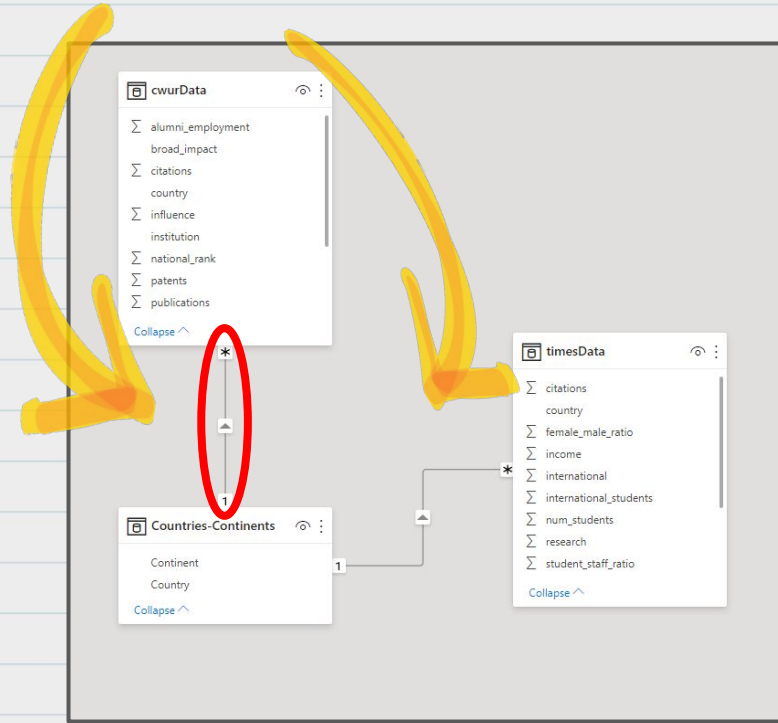
Para cada x hay 1 o más y .

Para cada y hay uno o más x

★ En PBI, existen las relaciones **1 a 1** y **1 a muchos**.

★ La **muchos a muchos** se puede hacer, pero no por default, y no permite realizar filtros (facilmente)

Relaciones Entre Tablas



Muchos



Uno

Data Cleansing



CWUR Data

- ★ Promover la primera línea a títulos
- ★ Chequear los tipos de datos
- ★ Nos quedamos solo con el 2013
- ★ USA tiene que tener el mismo formato que Countries-Continents

world_rank	institution	country	national_rank	quality_of_education	alumni_employment	quality_of_faculty	publications	influence	citations	brexit_impact	patents	score	year
1	Harvard University	US	1	1	1	1	1	1	1	1	1	100	2013
2	Stanford University	US	2	11	2	4	4	2	2	1	1	89.94	2013
3	University of Oxford	United Kingdom	3	7	12	10	11	7	11	1	1	82.84	2013
4	Massachusetts Institute of Technology	US	4	2	10	7	10	3	3	1	1	81.45	2013
5	University of Cambridge	United Kingdom	5	3	13	3	9	11	10	1	1	80.24	2013
6	Columbia University	US	6	13	8	9	13	9	13	1	1	80.11	2013
7	University of California, Berkeley	US	7	4	10	6	8	6	6	1	1	80.07	2013
8	Princeton University	US	8	4	14	3	10	10	17	1	1	82.17	2013
9	University of Chicago	US	9	5	19	8	17	11	10	1	1	79.16	2013
10	Yale University	US	10	10	17	11	10	12	11	1	1	78.83	2013
11	California Institute of Technology	US	11	5	10	7	10	14	11	1	1	77.59	2013
12	University of Pennsylvania	US	12	10	15	10	10	10	9	1	1	77.14	2013
13	Cornell University	US	13	11	11	10	11	10	10	1	1	76.89	2013
14	University of Tokyo	Japan	14	17	3	10	14	11	10	1	1	76.13	2013
15	Kyoto University	Japan	15	12	17	14	10	10	10	1	1	69.46	2013
16	University of California, Los Angeles	US	16	10	10	11	11	11	11	1	1	67.84	2013
17	Johns Hopkins University	US	17	10	10	11	11	11	11	1	1	65.64	2013
18	Swiss Federal Institute of Technology in Zurich	Switzerland	18	10	10	11	11	11	11	1	1	64.99	2013
19	New York University	US	19	17	11	11	11	11	11	1	1	63.99	2013
20	University of California, San Diego	US	20	10	10	11	11	11	11	1	1	63.12	2013
21	Hebrew University of Jerusalem	Israel	21	15	10	10	10	10	10	1	1	59.88	2013
22	University of California, San Francisco	US	22	10	10	11	11	11	11	1	1	59.88	2013
23	University of Wisconsin-Madison	US	23	11	10	10	10	10	10	1	1	58.84	2013
24	University of Illinois at Urbana-Champaign	US	24	10	10	10	10	10	10	1	1	58.33	2013
25	Duke University	US	25	10	10	10	10	10	10	1	1	57.72	2013
26	University of Texas at Austin	US	26	10	10	10	10	10	10	1	1	57.71	2013
27	Imperial College London	United Kingdom	27	10	10	10	10	10	10	1	1	56.75	2013
28	Northwestern University	US	28	10	10	10	10	10	10	1	1	56.12	2013
29	University of Toronto	Canada	29	10	10	10	10	10	10	1	1	55.11	2013
30	University College London	United Kingdom	30	10	10	10	10	10	10	1	1	54.71	2013
31	University of Washington - Seattle	US	31	10	10	10	10	10	10	1	1	53.79	2013
32	University of Michigan, Ann Arbor	US	32	10	10	10	10	10	10	1	1	53.77	2013
33	Weizmann Institute of Science	Israel	33	10	10	10	10	10	10	1	1	54.84	2013
34	University of North Carolina at Chapel Hill	US	34	10	10	10	10	10	10	1	1	52.87	2013
35	Osaka University	Japan	35	10	10	10	10	10	10	1	1	52.79	2013
36	University of Paris-Sud	France	36	10	10	10	10	10	10	1	1	51.72	2013

Data Cleansing



Times Data

- ★ Promover la primera línea a títulos
- ★ World ranking con formato correcto (eliminar =n y n-m)
- ★ Columnas de números con vacíos en vez de -
- ★ Chequear los tipos de datos
- ★ Nos quedamos solo con el 2013
- ★ USA tiene que tener el mismo formato que Countries-Continents
- ★ Los ratios puede ser solo Female (Male = 1 - Female)
- ★ Republic of Ireland -> Ireland

event_rank	country	ranking	international	research	students	income	total_size	non_students	academic_staff_ratio	international_students	female_staff_ratio	year	university_name
1	US	95.3	59.8	89.4	89.7	95.6	95.5	2243	6.9	0.27	0.03	2013	California Institute of Technology
2	US	95	58.8	88.8	89.2	92.4	93.7	2396	7.9	0.22	0.42	2013	Stanford University
4	US	86.9	63.7	98.6	89.2	79.9	91.6	2032	8.9	0.25		2013	Harvard University
5	US	82.9	81.6	89.2	89.9	82.9	83.1	13074	9	0.03	0.37	2013	Massachusetts Institute of Technology
6	US	89.9	54.3	99.4	89.9	79.5	92.7	7929	8.4	0.27	0.43	2013	Pennsylvania State University
8	US	85.1	69.7	99.9	89.9	65.4	90.5	18186	18.4	0.15	0.5	2013	University of California, Berkeley
10	US	88.6	55.9	82.9	88.7		80.4	1421	6.9	0.21	0.42	2013	University of Chicago
11	US	93.2	54.7	92.5	94.8	88.2	89.2	11791	4.4	0.2	0.3	2013	Yale University
13	US	87.3	62.3	99.8	89.9		87.7	16066	10.1	0.15	0.52	2013	University of California, Los Angeles
24	US	89.7	66.2	82	86.2		87	25035	5.9	0.28		2013	Columbia University
25	US	90	58.1	89.4	86.2	43.7	86.6	20376	6.5	0.2	0.51	2013	University of Pennsylvania
26	US	81.8	57.3	85.5	89.2	100	89.6	11129	9.6	0.23	0.5	2013	Johns Hopkins University
28	US	77	53.8	82.1	91.8	89.9	83.5	21424	10.2	0.19	0.48	2013	Cornell University
29	US	77.6	33.8	87.3	86.2	64.4	83.1	18194	13.8	0.15	0.48	2013	Northwestern University
30	US	79.1	47.6	95.4	91.8	53.9	82.6	47796	9	0.06	0.48	2013	University of Michigan
22	US	72.8	51.4	87	85.5	53.9	81.5	11885	13.1	0.05	0.39	2013	Carnegie Mellon University
23	US	72.3	45.8	81.5	97	100	81.2	13172	4.8	0.17	0.49	2013	Duke University
24	US	74.7	55.1	82.5	97	42.5	79.5	46620	12.8	0.22	0.52	2013	University of Washington
25	US	70.2	66.3	79.5	90.1	74.9	78.8	13967	20.1	0.26	0.51	2013	Georgia Institute of Technology
25	US	79.5	42.1	80.7	91	57.9	78.8	49627	17.4	0.09	0.51	2013	University of Texas at Austin
51	US	79.1	29.8	89.1	88.2	54.8	78.8	19855	10.8	0.11	0.52	2013	University of Wisconsin-Madison
93	US	74.2	36	84.9	80.8		75.9	42727	18.7	0.2	0.47	2013	University of Illinois at Urbana-Champaign
31	US	58.1	58.3	75.9	89.4	100	78.8	21000	27.1	0.11	0.52	2013	University of California, Santa Barbara
88	US	65.4	34.2	79	86.2	43.9	79.2	27191	6.5	0.11	0.48	2013	University of California, San Diego
41	US	73.8	38.7	87.4	89.2	29.5	72.8	42056	6.8	0.19	0.53	2013	New York University
42	US	70.4	32.9	69.9	90.2	40	72.4	28118	7.3	0.08	0.58	2013	University of North Carolina at Chapel Hill
46	US	66.1	62.8	89.2			72.8	12528	6.7	0.17		2013	Washington University in St. Louis
44	US	67.9	51.7	71.6	82.7	52.5	72.8	13564	13.9	0.13	0.54	2013	University of California, Davis
47	US	66.1	28.7	74	84.7		79.5	46625	28	0.13	0.52	2013	University of Minnesota
51	US	69.7	59.9	89.1	94.1	29.9	68.9	8651	10.1	0.19		2013	Brown University
53	US	66.7	46.3	80.9	80.1	49.5	67	11462	13.4	0.12	0.49	2013	Ohio State University
34	US	65.4	39.2	53.9	84.2	88.8	68.8	24789	8.6	0.17	0.59	2013	Boston University
55	US	66.4	43.4	17.1	81.5	31.1	66.2	16314	12.9	0.2	0.52	2013	University of Southern California
61	US	55	34.9	89.2	81.4	59.7	65.8	44051	12.4	0.12	0.46	2013	Pennsylvania State University
89	US	59.8	54.8	71.9	83.1		69.8	19236	18.1	0.22	0.42	2013	Purdue University
72	US	57.1	33.7	65.6	77.6	52.5	62.9	58991	31	0.11	0.49	2013	University of Massachusetts

Data Cleansing



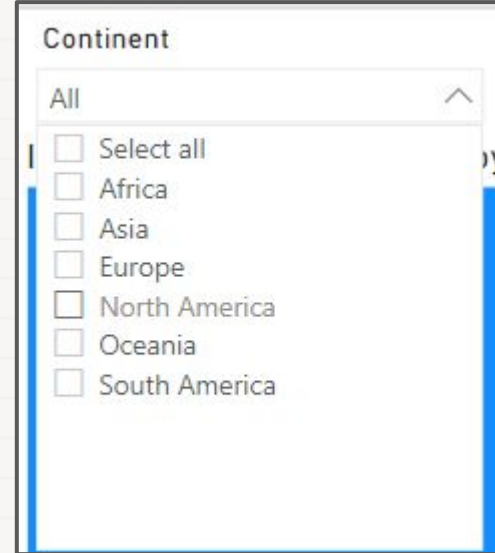
Countries-Continents

- ★ Promover la primera línea a títulos
- ★ *Russian Federation* -> *Russia*
- ★ *Korea, X* -> *X Korea*

Continent	Country
Asia	Afghanistan
Europe	Albania
Africa	Algeria
Europe	Andorra
Africa	Angola
North America	Antigua and Barbuda
South America	Argentina
Europe	Armenia
Oceania	Australia
Europe	Austria
Europe	Azerbaijan
North America	Bahamas
Asia	Bahrain
Asia	Bangladesh
North America	Barbados
Europe	Belarus
Europe	Belgium
North America	Belize
Africa	Benin
Asia	Bhutan
South America	Bolivia
Europe	Bosnia and Herzegovina
Africa	Botswana
South America	Brazil
Asia	Brunei
Europe	Bulgaria
Africa	Burkina
Asia	Burma (Myanmar)
Africa	Burundi
Europe	CZ
Asia	Cambodia
Africa	Cameroon
North America	Canada
Africa	Cape Verde
Africa	Central African Republic
Africa	Chad

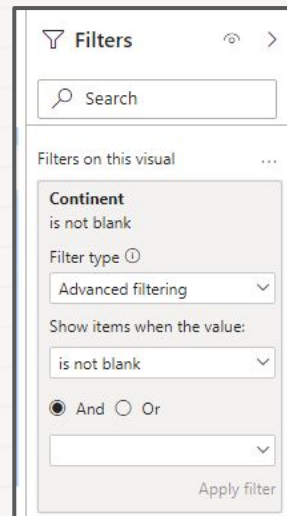
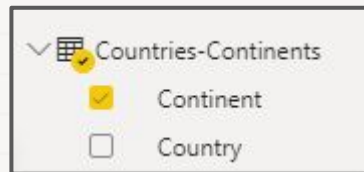
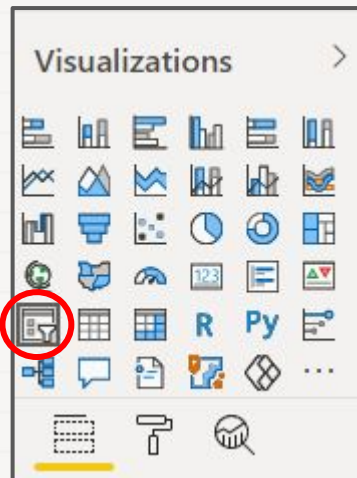
Slicers

- ★ Son filtros de la información
- ★ Se hacen a partir de una columna de una tabla
- ★ Se pueden hacer múltiple choice o single choice
- ★ Se le puede agregar una barra de búsqueda



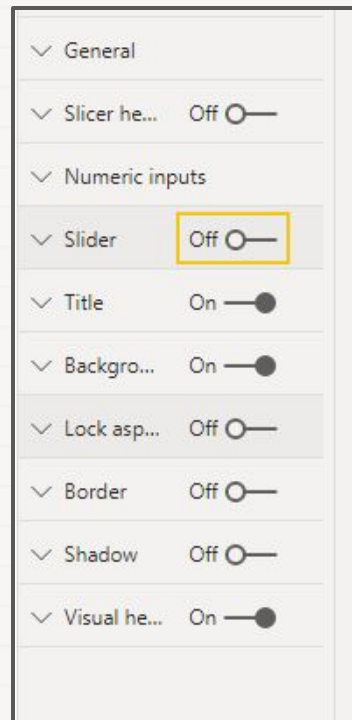
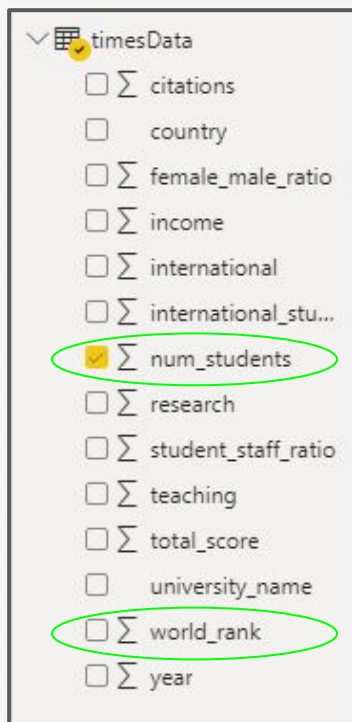
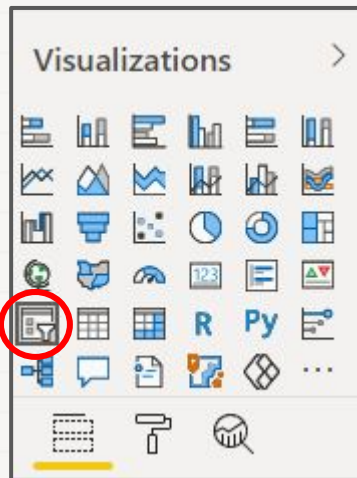
Selección de un conjunto

Countries-Continents



Selección de un rango

Times Data



Cards



- ★ Nos muestran un resumen de un set de datos.
- ★ Son funciones de agregación básicas.
- ★ COUNT, FIRST, LAST, AVERAGE, MAX, etc.

Universities Times

200

Universities CWUR

100

timesData

- ☐ citations
- ☐ country
- ☐ female_male_ratio
- ☐ income
- ☐ international
- ☐ international_stu...
- ☐ num_students
- ☐ research
- ☐ student_staff_ratio
- ☐ teaching
- ☐ total_score
- ☒ university_name
- ☐ world_rank
- ☐ year

cwurData

- ☐ alumni_employ...
- ☐ broad_impact
- ☐ citations
- ☐ country
- ☐ influence
- ☒ institution
- ☐ national_rank
- ☐ patents
- ☐ publications
- ☐ quality_of_educat...
- ☐ quality_of_faculty
- ☐ score
- ☐ world_rank
- ☐ year

Mapas y tipos de mapas



Hay 3 tipos de mapa (por default) en PBI:

- ★ Filled Map
- ★ Map
- ★ ArcGIS Maps for Power BI

Filled Map ->

Tipo de mapa mas simple. Resalta ubicaciones dentro del mapa, llenando el área seleccionada con un color.

Map ->

Mapa donde se le puede añadir un peso a cada ubicación.

ArcGIS ->

Mapa que no es 100% de PBI. Requiere permisos. Es más completo, donde tiene las funcionalidades previamente dichas, entre muchas otras más. Usar solo si es necesario.



Map



Visualizations

Location

Country

Legend

Add data fields here

Latitude

Add data fields here

Longitude

Add data fields here

Size

Count of university_name

Tooltips

Add data fields here

Fields

Search

- ✓ Countries-Continents
 - ☐ Continent
 - ☒ Country
- cwurData
- education_expenditure...
- ✓ timesData
 - ☐ citations
 - ☐ country
 - ☐ female_male_ratio
 - ☐ income
 - ☐ international
 - ☐ international_stu...
 - ☐ num_students
 - ☐ research
 - ☐ student_staff_ratio
 - ☐ teaching
 - ☐ total_score
 - ☒ university_name
 - ☐ world_rank
 - ☐ year

Personalización



Icons: Grid, Lasso, Magnifying Glass

Search

General

Selection controls

Slicer he... Off

Items

Title On

Backgro... On

Color

fx

Transparency

0 %

Revert to default

Lock asp... Off

Border Off

Shadow Off

Visual he... On

Icons: Grid, Lasso, Magnifying Glass

Search

General

Selection controls

Slicer he... Off

Items

Font color

Background

Outline

None

Text size

10 pt

Font family

Segoe UI

Revert to default

Continent

All

- ☒ Select all
- ☒ Africa
- ☒ Asia
- ☒ Europe
- ☒ North America
- ☒ Oceania
- ☒ South America

Continent	Country	Number of Students		World Ranking		Universities Times	Universities CWUR
All	All	0	83236	1	200	200	100

Links y bibliografía adicional

Links a cursos de Power BI:

- [Curso introductorio de DAX](#) - SQLBI
- [Curso más avanzado de Power BI](#) - LinkedIn

Bibliografía adicional:

- [Data Visualization keynote with Alberto Cairo](#) - Charla de Youtube
- The Functional Art: An Introduction to Information Graphics and Visualization - Alberto Cairo
- The Functional Art: Data, Charts and Maps for Communication - Alberto Cairo

Final de la Clase!!



*Si querés hacer recomendaciones
sobre la clase o el curso en
general, contactame al mail:*

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