



LAB ASSIGNMENT – SPOTFIRE

Master of Data Science (University of Skövde)

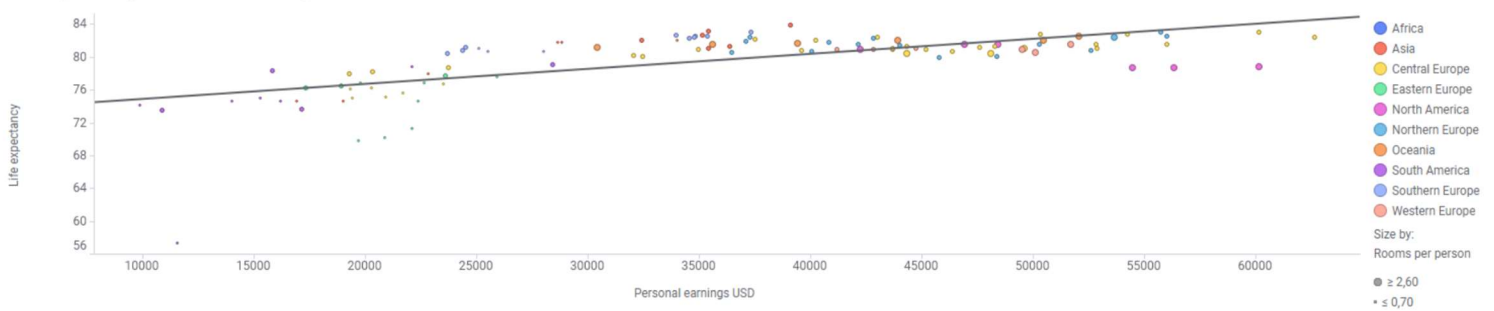
Kim Wurster
a24kimwu

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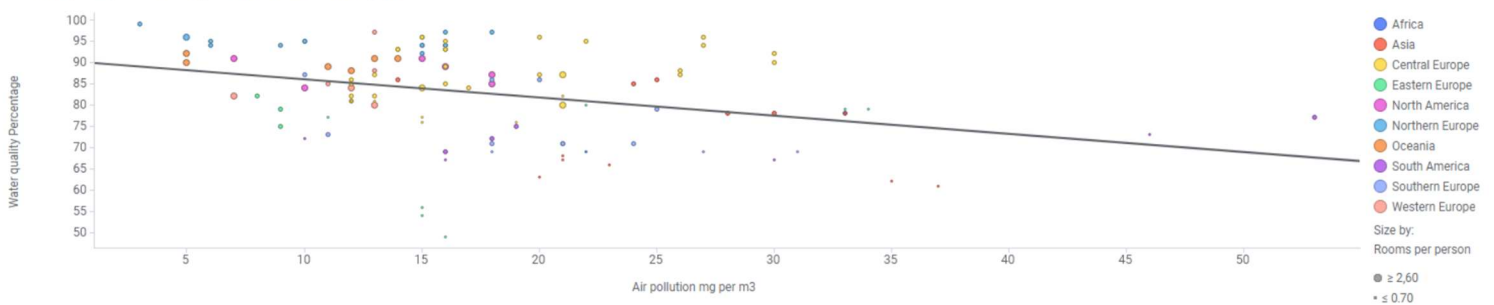
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1. Visualization and Visual Analytics

Life expectancy vs. Personal earnings USD



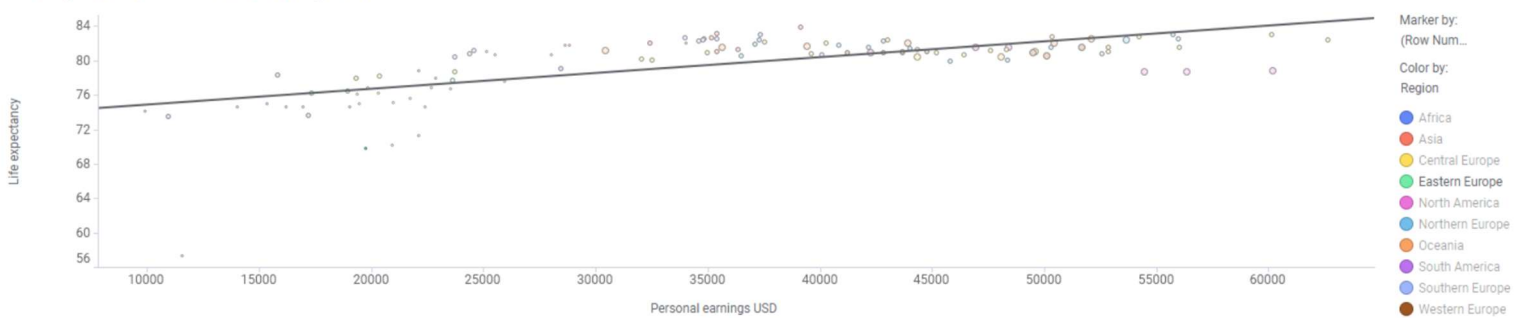
Water quality Percentage vs. Air pollution mg per m3



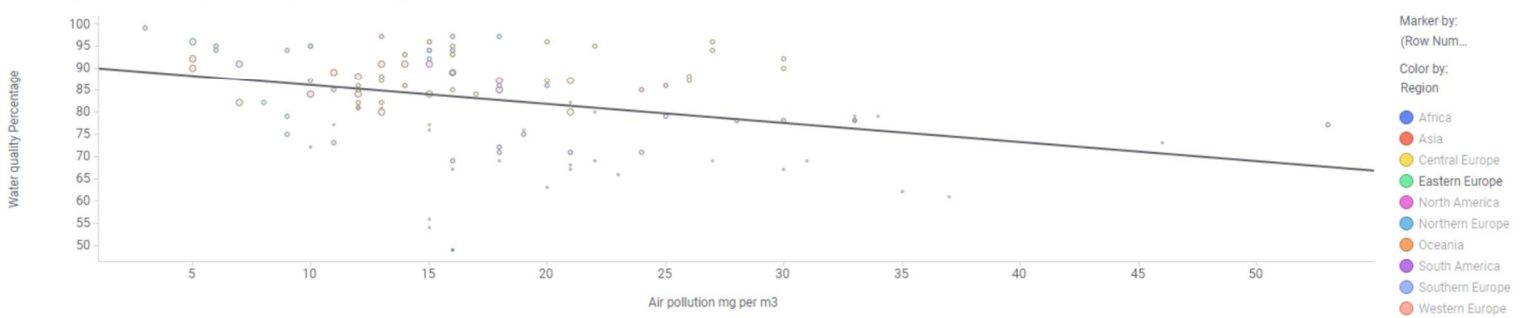
1.1 Brush linking

Mark countries with poor water quality

Life expectancy vs. Personal earnings USD

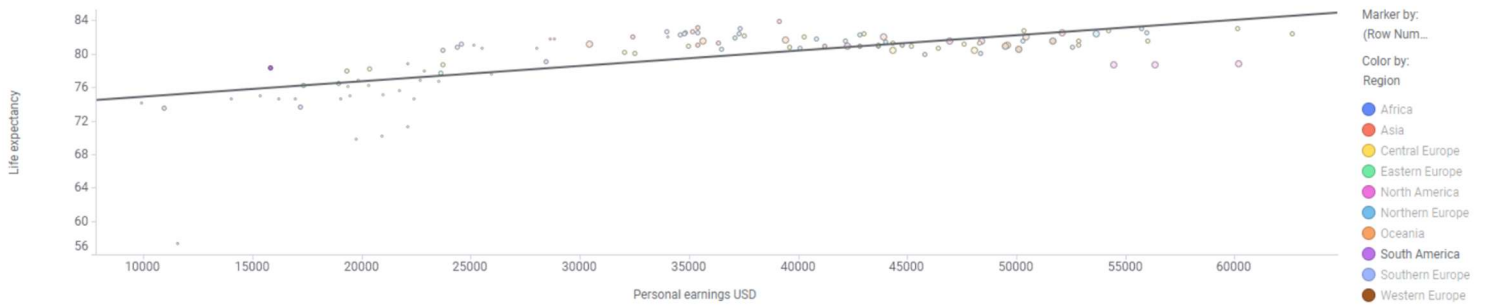


Water quality Percentage vs. Air pollution mg per m3

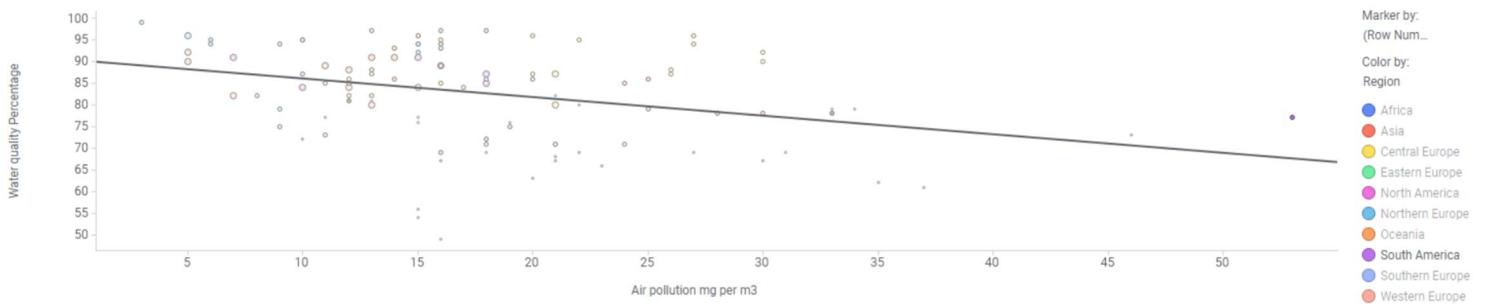


Mark countries with high air pollution

Life expectancy vs. Personal earnings USD

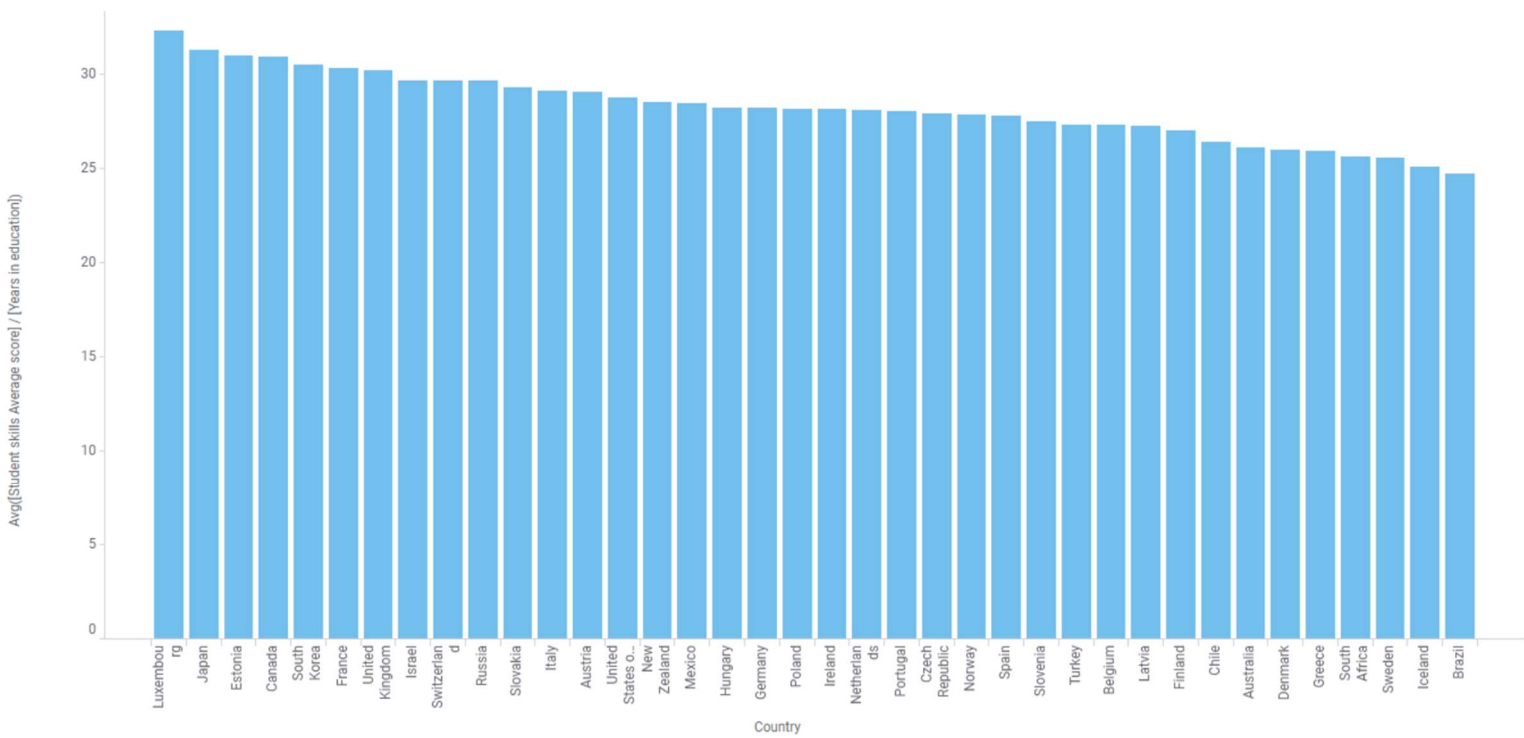


Water quality Percentage vs. Air pollution mg per m3

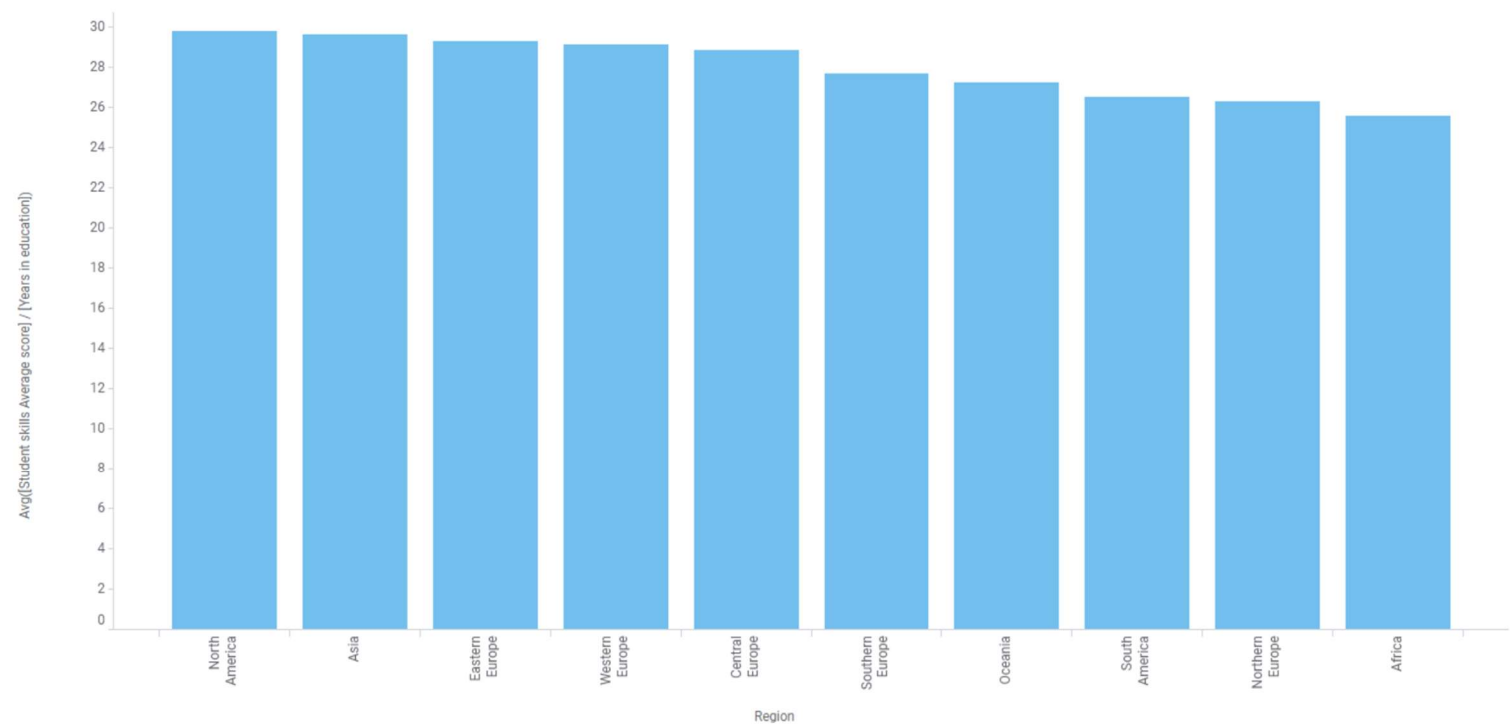


1.2 Using custom expressions to enrich your analysis

Avg([Student skills Average score] / [Years in education]) per Country

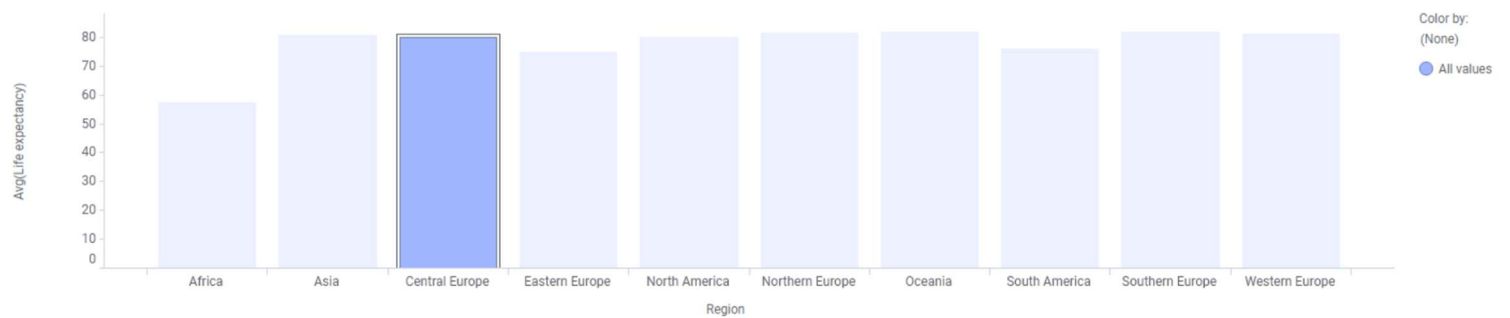


Avg([Student skills Average score] / [Years in education]) per Region

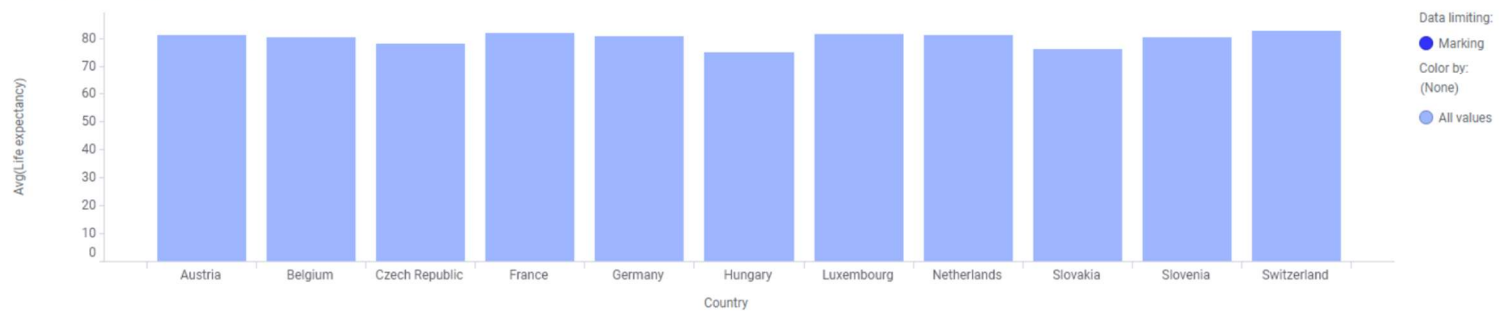


1.3 Master-detail visualization (Drill down)

Life expectancy per Region



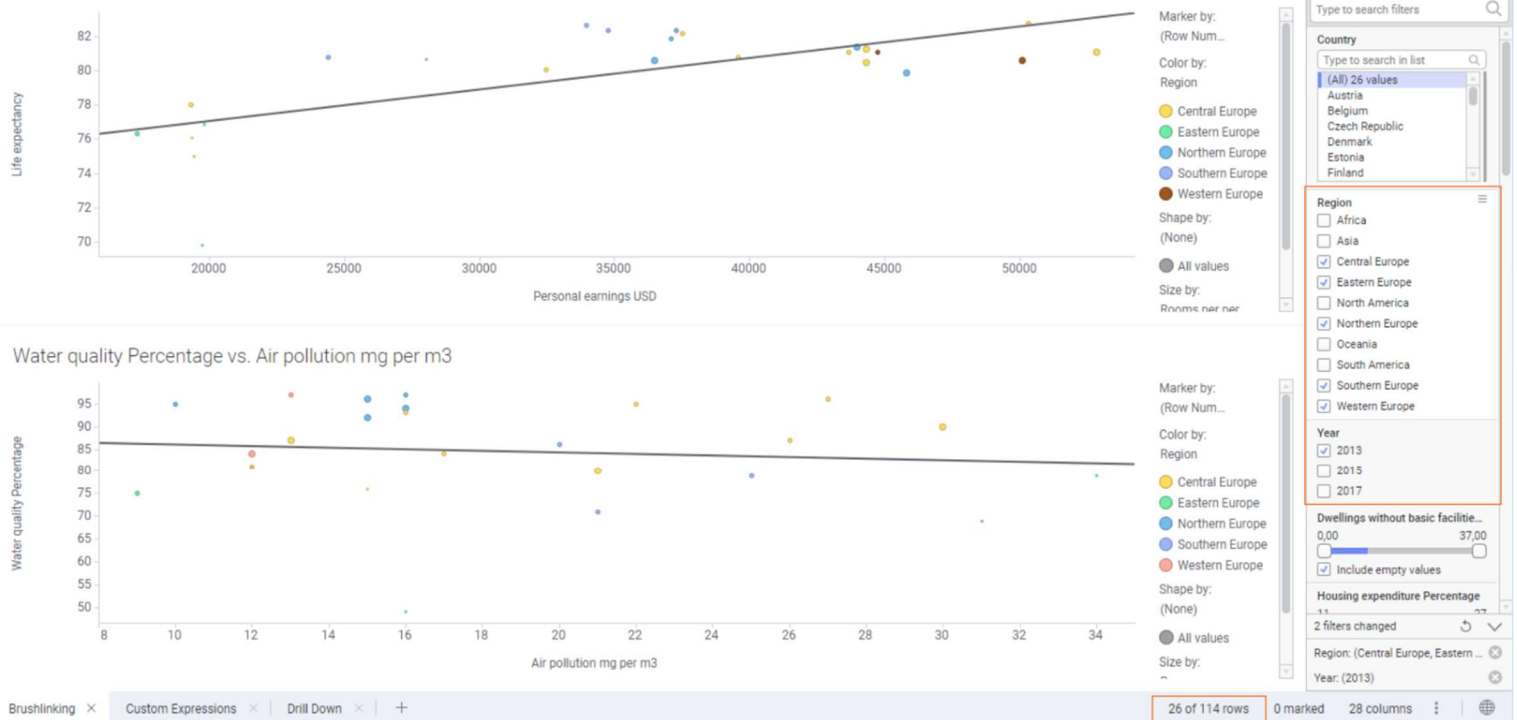
Life expectancy per Country



When on Region is clicked the bar chart, sorted by countries shows the value of all the different countries in this region.

1.4 Filter

Life expectancy vs. Personal earnings USD

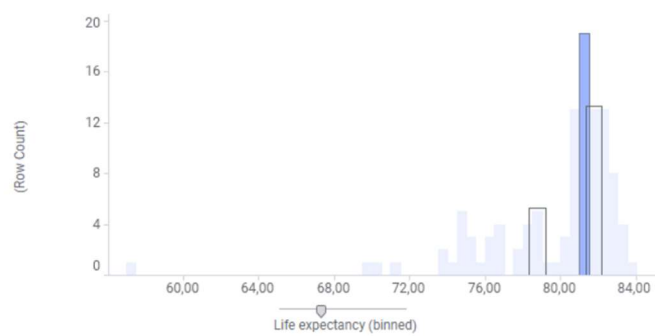


1.5 Histogram

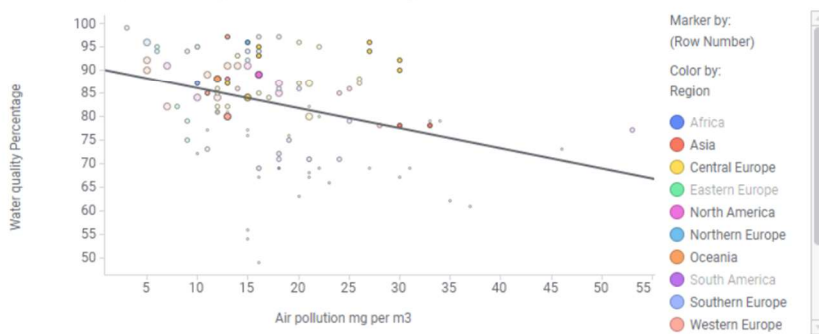
Life expectancy vs. Personal earnings USD



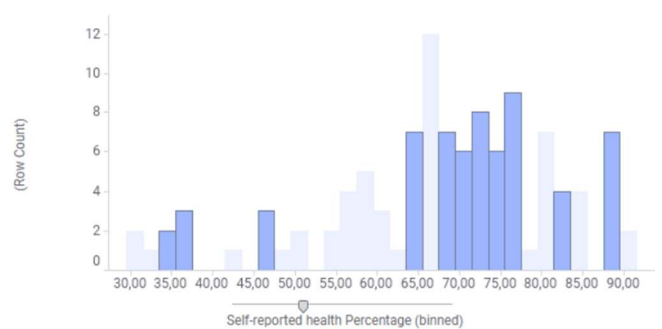
Histogram – Life expectancy



Water quality Percentage vs. Air pollution mg per m3



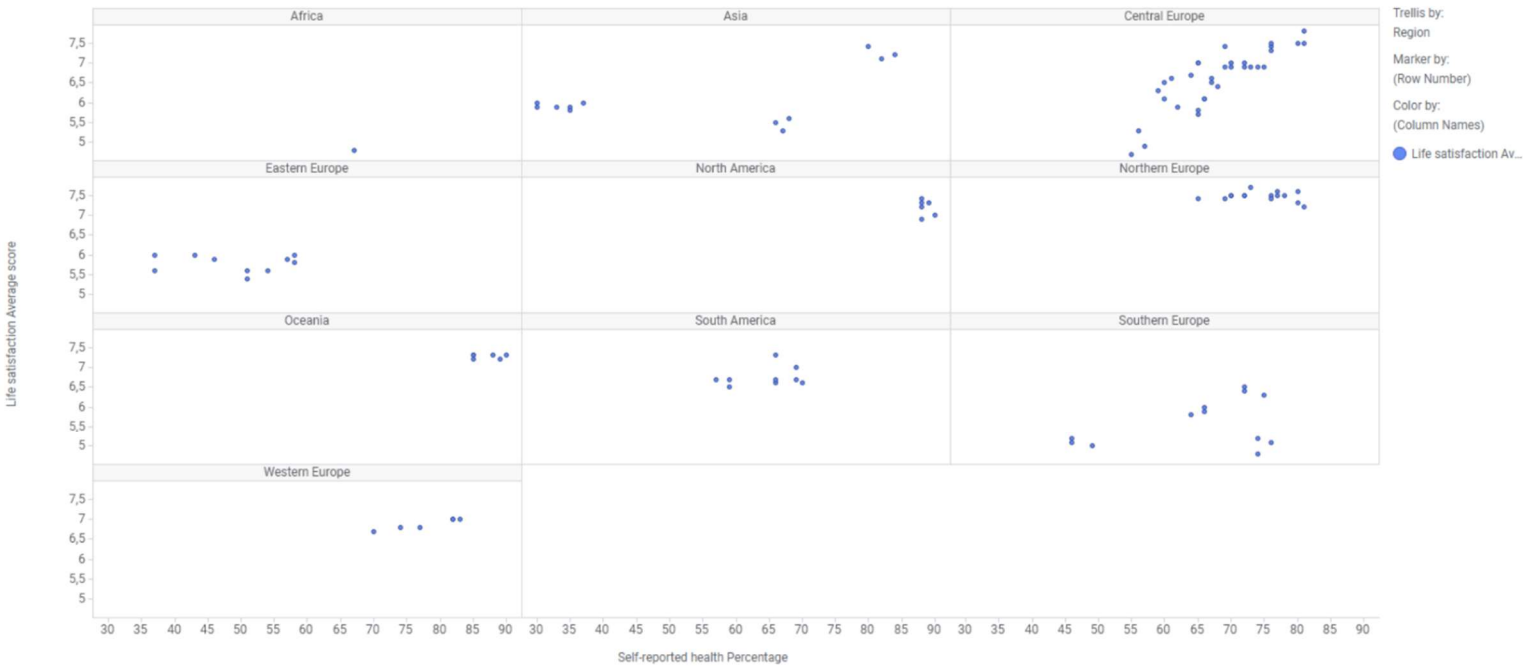
Histogram – Self-reported health Percentage



When I click on one specific value in the bar chart all the other charts change accordingly as well.

1.6 Trellis

Life satisfaction Average score vs. Self-reported health Percentage

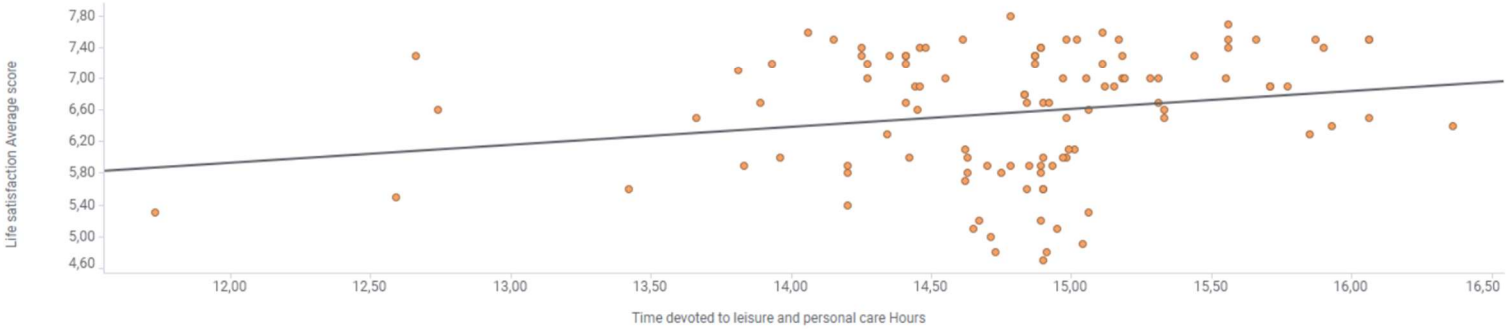


1.7 Advanced Analytics-Data relationships

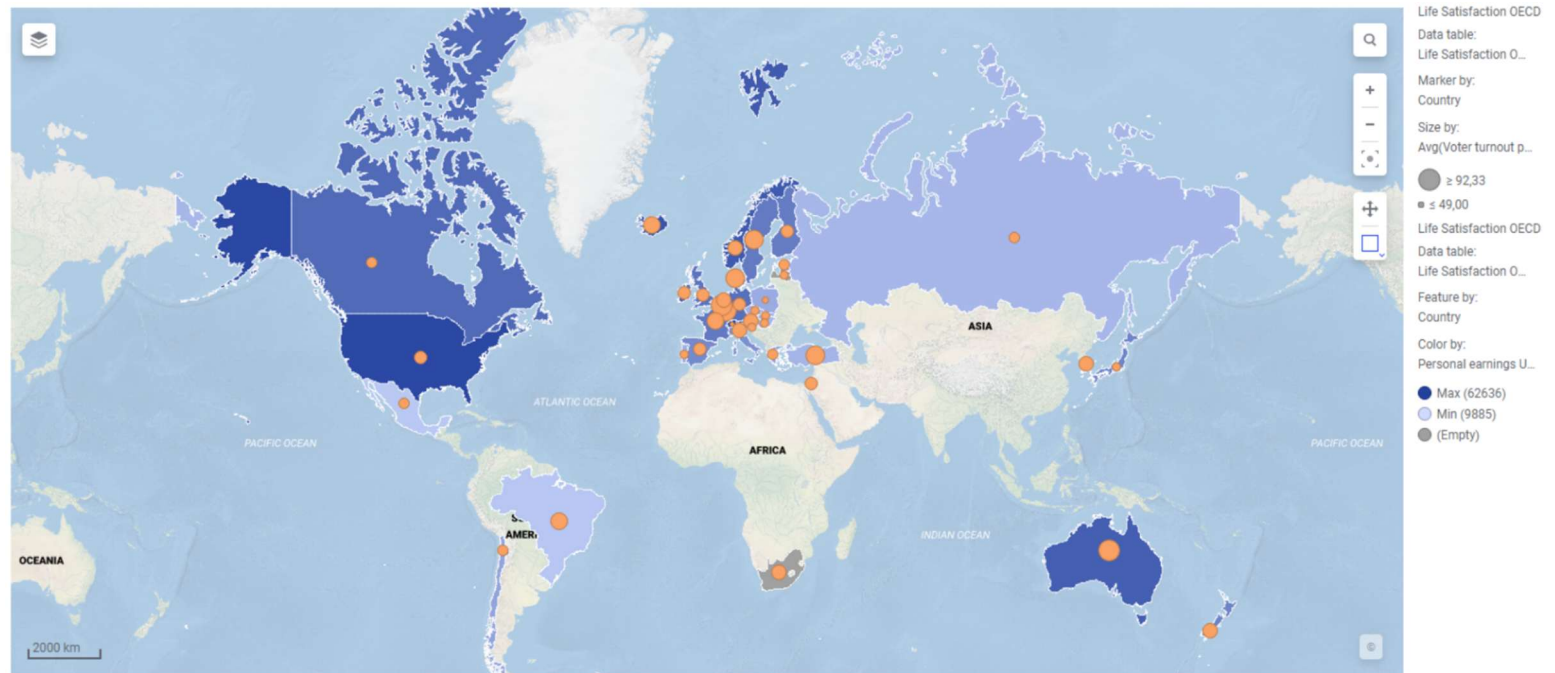
Data Relationships (Linear Regression)

| Y (numerical) | X (numerical) | p-value▲ | FStat | RSq▼ | R | Df | n |
|--------------------|--------------------|-----------|-------|------|-------|-----|-----|
| Life satisfacti... | Quality of sup... | 6,82E-010 | 45,89 | 0,30 | 0,55 | 108 | 110 |
| Life satisfacti... | Dwellings with... | 1,16E-006 | 26,56 | 0,20 | -0,44 | 108 | 110 |
| Life satisfacti... | Life expectancy | 1,23E-006 | 26,42 | 0,20 | 0,44 | 108 | 110 |
| Life satisfacti... | Household net... | 2,01E-006 | 25,24 | 0,19 | 0,44 | 108 | 110 |
| Life satisfacti... | Voter turnout ... | 7,86E-005 | 16,86 | 0,14 | 0,37 | 108 | 110 |
| Life satisfacti... | Feeling safe w... | 1,91E-004 | 17,27 | 0,32 | 0,57 | 36 | 38 |
| Life satisfacti... | Years in educ... | 4,19E-003 | 8,56 | 0,07 | 0,27 | 108 | 110 |
| Life satisfacti... | Air pollution m... | 5,81E-003 | 7,92 | 0,07 | -0,26 | 108 | 110 |
| Life satisfacti... | Educational at... | 1,90E-002 | 5,67 | 0,05 | 0,22 | 108 | 110 |
| Life satisfacti... | Time devoted ... | 3,22E-002 | 4,71 | 0,04 | 0,20 | 108 | 110 |
| Life satisfacti... | Student skills ... | 4,19E-002 | 4,24 | 0,04 | 0,19 | 108 | 110 |
| Life satisfacti... | Employees wo... | 7,89E-002 | 3,15 | 0,03 | -0,17 | 108 | 110 |
| Life satisfacti... | Consultation o... | 1,56E-001 | 2,06 | 0,03 | 0,17 | 70 | 72 |
| Life satisfacti... | Housing expe... | 2,30E-001 | 1,46 | 0,01 | 0,12 | 108 | 110 |

Data Relationships (Details)



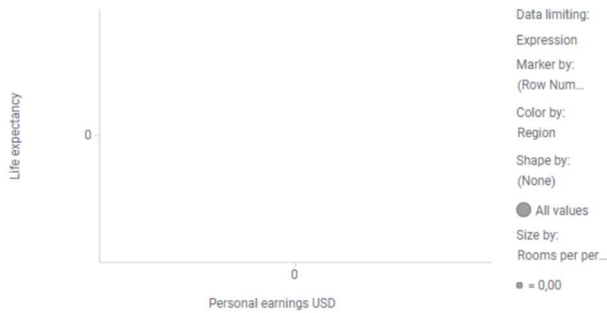
2. GeoAnalytics using the Map chart



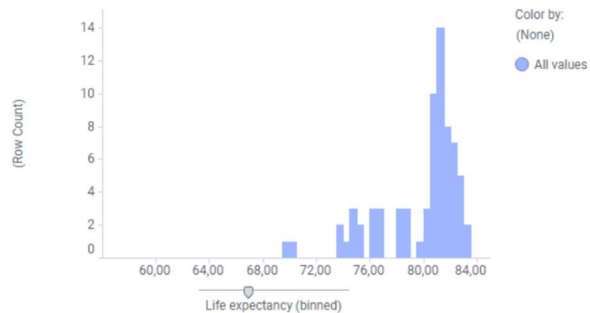
3. Dashboarding

3.1 Limit by expression

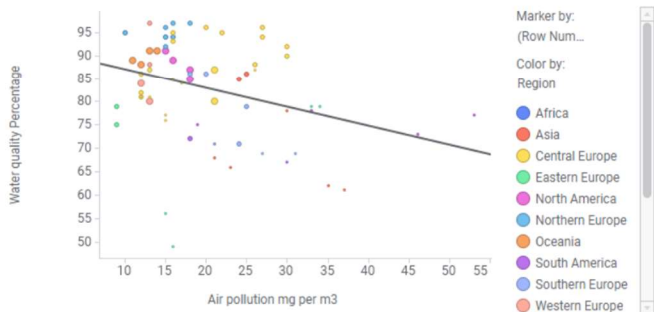
Life expectancy vs. Personal earnings USD



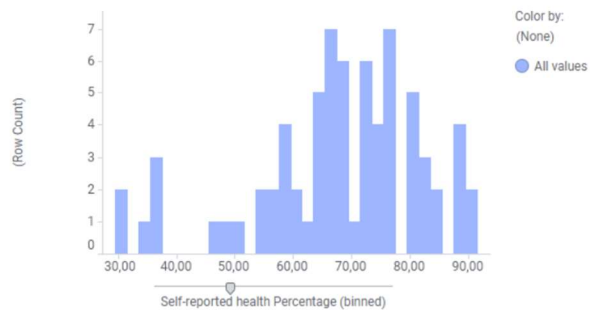
Histogram – Life expectancy



Water quality Percentage vs. Air pollution mg per m3



Histogram – Self-reported health Percentage



Filters

Type to search filters

Life Satisfaction OECD

Country

Type to search in list

(All) 38 values

Australia

Austria

Belgium

Brazil

Canada

Chile

Region

☒ Africa

☒ Asia

☒ Central Europe

☒ Eastern Europe

☒ North America

☒ Northern Europe

☒ Oceania

☒ South America

☒ Southern Europe

☒ Western Europe

Year

☒ 2013

☒ 2015

☐ 2017

Dwellings without basic facilities

0,00 37,00

☐ Include empty values

1 filter changed

Life Satisfaction OECD

Year: (2013, 2015)

3.2 Text area

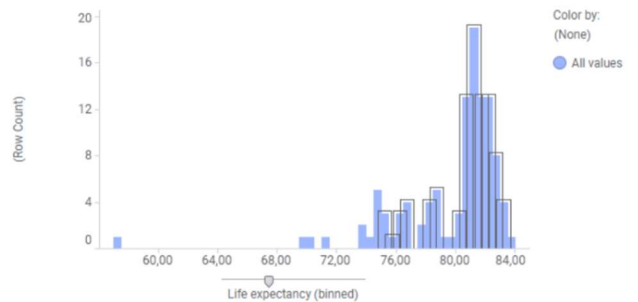
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[Next Page \(Custom Expressions\)](#)

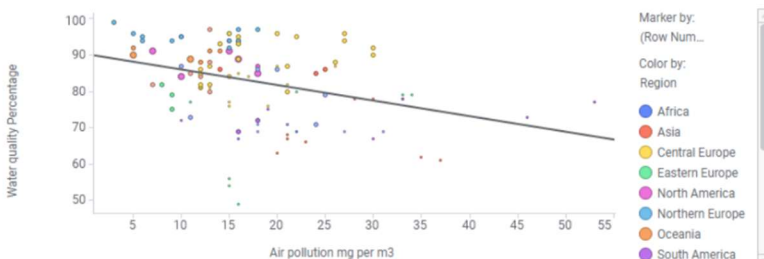
Life expectancy vs. Personal earnings USD



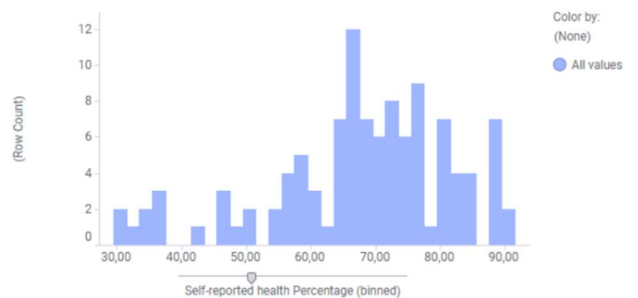
Histogram – Life expectancy



Water quality Percentage vs. Air pollution mg per m3



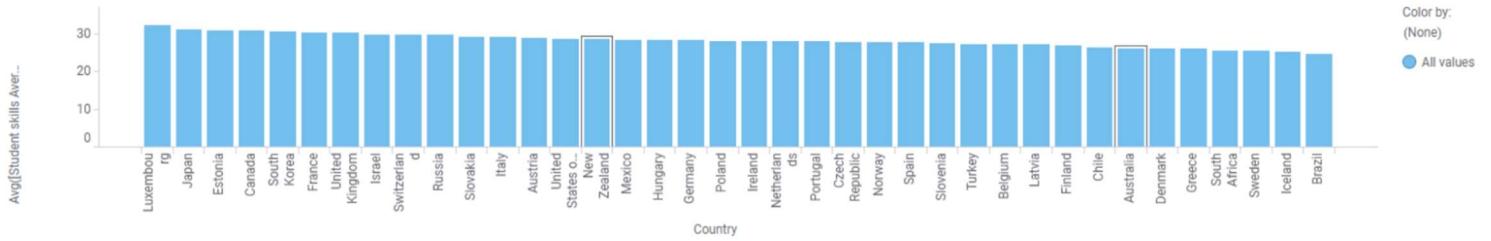
Histogram – Self-reported health Percentage



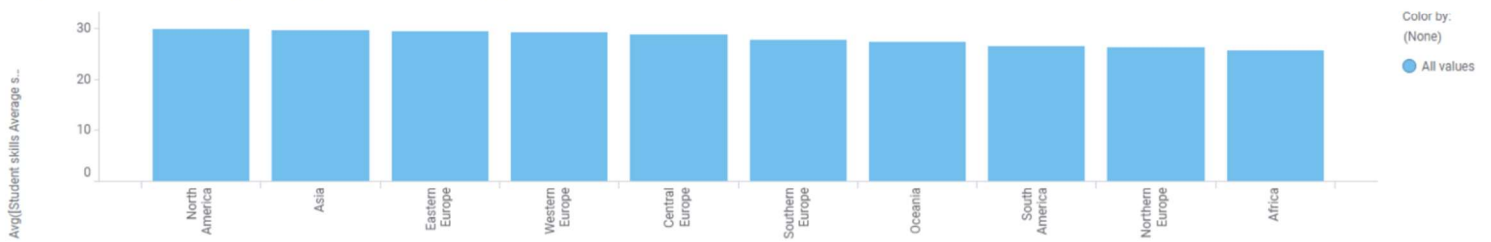
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[Previous Page \(Scatter Plots\)](#)[Next Page \(Drill Down\)](#)

Avg([Student skills Average score] / [Years in education]) per Country



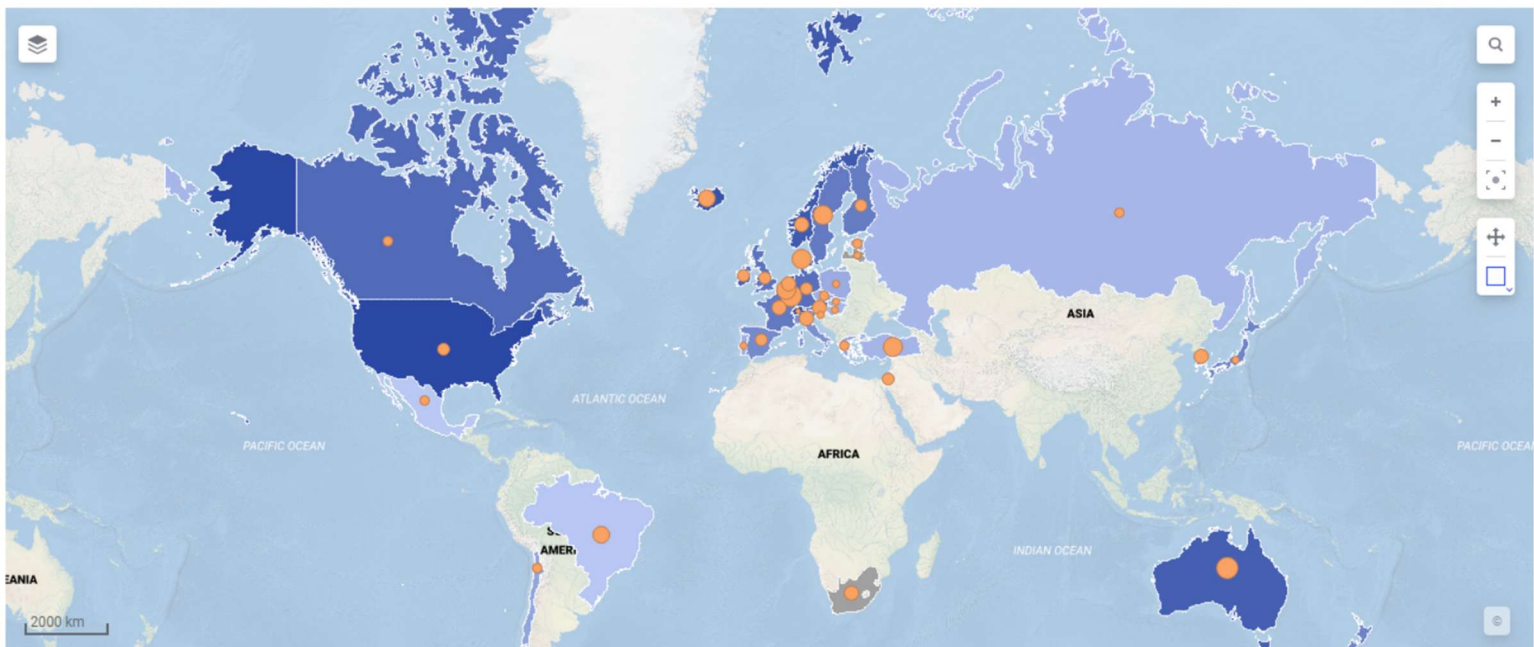
Avg([Student skills Average score] / [Years in education]) per Region



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[Previous Page \(Data Relationships\)](#)

Map chart ▲




4. Data Canvas

4.1 Add columns

Add data to analysis

Add data to existing data table: Life Satisfaction OECD

 Life Satisfaction OECD 2013, 2015 and 2017 - additional columns-1.xlsx - OECD.Stat export
Import

Add as columns to

Life Satisfaction OECD

⚙️

Transform data

OK

Cancel

Match columns

Defined matches: 3

Type to search in list

| From original data | From new data |
|--|---|
| Country (String) Australia, Austria, Belgium | Location (String) Australia, Austria, Belgium |
| Region (String) Oceania, Central Europe, North A... | Region (String) Oceania, Central Europe, No... |
| Year (Integer) 2017, 2013, 2015 | Year (Integer) 2017, 2013, 2015 |

+ Add match

Columns from new data
2 of 2 columns included

Join settings
Left outer join; no match on empty values

Preview of result (sample rows)

Number of input rows: 1000

| icide rate | Employees ... | Time devote... | Country | Region | Year | Labour mark... | Long-term u... |
|------------|---------------|----------------|---------------|-----------------|---------|----------------|----------------|
| Real | Real | Real | String | String | Integer | Real | Real |
| 1,00 | 13,20 | 14,35 | Australia | Oceania | 2017 | 4,30 | 1,36 |
| 0,40 | 6,78 | 14,55 | Austria | Central Europe | 2017 | 2,70 | 1,94 |
| 1,00 | 4,31 | 15,77 | Belgium | Central Europe | 2017 | 4,80 | 3,98 |
| 1,40 | 3,73 | 14,41 | Canada | North America | 2017 | 3,90 | 0,81 |
| 4,50 | 10,06 | 14,90 | Chile | South America | 2017 | 8,10 | 2,02 |
| 0,80 | 5,77 | 15,06 | Czech Repu... | Central Europe | 2017 | 1,80 | 1,71 |
| 0,70 | 2,20 | 15,87 | Denmark | Northern Eur... | 2017 | 2,30 | 1,35 |
| 3,10 | 2,69 | 14,90 | Estonia | Eastern Euro... | 2017 | 4,00 | 2,13 |
| 1,40 | 3,91 | 15,17 | Finland | Northern Eur... | 2017 | 2,70 | 2,33 |
| 0,60 | 7,76 | 16,36 | France | Central Europe | 2017 | 5,00 | 4,33 |
| 0,40 | 4,60 | 15,55 | Germany | Central Europe | 2017 | 2,00 | 1,68 |
| 1,00 | 7,30 | 14,67 | Greece | Southern Eur... | 2017 | 17,40 | 16,95 |
| 1,20 | 3,05 | 15,06 | Hungary | Central Europe | 2017 | 4,80 | 2,42 |
| 0,90 | 15,06 | 14,15 | Iceland | Northern Eur... | 2017 | 2,60 | 0,26 |
| 0,60 | 4,66 | 15,28 | Ireland | Western Eur... | 2017 | 2,10 | 4,72 |
| 1,70 | 15,04 | 13,93 | Israel | Asia | 2017 | 2,60 | 0,46 |
| 0,80 | 3,90 | 14,89 | Italy | Southern Eur... | 2017 | 8,10 | 6,82 |
| 0,30 | 21,81 | 14,85 | Japan | Asia | 2017 | 1,50 | 1,24 |
| 1,10 | 20,84 | 14,70 | South Korea | Asia | 2017 | 2,40 | 0,03 |
| 6,60 | 2,09 | 13,83 | Latvia | Eastern Euro... | 2017 | 6,80 | 3,73 |
| 0,60 | 3,76 | 15,15 | Luxembourg | Central Europe | 2017 | 3,20 | 1,90 |
| 17,90 | 29,48 | 12,74 | Mexico | South America | 2017 | 4,60 | 0,08 |
| 0,60 | 0,45 | 15,90 | Netherlands | Central Europe | 2017 | 2,10 | 2,56 |
| 1,30 | 15,02 | 14,87 | New Zealand | Oceania | 2017 | 4,90 | 0,72 |
| 0,60 | 3,17 | 15,56 | Norway | Northern Eur... | 2017 | 2,70 | 0,59 |

Original data

Matched data

New data

OK

Cancel

Life Satisfaction OECD

Rename Reload Replace Delete Relations (0) Key columns (0)

Life Satisfaction OECD 2013, 2015 and 2017-1-2.xlsx... Added columns

Life Satisfaction OECD 2013, 2015 and 2017 - additi...

Life Satisfaction OECD

The final data table has no further changes.

INFORMATION DATA COLUMN PROPERTIES DATA TABLE PROPERTIES

| Country | Region | Year | Dwellings ... | Housing ex... | Rooms per... | Household ... | Househ |
|--------------|----------------|---------|---------------|---------------|--------------|---------------|---------|
| String | String | Integer | Real | Integer | Real | Integer | Integer |
| Australia | Oceania | 2017 | 1,10 | 20 | 2,30 | 33417 | |
| Austria | Central Eur... | 2017 | 1,00 | 21 | 1,60 | 32544 | |
| Belgium | Central Eur... | 2017 | 2,30 | 21 | 2,20 | 29968 | 1 |
| Canada | North Amer... | 2017 | 0,20 | 22 | 2,50 | 29850 | |
| Chile | South Amer... | 2017 | 9,40 | 18 | 1,90 | 16588 | |
| Czech Rep... | Central Eur... | 2017 | 0,60 | 24 | 1,40 | 21103 | |
| Denmark | Northern E | 2017 | 0,60 | 24 | 1,40 | 28050 | |

114 rows 30 columns

4.2 Transforming data

Life Satisfaction OECD

This is the data analysis.

Replace value

In column: Country

Previous value: United States of America

Replace value with: USA

Help OK Cancel

Life Satisfaction OECD

The final data table has no further changes.

INFORMATION DATA COLUMN PROPERTIES DATA TABLE PROPERTIES

| Country | Region | Year | Dwellings ... | Housing ex... |
|---------|--------|---------|---------------|---------------|
| String | String | Integer | Real | Integer |

INFORMATION

DATA

COLUMN PROPERTIES

DATA TABLE PROPERTIES

| Country | Region | Year | Dwellings ... | Housing ex... | Rooms per... | Household ... |
|----------------|----------------|---------|---------------|---------------|--------------|---------------|
| String | String | Integer | Real | Integer | Real | Integer |
| Sweden | Northern E... | 2017 | 0,00 | 20 | 1,80 | 30553 |
| Switzerland | Central Eur... | 2017 | 0,00 | 21 | 1,90 | 36378 |
| Turkey | Asia | 2017 | 6,50 | 20 | 1,00 | 17067 |
| United King... | Western Eu... | 2017 | 0,40 | 24 | 2,00 | 28408 |
| USA | North Amer... | 2017 | 0,10 | 18 | 2,40 | 44049 |
| Brazil | South Amer... | 2017 | 6,70 | 20 | 0,80 | 12227 |
| Russia | Eastern Eu... | 2017 | 13,80 | 19 | 1,00 | 16657 |

114 rows

30

4.3 Enhancing data

.TA

COLUMN PROPERTIES

DATA TABLE PROPERTIES

| Homicide r... | Employees... | Time devot... | Labour mar... | Long-term ... | Personal e... |
|---------------|--------------|---------------|---------------|---------------|---------------|
| Real | Real | Real | Real | Real | Real |
| 17,90 | 29,48 | 12,74 | 4,60 | 0,08 | 151119,57 |
| 0,60 | 0,45 | 15,90 | 2,10 | 2,56 | 521461,71 |
| 1,30 | 15,02 | 14,87 | 4,90 | 0,72 | 388848,39 |
| 0,60 | 3,17 | 15,56 | 2,70 | 0,59 | 529456,41 |
| 0,80 | 6,68 | 14,42 | 4,30 | 2,14 | 255840,27 |
| 1,00 | 8,20 | 14,89 | 6,50 | 6,14 | 242101,23 |

Personal earnings SEK