

Tableau Class

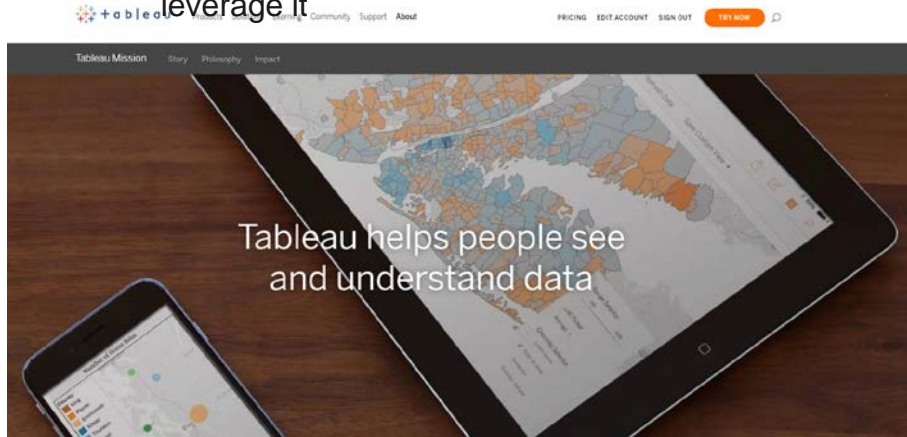
(IE481, Lab #3)

Hansoo Lee

2020. 4. 02

Introduction of Tableau

- Tableau Software is an American interactive data visualization software company founded in January 2003 by Christian Chabot, Pat Hanrahan and Chris Stolte, in Mountain View, California.
- Chabot, Hanrahan and Stolte were researchers at the Department of Computer Science at Stanford University who specialized in visualization techniques for exploring and analyzing relational databases and data cubes
- Tableau helps people see and understand data. With Tableau, you can quickly and easily analyze your data and leverage it



We're focused on your success

1,053

LEARNING RESOURCES

109

TRAINING VIDEOS

550K

COMMUNITY MEMBERS

1100+

PARTNERS

1. Prepare your data for analysis with Prep.



Tableau Prep

Tableau Prep empowers more people to get to analysis faster by helping them quickly and confidently combine, shape, clean and operationalize their data flows.

2. Use powerful drag-and-drop analytics in Desktop



Tableau Desktop

Called "the gold standard" in visual analytics, Tableau Desktop upended the business intelligence industry and ushered in a new paradigm of self-service insight.

3. Share data and insights with Server or Online.



Tableau Online

Want the sharing and collaboration of Server, but without having to actually manage a server? Then you want Tableau Online. Secure. Scalable. And Look Ma—No hardware to maintain!

4. Watch data-driven decisions spread.



Tableau Server

Share your data and dashboards to multiply your impact. Whether you keep your Server deployment on-prem or deploy to the public cloud you can keep the management of your server in your hands.

How is Tableau being used in Industry and Research field?

Pepsi: analysis time 90% reduced

PepsiCo cuts analysis time by up to 90%
with Tableau + Trifacta

Up to 90% reduction in report
production time

Wrangle big data for analytics
at scale

"Best-in-class-service" with
faster customer analysis



PUBG: increasing game data analysis efficiency,
improving accessibility, faster problem identification and resolution

펍지(PUBG) 주식회사, 태블로로 실
시간 데이터 기반 의사결정 실현

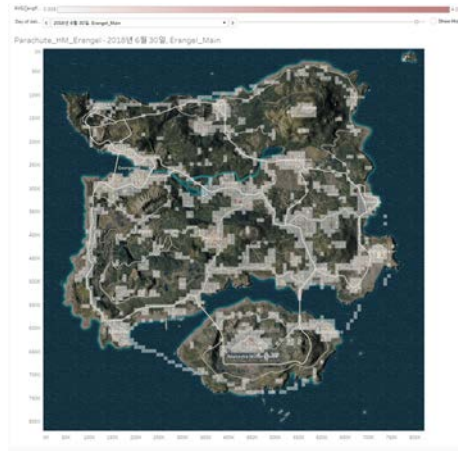
100개 이상의 지표로
게임 데이터 분석 효율
성 향상

전세계 직원들의 인사
이트에 대한 접근성 개
선

문제 파악 및 해결 속도
향상



"Battlegrounds
maps" with Tableau



What Can We Do with Tableau?

<https://www.tableau.com/>

The Tableau platform

The Tableau Platform

From connection through collaboration, Tableau is the most powerful, secure, and flexible end-to-end analytics platform for your data. Watch your expectations get blown away.

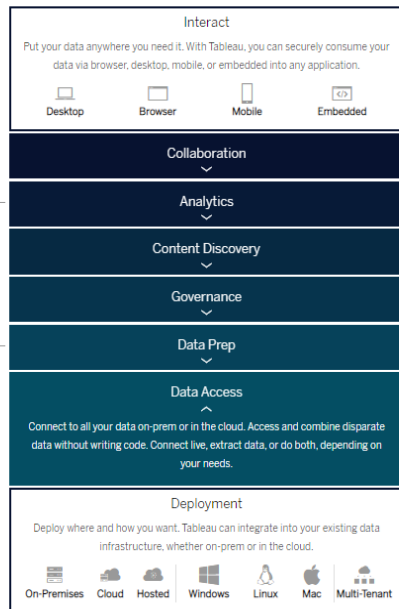


Tableau Prep



Tableau Desktop



Tableau Developer Tools

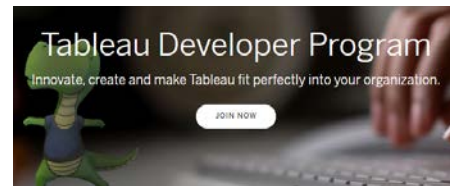


Tableau data/ server management



Tableau Mobile



Data science integration

Integrate and visualize data with coding python, R, matlab



Embedded analytics

Make your Tableau content available anywhere.



Tableau Server



Tableau Online



Automation

Management tasks maintain and update workbooks, data sources, and users on Tableau Server.



Data connectivity

Create connectors to data sources that are not currently supported by Tableau.



What Can We Do with Tableau?

Challenge this later !!

<https://www.tableau.com/>

The Tableau platform

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From connection through collaboration, Tableau is the most powerful, secure, and flexible end-to-end analytics platform for your data. Tableau your data. Watch your expectations get blown away.

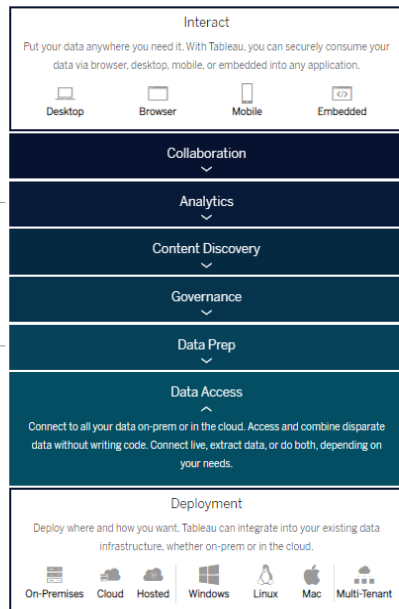


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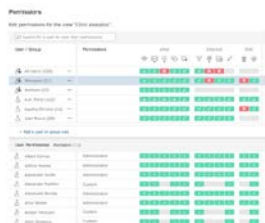
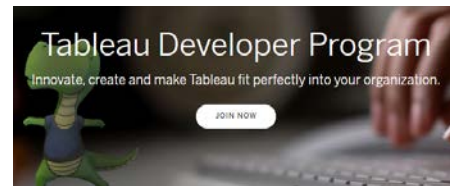


Tableau Online

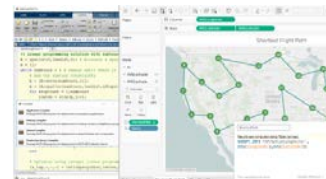


Tableau Developer Tools



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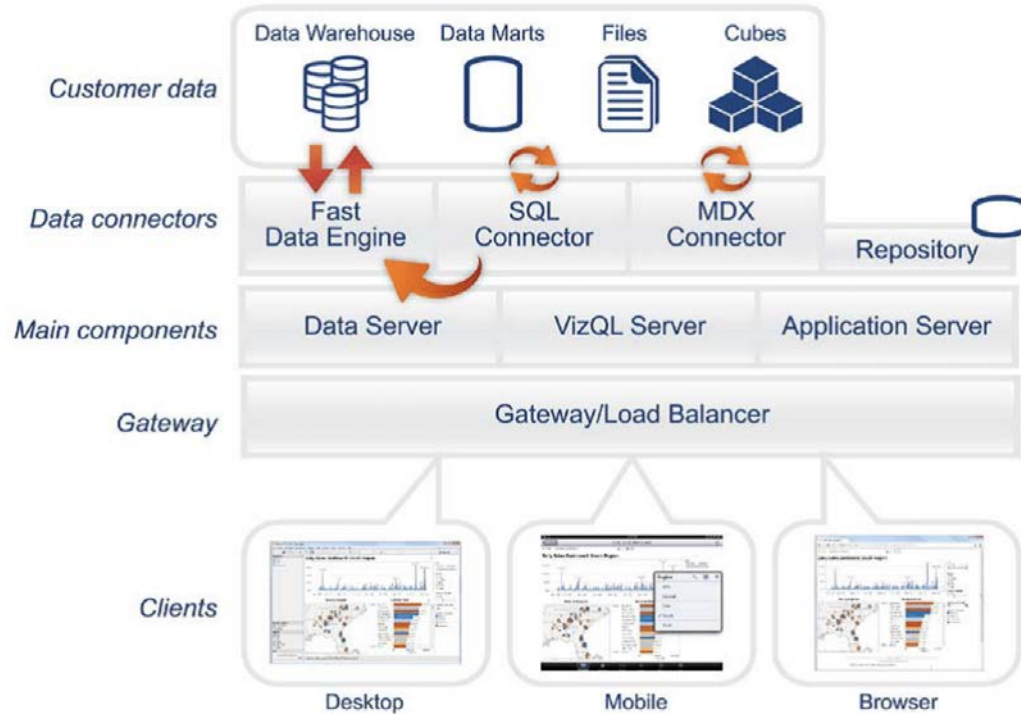
Data connectivity

Create connectors to data sources that are not currently supported by Tableau.



What Can We Do with Tableau?

<https://intellipaat.com/blog/tutorial/tableau-tutorial/tableau-server-components/>



Let's Learn the Basic of Tableau

- Sign and Install [link](#)
- You will learn basic tutorial for Tableau in this lab
- You will exercise the tableau with COVID - 19 dataset (making a simple corona map) after class

Basic Tutorial of Tableau

Description of Tableau Start Page

The screenshot shows the Tableau Start Page interface. The left sidebar contains the 'Connect' section, which is divided into four sub-sections, each highlighted with a red box and an arrow pointing to an explanatory text block on the left:

- Connect** (Search for Data, Tableau Server): An arrow points to the text "You can search the data in Tableau server".
- To a File** (Microsoft Excel, Text file, JSON file, Microsoft Access, PDF file, Spatial file, Statistical file, More...): An arrow points to the text "You can load data file from here".
- To a Server** (Microsoft SQL Server, MySQL, Oracle, Amazon Redshift, More...): An arrow points to the text "You can load data from server".
- Saved Data Sources** (Sample - Superstore, World Indicators): An arrow points to the text "You can load the original saved data file".

The main area of the page is titled "Open" and features a "Sample Workbooks" section with three thumbnails: "Superstore", "Regional", and "World Indicators". A link "Open a Workbook" is visible in the top right of the main area.

The right sidebar contains the "Discover" section, which is highlighted with a red box and an arrow pointing to an explanatory text block on the right:

- Discover** (Training, Getting Started, Connecting to Data, Visual Analytics, Understanding Tableau, More training videos...): An arrow points to the text "You can watch the basic tutorial education materia for free".

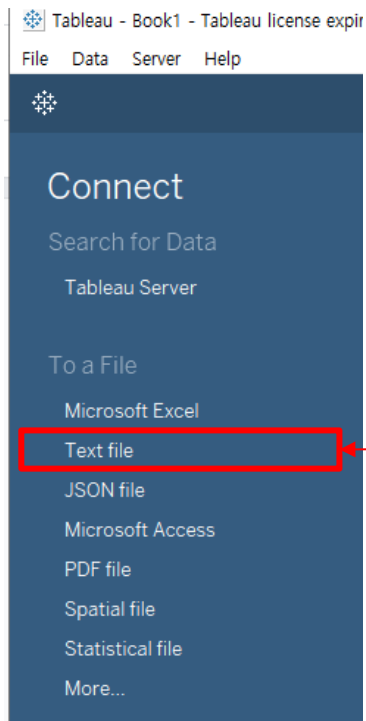
Below the "Discover" section, there is a "Resources" section with links to "Get Tableau Prep", "Blog - An open letter to our customers", and "Forums". At the bottom, there is a "See the latest" section with a link to "Access and analyze trusted COVID-19 (Coronavirus) global data" and a small image of a laptop displaying a Tableau dashboard.

Dataset



Loading Data

- Download data link: http://vda.univie.ac.at/Teaching/Vis/17w/Tutorials/data/Global_Landslide_Catalog_Export.csv
- Open the file in Tableau



Loading Data

- Always check if the automatic data types are correct by controlling the column headers marked in the figure

The screenshot shows the Tableau interface with a data source named 'Global_Landslide_Catalog_Export' connected to a text file. The directory is '/Users/chris/Desktop' and the file is 'Global_Landslide_Catalog_Export.csv'. The preview shows a table with 9 columns. The first row of headers is highlighted with a red box, showing the automatic data types assigned by Tableau.

Id	#	Date	Time	Country	Nearest Places	Hazard Type	Landslide Type	Trigger	Storm
7494		25/09/15	null	null	Barrio Tournon, S...	landslide	Landslide	Rain	
249		09/09/07	null	Costa Rica	Heredia	landslide	Landslide	Rain	
250		09/09/07	null	Dominica	entire island, Ros...	landslide	Landslide	Rain	Trc
7541		02/03/16	8:00	null	south bound trave...	landslide	Rock_Fall	Unknown	
7533		27/02/16	12:15	null	Simmons Avenue,...	landslide	Rock_Fall	Unknown	
7423		27/09/15	null	null	Colonia Covias in ...	landslide	Landslide	Rain	
6089		23/06/14	null	Nicaragua	El Ayote	landslide	Landslide	Continuous_rain	
7420		27/09/15	null	null	Colonia La Barran...	landslide	Landslide	Rain	
6101		23/06/14	null	Nicaragua	El Ayote	landslide	Landslide	Continuous_rain	

Fields

What's in this Dataset?

Rows
11K

Columns
31

Each row is a
Landslide

Columns in this Dataset

Column Name	Description	Type	
source_name	news entity	T	▼
source_link	news source	🔗	▼
event_id		#	▼
event_date		📅	▼
event_time		📅	▼
event_title	title of news story	T	▼
event_description		T	▼
location_description		T	▼
location_accuracy	location is accurate within ...	T	▼
landslide_category		T	▼
landslide_trigger	cause of landslide	T	▼
landslide_size		T	▼
landslide_setting	environment where landsli...	T	▼

fatality_count	#	▼
injury_count	#	▼
storm_name	T	▼
photo_link	🔗	▼
notes	T	▼
event_import_source	T	▼
event_import_id	#	▼
country_name	T	▼
country_code	T	▼
admin_division_name	T	▼
admin_division_population	#	▼
gazeteer_closest_point	T	▼
gazeteer_distance	#	▼
submitted_date	📅	▼
created_date	📅	▼
last_edited_date	📅	▼
longitude	#	▼
latitude	#	▼

Loading Data

- Mouseover the dataset name and click the little gear to open the settings for the dataset. Choose the correct settings:
- After you have set the correct format and double checked the column headers, the table is useable. Click Sheet 1 at the bottom of the window to proceed to your worksheet.

Global_Landslide_Catalog_Export

Field separator: Comma

Text qualifier: Automatic

Character set: UTF-8

Locale: Korean (South Korea)

Go to Worksheet

Global_Landslide_Catalog_Export.csv

Field separator: Comma

Text qualifier: Automatic

Character set: UTF-8

Locale: Korean (South Korea)

Go to Worksheet

Field Separator: Comma, tab or other
Text Qualifier: How can strings be detected
Character Set: Encoding
Locale: Where is the data from

Go to Worksheet

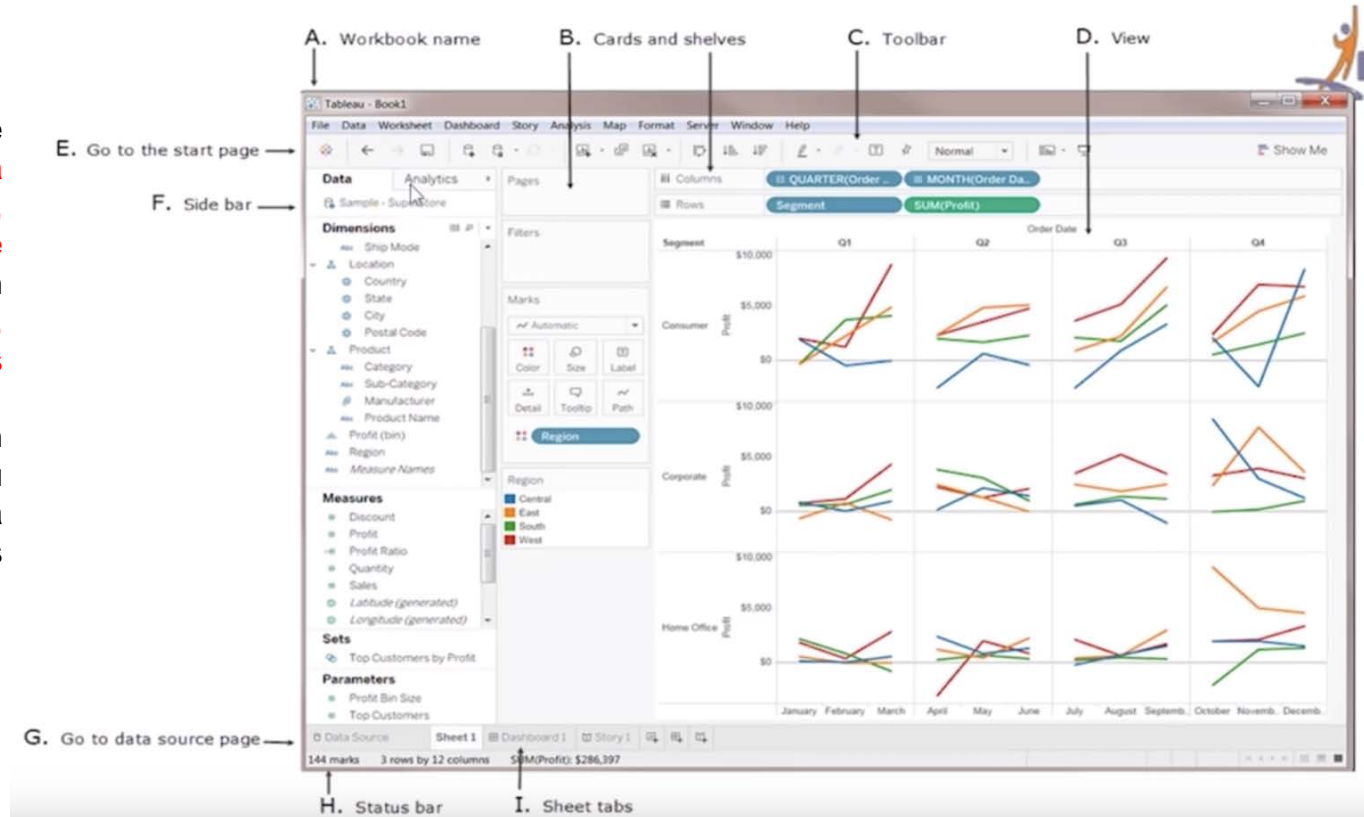
source_name	source_link	event_id	event_date	event_title	event_description	location_description	location
Zoram Observer	https://www.zoram...	9876	06/27/2017 01:20:00	Landslide cuts off NH 2	Landslide blocks an...	NH 2, Manipur State...	...
Zoram Observer	https://www.zoram...	9877	06/26/2017 01:20:00	Landslide blocks NH 2	Road blocked by lands...	NH 2, Phersa District...	...
Zoram Observer	https://www.zoram...	9875	06/26/2017 01:20:00	Landslide destroys se...	Landslide between vil...	NH 2, Manipur State...	...
Zoram Observer	https://www.zoram...	9989	06/28/2017 04:00:00	Landslide damages ro...	Landslide on Aizawl-C...	Aizawl, Mizoram Stat...	...
Zoram Observer	https://www.zoram...	9712	06/10/2017 01:27:00	Landslide in Aizawl, M...	Rain triggered landsl...
ZME Science	http://www.zmesci...	9073	12/17/2015 12:00:00	Burma	The annus horribilis c...	Burma	...
ZeeNews India	http://zeenews.in...	9761	06/01/2017 01:34:00	Landslide near Coono...	Trees and boulders fel...	Coonoor-Mettupalaya...	...
YouTube	http://www.youtube...	4884	06/29/2013 08:00:00	Rain's Time, Gardner E...	"Uprooted trees, limp...	Rain's Time, Gardner E...	...
youtube	http://www.youtube...	3768	07/18/2011 06:00:00	National Highway 31...	CHENGDU - A rainm...	National Highway 31...	...
Yokshire Report	http://www.yokshire...	9739	06/05/2017 01:34:00	Landslide in Myholm...	Landslide covers rail...	HK2 SHZ	...

Data Source Sheet 1

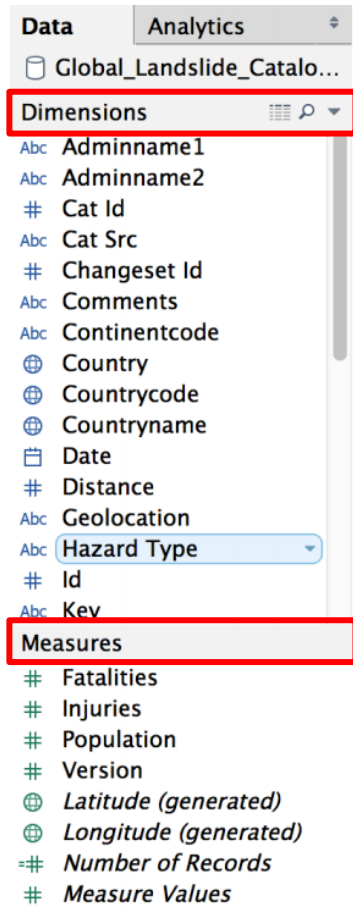
Description of Tableau Workspace

The Tableau workspace consists of **menus**, a **toolbar**, the **Data plan**, **cards and shelves**, and one or more **sheets**. Sheets can be **worksheets**, **dashboards**, or **stories**

Worksheets contain shelves and cards that you can drag and drop data fields on to build views



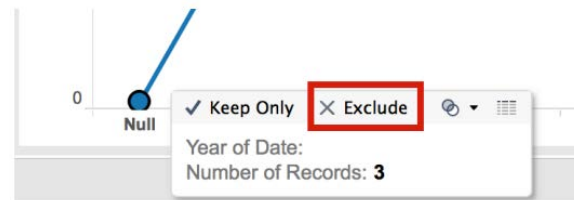
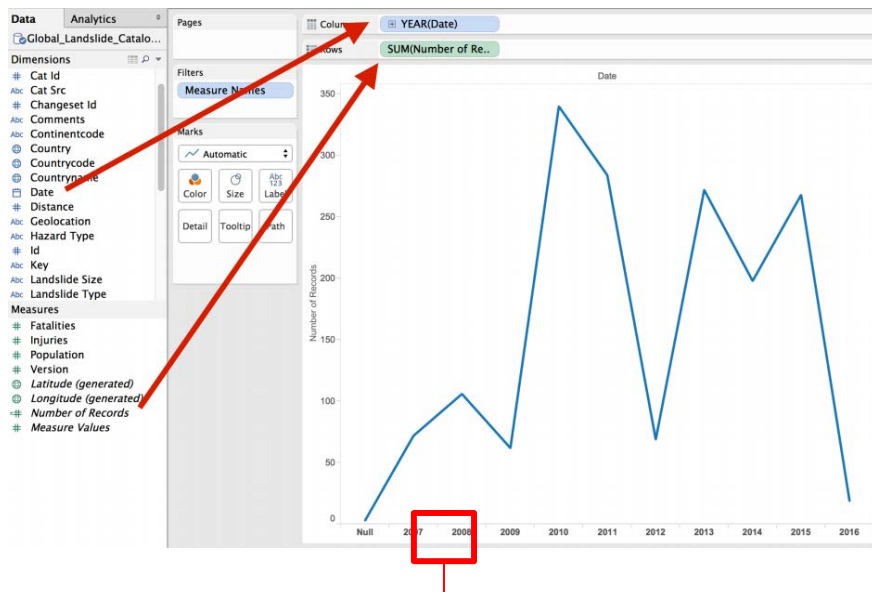
Dimension & Measures



- In the leftmost panel you will see the columns of your table as either dimensions or measures
- You can drag and drop both measures and dimensions to the central panel to create plots
- **Dimensions** contain qualitative values (such as names, dates, or geographical data)
- **Measures** contain numeric, quantitative values that you can measure

Building Charts

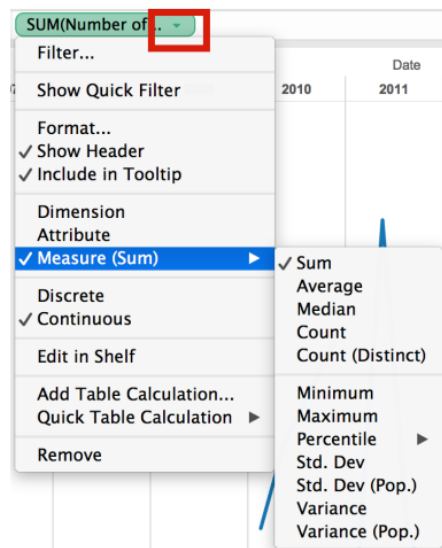
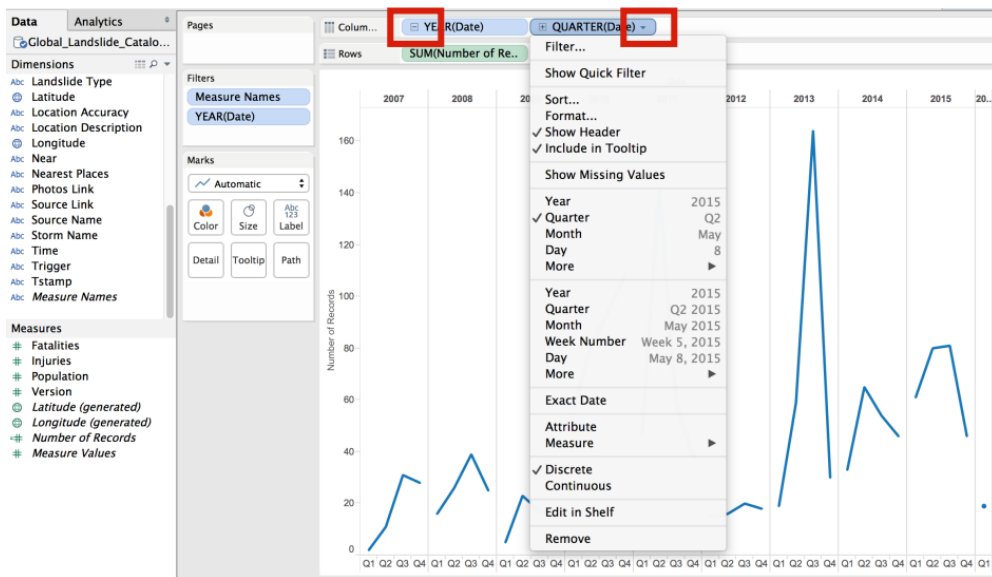
- Let's suppose we want to view the development of the number of landslides over time. Simply **drag** the dimension **Date** to the columns and the measure Number of Records to rows.
- You will see that the records are automatically summed up and the date is set to YEAR. Hence the plot shows the number of landslides per year



We can see here first data quality problems like **null values**. We can remove them by selecting the point and clicking Exclude.

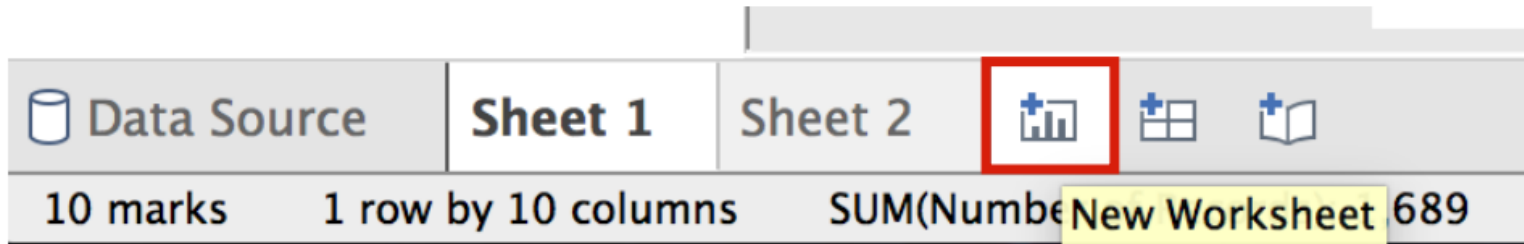
Building Charts

- Click at the + next to **Year(Date)** to get the next smaller dimension.
- By clicking on the small triangle next to a Dimension you can change the **properties of the dimension**.
- You could also **drag** another Date and change it per hand to month. This allows you to stack an arbitrary amount of dimensions.
- The small triangle is available for all datatypes. The measure uses per default **Sum** and you can change it to **Average** or **Variance**.
- This depends on your dataset and the questions you want to answer/things you want to show.



Hands-On

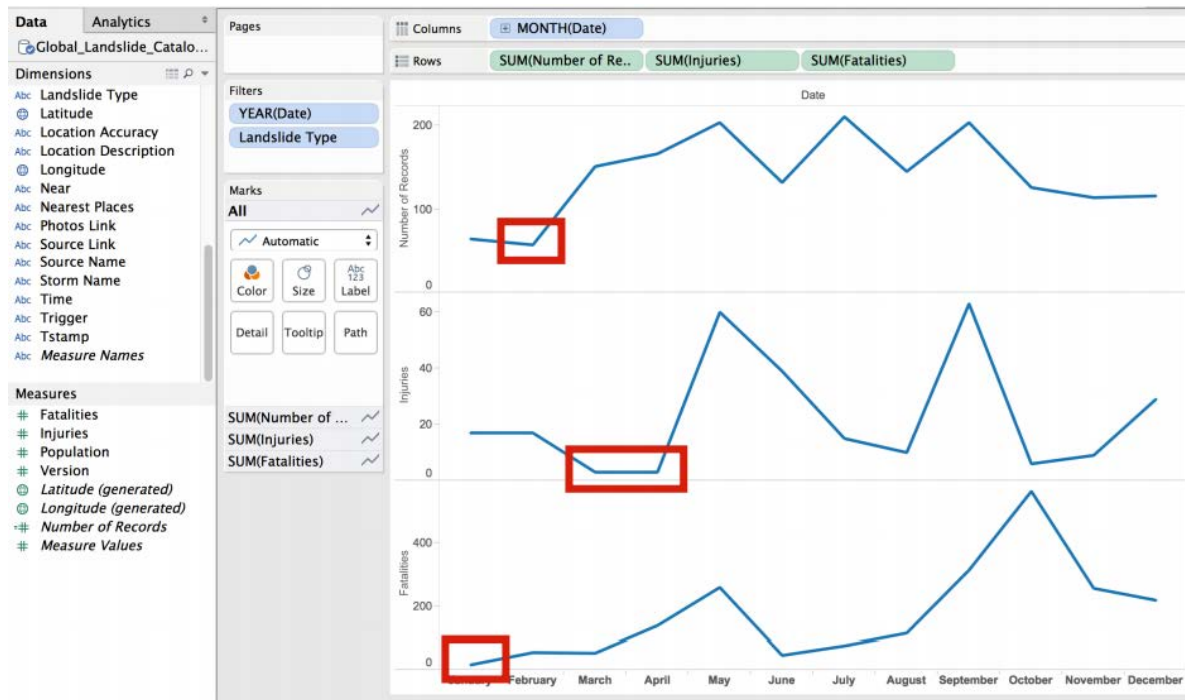
- Question: Which month is the **safest month**? Show (1) the total number of landslides, (2) the number of injured persons and (3) the number of fatalities.
- Create a new sheet by clicking on the **New Worksheet** button and answer the question with help of Tableau:



Hands-On

- One possible solution !

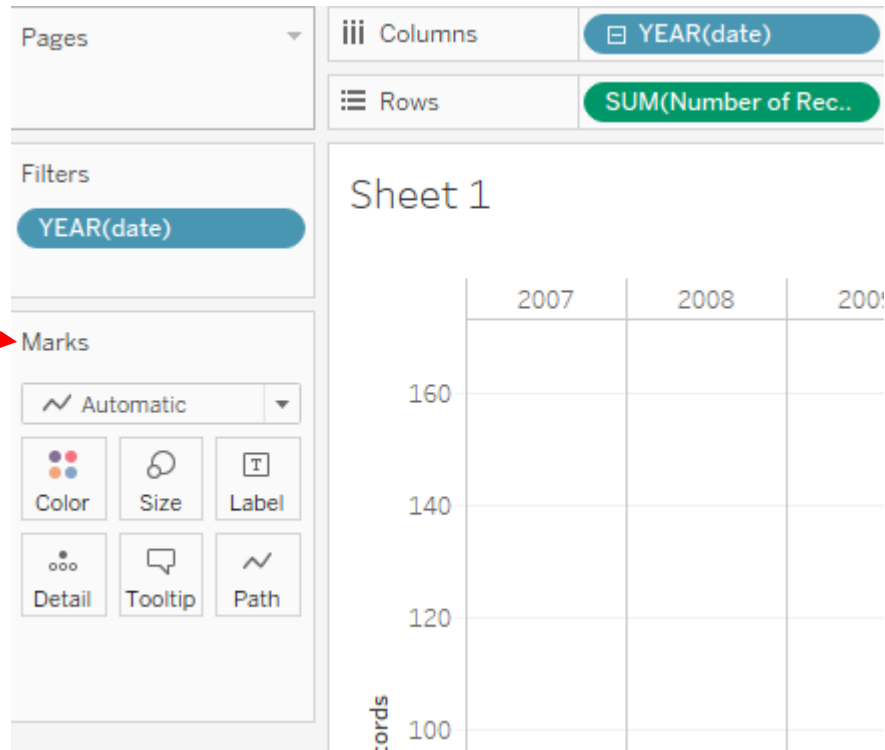
1. From **a total number of events points of view**: February is the safest month.
2. From **a number of injured persons points of view**: March and April are the safest months.
3. From **a number of fatalities point of view**: January is the safest month.



Filters & Marks

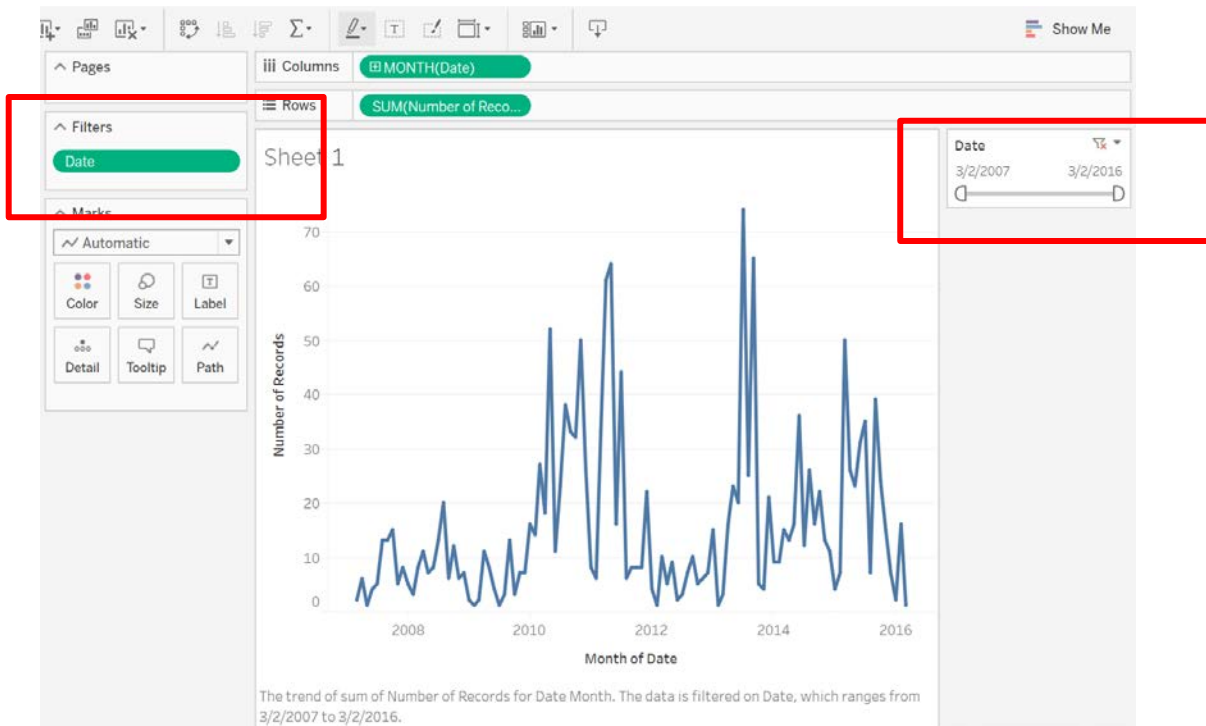
Back to **Sheet 1**. The excluded data is not lost, it is just filtered away. You can always see what filters have been set in the **Filters** panel.

Next let's take a look at the **Marks** panel below it. Here you can modify the appearance of your plot. We want to use marks to encode more information in view.



Filter

- Filter setting: “date” - You can show data within the range specified in “date”



Marks & Appearance

- Let's find out how many small to very large Landslides happened each year:
- Drag **Landslide Size** onto **Color** in the Marks box. We have no multiple lines with weird colors.

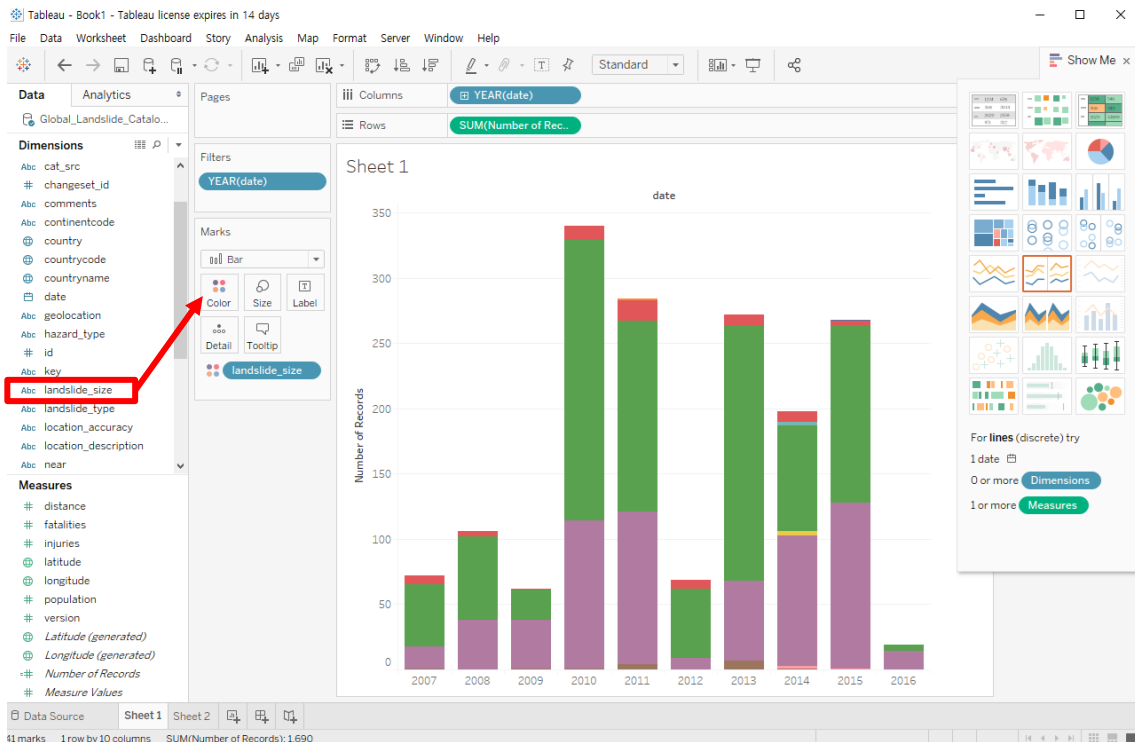
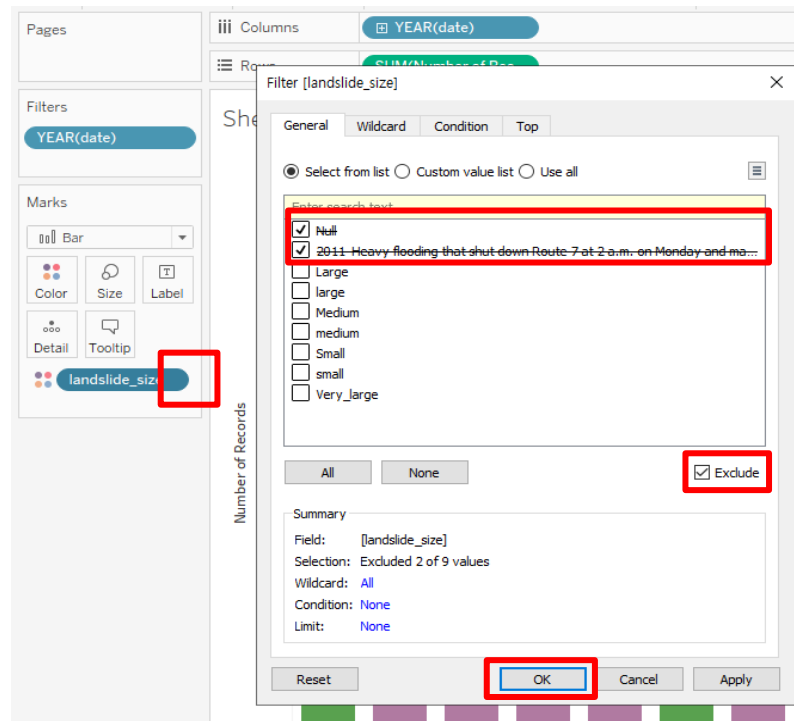


Tableau provides different chart types and by clicking on Show Me in the right upper corner you can choose another one. **Select Stacked Bars.** Your view should look something like this:



Marks & Appearance

- The default color encoding is actually not that good. Let's change it!
- Exclude **Null** and the **2011 Heavy flooding** by right clicking them and select **Exclude**.
- **Reorder** the entries by **drag and drop**.
- We can see here **another data quality issue**: upper and lower case answers (e.g. 'Large' and 'large') should not be different groupings



Marks & Appearance

- We can fix this by creating a calculated field
- To do so, in the Data Panel,
 - Click the triangle right next to **Dimensions**
 - Click **Create Calculated Field**
 - Create a new measure “**clean_size**” using the following calculation: `LOWER([landslide_size])`

The screenshot illustrates the process of creating a calculated field in Tableau. On the left, the 'Dimensions' shelf is highlighted with a red box, and a red arrow points to the 'Create Calculated Field...' option in the context menu. The context menu also shows other options like 'Create Parameter...', 'Group by Folder', 'Group by Data Source Table', 'Sort by Name', 'Sort by Data Source Order', 'Hide All Unused Fields', and 'Show Hidden Fields'. A red arrow points from the 'Create Calculated Field...' option to a text box containing the formula: `clean_size = LOWER([landslide_size])`. Below this, a red box highlights the 'clean_size' field name and the formula. A red arrow points from the formula box to the 'OK' button in the 'Create Calculated Field' dialog box. The dialog box shows the formula `clean_size` and `LOWER([landslide_size])` in the 'Name' and 'Formula' fields respectively. The 'OK' button is highlighted with a red box. The dialog box also includes a search bar, a list of functions (ABS, ACOS, AND, ASCII, ASIN, ATAN, ATAN2, ATTR, AVG, BUFFER, CASE), and a description of the ABS function: 'Returns the absolute value of the given number. Example: ABS(-7) = 7'. The 'Apply' and 'OK' buttons are at the bottom right of the dialog box.

Tableau - Book1 - Tableau license expires in 14 days

File Data Worksheet Dashboard Story Analysis Map Help

Data Analytics Pages

Global_Landslide_Cat...

Dimensions

Filters

YEAR(date)

landslide_size

Mark

Bar

Color Size Label

Detail Tooltip

landslide_si...

Measures

distance

fatalities

injuries

latitude

longitude

population

version

Latitude (generated)

Longitude (generated)

Number of Records

Measure Values

Data Source Sheet1 Sheet2

Analytics

Global_Landslide_Cat...

Dimensions

Create Calculated Field...

Create Parameter...

Group by Folder

Group by Data Source Table

Sort by Name

Sort by Data Source Order

Hide All Unused Fields

Show Hidden Fields

id

key

landslide_size

landslide_type

location_accuracy

location_description

near

clean_size

LOWER([landslide_size])

The calculation is valid.

Apply OK

All

Enter search text

ABS

ACOS

AND

ASCII

ASIN

ATAN

ATAN2

ATTR

AVG

BUFFER

CASE

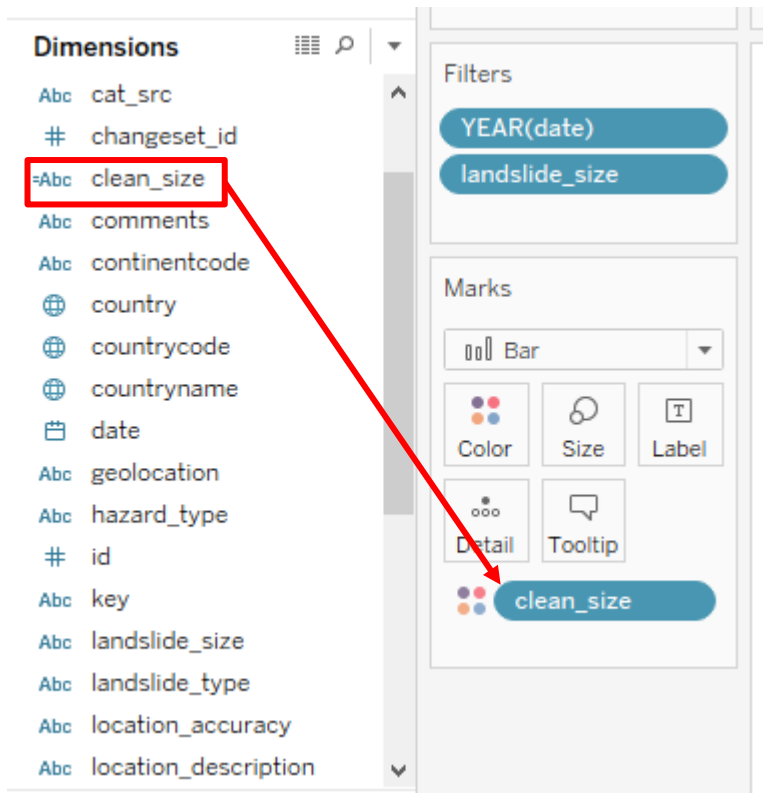
ABS (number)

Returns the absolute value of the given number.

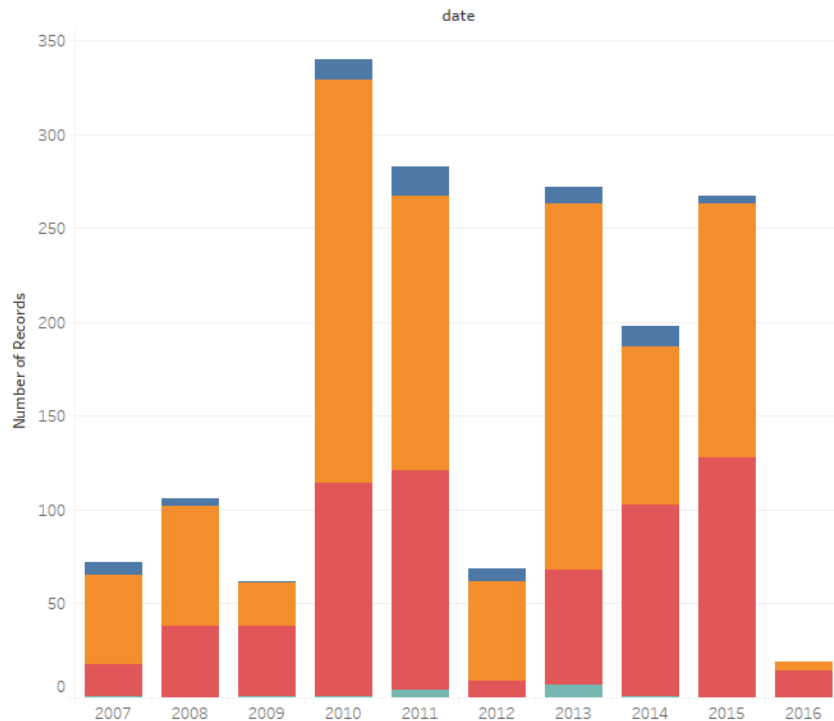
Example: ABS(-7) = 7

Marks & Appearance

- Drag **clean_size** new dimension onto **Color**. You should see now something like this:

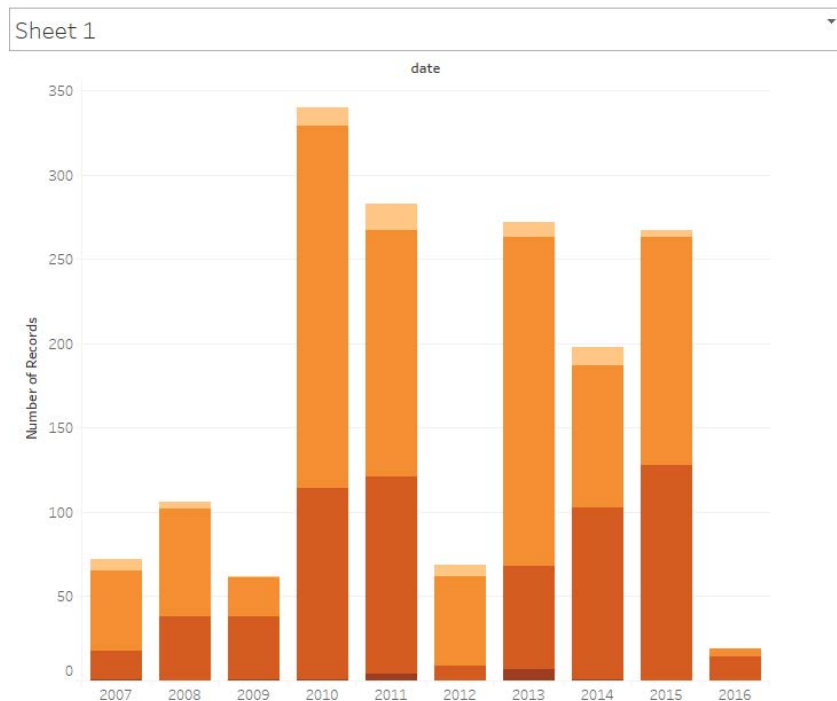
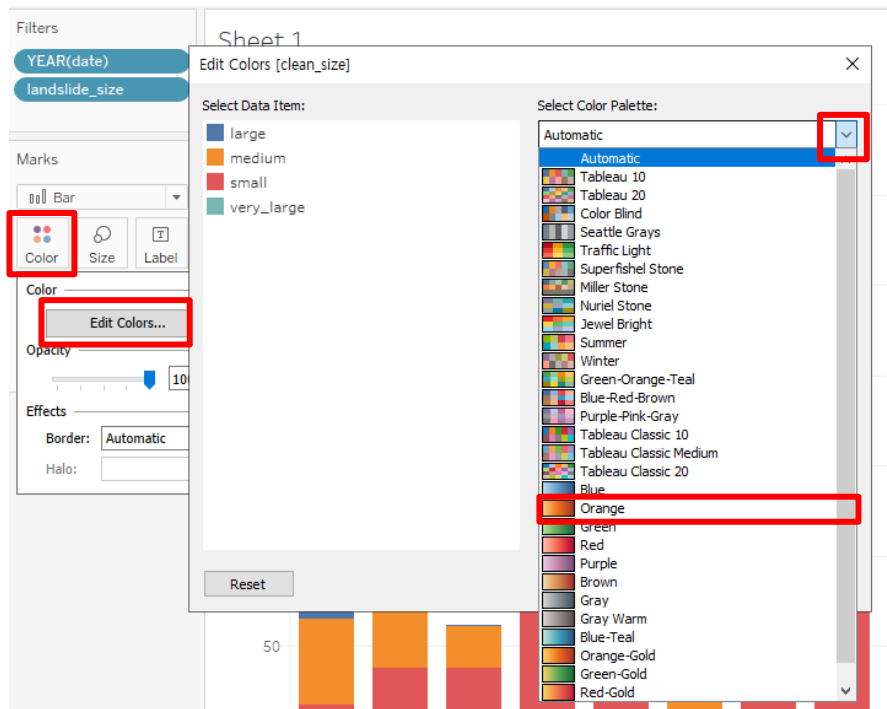


Sheet 1



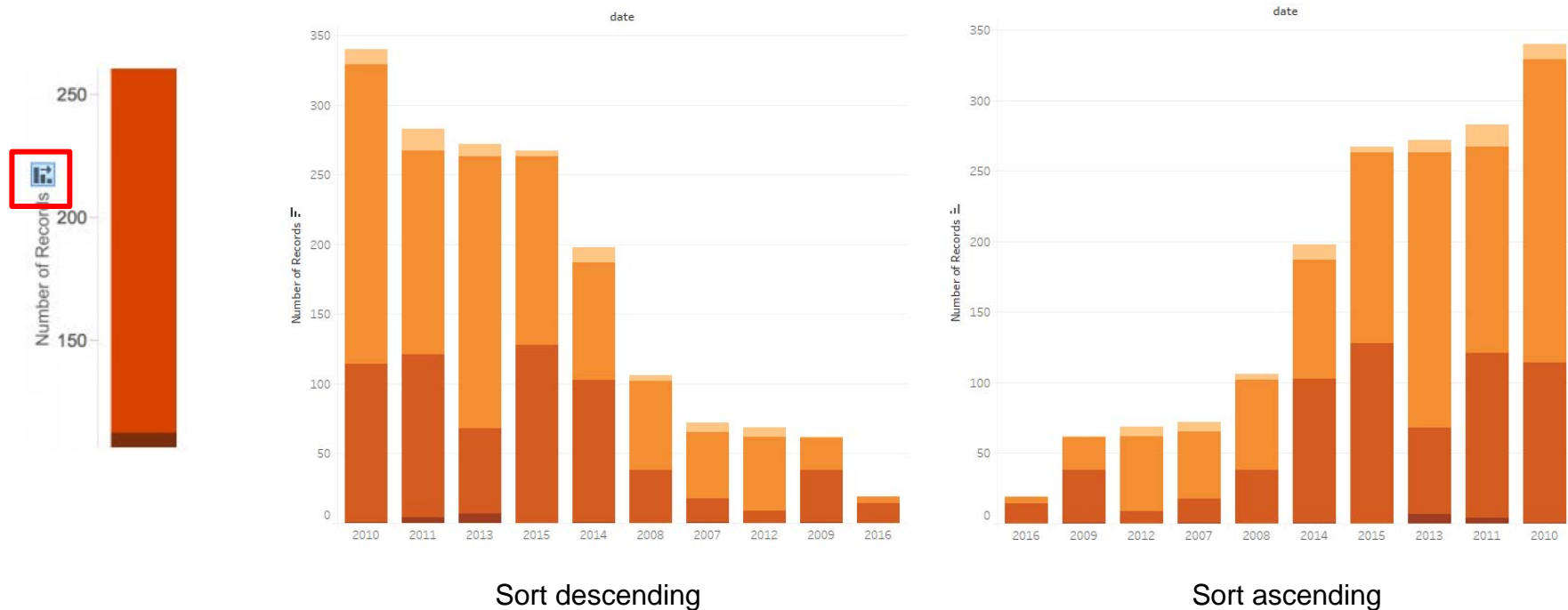
Marks & Appearance

- Click the **Color** or **Edit Colors** and the small triangle which is visibly when you mouse over and select **Edit Colors**
- Select **Orange** -> **Assign Palette** -> **Apply** -> **OK**
- It should look like this now! We can see that most of the Landslides are small or medium.



Marks & Appearance

- You can **sort** them now by clicking onto the small sort symbol right above the axis description.



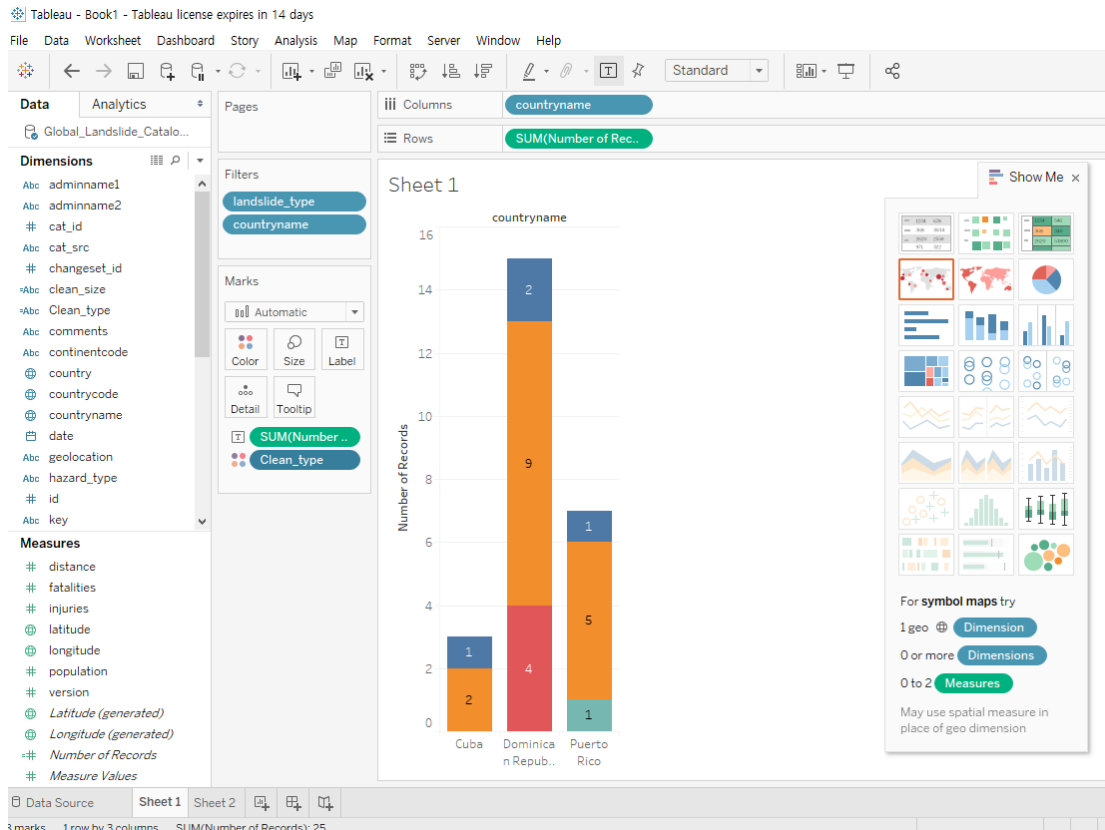
Hands-on

- Question: Which landslide types and how many of them happen in the Dominican Republic, Cuba and Puerto Rico?

Tips: Use Filters (hint - Quickfilter) and check the dimensions data quality

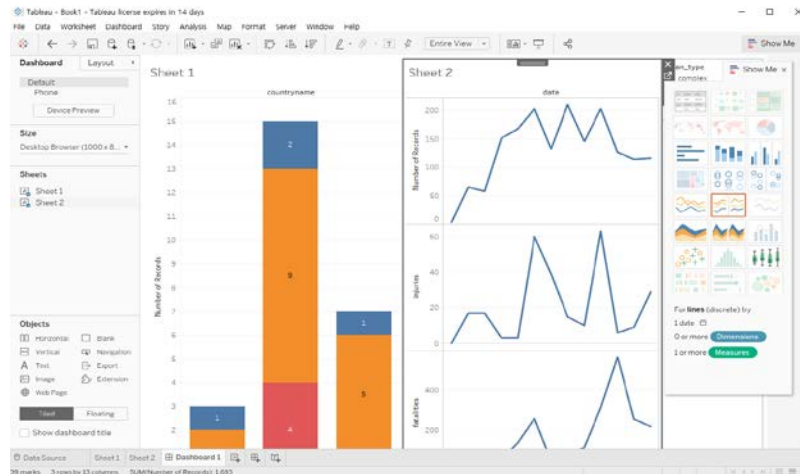
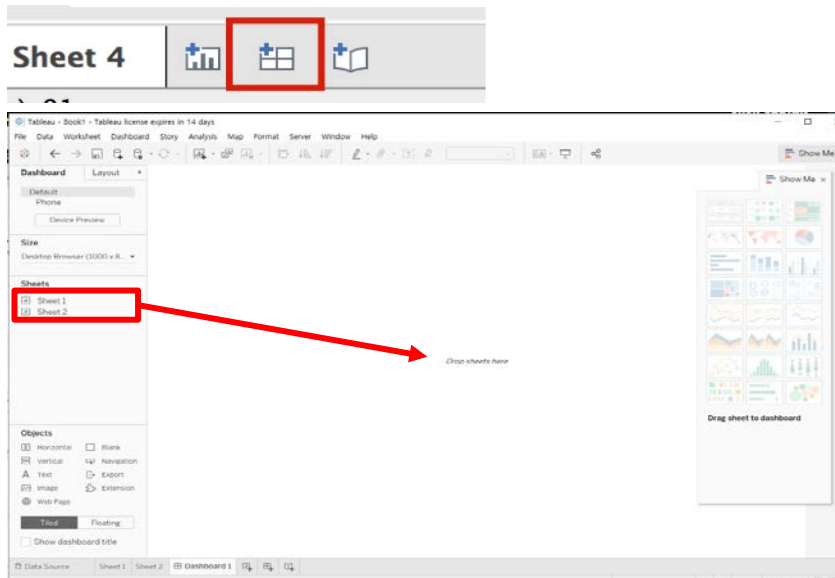
Hands-on

- One possible solution:



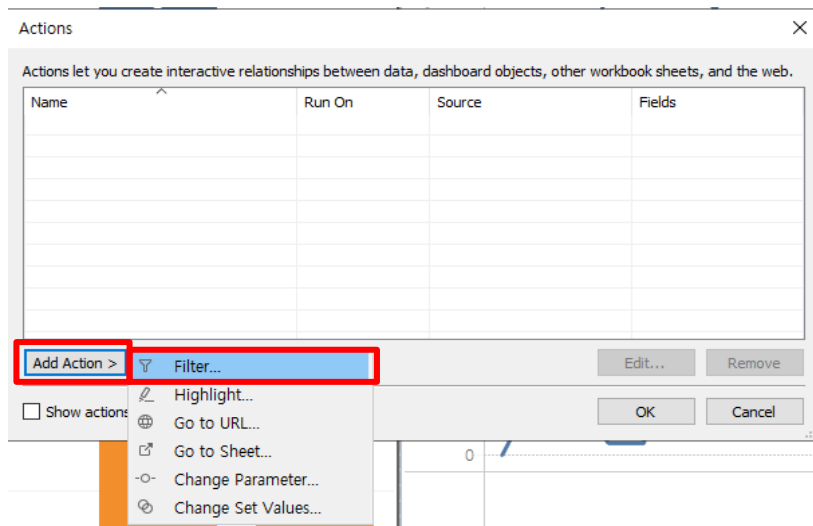
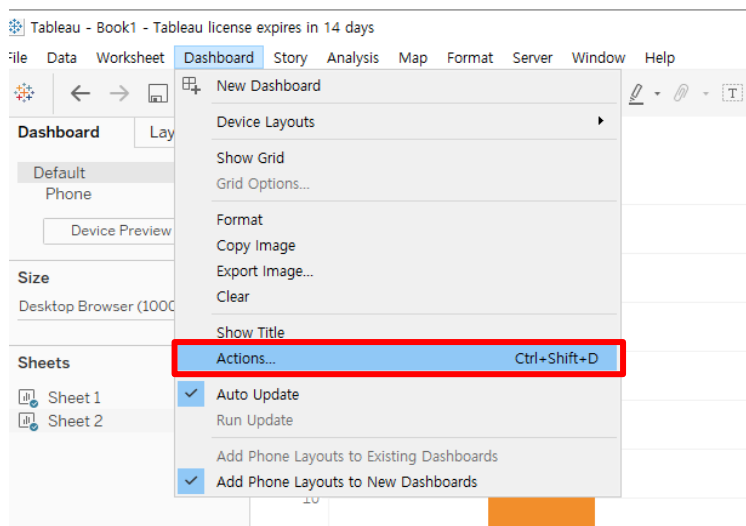
Dashboard

- A Dashboard connects multiple single views with each other.
- This allows for more complex questions to be analysed.
- To create a dashboard click the **new Dashboard button** at the bottom.
- Drag Sheets from the left side into the middle area:



Dashboard

- You can now define Dashboard wide actions like Filters and Highlights. We will add a filter so that can select in one view data and the second view will be updated accordingly. In the Dashboard, add a new Action by selecting Dashboard -> **Actions...**
- Add a new action with **Add Action >** and select **Filter...**



Dashboard

The screenshot shows the 'Add Filter Action' dialog box. It has a title bar with a close button. The 'Name' field contains 'Filter 1'. The 'Source Sheets' section has a dropdown for 'Dashboard 1' and a list with 'Sheet 1' and 'Sheet 2' checked. The 'Run action on:' section has three buttons: 'Hover', 'Select' (highlighted with a red arrow), and 'Menu'. There is an unchecked checkbox for 'Run on single select only'. The 'Target Sheets' section has a dropdown for 'Dashboard 1' and a list with 'Sheet 1' and 'Sheet 2' checked. The 'Clearing the selection will:' section has three radio buttons: 'Leave the filter' (selected), 'Show all values', and 'Exclude all values'. The 'Target Filters' section has two radio buttons: 'Selected Fields' and 'All Fields' (selected). Below this is a table with three columns: 'Source Field', 'Target Field', and 'Target Data Source'. At the bottom are buttons for 'Add Filter...', 'Edit...', 'Remove', 'OK', and 'Cancel'.

Source Field	Target Field	Target Data Source

● **Source Sheets** define the sheet where the filter action is recognised. In our case is Sheet 1 the source.

● **Run action on** let you select how the filtering should happen. In our case by selection.

● **Target Sheets** define the sheets where the filter will be applied

● **Clearing the selection** will provides option what happens when you clear the selection.

After Class Practice: Make the Conoronamap with Tableau

- **If you finish and upload (file name: “Covid.twb”) this exercise in the google classroom**
- **You will get extra participant score!!**
- **This task is not mandatory.**

Description of COVID-19 Dataset

- As the COVID-19 dataset, the dataset that was preprocessed (aggregation and cleaning) of the Johns Hopkins dataset that provides latitude, longitude, number of confirmed, death, and recover information for the world's state, province, and nationality by date is used. [Dataset link](#)
- Data preprocessing process will be practiced later in data visualization with python lecture
- Original Johns Hopkins dataset reference: Johns Hopkins dataset download link -> [dataset\(lastest update 03/29\)](#)

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Novel Coronavirus (COVID-19) Cases, provided by JHU CSSE <https://github.com/CSSEGISandData/COVID-19>

johns-hopkins-university systems-science engineering covid-19 2019-ncov coronavirus csse_jhu

448 commits 2 branches 0 packages 0 releases 4 contributors

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archived_data archived_data 17 hours ago

china_covid_19_data Update china_covid_19_data_github.io 17 hours ago

who_covid_19_situation_reports Add files via upload 2 days ago

github Update 2 months ago

README Update README.md 2 days ago

2019 Novel Coronavirus COVID-19 (2019-nCoV) Data Repository by Johns Hopkins CSSE

This is the data repository for the 2019 Novel Coronavirus Visual Dashboard operated by the Johns Hopkins University Center for Systems Science and Engineering (JHU CSSE). Also Supported by ESRI Living Atlas Team and the Johns Hopkins University Applied Physics Lab (JHU APL).

We will use this data for the practice

Confirmed

Province/State	Country/Region	Lat	Long	1/22/20	1/23/20
Afghanistan		33	65	0	0
Albania		41.1533	20.1683	0	0
Algeria		28.0339	1.6596	0	0
Andorra		42.5063	1.5218	0	0
Angola		-11.2027	17.8739	0	0
Antigua and Barbuda		17.0608	-61.7964	0	0
Argentina		-38.4161	-63.6167	0	0
Armenia		40.0691	45.0382	0	0
Australian Capital Territory	Australia	-35.4735	149.0124	0	0
New South Wales	Australia	-33.8688	151.2093	0	0
Northern Territory	Australia	-12.4634	130.8456	0	0
Queensland	Australia	-28.0167	153.4	0	0
South Australia	Australia	-34.9285	138.6007	0	0
Tasmania	Australia	-41.4545	145.9707	0	0
Victoria	Australia	-37.8136	144.9631	0	0
Western Australia	Australia	-31.9505	115.8605	0	0

Death

Province/State	Country/Region	Lat	Long	1/22/20	1/23/20
Afghanistan		33	65	0	0
Albania		41.1533	20.1683	0	0
Algeria		28.0339	1.6596	0	0
Andorra		42.5063	1.5218	0	0
Angola		-11.2027	17.8739	0	0
Antigua and Barbuda		17.0608	-61.7964	0	0
Argentina		-38.4161	-63.6167	0	0
Armenia		40.0691	45.0382	0	0
Australian Capital Territory	Australia	-35.4735	149.0124	0	0
New South Wales	Australia	-33.8688	151.2093	0	0
Northern Territory	Australia	-12.4634	130.8456	0	0
Queensland	Australia	-28.0167	153.4	0	0
South Australia	Australia	-34.9285	138.6007	0	0
Tasmania	Australia	-41.4545	145.9707	0	0

Recovered

Province/State	Country/Region	Lat	Long	1/22/20	1/23/20
Afghanistan		33	65	0	0
Albania		41.1533	20.1683	0	0
Algeria		28.0339	1.6596	0	0
Andorra		42.5063	1.5218	0	0
Angola		-11.2027	17.8739	0	0
Antigua and Barbuda		17.0608	-61.7964	0	0
Argentina		-38.4161	-63.6167	0	0
Armenia		40.0691	45.0382	0	0
Australian Capital Territory	Australia	-35.4735	149.0124	0	0
New South Wales	Australia	-33.8688	151.2093	0	0
Northern Territory	Australia	-12.4634	130.8456	0	0
Queensland	Australia	-28.0167	153.4	0	0
South Australia	Australia	-34.9285	138.6007	0	0
Tasmania	Australia	-41.4545	145.9707	0	0

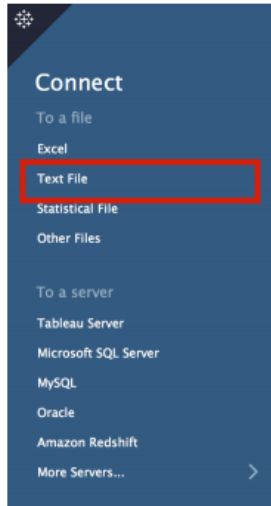
Data preprocessing
(aggregation and cleaning)

Aggregated data (Confirmed, Death, Recovered)

State	Country	Lat	Long	Date	Confirmed	Death	Recovered
0	Afghanistan	33	65	2020-01-22	0	0	0
1	Albania	41.1533	20.1683	2020-01-22	0	0	0
2	Algeria	28.0339	1.6596	2020-01-22	0	0	0
3	Andorra	42.5063	1.5218	2020-01-22	0	0	0
4	Angola	-11.2027	17.8739	2020-01-22	0	0	0
5	Antigua and Barbuda	17.0608	-61.7964	2020-01-22	0	0	0
6	Argentina	-38.4161	-63.6167	2020-01-22	0	0	0
7	Armenia	40.0691	45.0382	2020-01-22	0	0	0
8	Australian Capital Territory	-35.4735	149.0124	2020-01-22	0	0	0
9	New South Wales	-33.8688	151.2093	2020-01-22	0	0	0
10	Northern Territory	-12.4634	130.8456	2020-01-22	0	0	0
11	Queensland	-28.0167	153.4	2020-01-22	0	0	0
12	South Australia	-34.9285	138.6007	2020-01-22	0	0	0

Exercise the Tableau with COVID-19 Dataset

Loading Data



The first step to the visualization is to load the data. On the left side of the screen in the section **To a File** choose **Text File**. This way you can open the .csv file.

After you have selected the data file, you will see an initial table representation of your data. For the data entries to appear, you might have to click **Update Now**.

The screenshot shows the Tableau interface with the 'coronadata.csv' file loaded. The table view displays columns: F1, State, Country, Lat, Long, Date, Confirmed, Death, and Recovered. The 'Go to Worksheet' button is highlighted with a red box and an arrow pointing to it from the text 'Click the worksheet'.

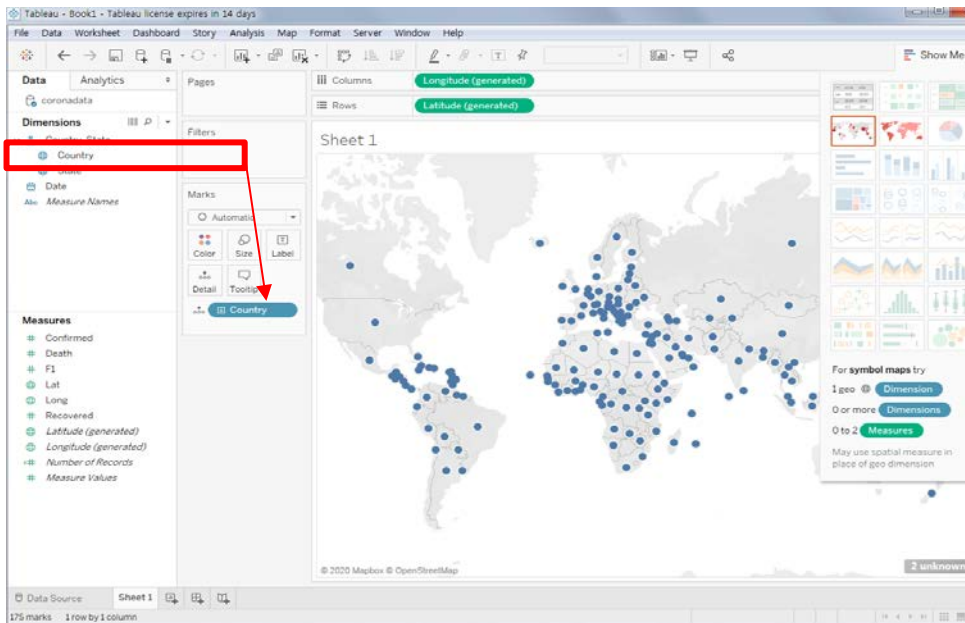
F1	State	Country	Lat	Long	Date	Confirmed	Death	Recovered
0	null	Afghanistan	33.000	65.000	2020-01-22	0.000	0.0000	0.0000
1	null	Albania	41.153	20.168	2020-01-22	0.000	0.0000	0.0000
2	null	Algeria	28.034	1.660	2020-01-22	0.000	0.0000	0.0000
3	null	Andorra	42.506	1.522	2020-01-22	0.000	0.0000	0.0000
4	null	Angola	-11.203	17.874	2020-01-22	0.000	0.0000	0.0000
5	null	Antigua and Barbuda	17.061	-61.796	2020-01-22	0.000	0.0000	0.0000
6	null	Argentina	-38.416	-63.617	2020-01-22	0.000	0.0000	0.0000
7	null	Armenia	40.069	45.038	2020-01-22	0.000	0.0000	0.0000
8	Australian Capital Ter...	Australia	-35.474	149.012	2020-01-22	0.000	0.0000	0.0000
9	New South Wales	Australia	-33.869	151.209	2020-01-22	0.000	0.0000	0.0000
10	Northern Territory	Australia	-12.463	130.846	2020-01-22	0.000	0.0000	0.0000

Click the
worksheet

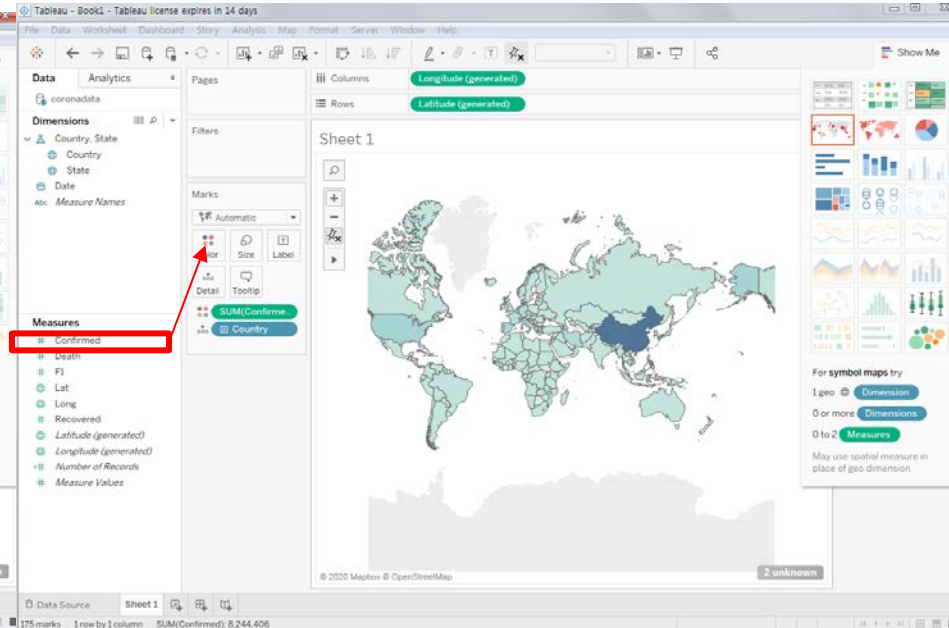
Tableau evaluates automatically what data type is in each column. Always check if the automatic data types are correct by controlling the column headers marked in the figure above.

Exercise the Tableau with COVID-19 Dataset

Drag the country in the “Dimensions” of the sidebar and drop it on the “Marks” to mark each country

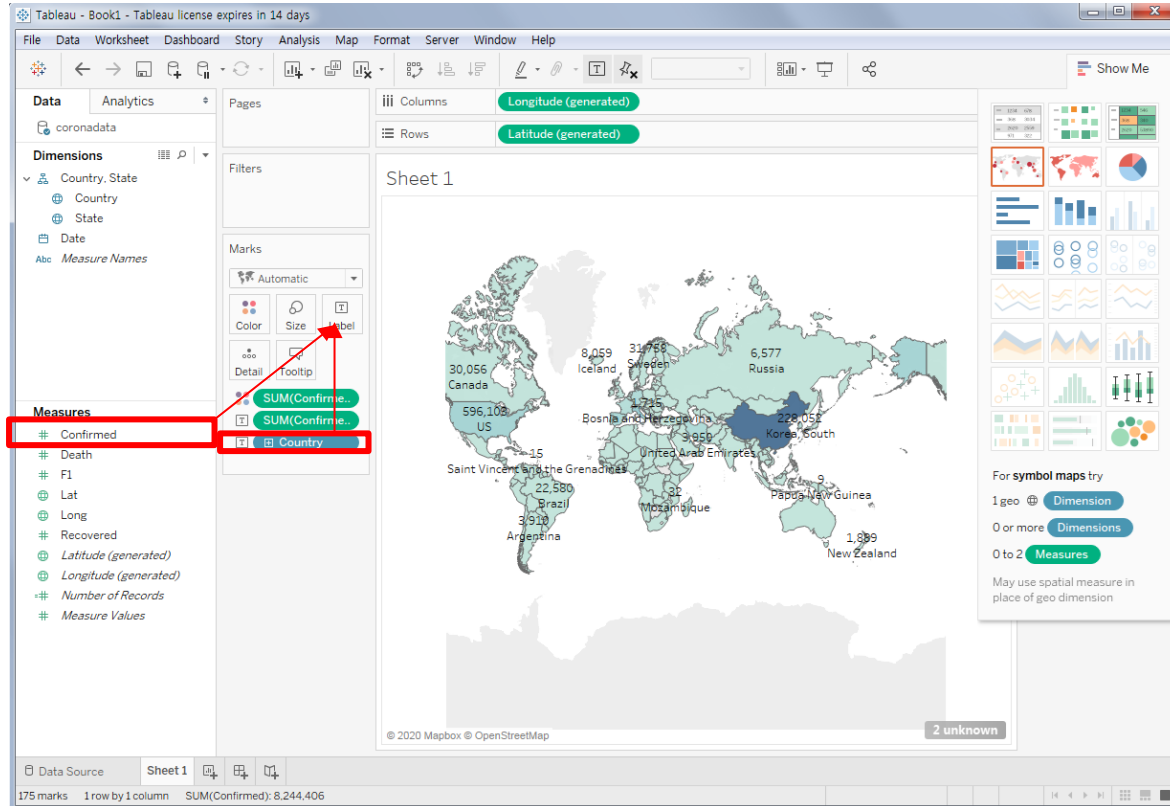


Drag Sum of Confirmed and drop it on the “Color of Marks”. Depending on the number of total confirmed people, the intensity of the color (light to dark) is different for each country.



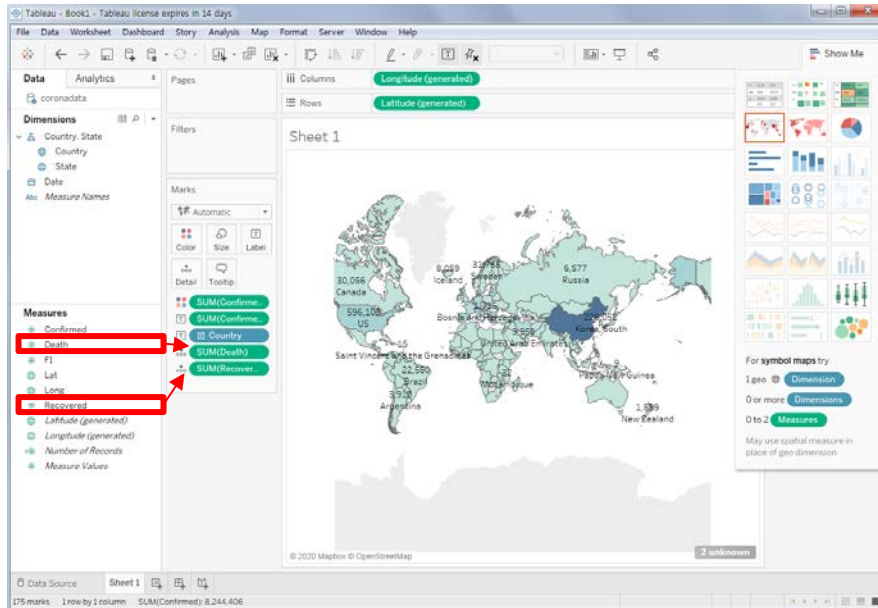
Exercise the Tableau with COVID-19 Dataset

Drag and drop “Country in Measure” and “Sum of Confirmed in Marks” to the “Label in Marks”, then we can label the country name and number of confirmed in corona map.

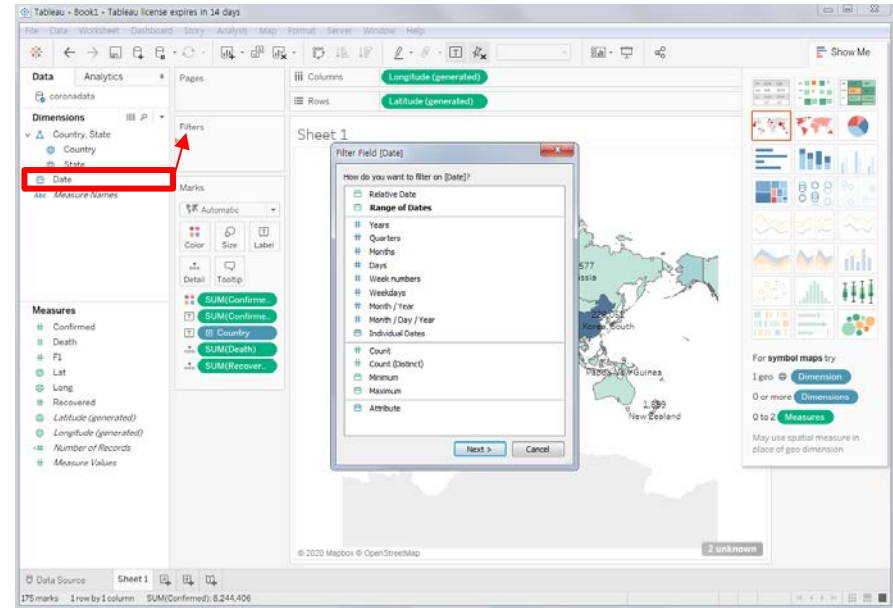


Exercise the Tableau with COVID-19 Dataset

We also add “sum of Death” and “sum of Recovered” in Marks



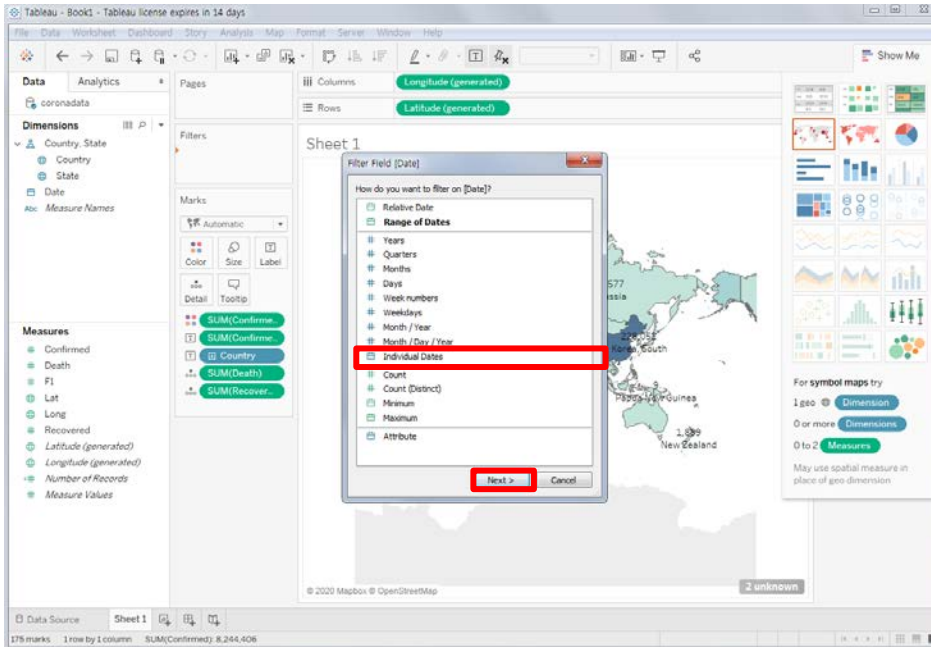
The current map shows the total number of confirmed for the entire date. If you want to see the number of confirmed, death, and recover for a specific date period or country, you can use the filter function.



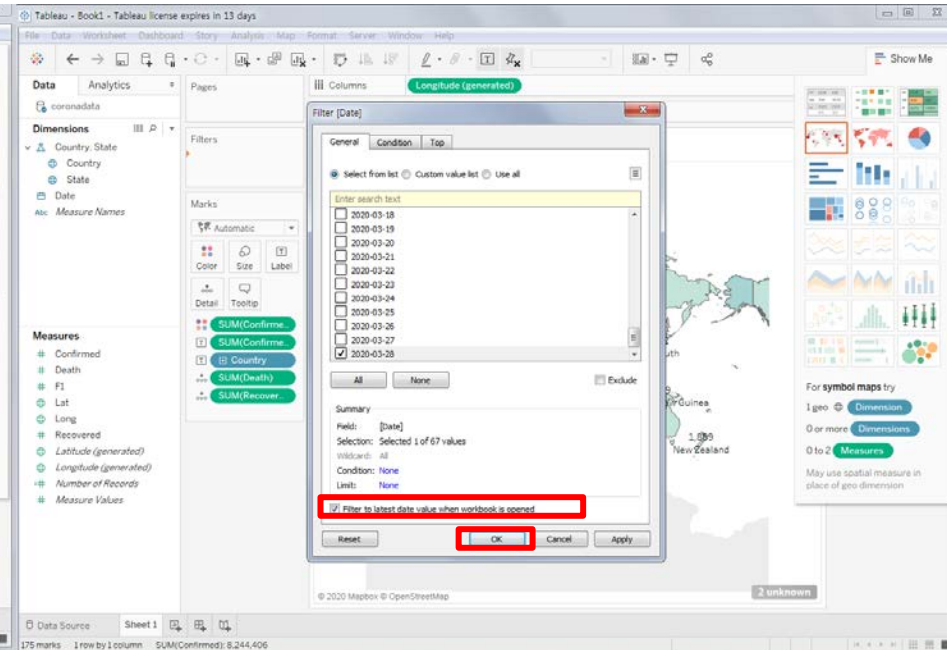
As an example, let's look at the number of confirmers by country for a specific date. Just put the “date in Dimensions” into the “Filters.”

Exercise the Tableau with COVID-19 Dataset

Click “Individual Dates” in the pop-up window of Filter Field [Date] to see the number of confirmers according to the date.

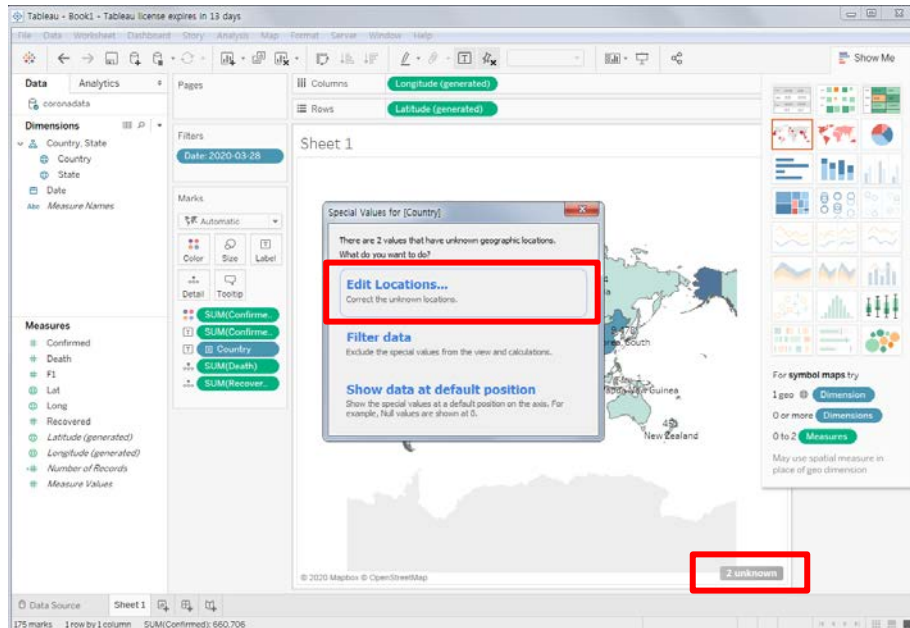


Click “Filter to latest date value when workbook is opened” at the bottom to see the number of confirmed for the most recent date of data, the last date of March 28, 2020.

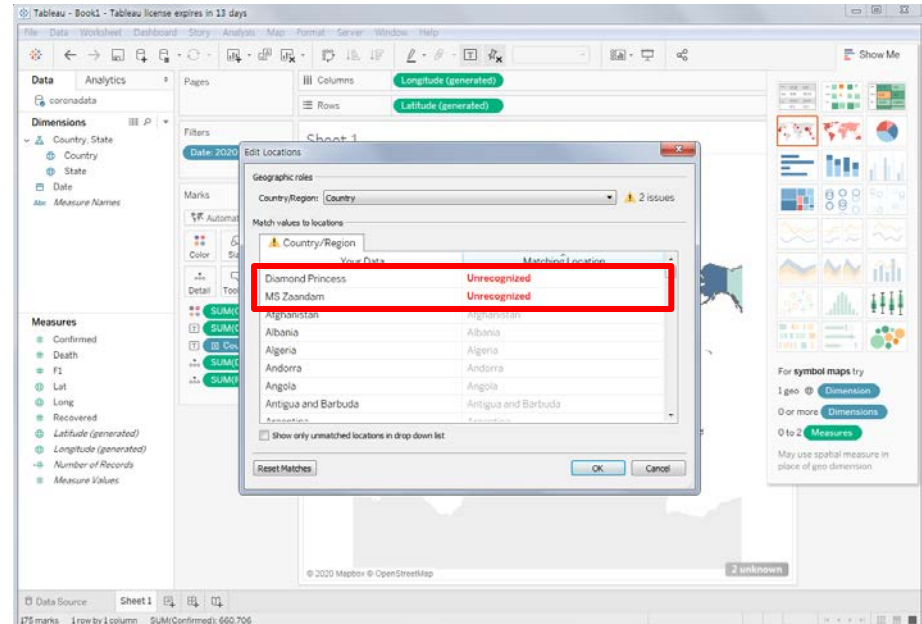


Exercise the Tableau with COVID-19 Dataset

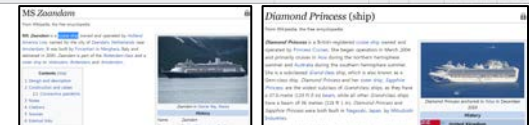
There are two values that have unknown geographic locations, so click “2 unknown” and click the “edit locations” to fix the name.



As a result, we can see that diamond princess and MS zaandam are unrecognized.

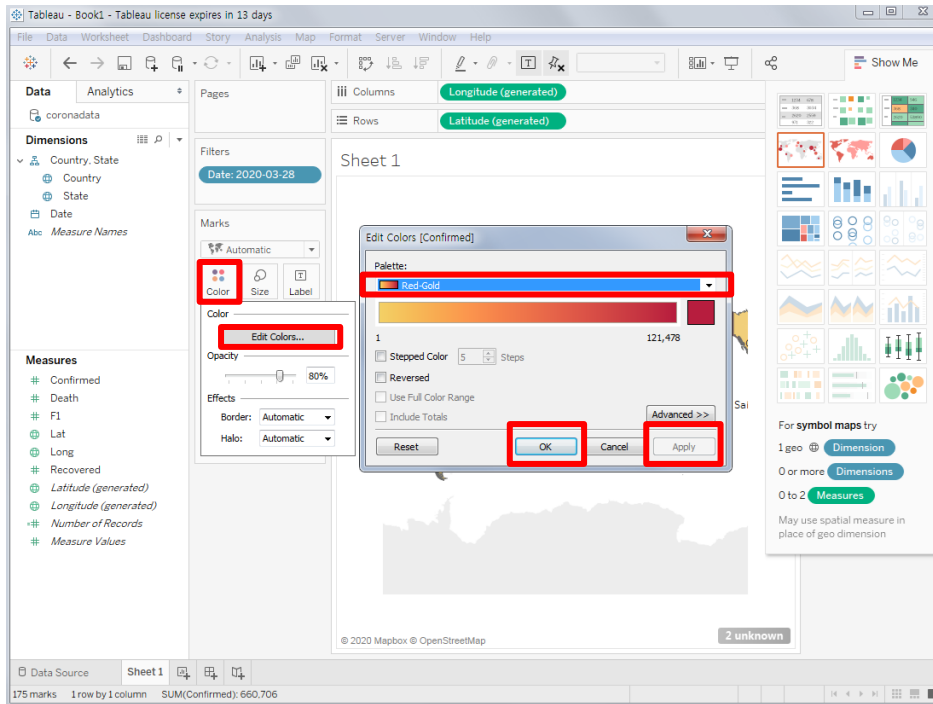


Diamond princess and MS zaandam are cruise ships, so leave the name of territory unchanged.

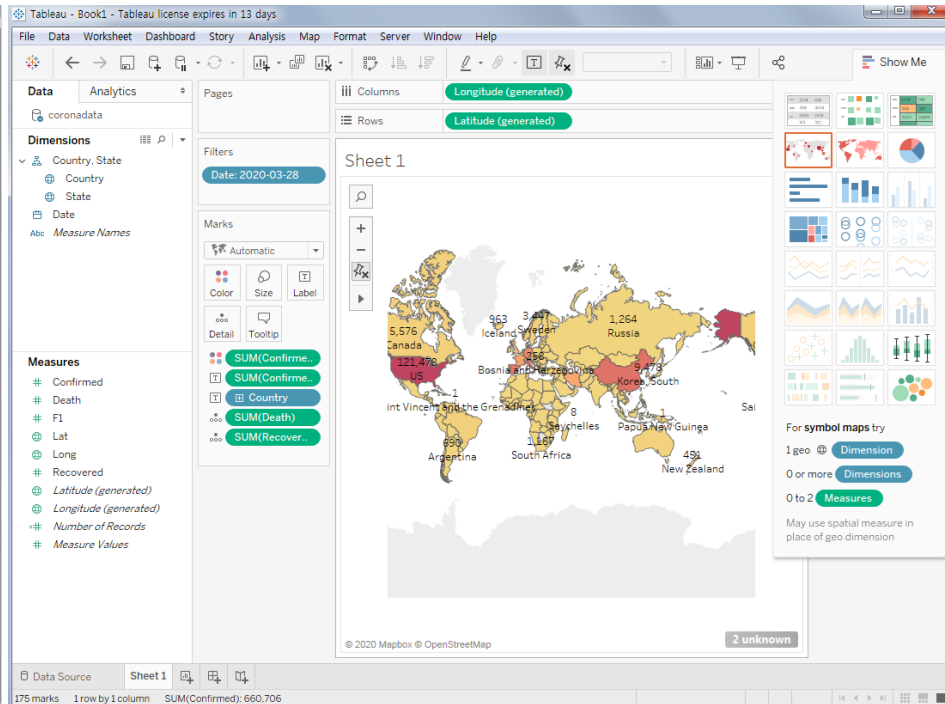


Exercise the Tableau with COVID-19 Dataset

If you want to change the color of the map, click “Color in Marks”, select Edit Colors, select the color you want from “Palette”, click “Apply”, then click “OK”.

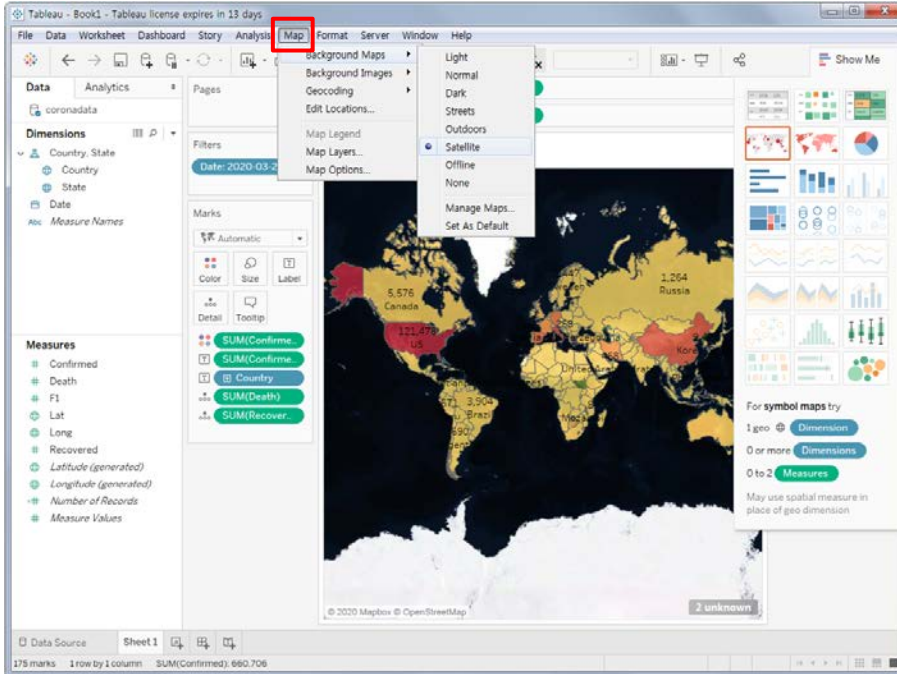


You can see that the color has changed to Red-Gold as shown below.

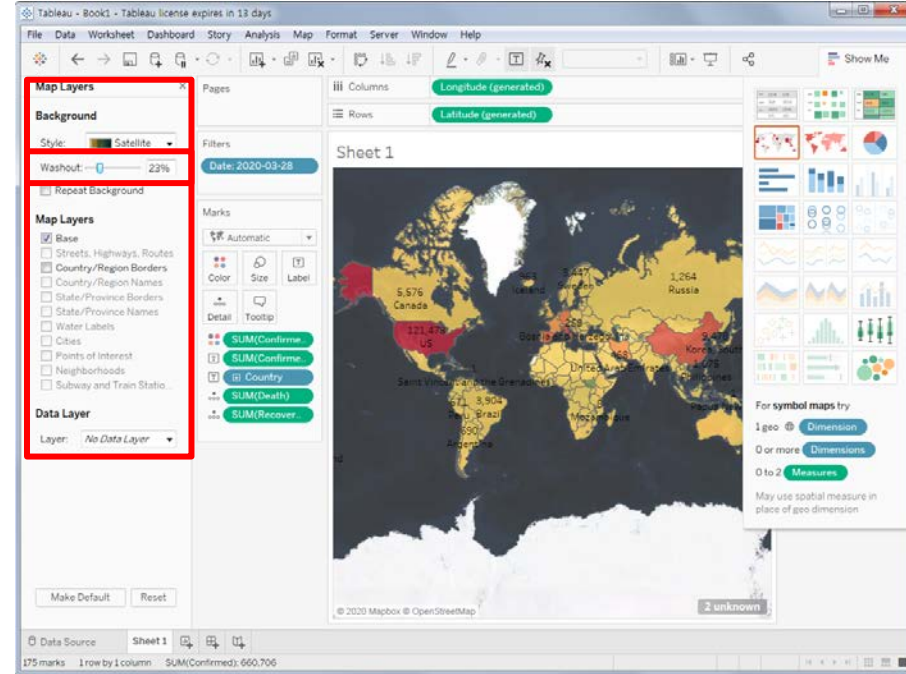


Exercise the Tableau with COVID-19 Dataset

We can change the background of the “Map” by pressing the “Map” button and selecting “Background Maps”. Let's change the map background to Satellite.



When we click the Map layers button, we can adjust the Background, Map layers, and Data layers on the left. Adjust the Background Washout to **23%**.

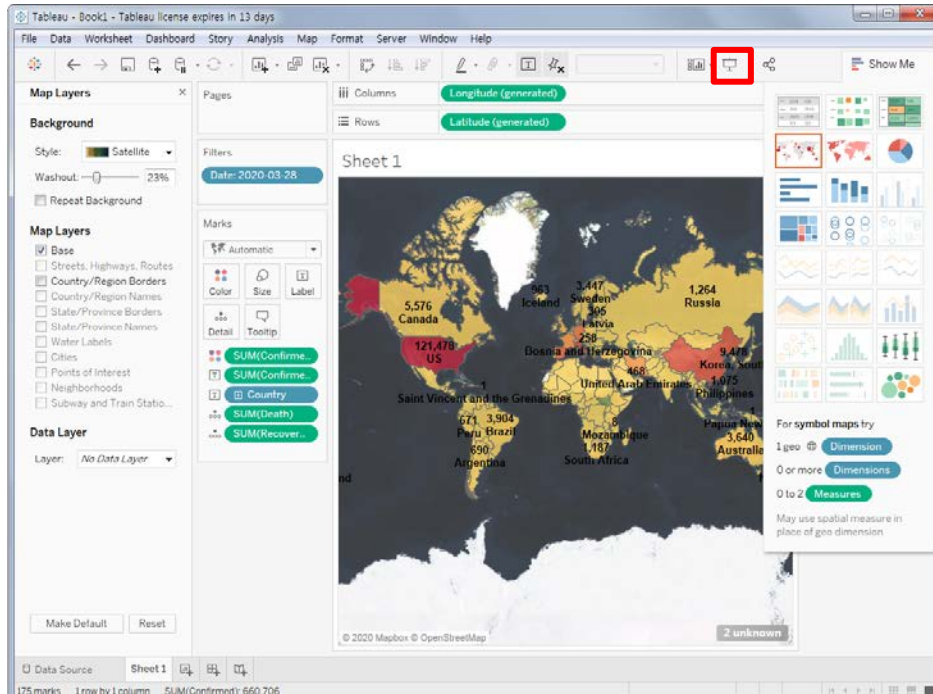
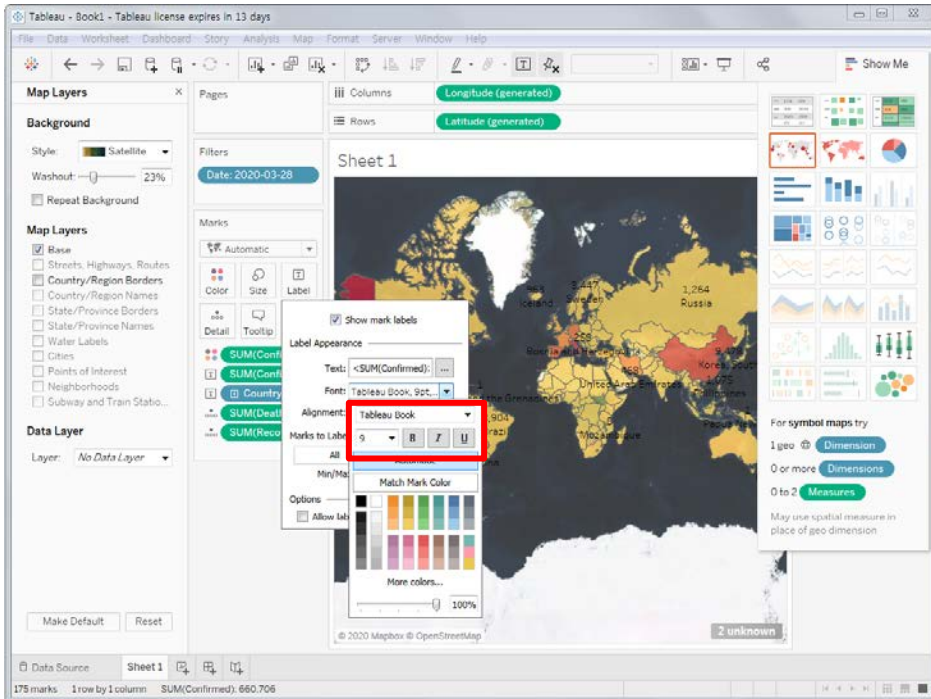


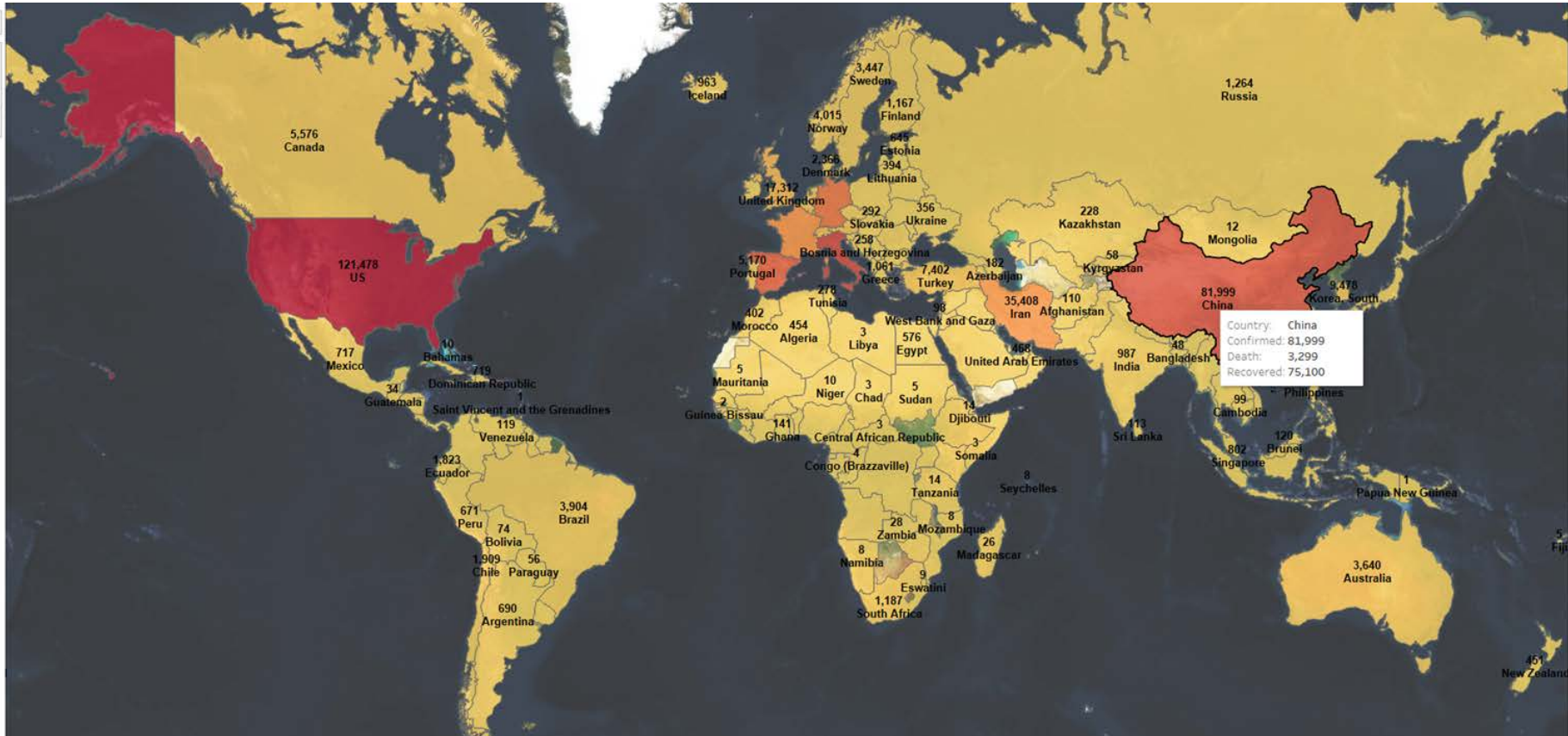
Exercise the Tableau with COVID-19 Dataset

You can change "Text", "Font", and "Alignment" in "Label in Marks".

Let's Change the **Label Font** from "Tableau Book" to "Arial" and the **text size** from 9 to 10.

You can also watch the result with Presentation



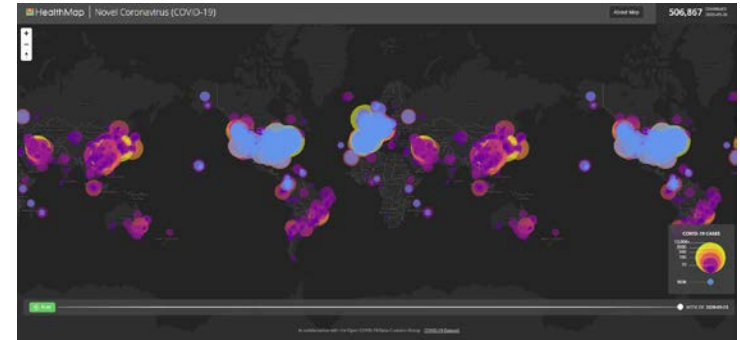


Reference Materials

You can also make COVID - 19 dashboard with Tableau. Many institutions already are using Tableau for making Dashboard (link include)



[Johns Hopkins Center for Systems Science and Engineering \(CSSE\)](#)



[HealthMap \(Harvard/Boston/Northeastern/Oxford Martin School\) animated dashboard](#)



[World Health Organization \(WHO\) COVID-19 dashboard](#)

Reference Text Books

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