AGENDA

1. Operations on Variables - Basic Calculations
2. LOD calculations, Area charts, Waterfall, Histogram
3. Funnel chart and Maps

Data Science Academy

I

Operations on Variables - Basic Calculations

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Operations on variables

Why we use a calculated field ?

- Data Segmentation
- Filtering results
- Data Aggregation
- Ratio Calculations
- Converting data type of fields

Bütün hüquqlar qorunur.

Operations on variables

Types of calculation:

Basic calculations

Allow you to transform values at the data source level and the visualization level.

Level of Detail (LOD) expressions

Allow you to compute values at the data source level and the visualization level.

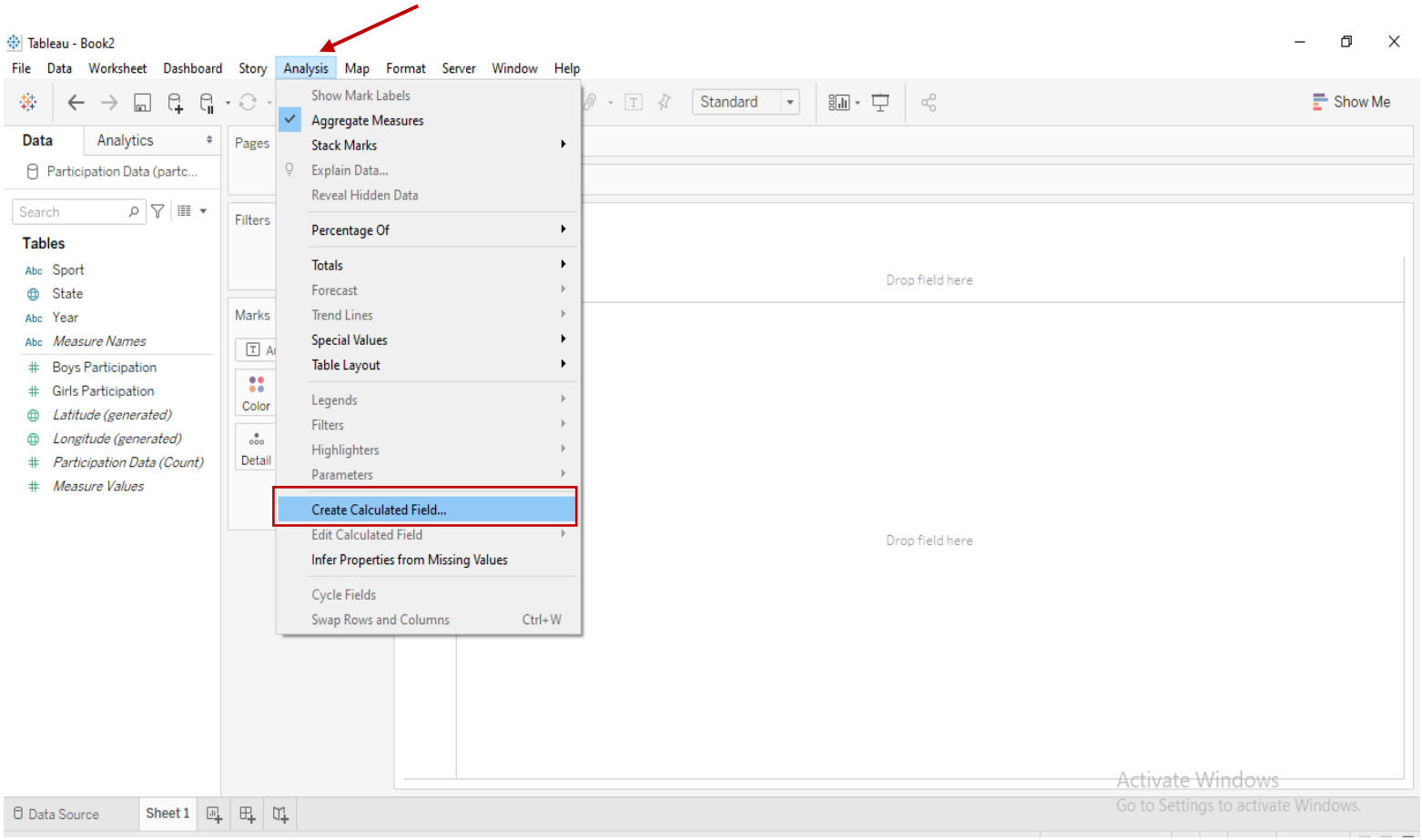
Table calculations

Allow you to compute values at the visualization level only.

Bütün hüquqlar qorunur.

Basic calculation

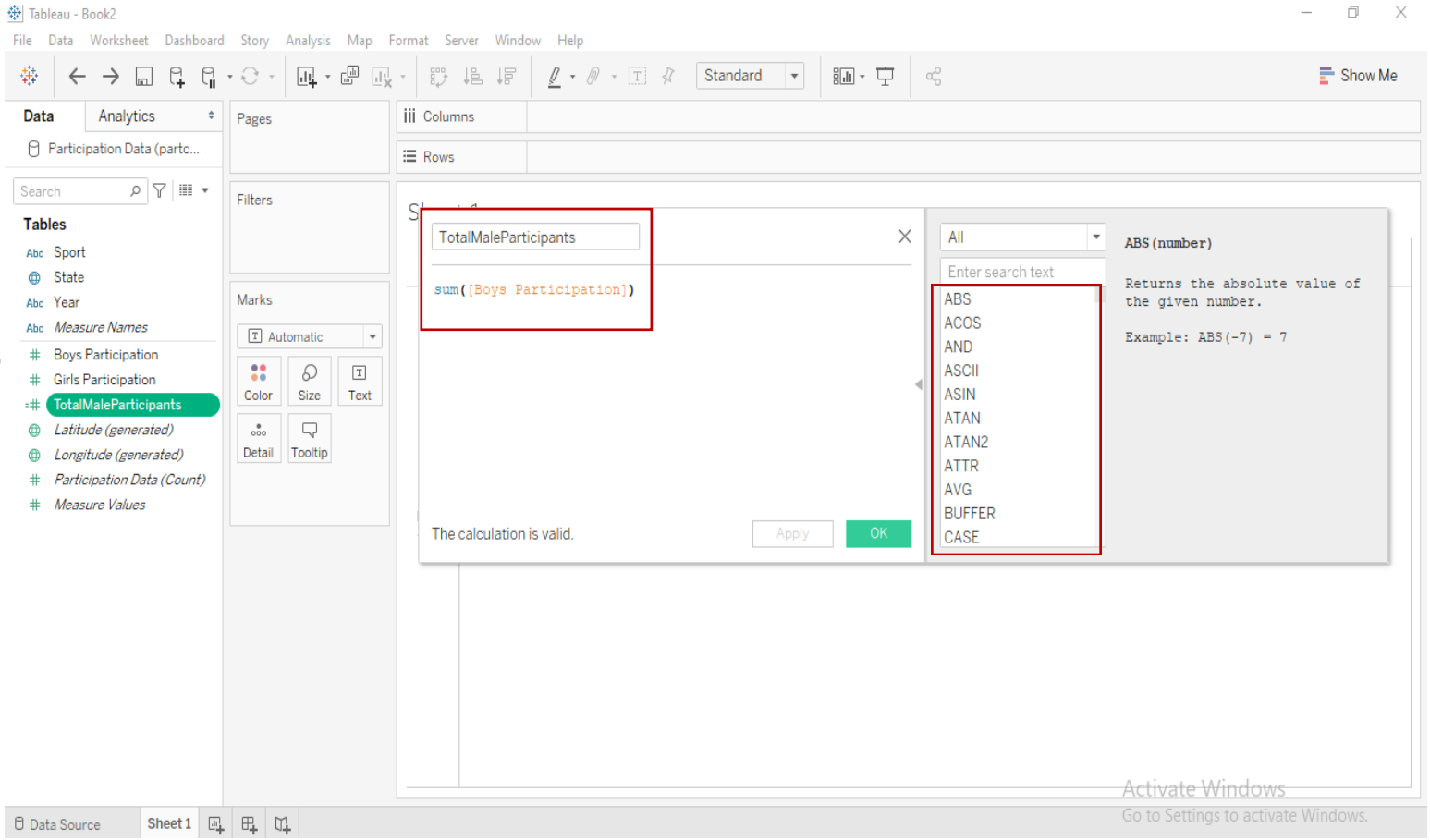
- Select **Analysis** from menu
- Select **“Create Calculated Field”**



Bütün hüquqlar qorunur.

Basic calculation

- Highlighted area lists formulas
- Change the name to the “TotalMaleParticipants”
- Type “sum([Boys participation])”
- Click OK



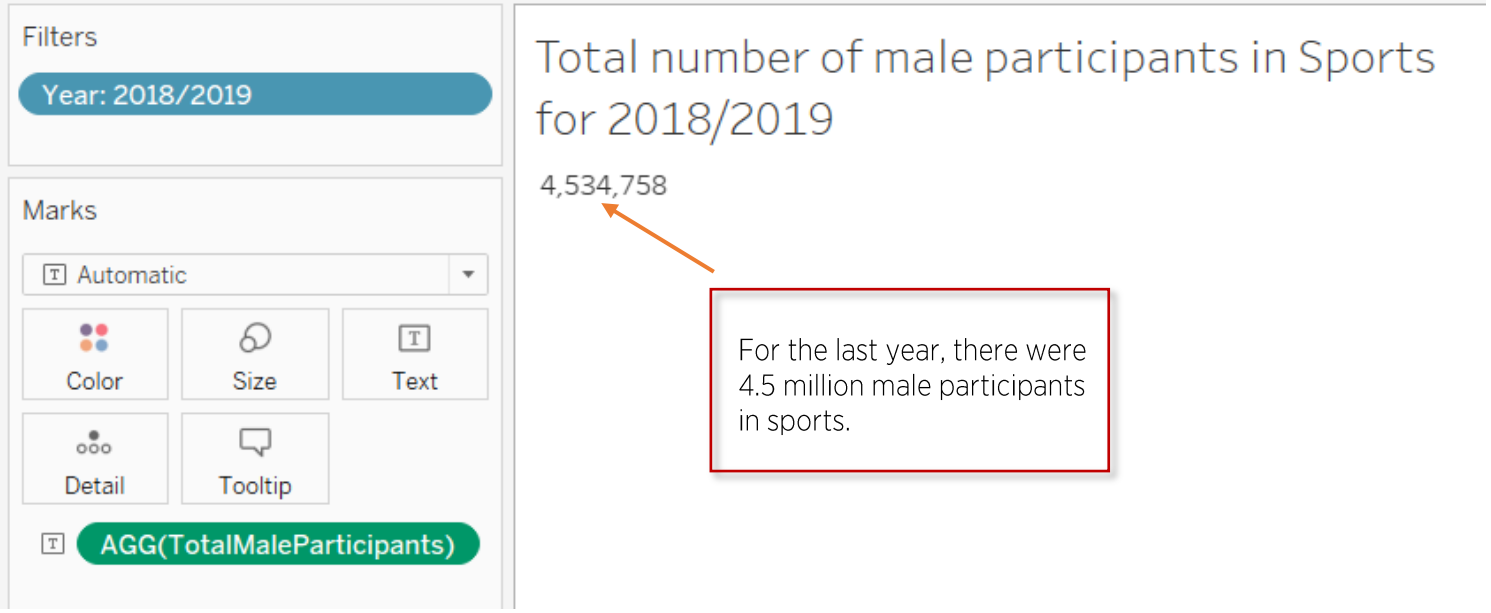
Bütün hüquqlar qorunur.

Calculated Fields - SUM

TotalMaleParticipants

```
SUM([Boys Participation])
```

- SUM is a function used to add the values in the rows of a column.



Bütün hüquqlar qorunur.

Calculated Fields - IF

To specify a condition in our calculation, use the IF function.

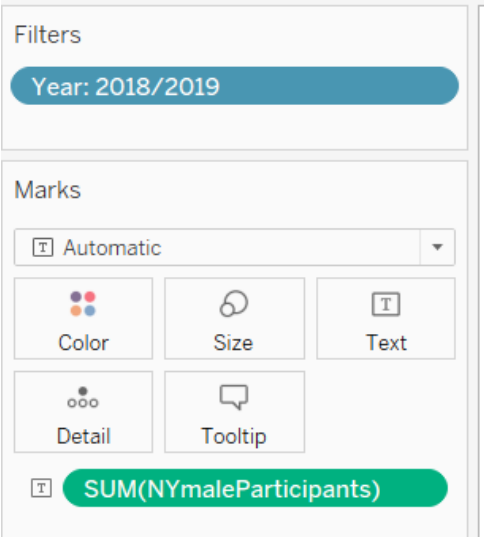
IF function test the condition and depending upon the condition result it will return the output

Example: We only want to sum New York participants

NYmaleParticipants

```
IF [State] = 'NY' THEN [Boys Participation] END
```

If the state is New York, then calculate using those values.



Total number of male participants in Sports for 2018/2019 NY

197,505

Bütün hüquqlar qorunur.

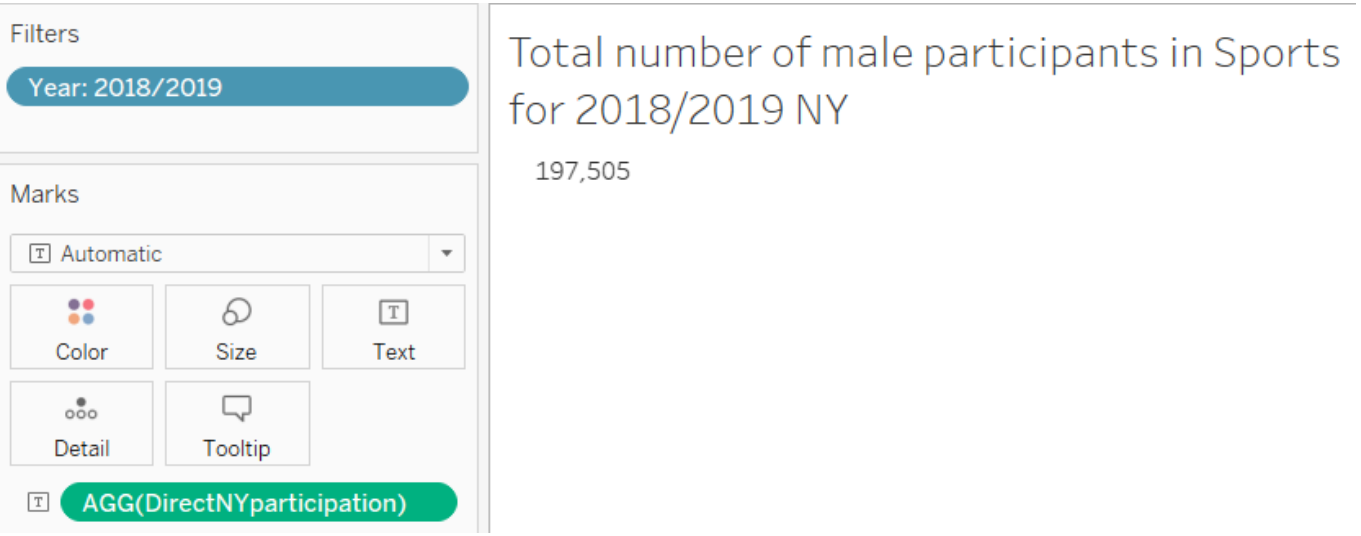
Calculated Fields – SUM IF

- To find amount of NY male sport participants use SUM IF method

DirectNYparticipation

```
SUM(IF [State] = 'NY' then [Boys Participation] END)
```

- Now our calculation is in pre-defined SUM aggregation method, we can't change it to any other aggregation.



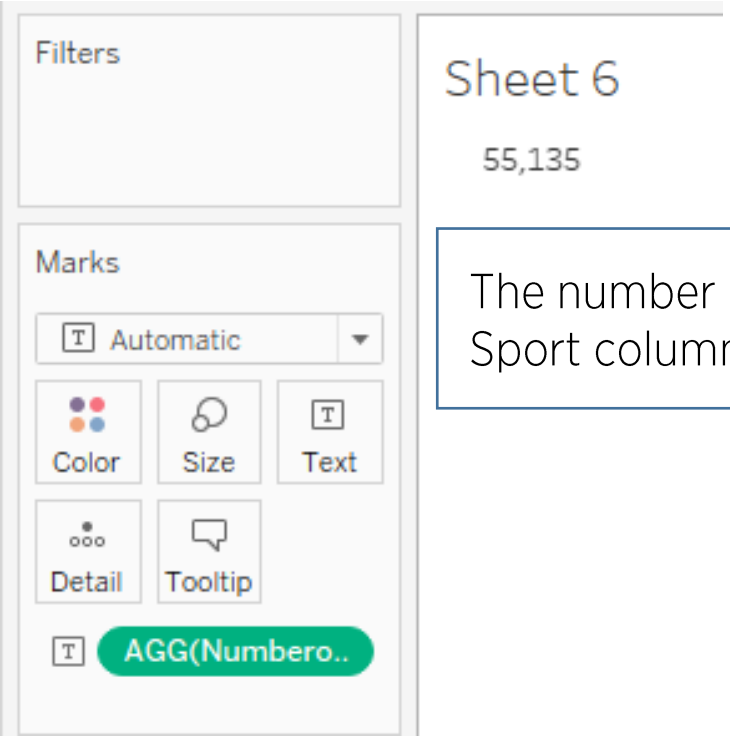
Bütün hüquqlar qorunur.

Calculated Fields - COUNT

- **Count** function is used to find how many values(rows) are in a column.

NumberofSports

```
COUNT([Sport])
```

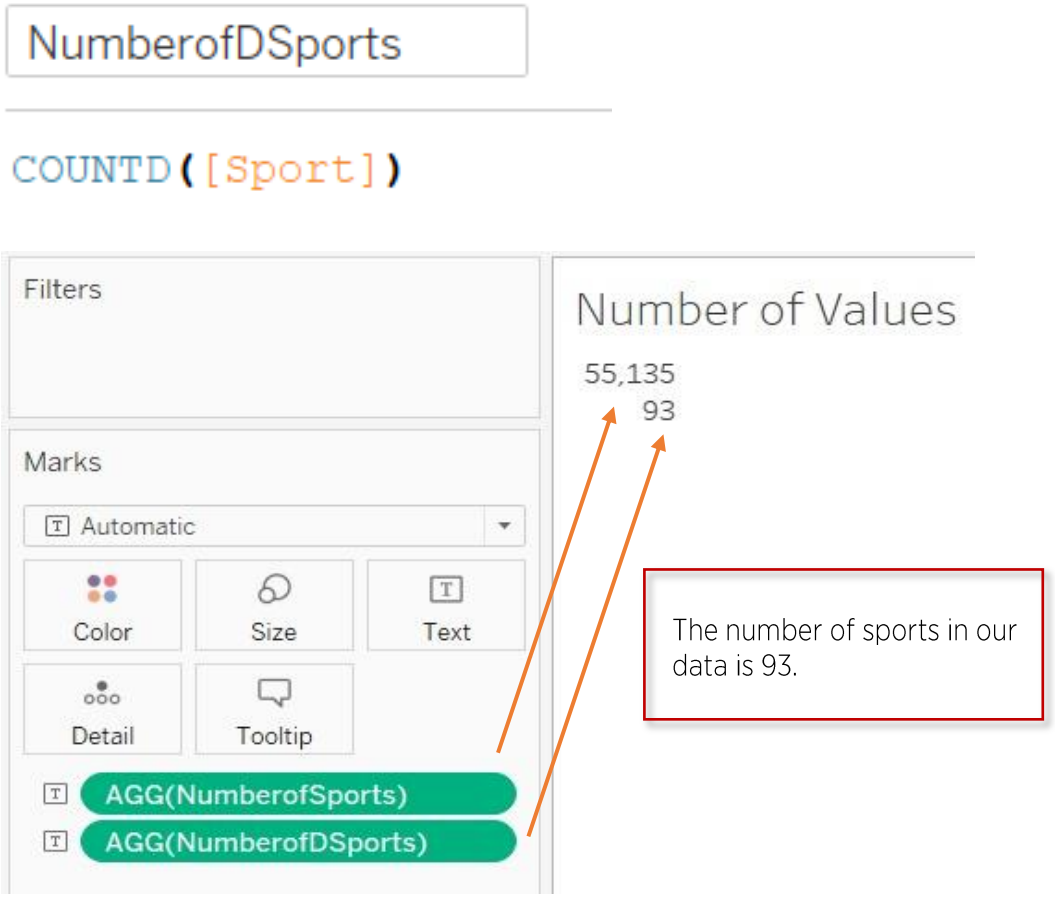


The number of rows in Sport column is 55,135

Bütün hüquqlar qorunur.

Calculated Fields - COUNTD

- There are same Sport values for each year and state, meaning there are duplicates.
- To get rid of duplicates and see exact number of sports, use COUNTD function to count each value once.



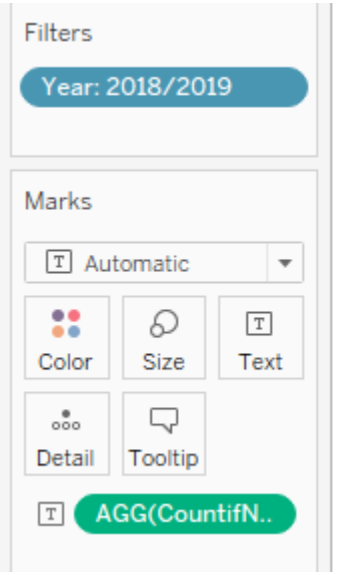
Bütün hüquqlar qorunur.

Calculated Fields – COUNTD IF

- To find the number of sports that NY male players participated make a calculation using COUNTD IF.
- In the state of New York, there were 23 active sports that boys participated in over 2018/2019 season.

CountIfNYMale

```
COUNTD(if [State] = 'NY' and [Boys Participation] > 0 then [Sport] END)
```



Count of Sports above 0 participation by NY boys

23

Bütün hüquqlar qorunur.

II

LOD calculations, Area charts, Waterfall, Histogram

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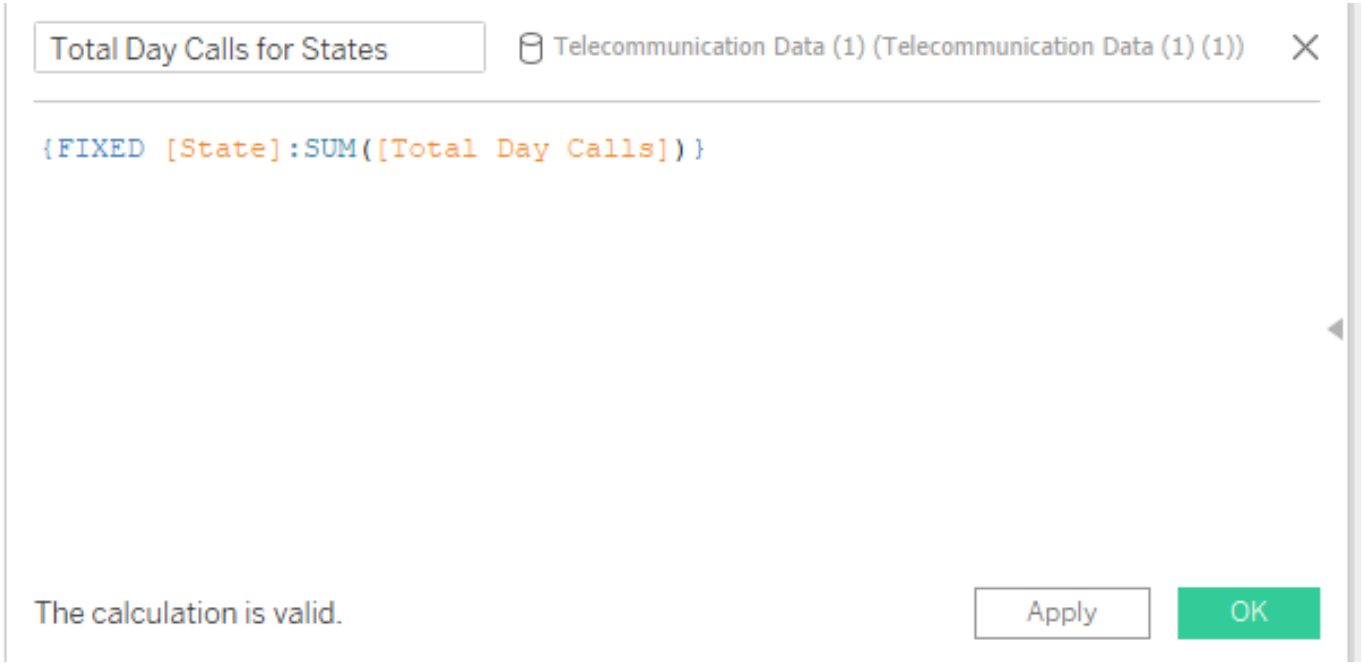
Level of Detail (LOD) expressions

- Select Analysis from menu
- Select Create Calculated Field
- Type
  {FIXED [State] : [Sum([Total Day Calls])}
- Select OK

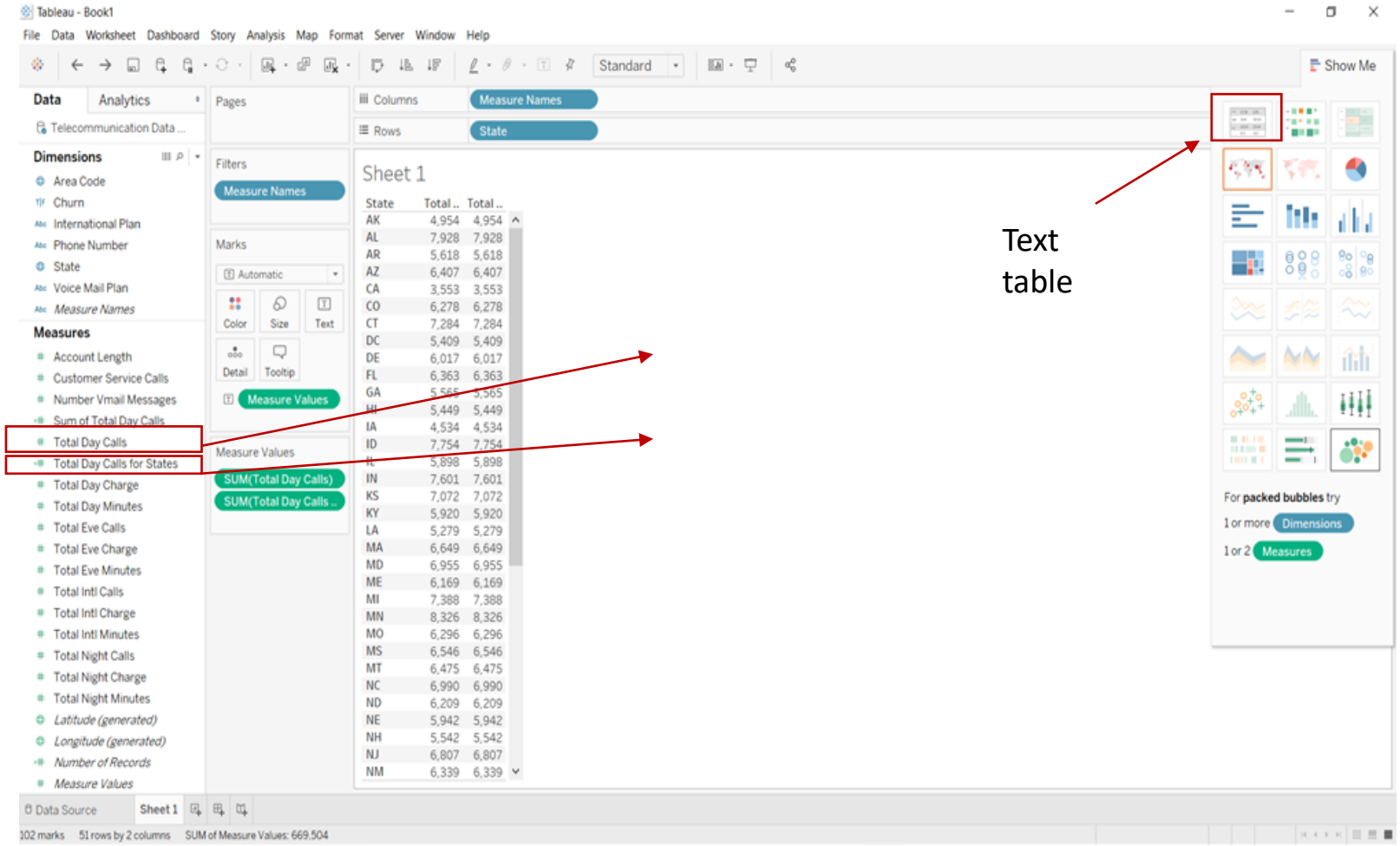
FIXED level of detail expressions compute a value using the specified dimensions, without reference to the dimensions in the view.



Bütün hüquqlar qorunur.

Level of Detail (LOD) expressions

- Drag *State* to **Rows** and change view to *Text table* from the "**Show Me**" area
- Drag *Total Day Calls* and *Total Day Calls for States* variables into the view

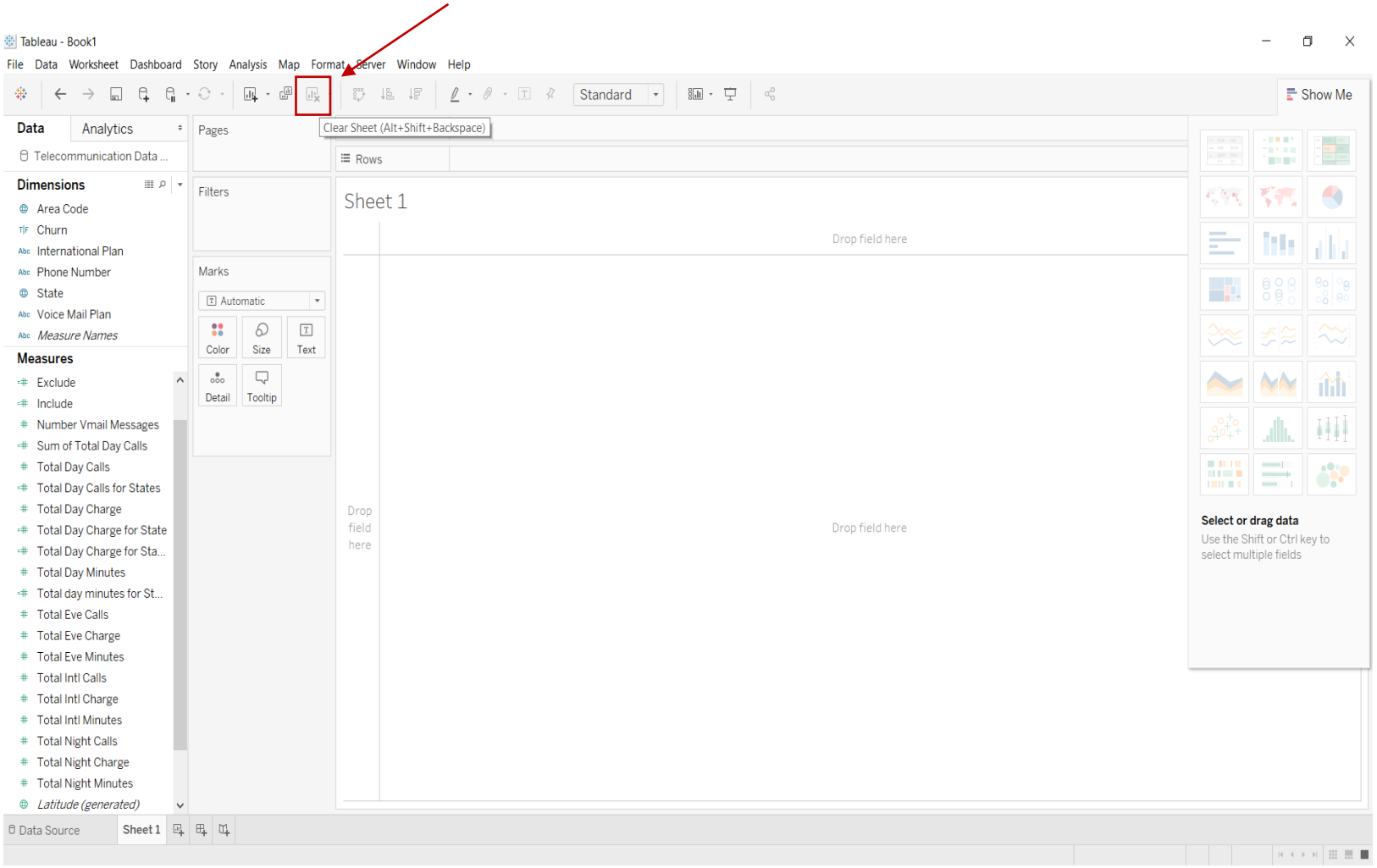


Bütün hüquqlar qorunur.

Area Chart

Clearing sheet:

- To clear sheet you can click highlighted icon or press *Alt + Shift + Backspace*

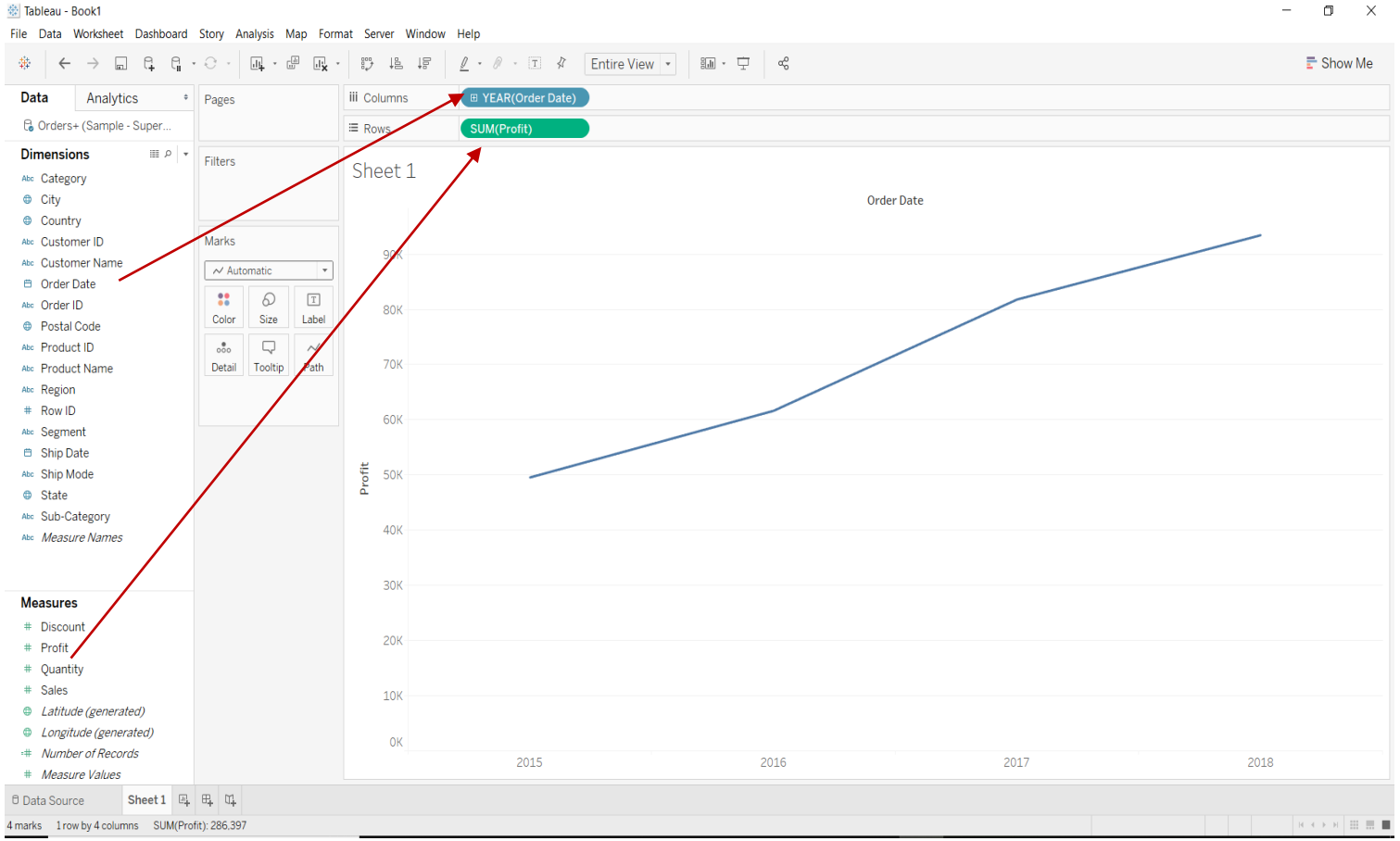


Bütün hüquqlar qorunur.

Area Chart

Working on area charts:

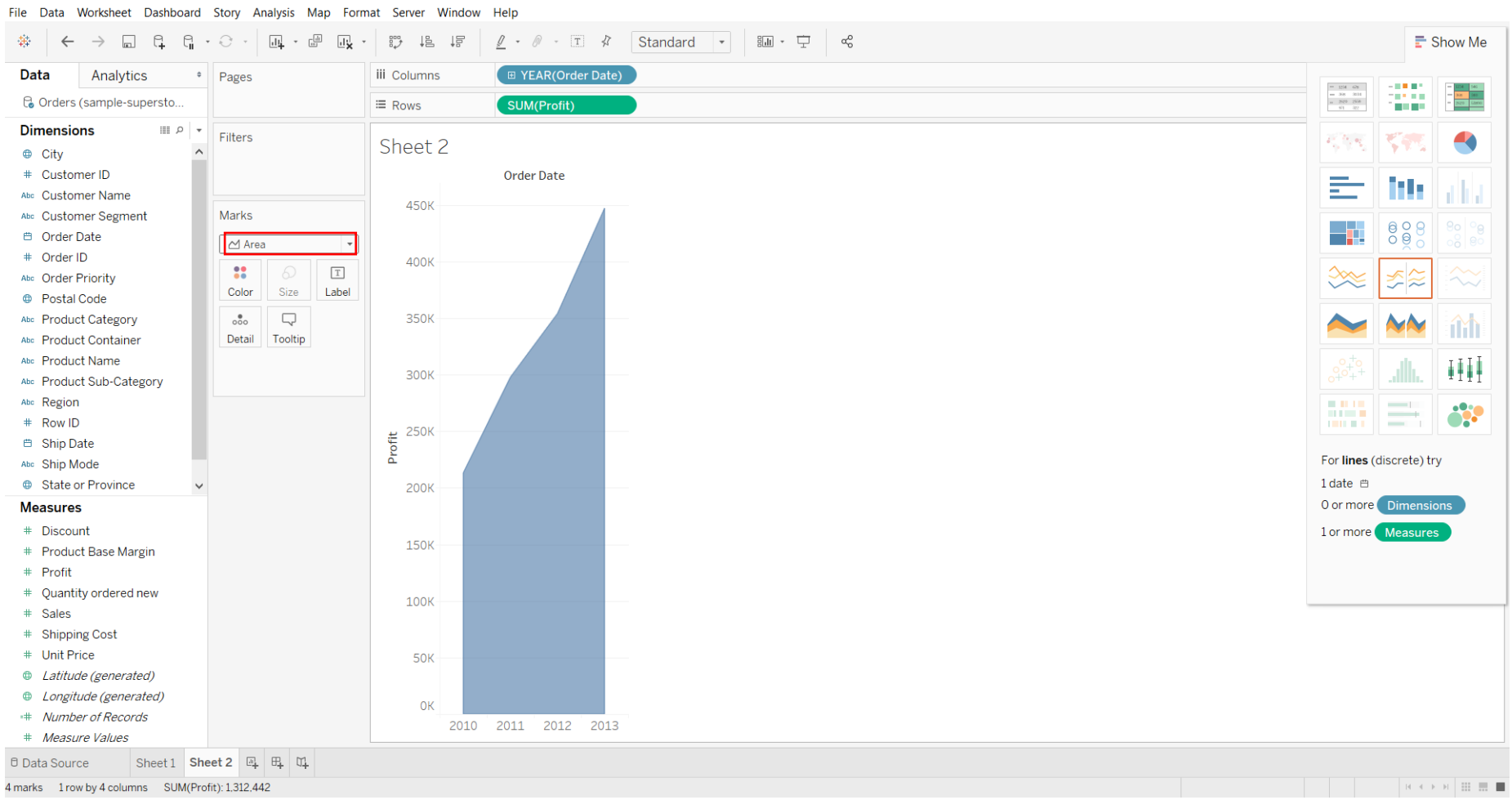
- Connect «*Sample Superstore*» data
- Drag *Order Date* to **Columns** and *Profit* to **Rows**



Bütün hüquqlar qorunur.

Area Chart

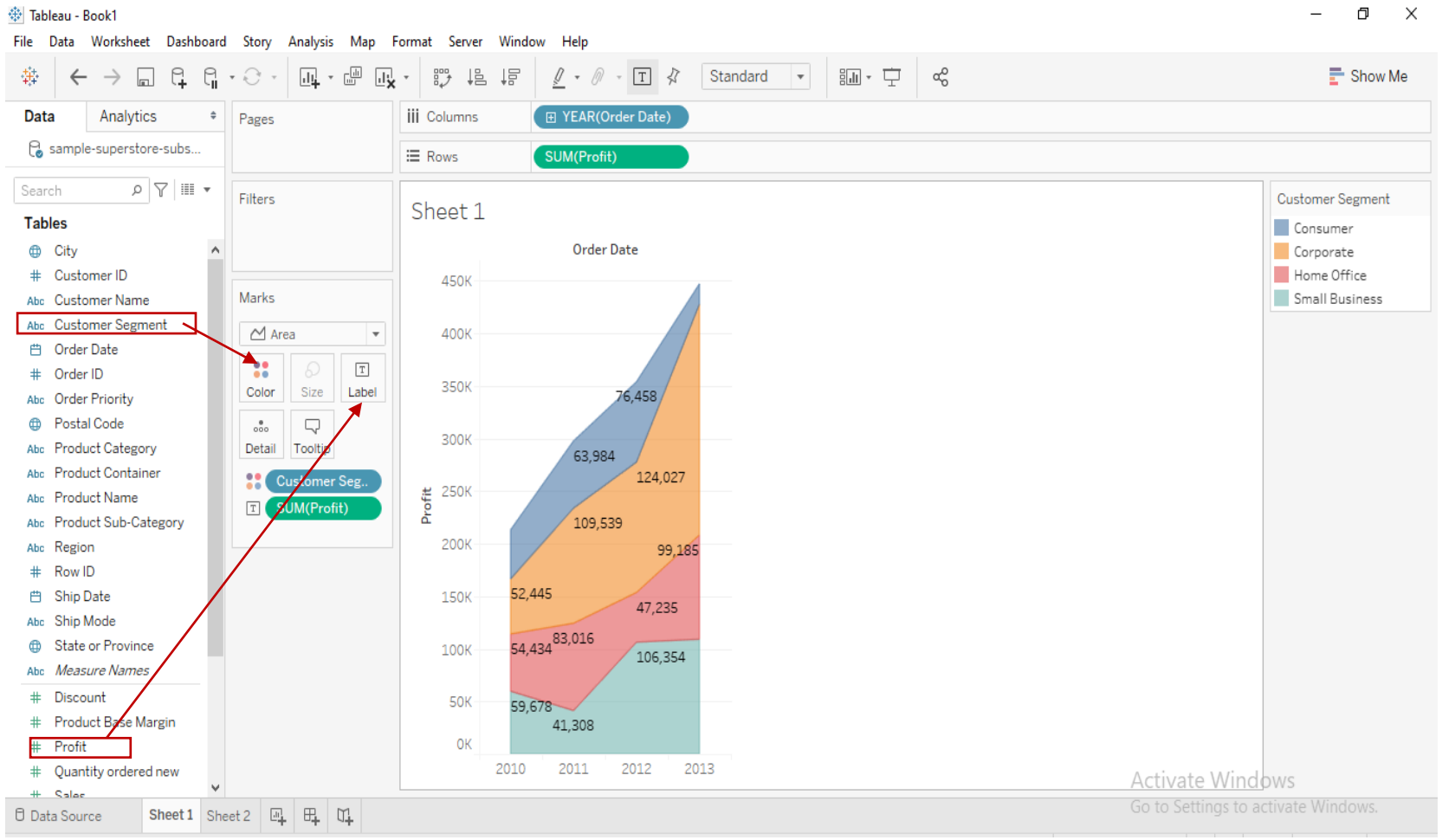
- Select **Area** from the **"Marks"** tab



Bütün hüquqlar qorunur.

Area Chart

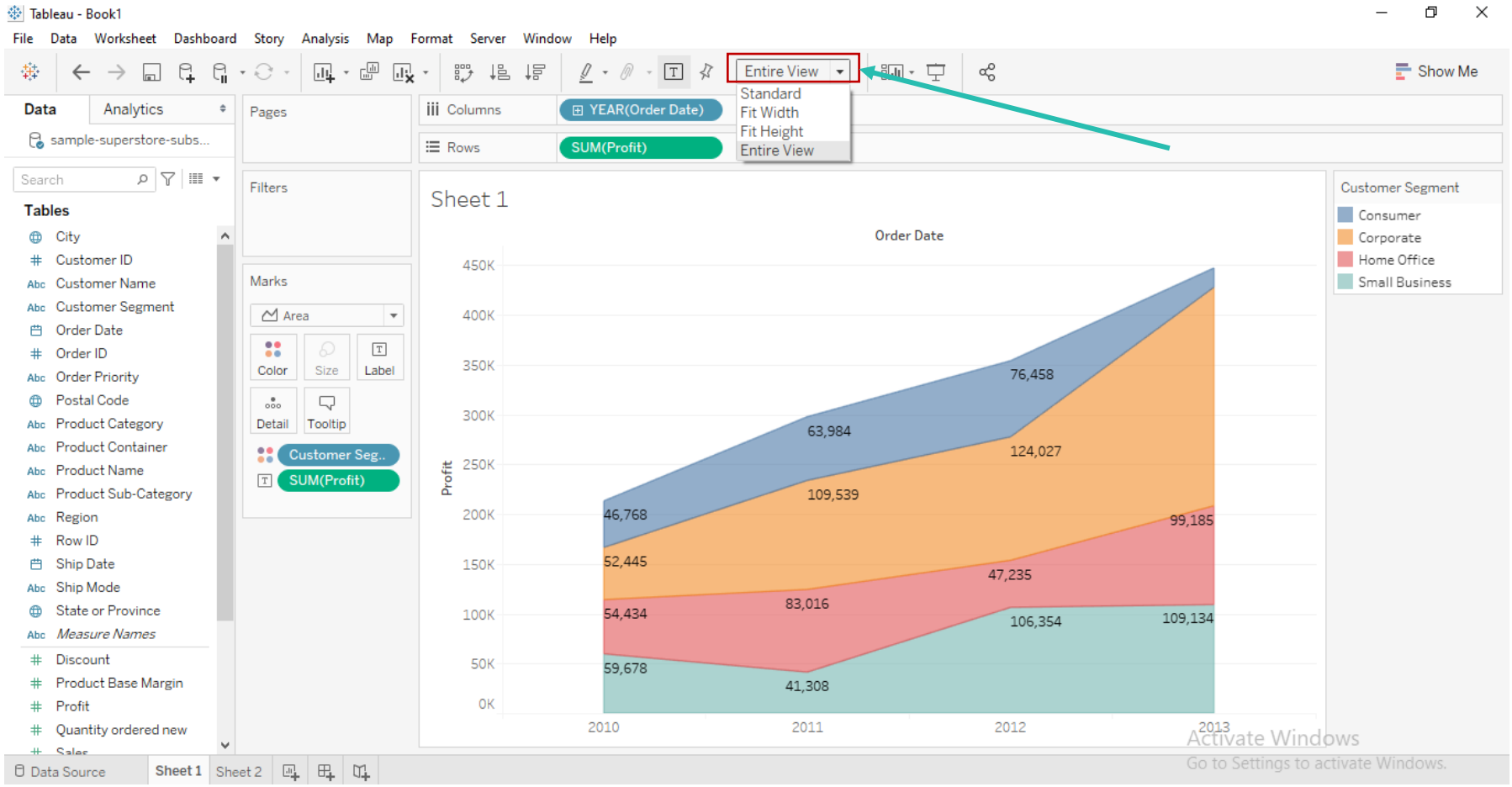
- Drag “**Customer Segment** color
- Drag “**Profit**” to the label



Bütün hüquqlar qorunur.

Area Chart

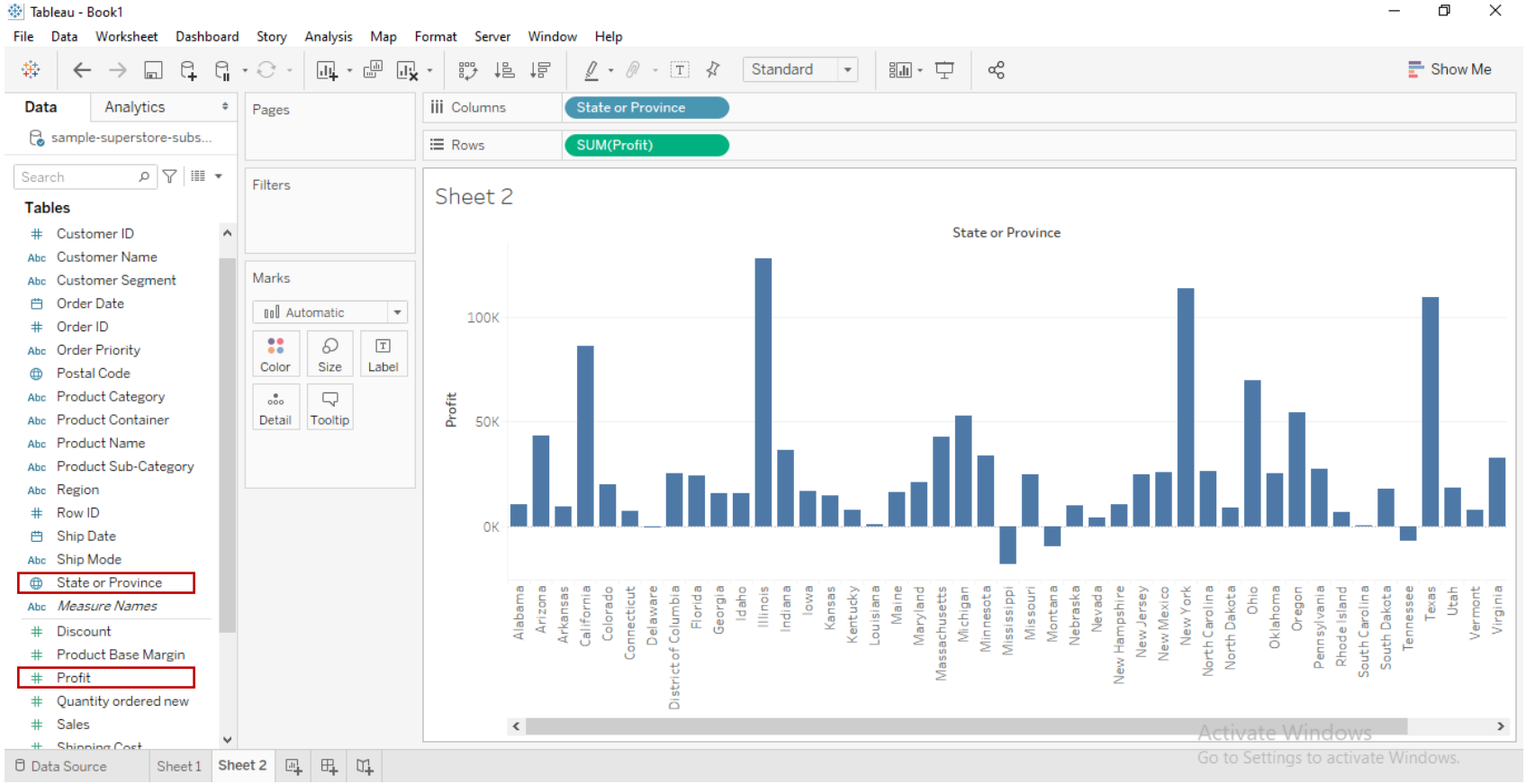
- Change the fit to the Entire view



Bütün hüquqlar qorunur.

Waterfall

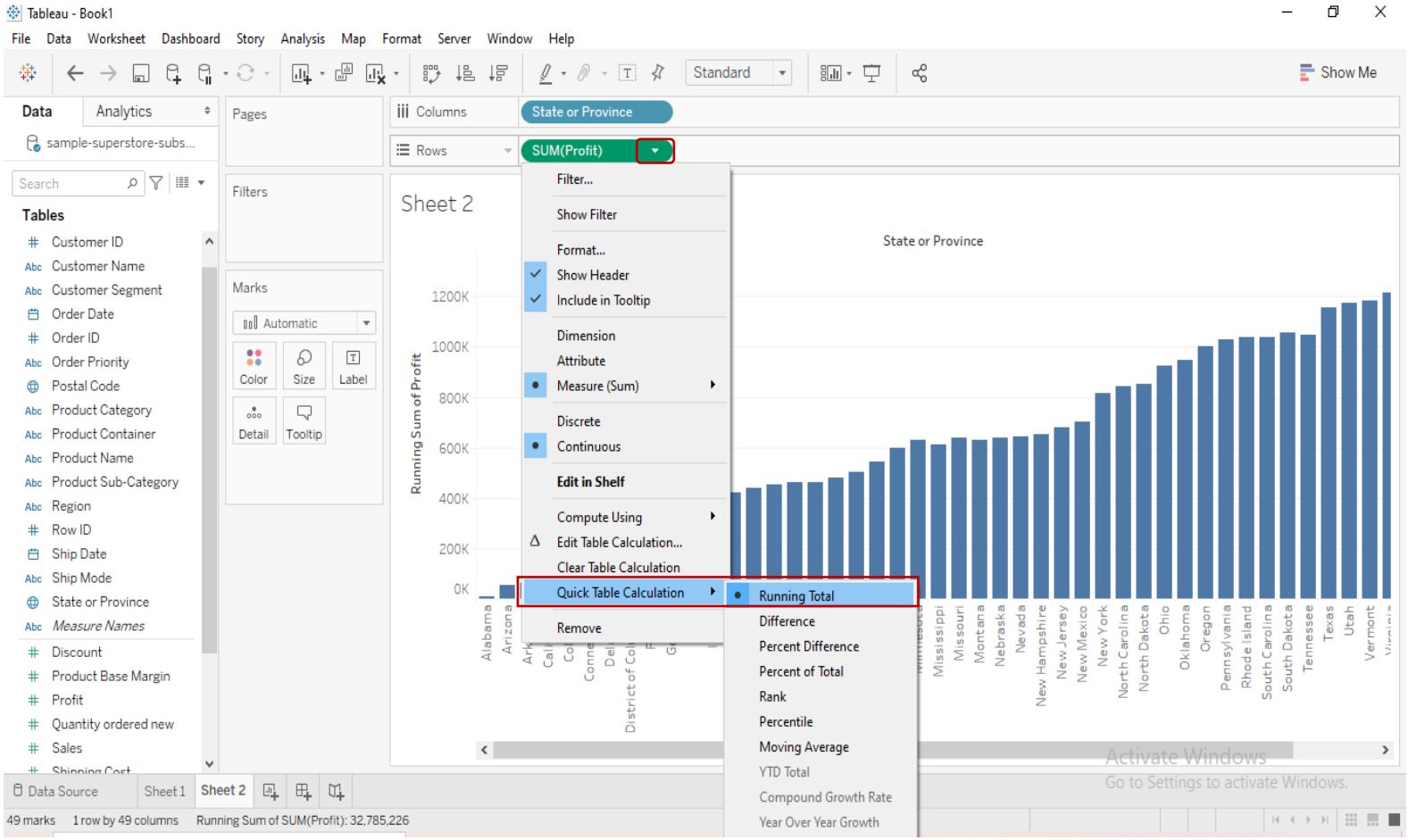
- Clear sheet
- Drag State or Province to Columns
- Drag Profit to Rows



Bütün hüquqlar qorunur.

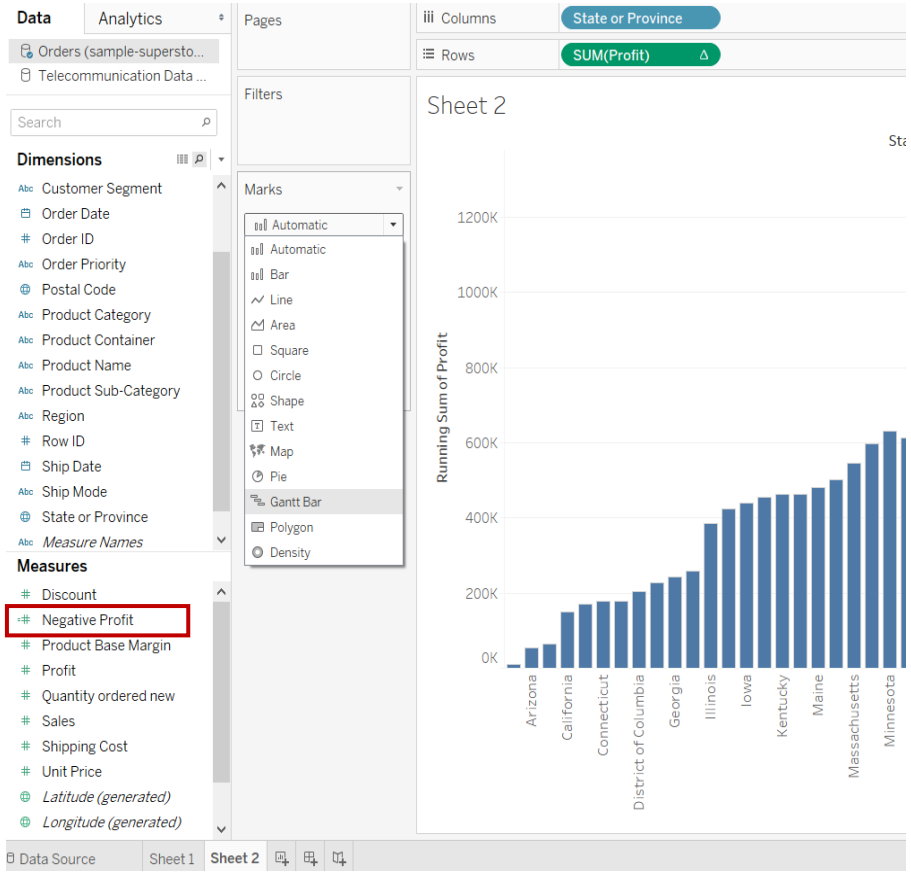
Waterfall

- Right-click *sum(Profit)*
- Select **Quick Table Calculation**
- Press **Running Total** option

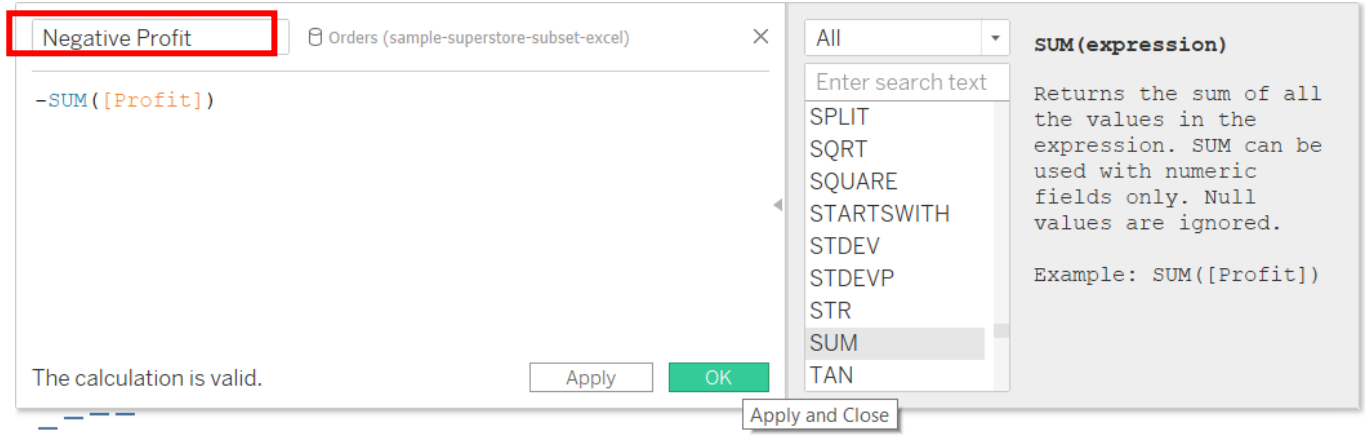


Bütün hüquqlar qorunur.

Waterfall



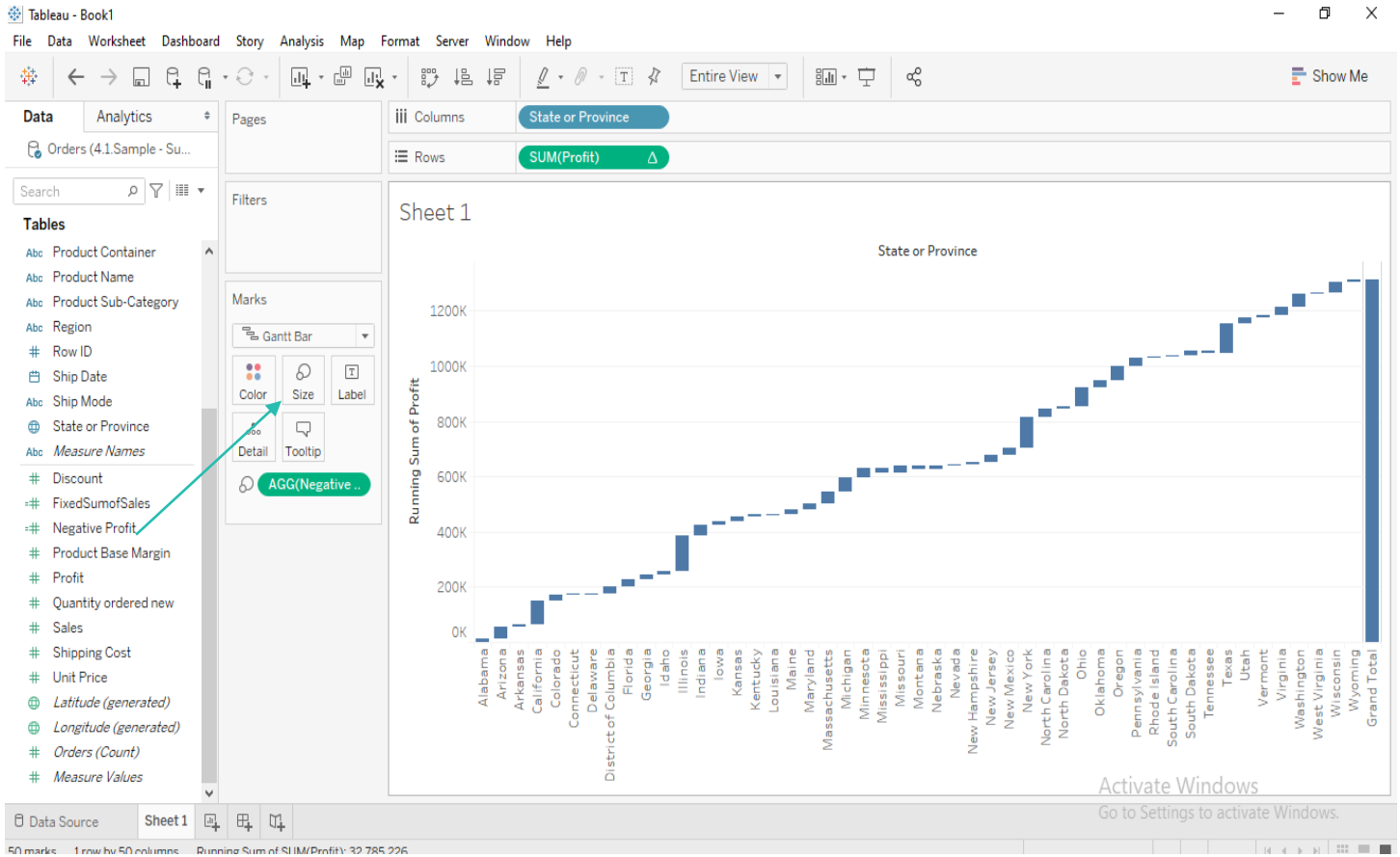
- From *Marks* area choose **Gantt Bar**
- Create new calculated field
- Change name to *Negative Profit*
- Put a "-" sign
- Insert **SUM** formula
- Click OK



Bütün hüquqlar qorunur.

Waterfall

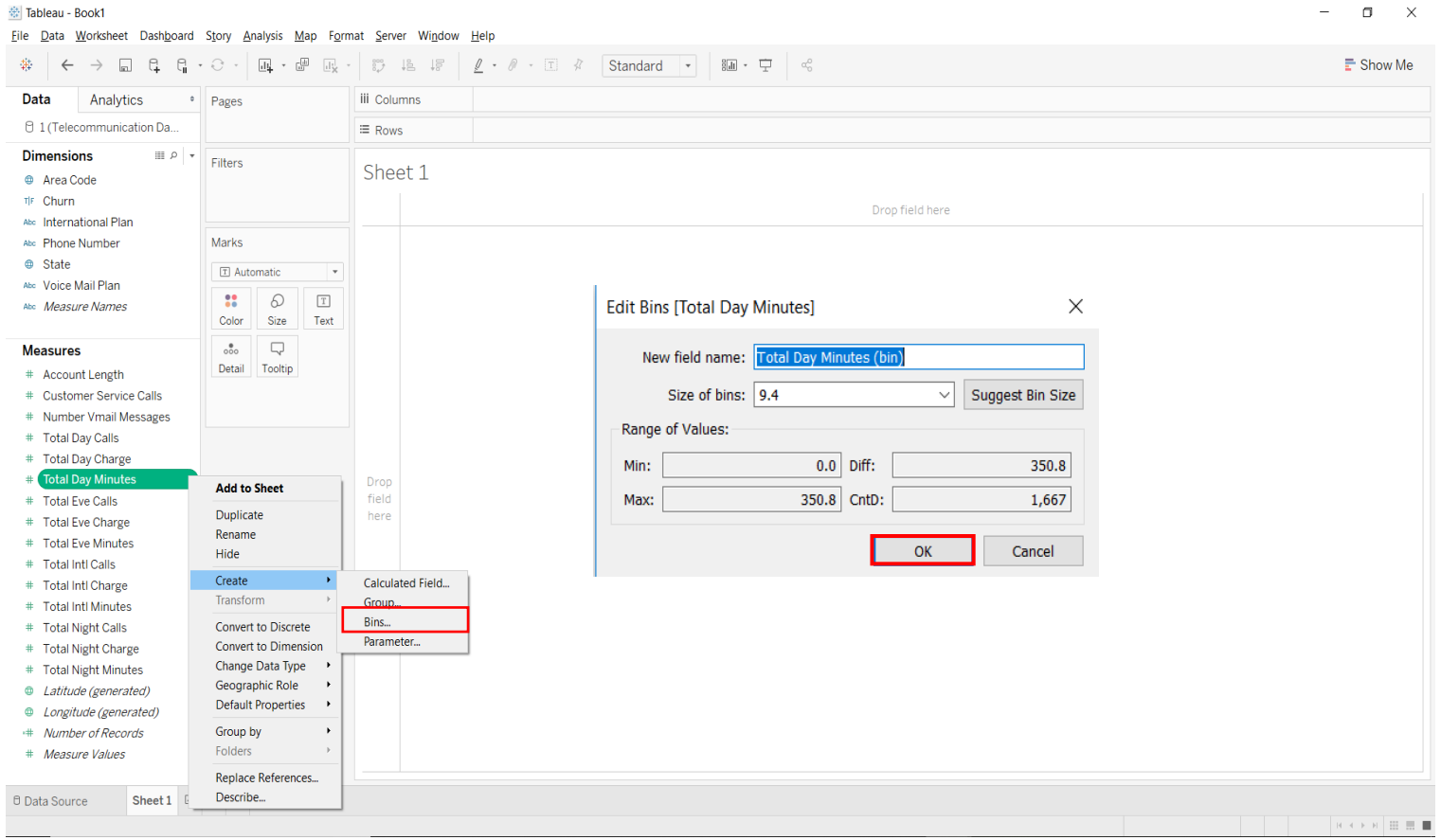
- Drag **Negative Profit** to Size
- From **Analysis** choose **Totals**
- Select **Show Row Grand Totals** option
- Change the Fit to the **Entire View**



Bütün hüquqlar qorunur.

Histograms

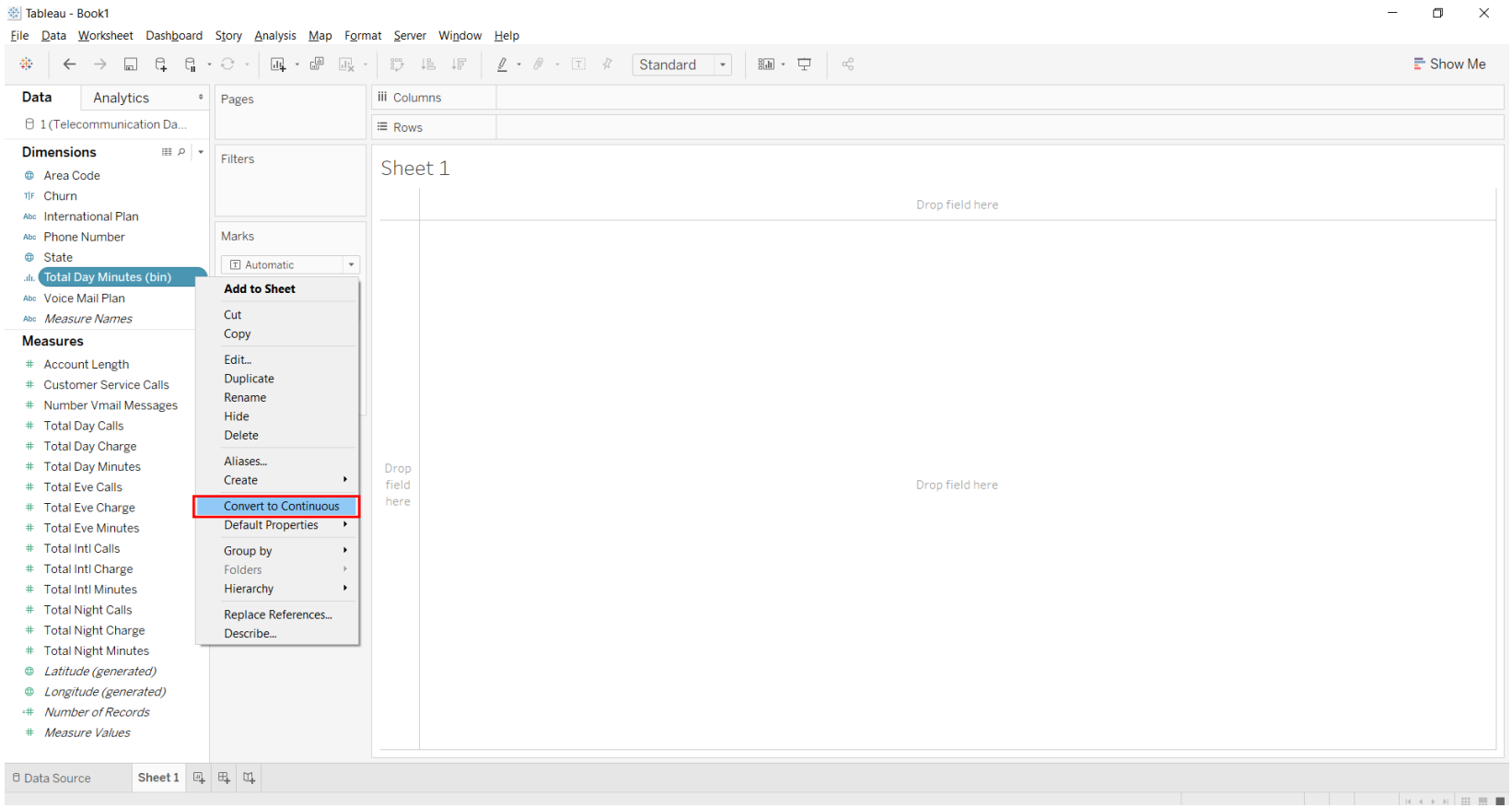
- Clean worksheet
- Add Telecommunication Data
- Right-click on *Total Day Minute*
- Select Create
- Choose Bins
- Click OK



Bütün hüquqlar qorunur.

Histograms

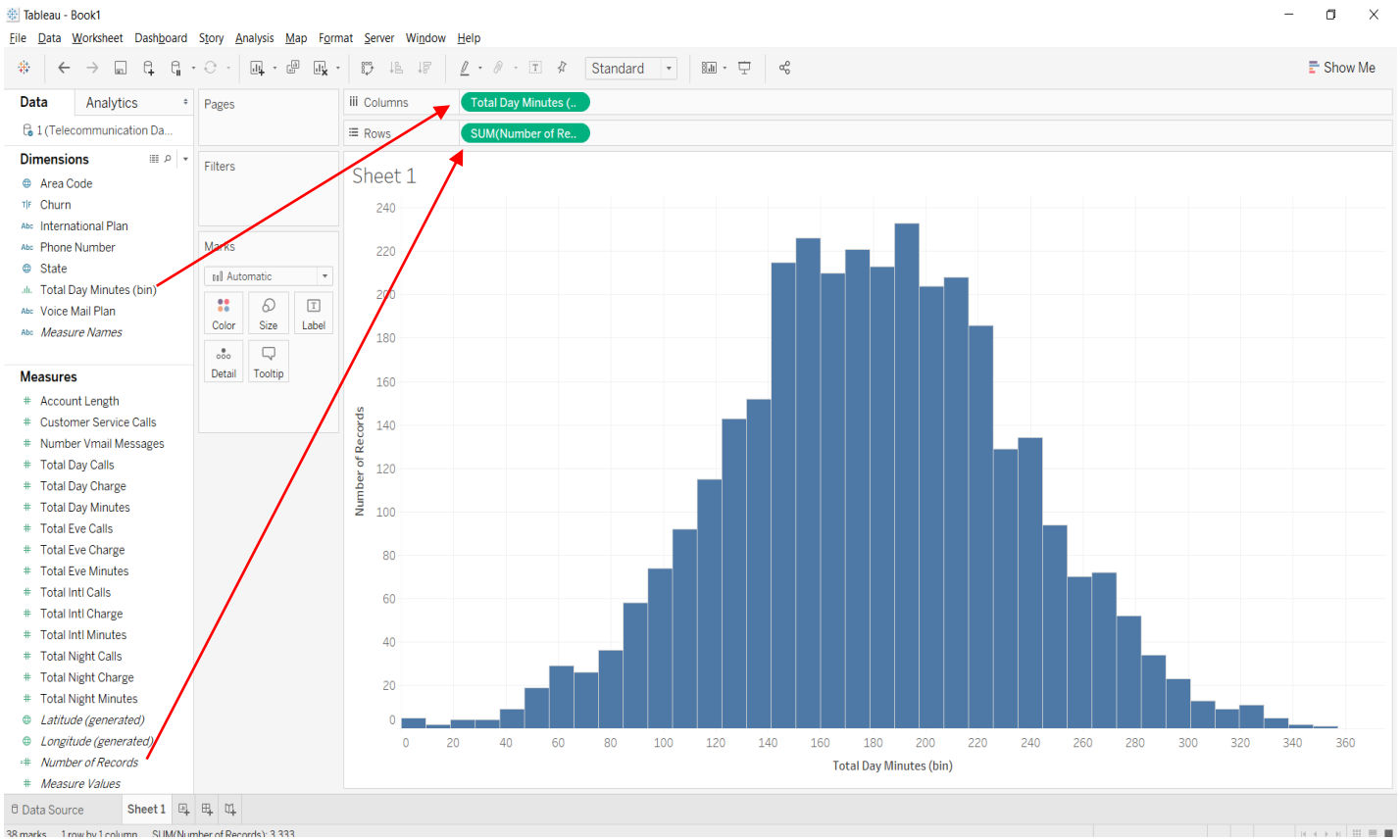
- Right Click on *Total Day Minutes (bin)*
- Select Convert to Continuous



Bütün hüquqlar qorunur.

Histograms

- Drag *Total Day Minutes (bin)* to Columns
- Drag *Number of Records* to Rows



Bütün hüquqlar qorunur.

III

Funnel chart and Maps

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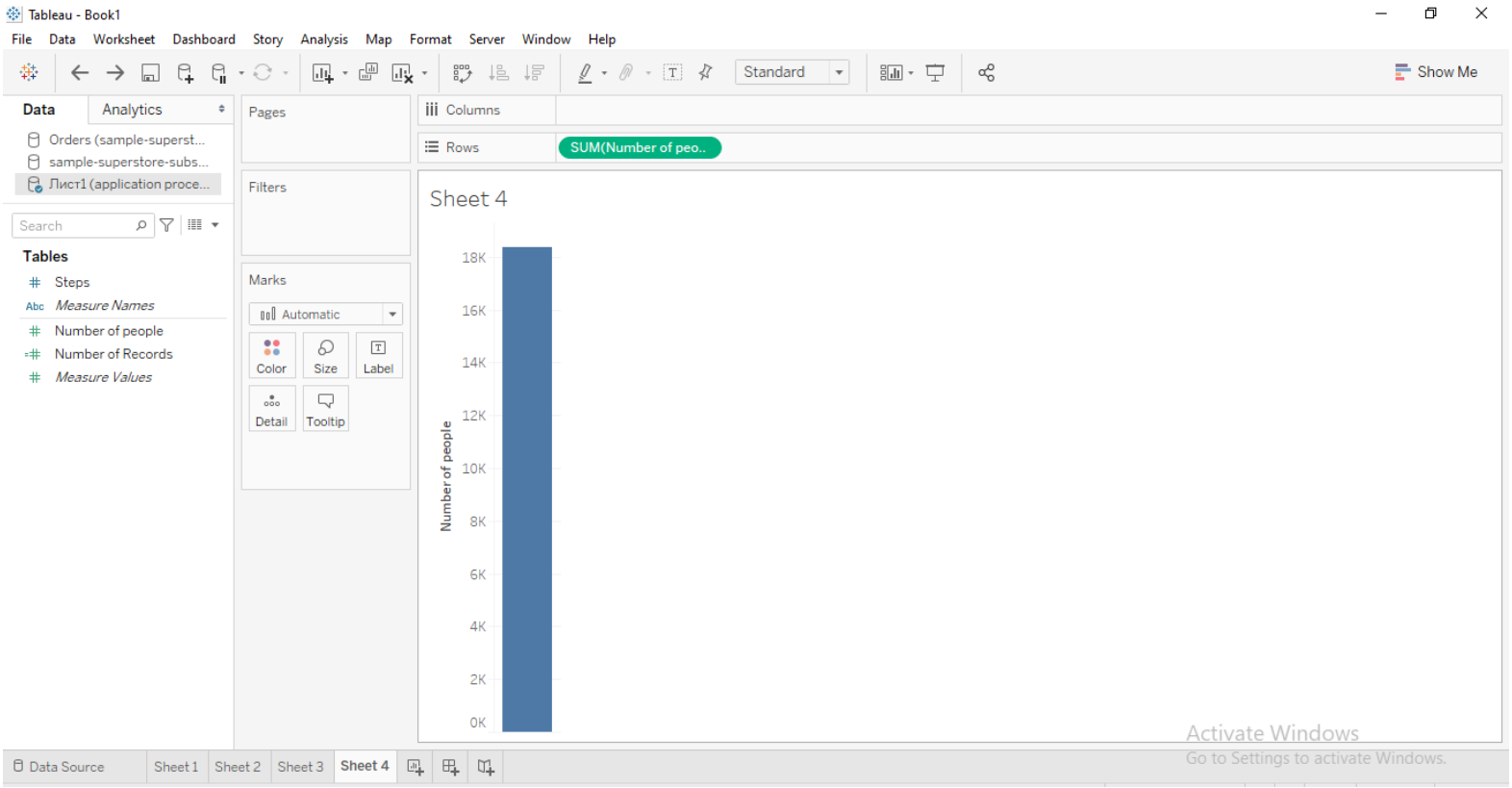
Funnel Chart

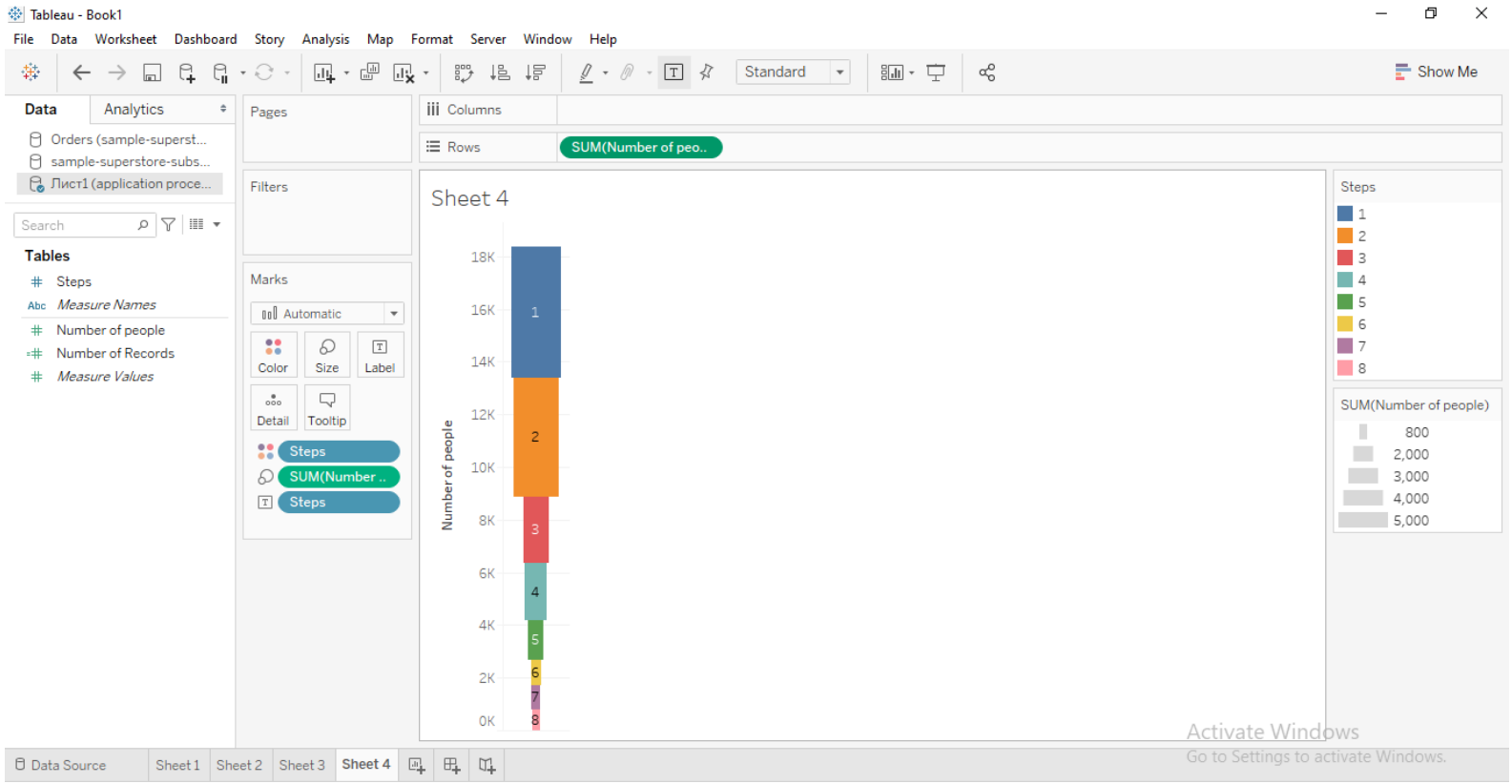
- Open a new sheet
- Drag *Number of people* to *Rows*



Bütün hüquqlar qorunur.

Funnel Chart

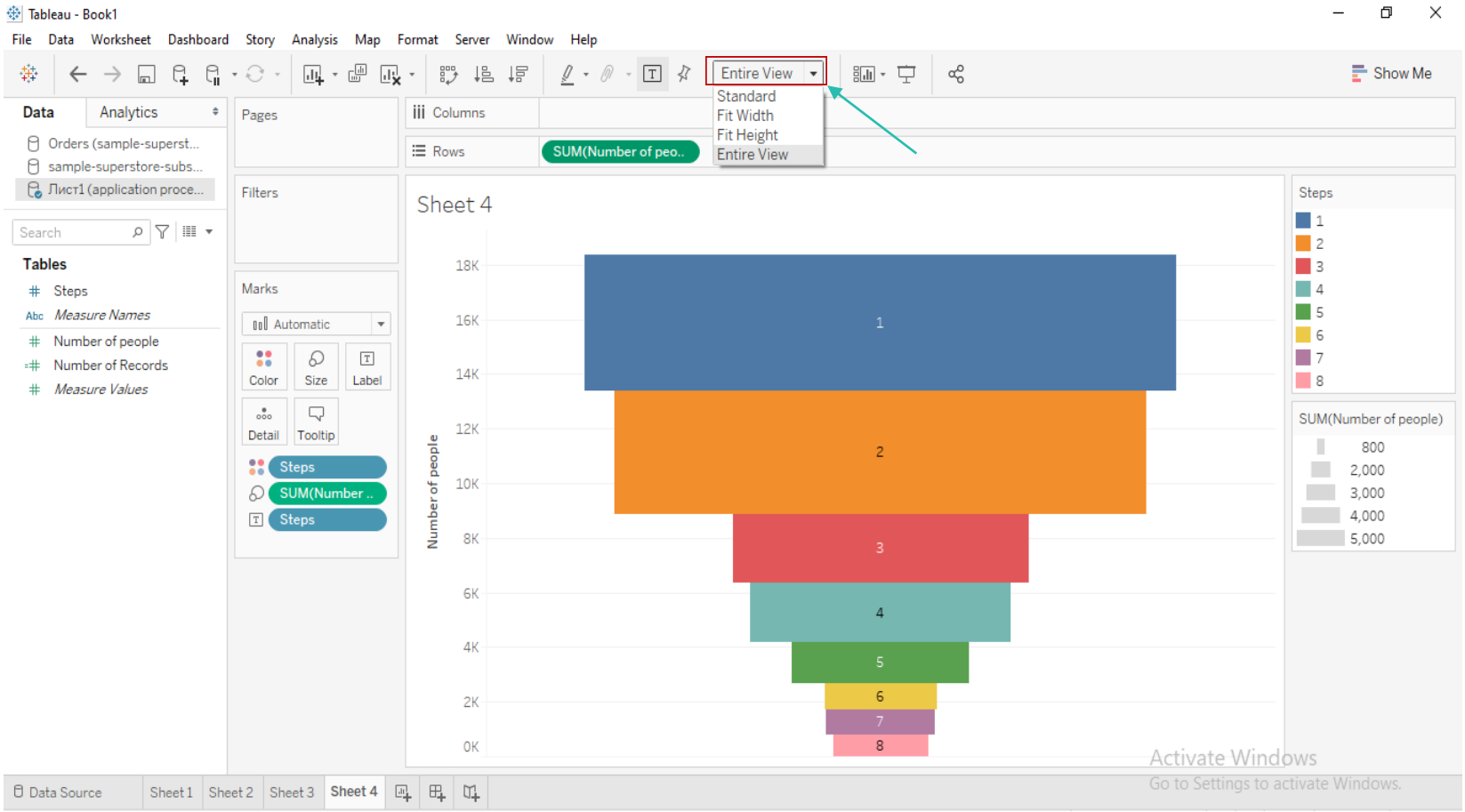
- Add “**Steps**” to color
- Drag “**Number**” of People to size
- Add “**Steps**” to label



Bütün hüquqlar qorunur.

Funnel Chart

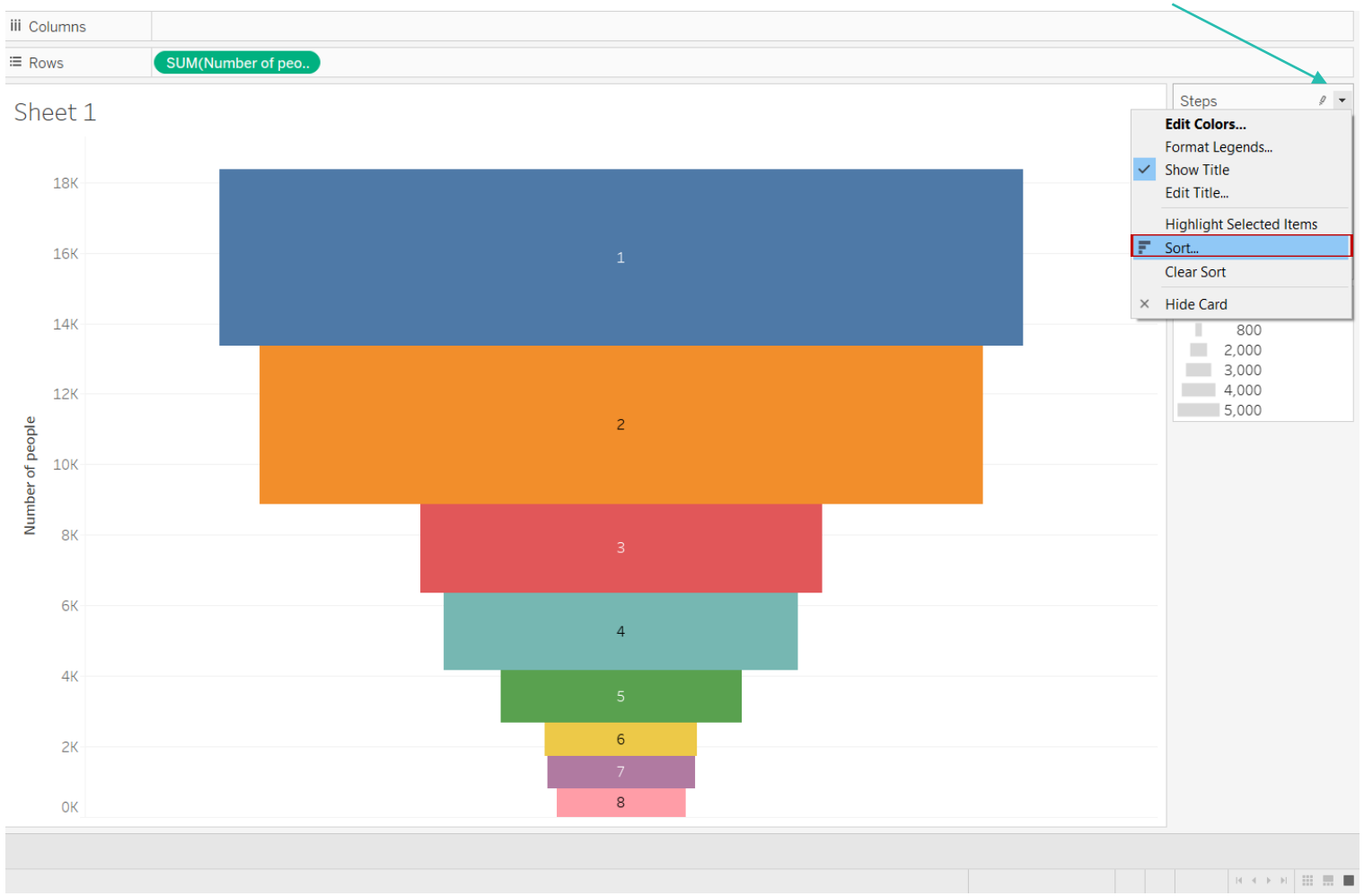
- Change **Fit** to **Entire View** to make it bigger



Bütün hüquqlar qorunur.

Funnel Chart

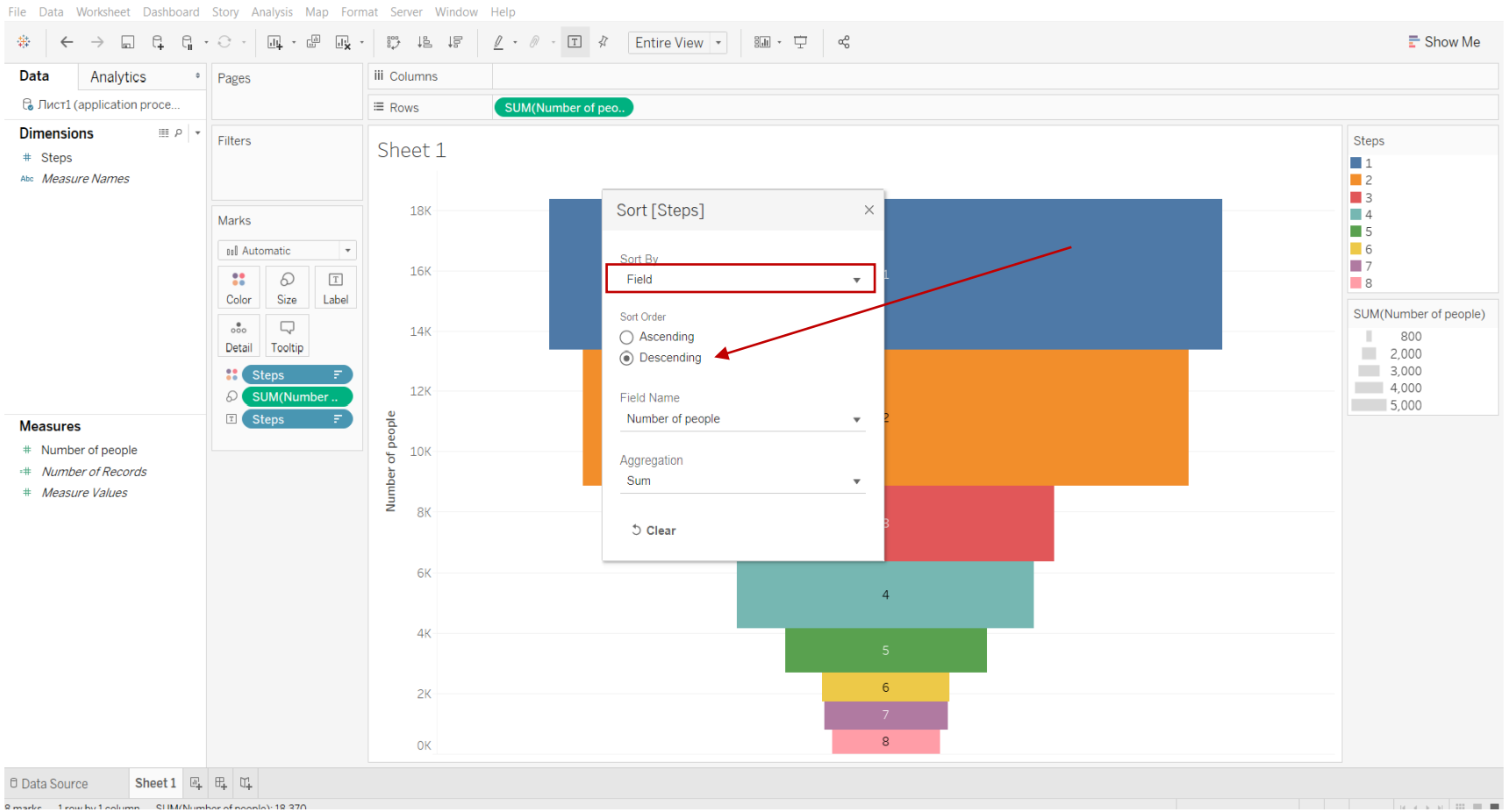
- Click the arrow sign near the Steps
- Select *Sort*



Bütün hüquqlar qorunur.

Funnel Chart

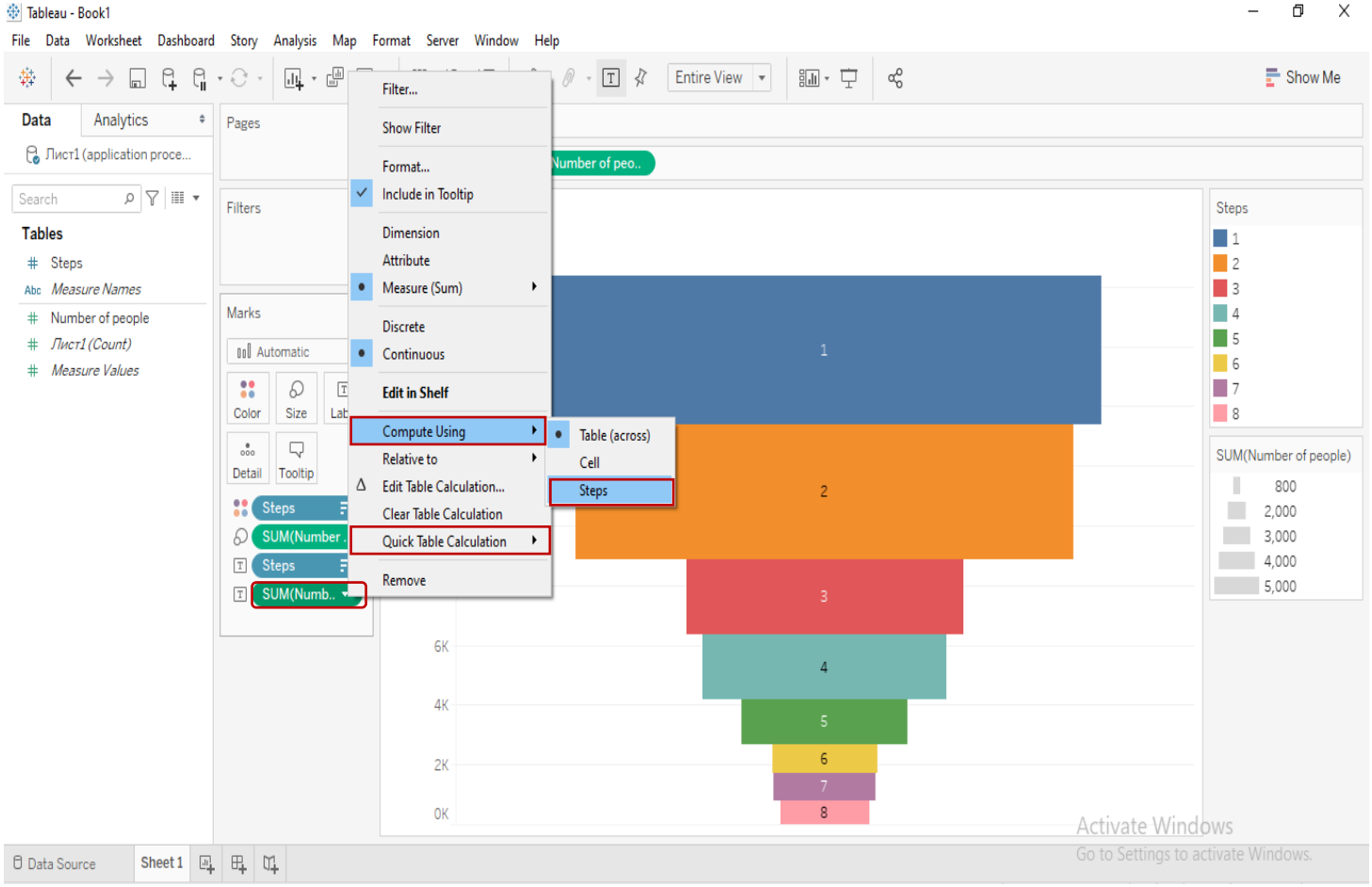
- Select *Field* from the list
- Select *Descending*



Bütün hüquqlar qorunur.

Funnel Chart

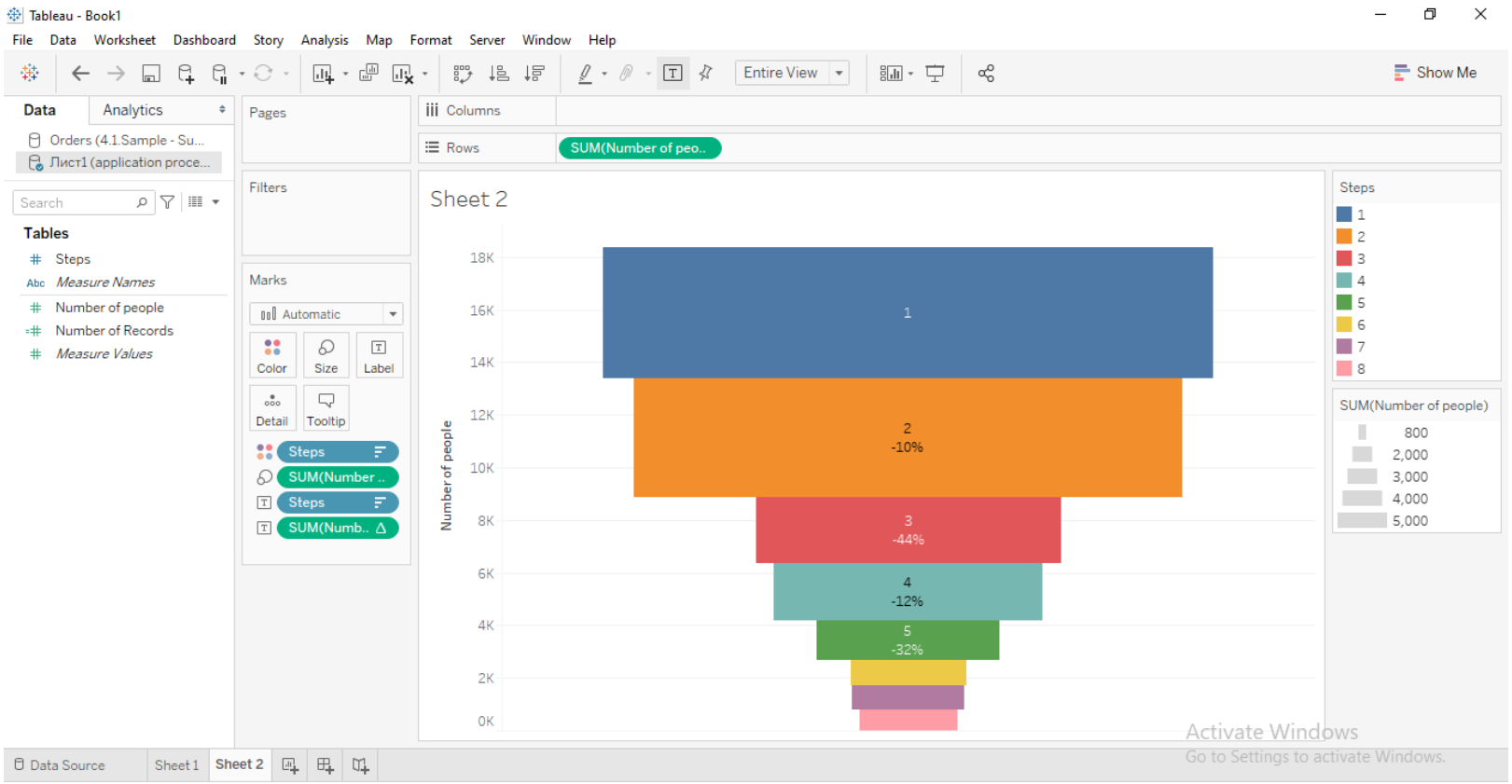
1. Drag **Number of people** into the Label
2. Right click on that variable
3. Select **Quick Table Calculations**, then **Percent Difference**
4. Select **Compute Using**, then **Steps**
5. Select **Relative to**, then **Previous**



Bütün hüquqlar qorunur.

Funnel Chart

- The number of people that are lost after each step will be displayed



Bütün hüquqlar qorunur.

Maps

- If the data refers to *specific locations*, such as businesses or crime scenes users will want to look at data points near them, such as how local businesses perform, or whether someone was arrested for that crime.
- The resulting map shows a clear distribution of those points, and this is what visualization tells us: for example fast food vans near the sports stadium are failing food hygiene inspections; or there are more burglaries in one area than another.

Bütün hüquqlar qorunur.

Maps

- Assign a geographic role to a field:

None
Airport
Area Code (U.S.)
CBSA/MSA (U.S.)
City
Congressional District (U.S.)

International Air Transport Association (IATA) or International Civil Aviation Organization (ICAO) airport codes.

U.S. telephone area codes; numbers only.

U.S. Core Based Statistical Areas (CBSA), which includes Metropolitan Statistical Areas (MSA).

Worldwide cities with population of 15,000 or more.

U.S. congressional districts.

Bütün hüquqlar qorunur.

Maps

- Assign a geographic role to a field:

Country/Region
Country
Nuts Europe
State/Province
Zip code/Postcode

→ Worldwide countries, regions, and territories.

→ Second-level administrative divisions for select countries.

→ Codes and names, including synonyms, are supported.

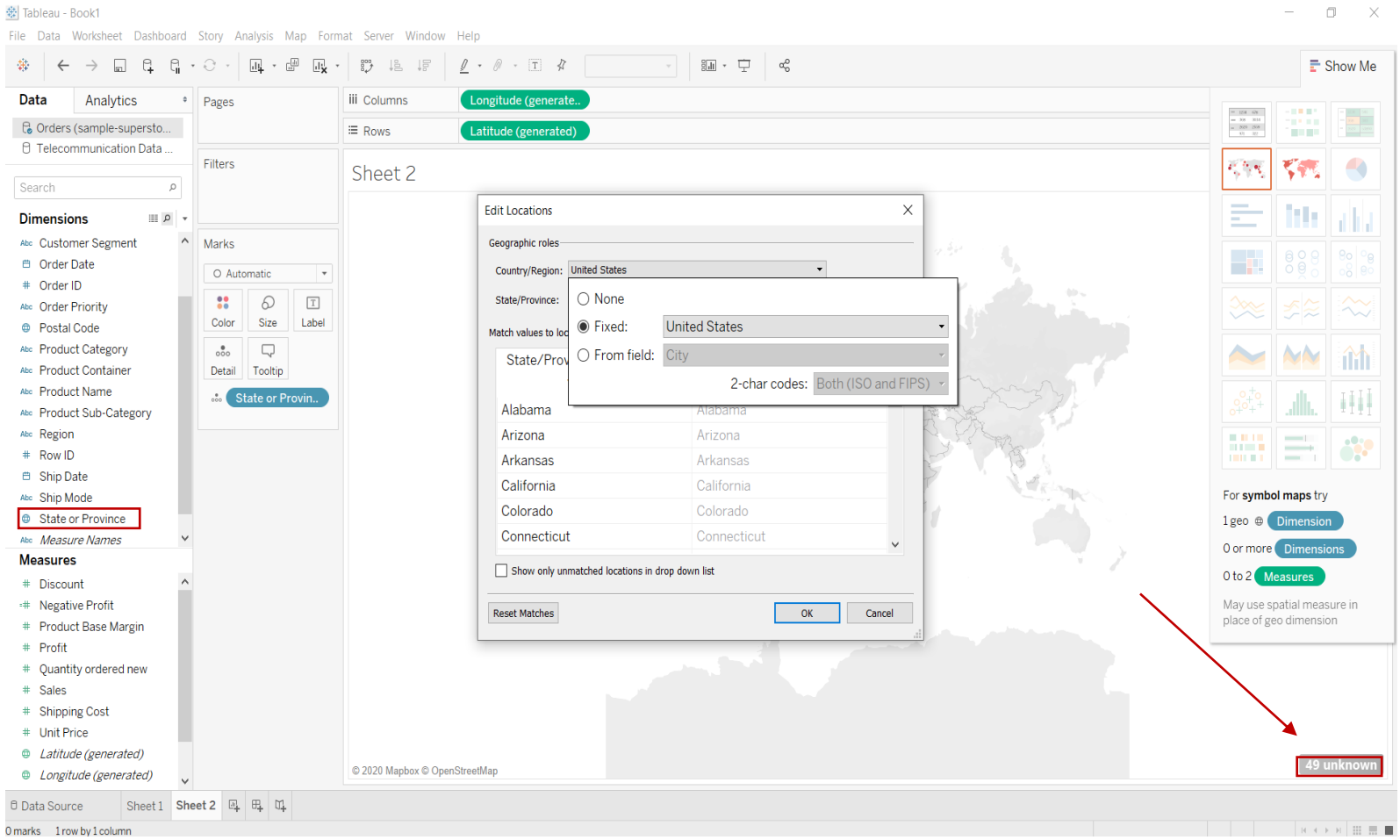
→ Worldwide state, province, and other first-level administrative divisions.

→ ZIP codes and postcodes for select countries.

Bütün hüquqlar qorunur.

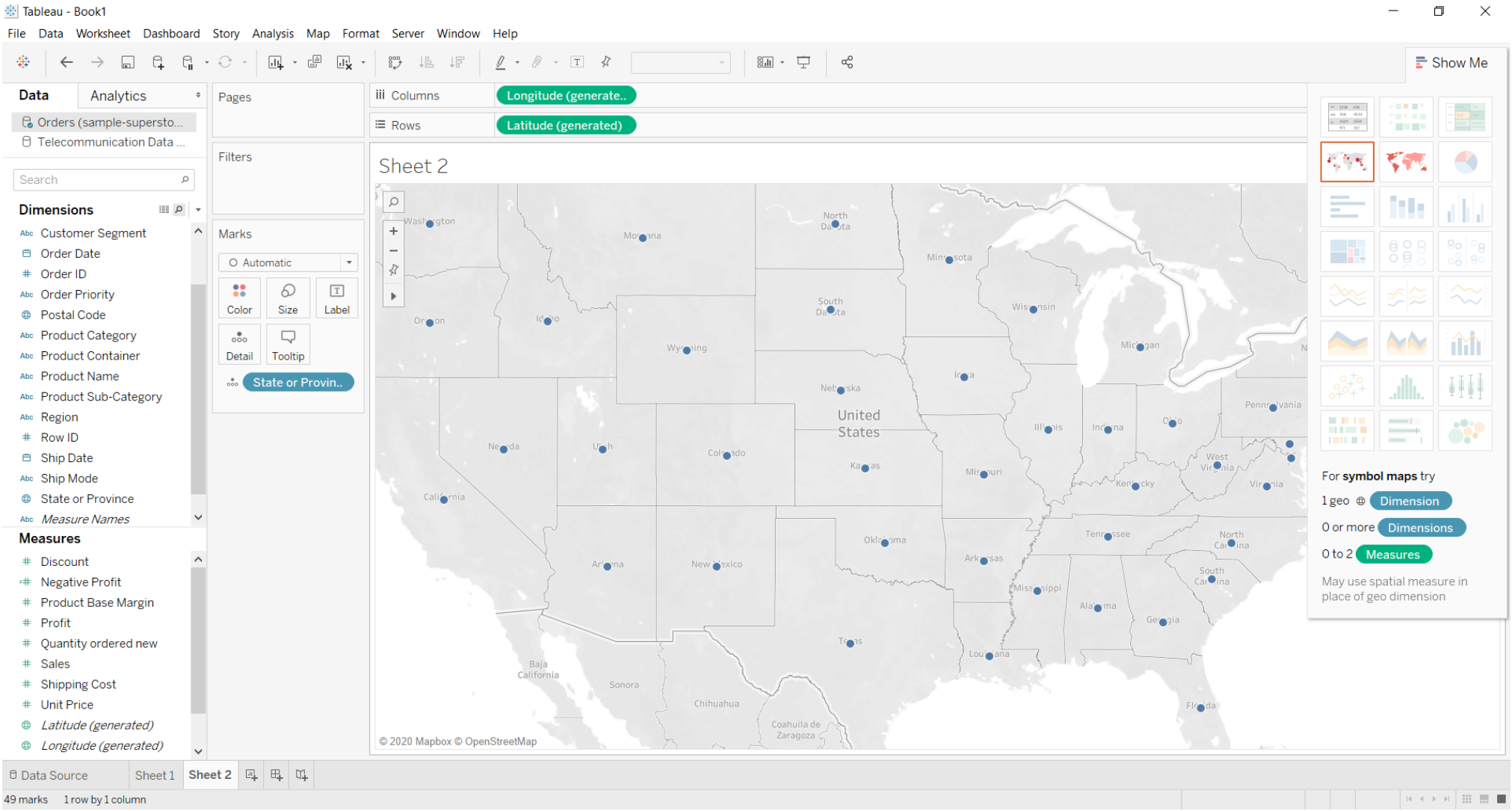
Maps

- Clear sheet
- Double-click **State or Province**
- Click to **“49 unknown”**
- Choose country region
- Select United States
- Click OK



Bütün hüquqlar qorunur.

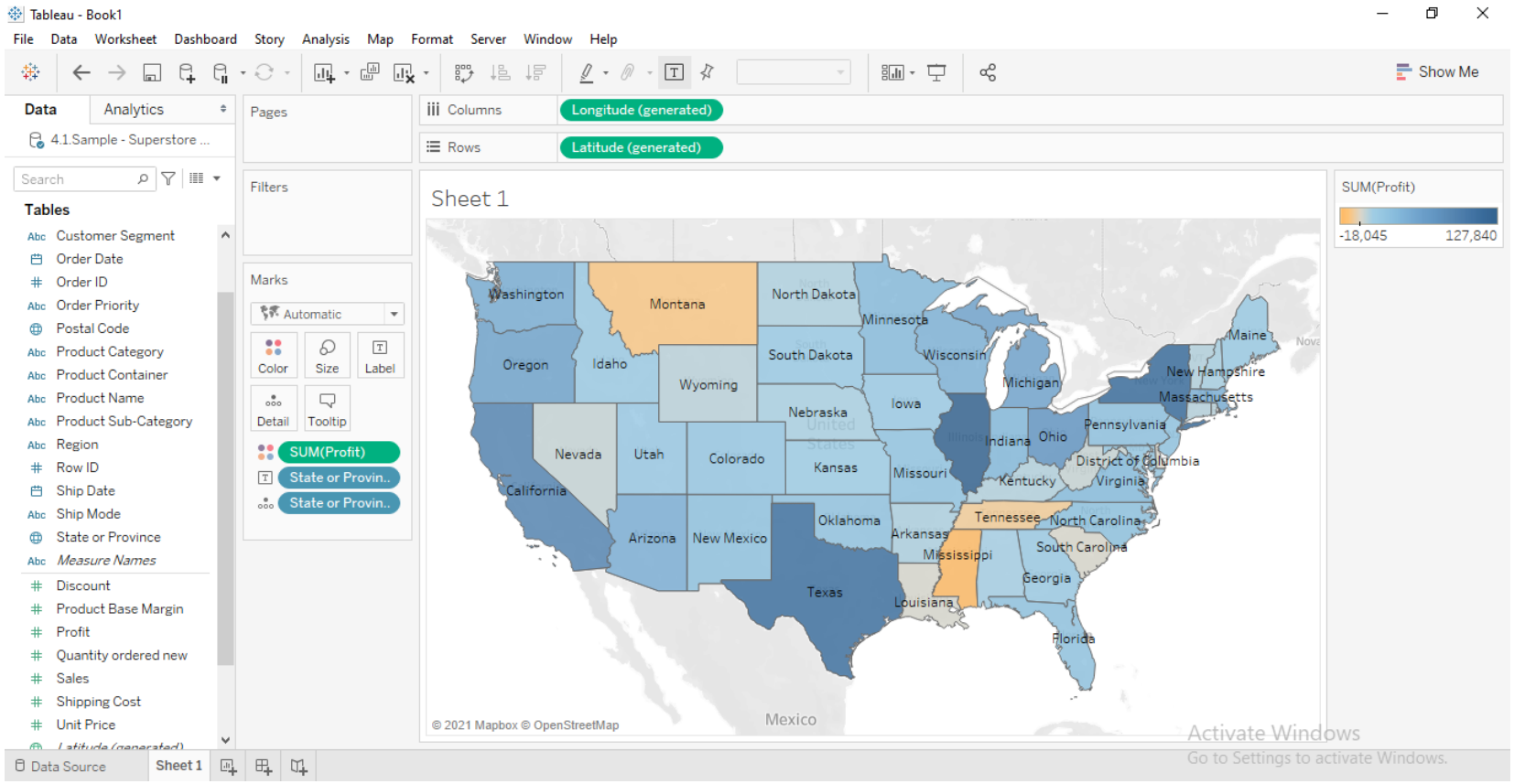
Maps



Bütün hüquqlar qorunur.

Maps

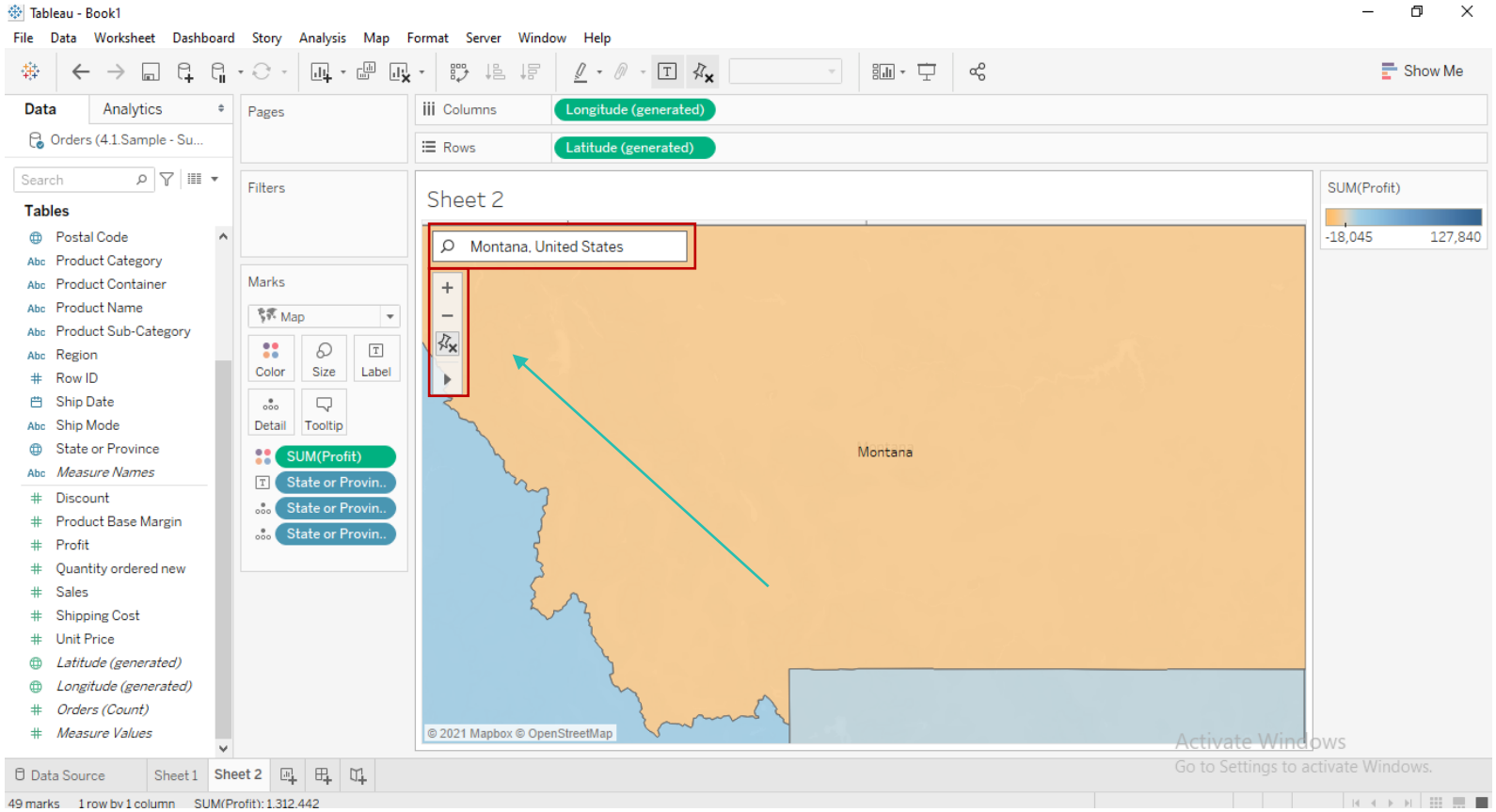
- Drag “Profit” to color
- Drag “State or Province” to label



Bütün hüquqlar qorunur.

Maps

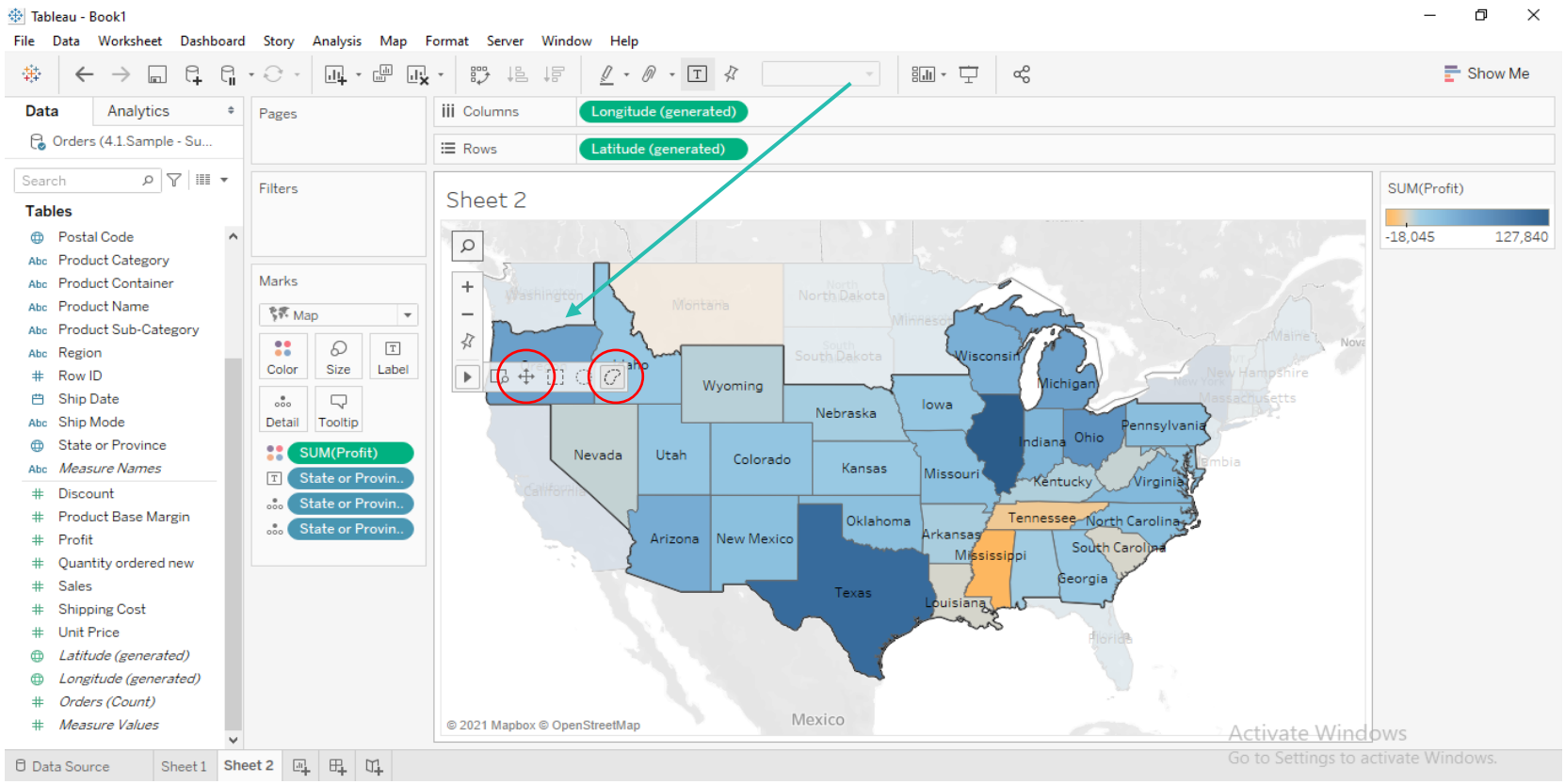
- Click “**Search**” button for zooming in a particular place
- Click “**+**” or “**-**” signs for zooming in or zooming out
- Click “**Unpin button**” to make the map come to the original place



Bütün hüquqlar qorunur.

Maps

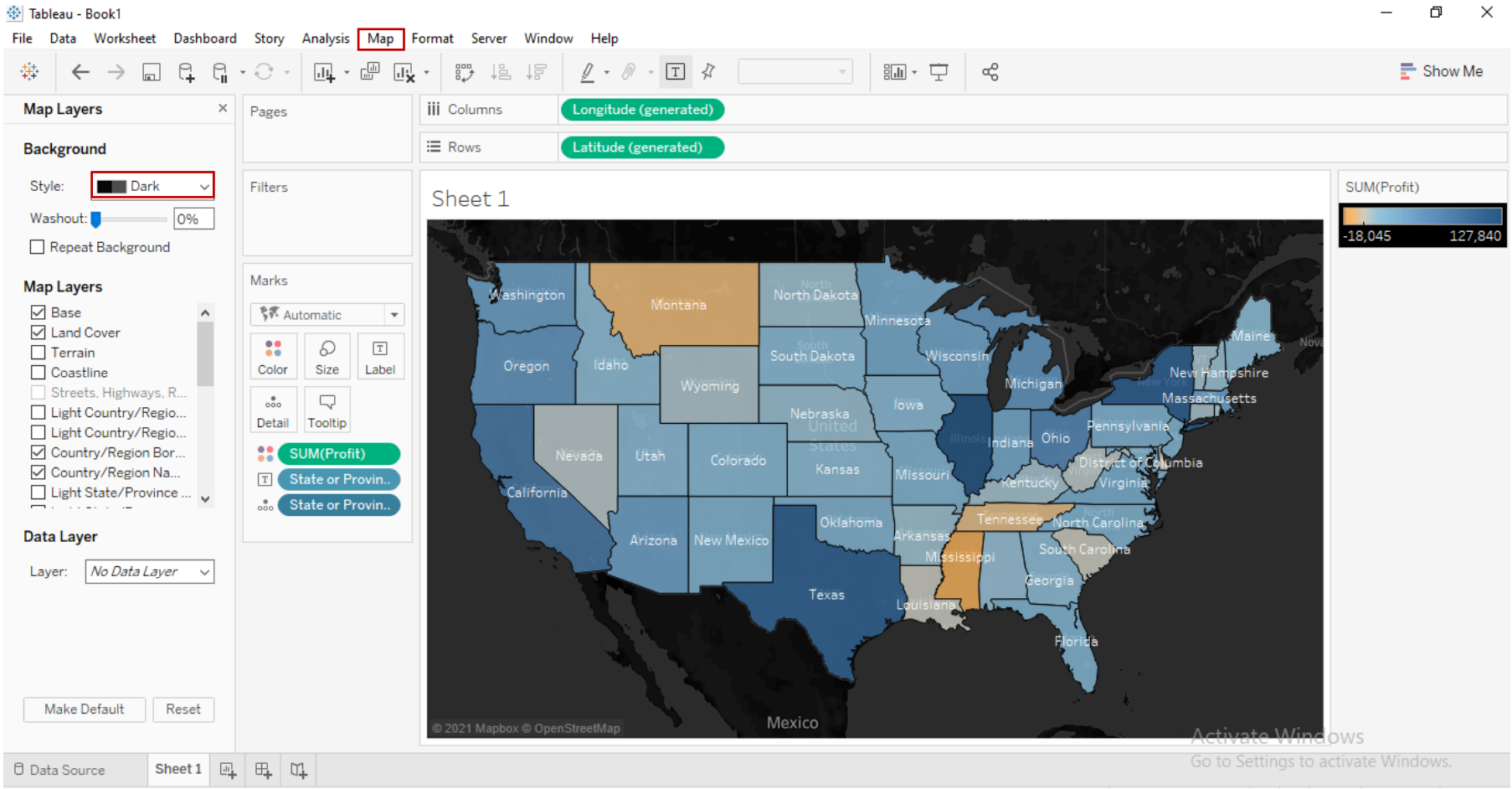
- Click **“Pan”** option for moving the map
- Click **“Selection”** options for selecting more than one places and combining them into the groups



Bütün hüquqlar qorunur.

Maps

- Click “Map” section
- Choose “Map Layers”
- Make style “Dark”



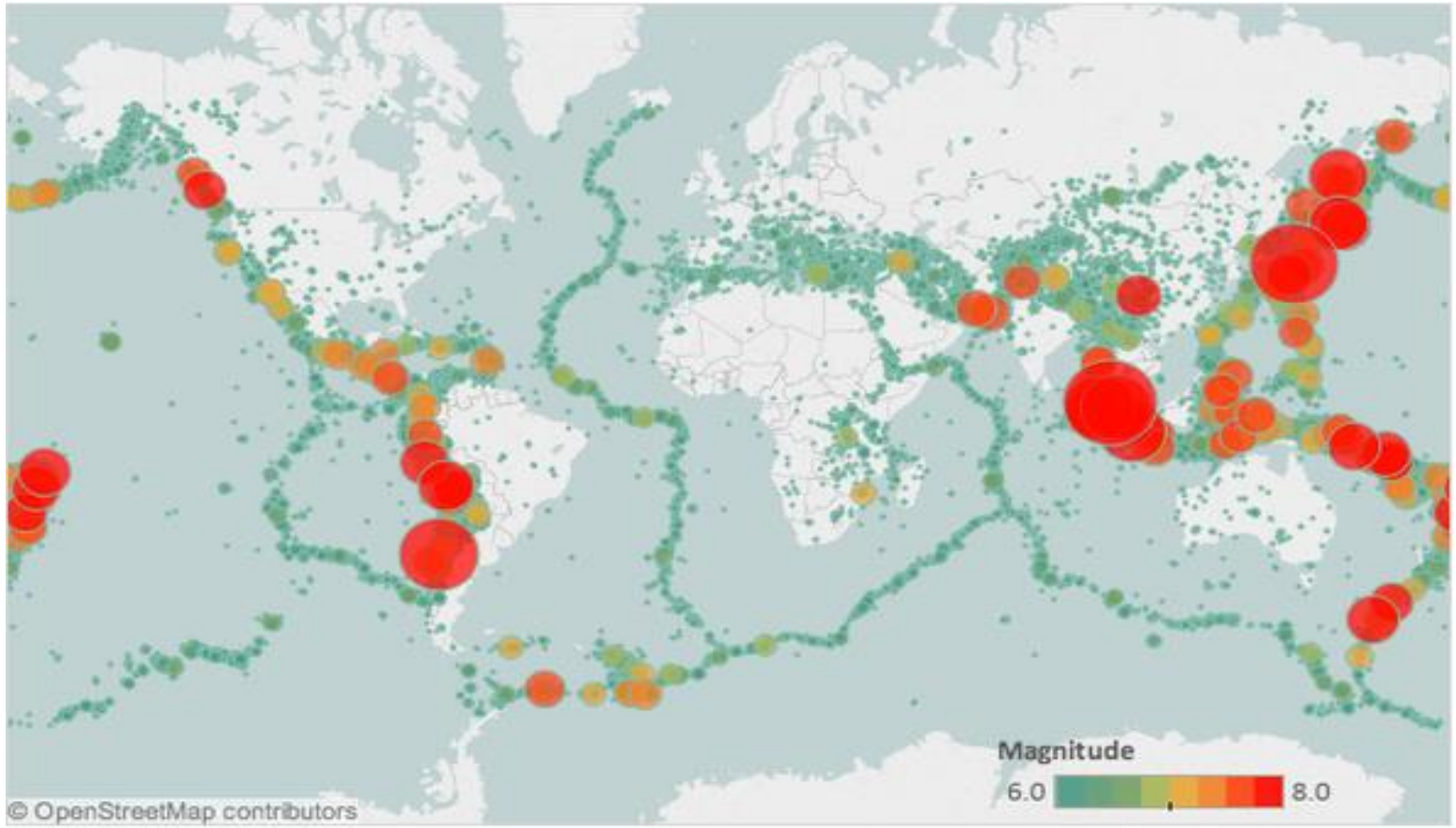
Bütün hüquqlar qorunur.

Other Map Visuals

Bütün hüquqlar qorunur.

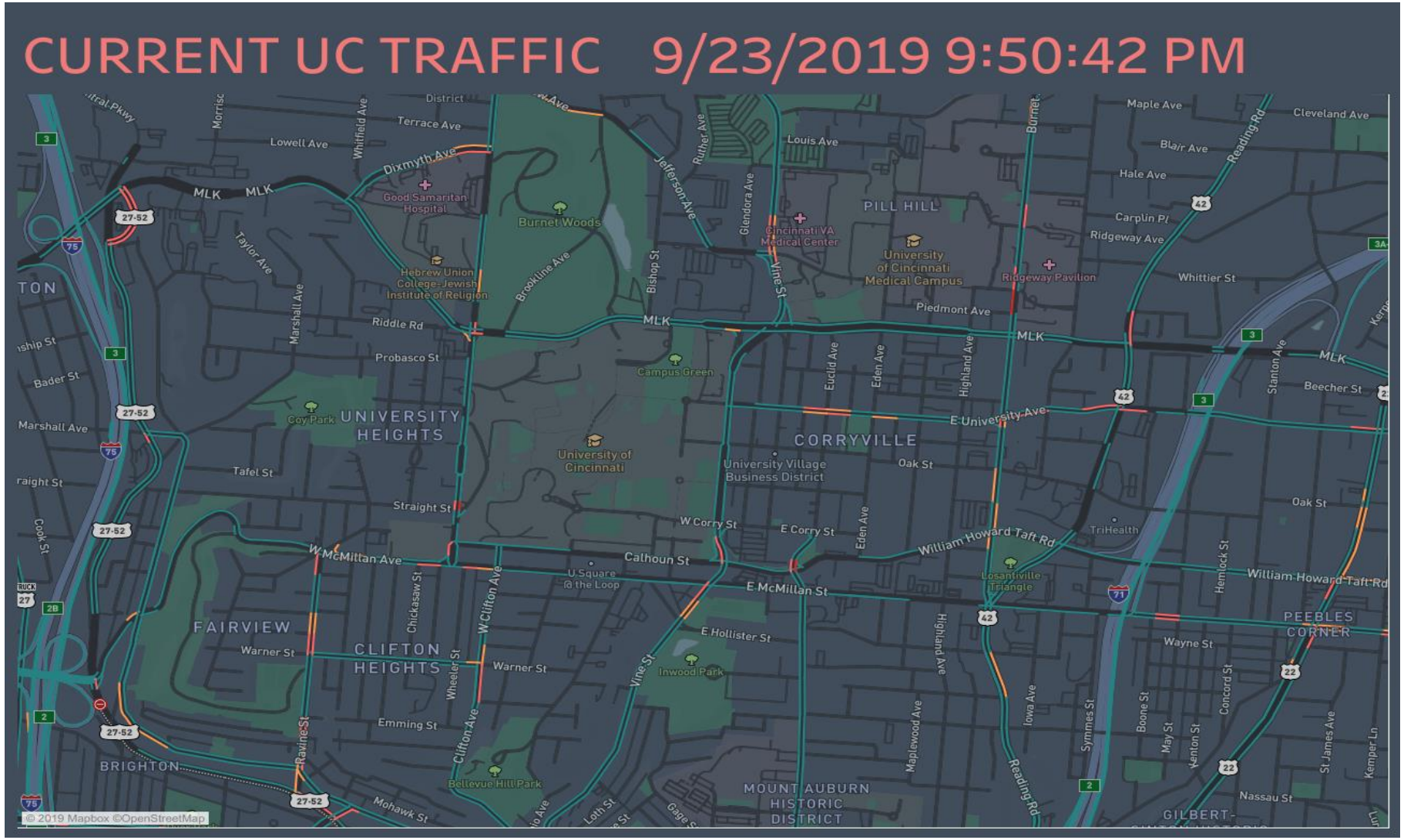
Other Map Visuals

Although reports of earthquakes are on the rise over the past several decades, this probably doesn't mean there are more earthquakes.



Bütün hüquqlar qorunur.

Other Map Visuals



Bütün hüquqlar qorunur.

Thank You!

Data Science Academy