



香港城市大學
City University of Hong Kong
Innovating into the Future

SDSC 5002 – Tutorial 5

Further Visualization using Tableau

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2025/10/15




Pre-tutorial

- Learn basic Tableau conceptions (data types, file type, etc.)
- Use Tableau to draw worksheets with WDI data

Week 3			✓	+	⋮
⋮	📎	3-EDA-preclass.pdf	✓		⋮
⋮	📎	Week 3 - wdi_data.csv	✓		⋮
⋮	📄	Quiz 2 Sep 17 2 pts	✓		⋮
⋮	📎	Tutorial 3 - Tableau visualization.pdf	✓		⋮

Learning Objectives

- Use Tableau to draw different worksheets according to questions
- Other relevant functions in Tableau

☰	▼ Week 7	✓ ▼	+	⋮
☰	 Quiz 3 Oct 15 2 pts	⊘		⋮
☰	 5-Supervised learning-1015.pdf	✓		⋮
☰	 Week 7 - pricewatch_en.csv	✓		⋮

Bar Chart

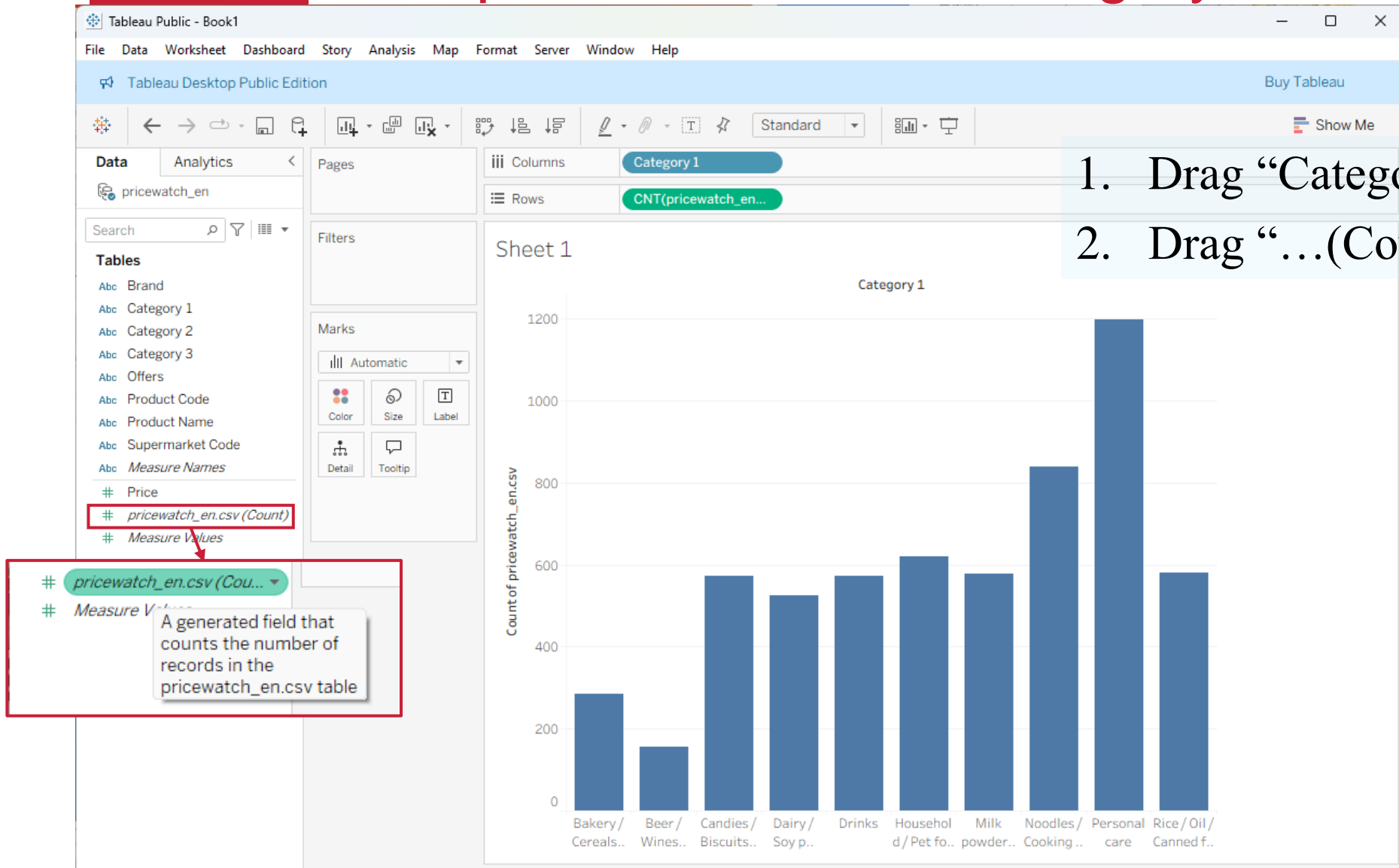
Given: Online Price Watch data (file name: pricewatch_en.csv)

Tasks:

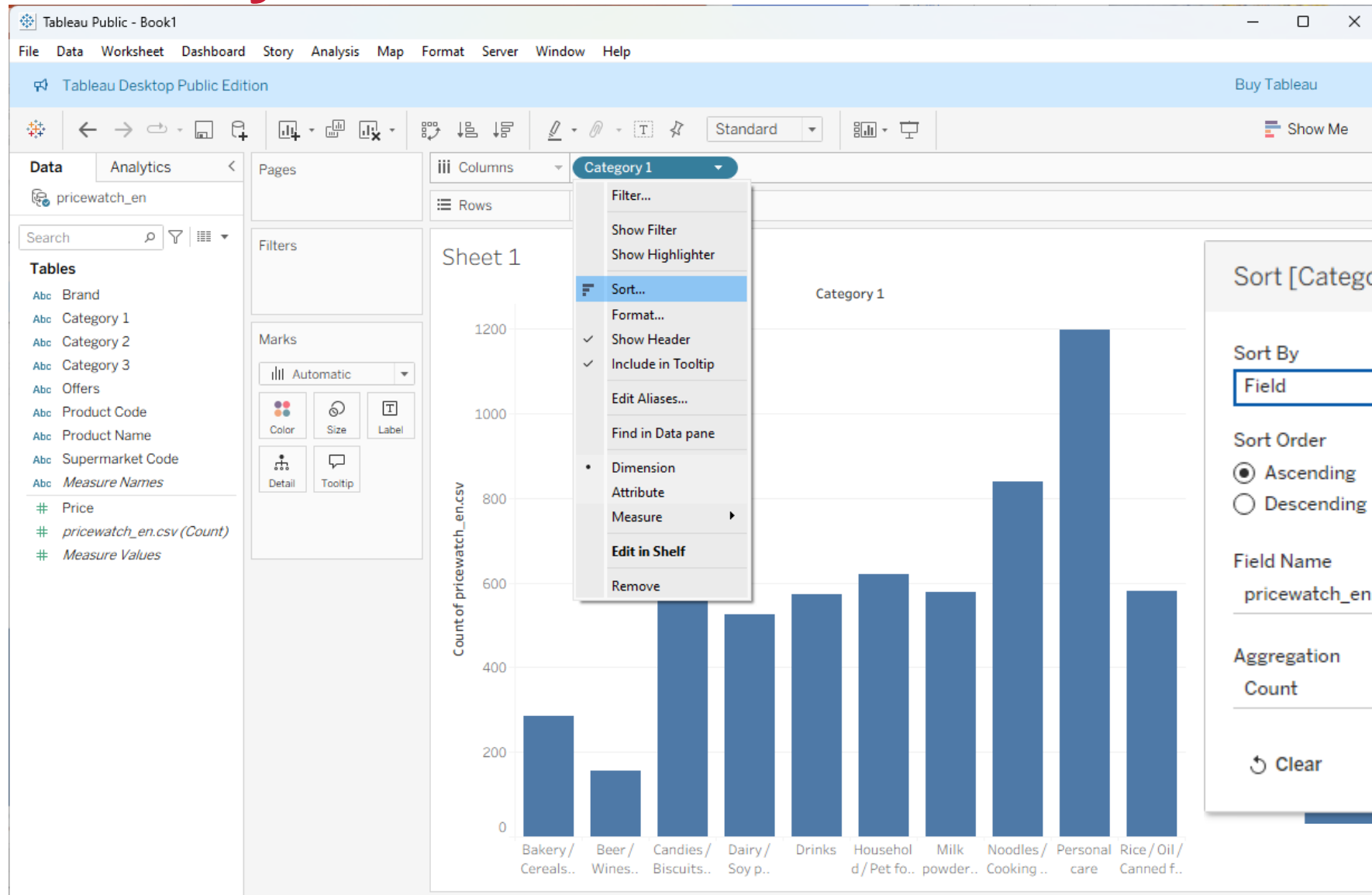
1. The quantities of each category.
2. The prices of each category.
3. The quantities of each category in each supermarket.

Task 1: The quantities of each category.

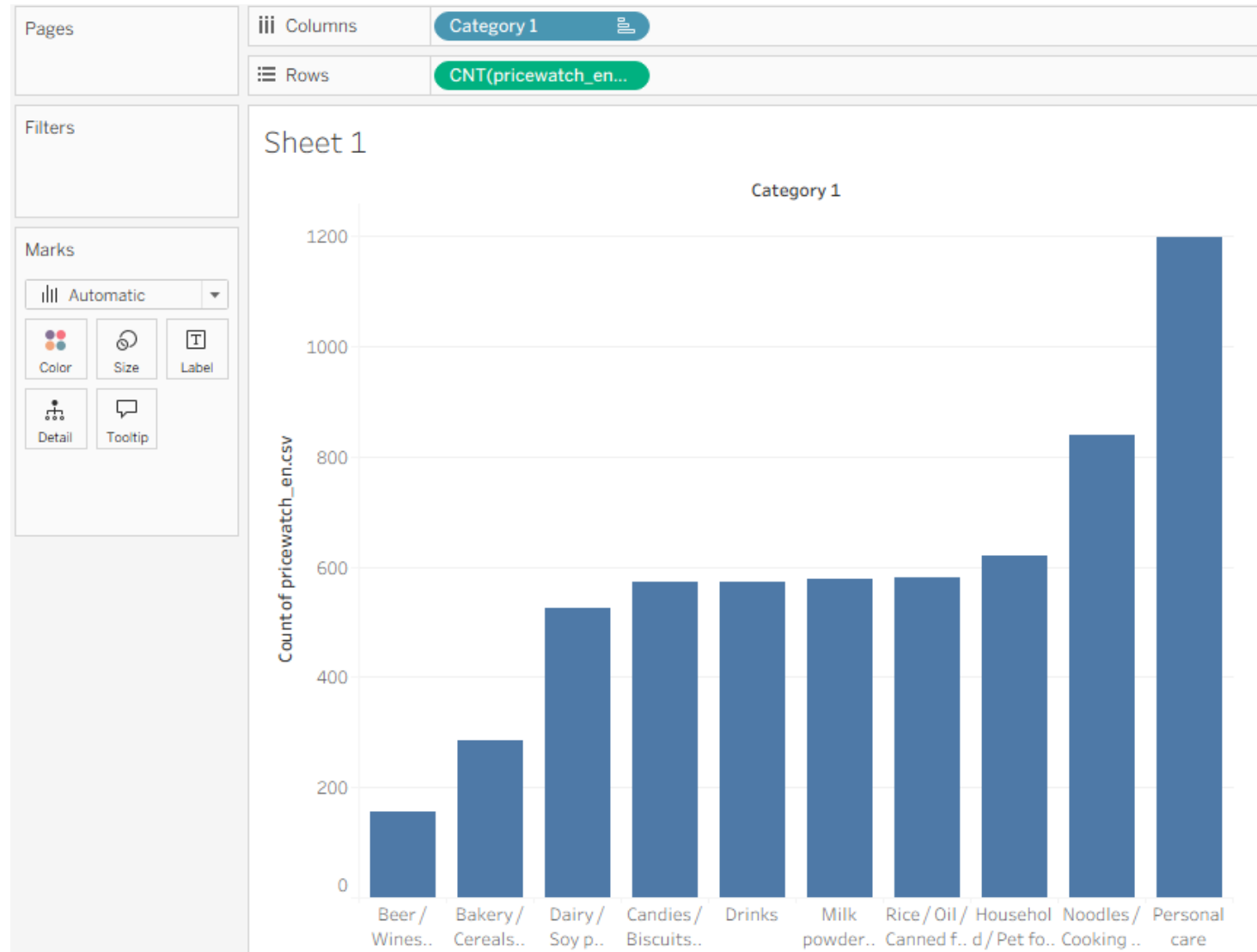
1. Drag “Category 1” on Columns
2. Drag “...(Count)” to Rows



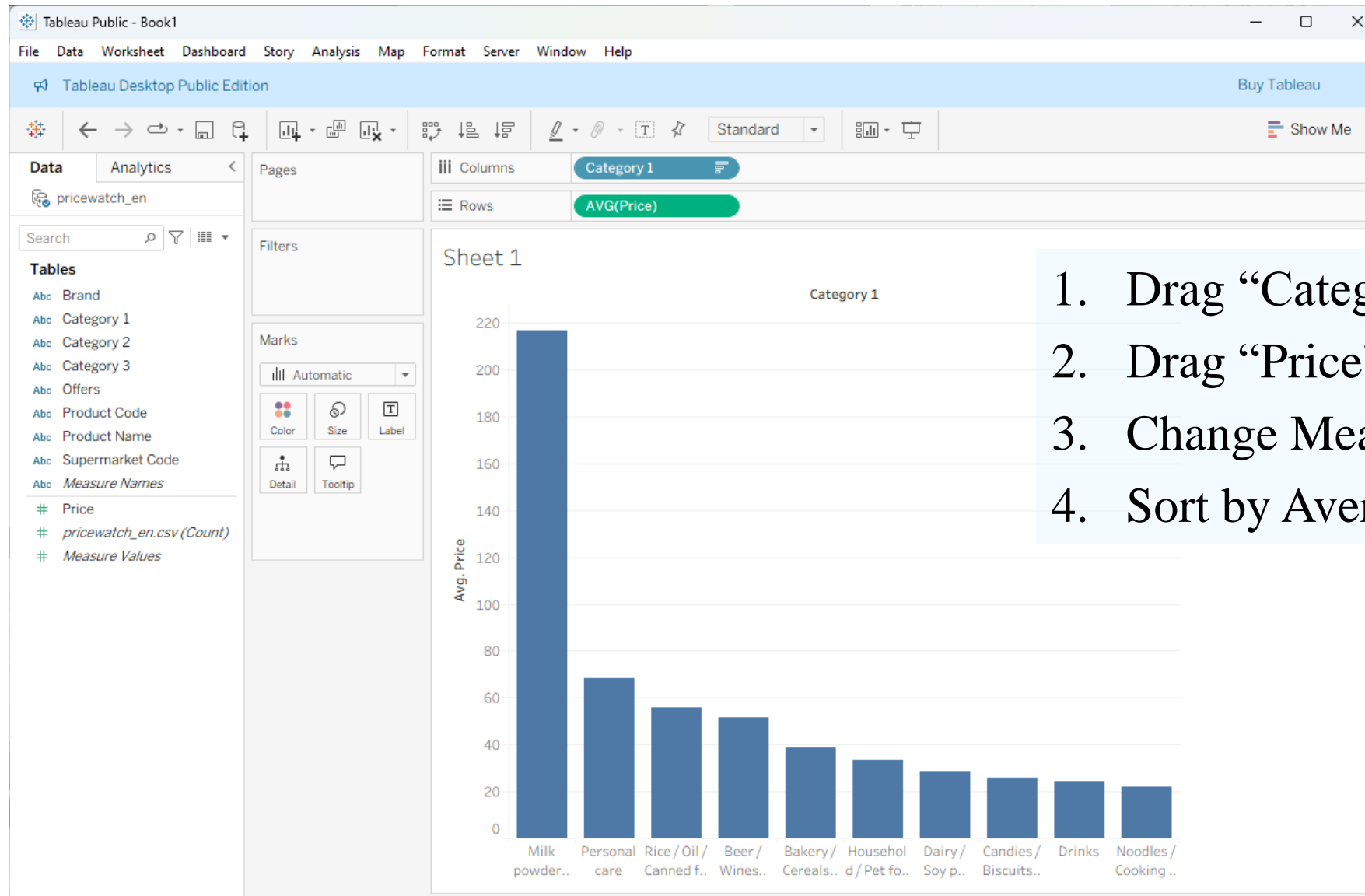
Sort By Field



Task 1: The quantities of each category.

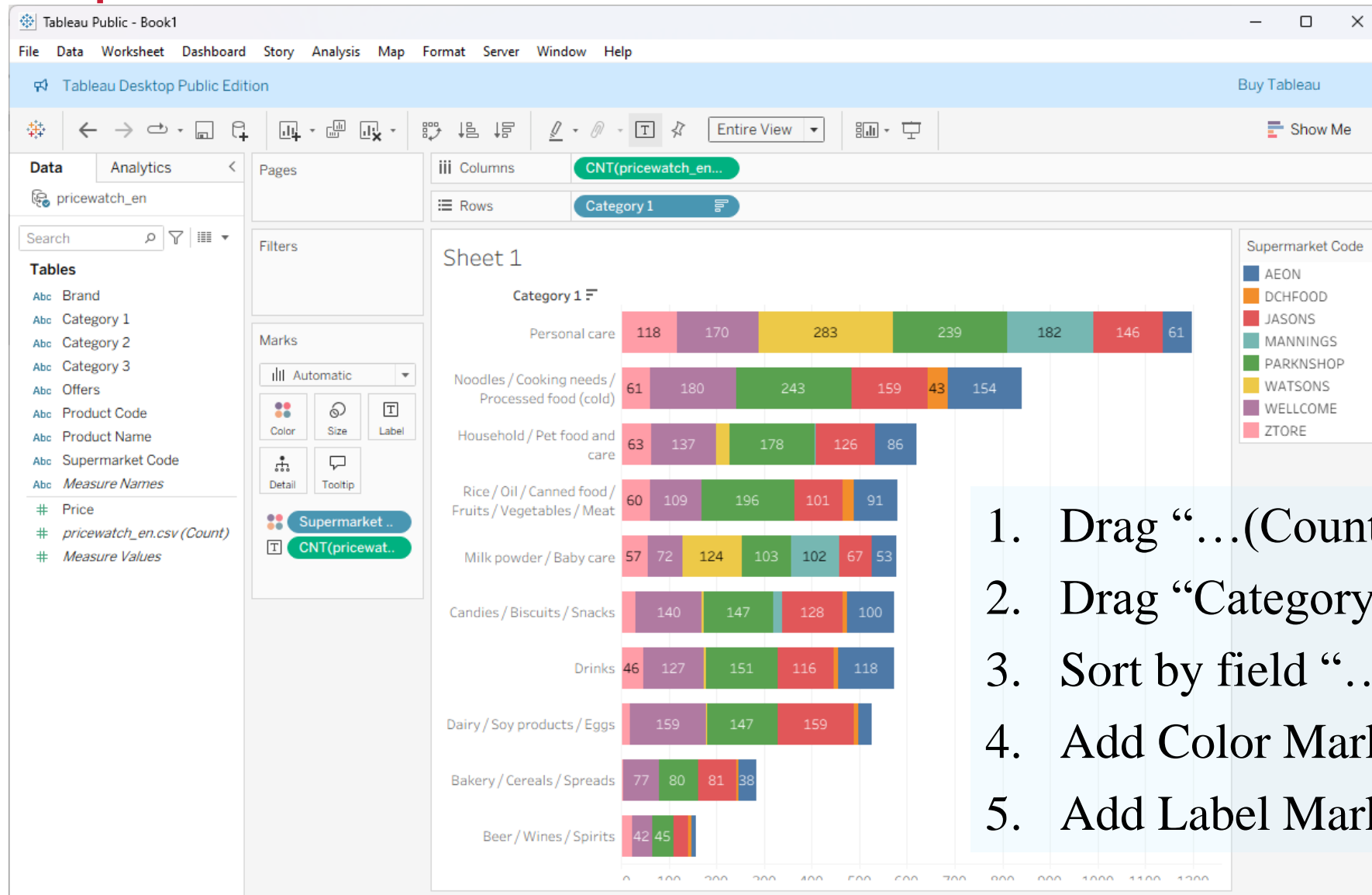


Task 2: The prices of each category.



1. Drag “Category 1” on Columns
2. Drag “Price” to Rows
3. Change Measure to Average
4. Sort by Average Price

Task 3: The quantities of each category in each supermarket.



1. Drag "... (Count)" to Columns
2. Drag "Category 1" to Rows
3. Sort by field "... (Count)"
4. Add Color Marks by Supermarket
5. Add Label Marks

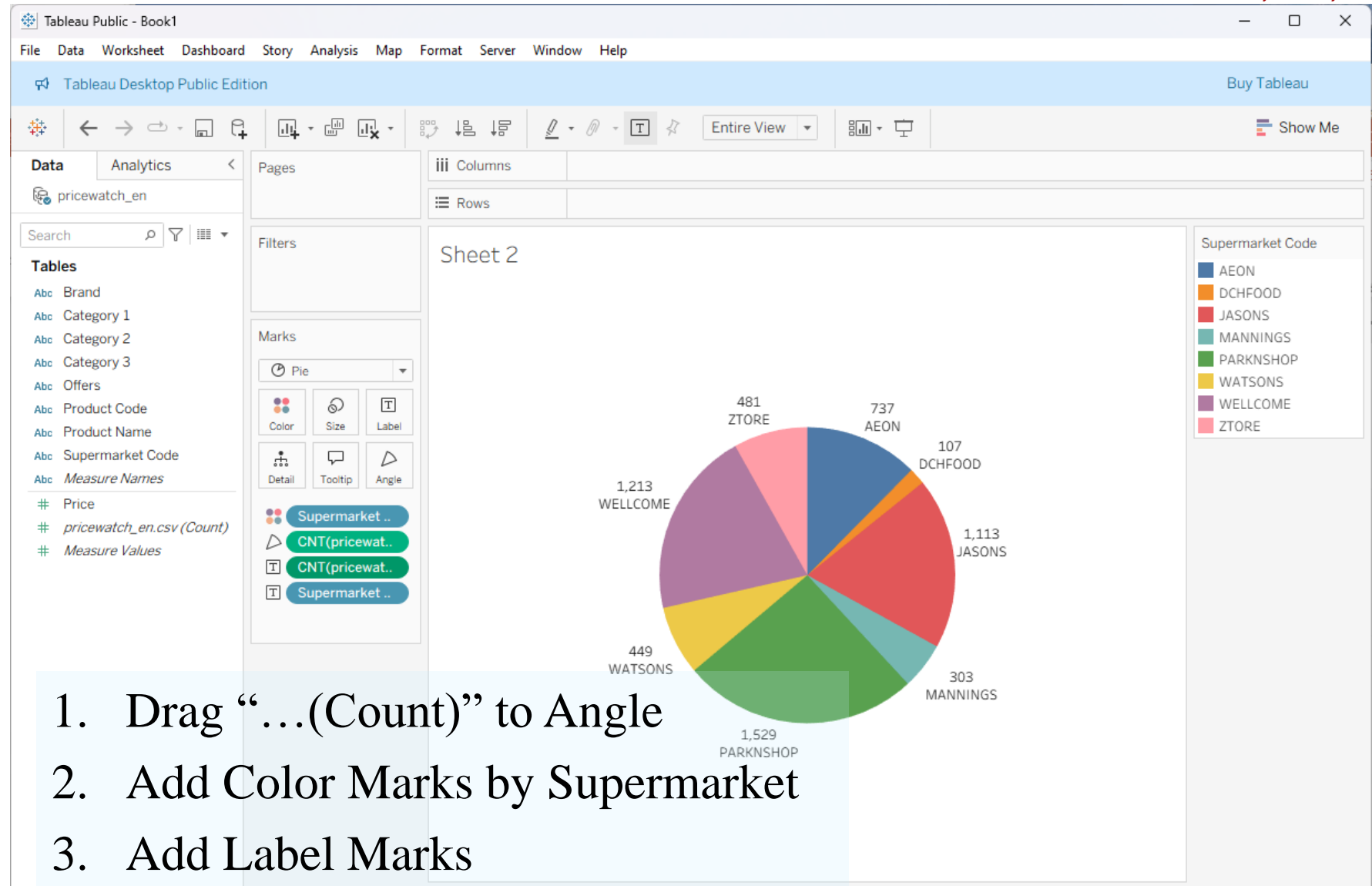
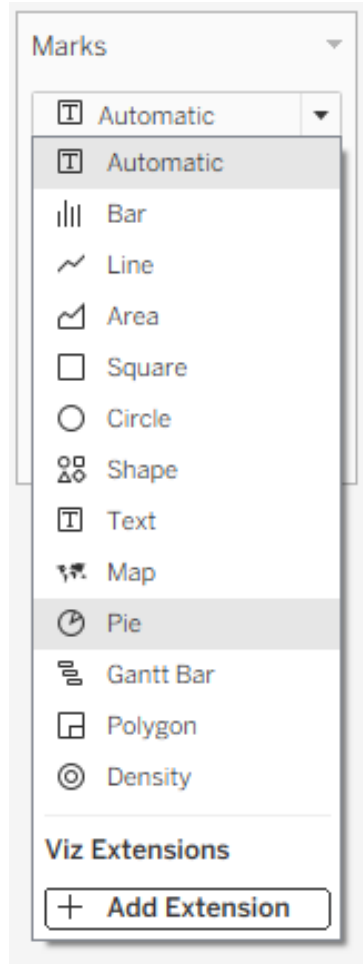
Pie Chart

Given: Online Price Watch

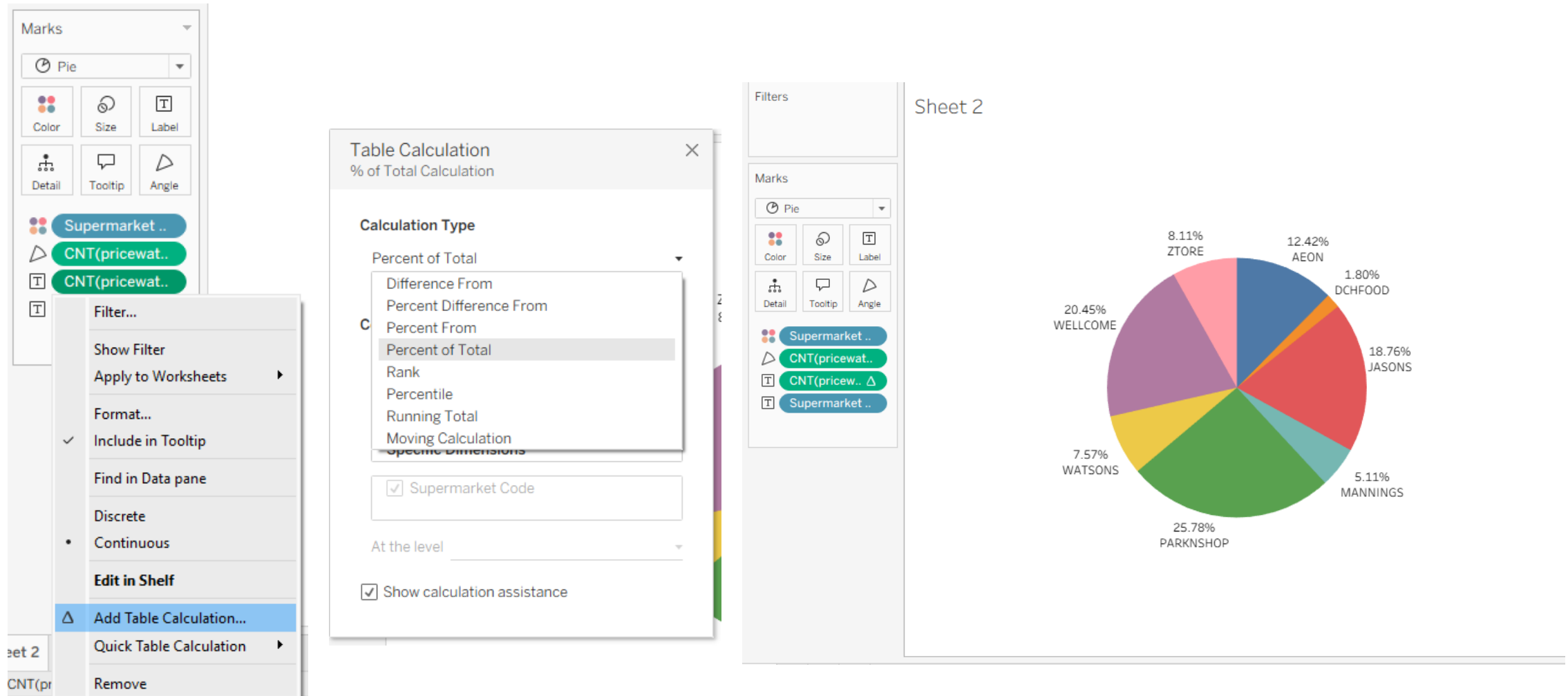
Tasks:

- The proportion of goods categories in various supermarkets.

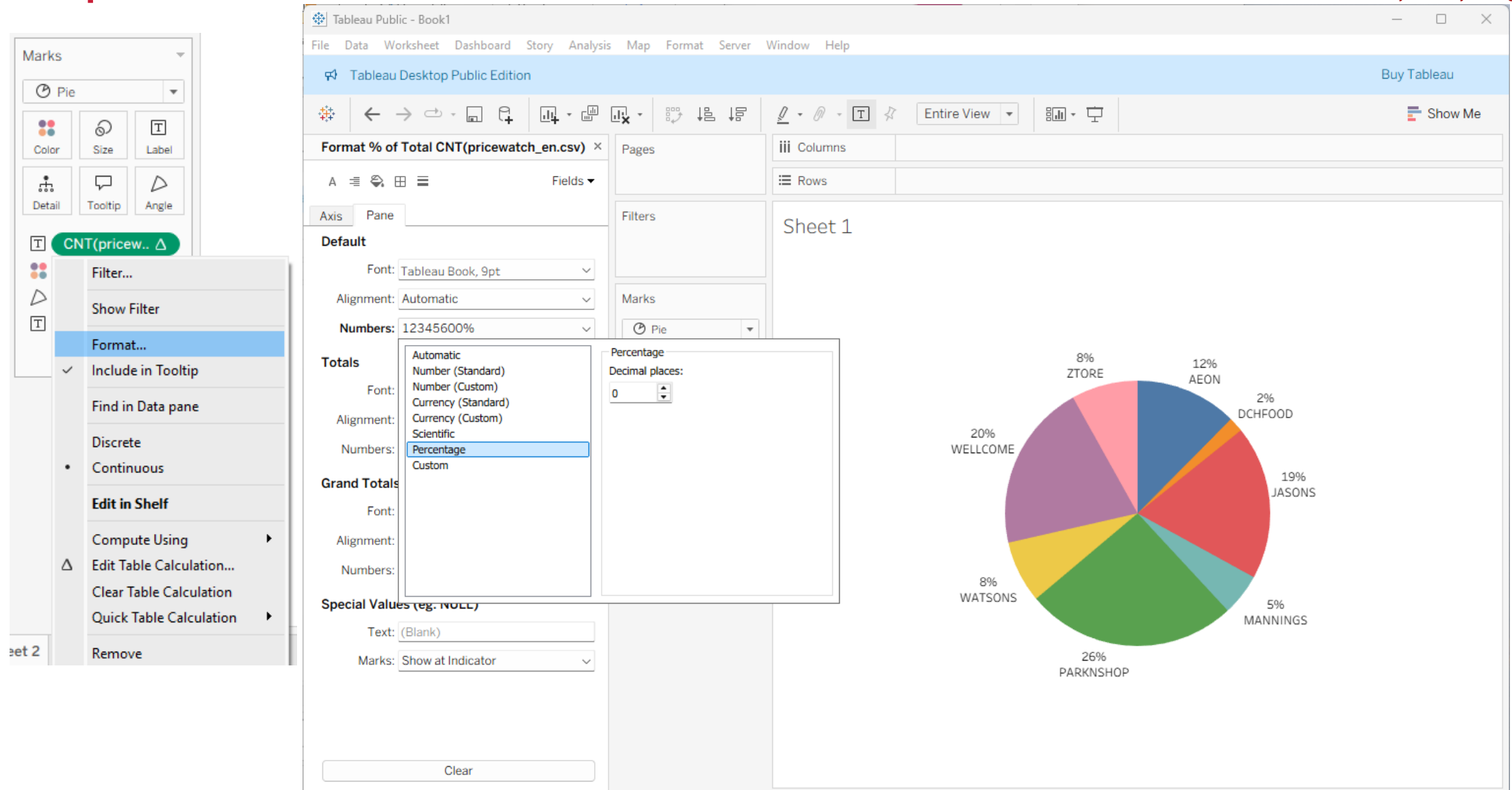
Task: The proportion of goods categories in various supermarkets.



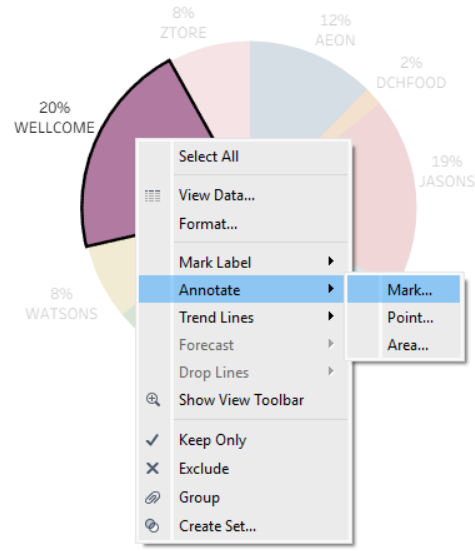
Task: The proportion of goods categories in various supermarkets.



Task: The proportion of goods categories in various supermarkets.



Task: The proportion of goods categories in various supermarkets.



Edit Annotation

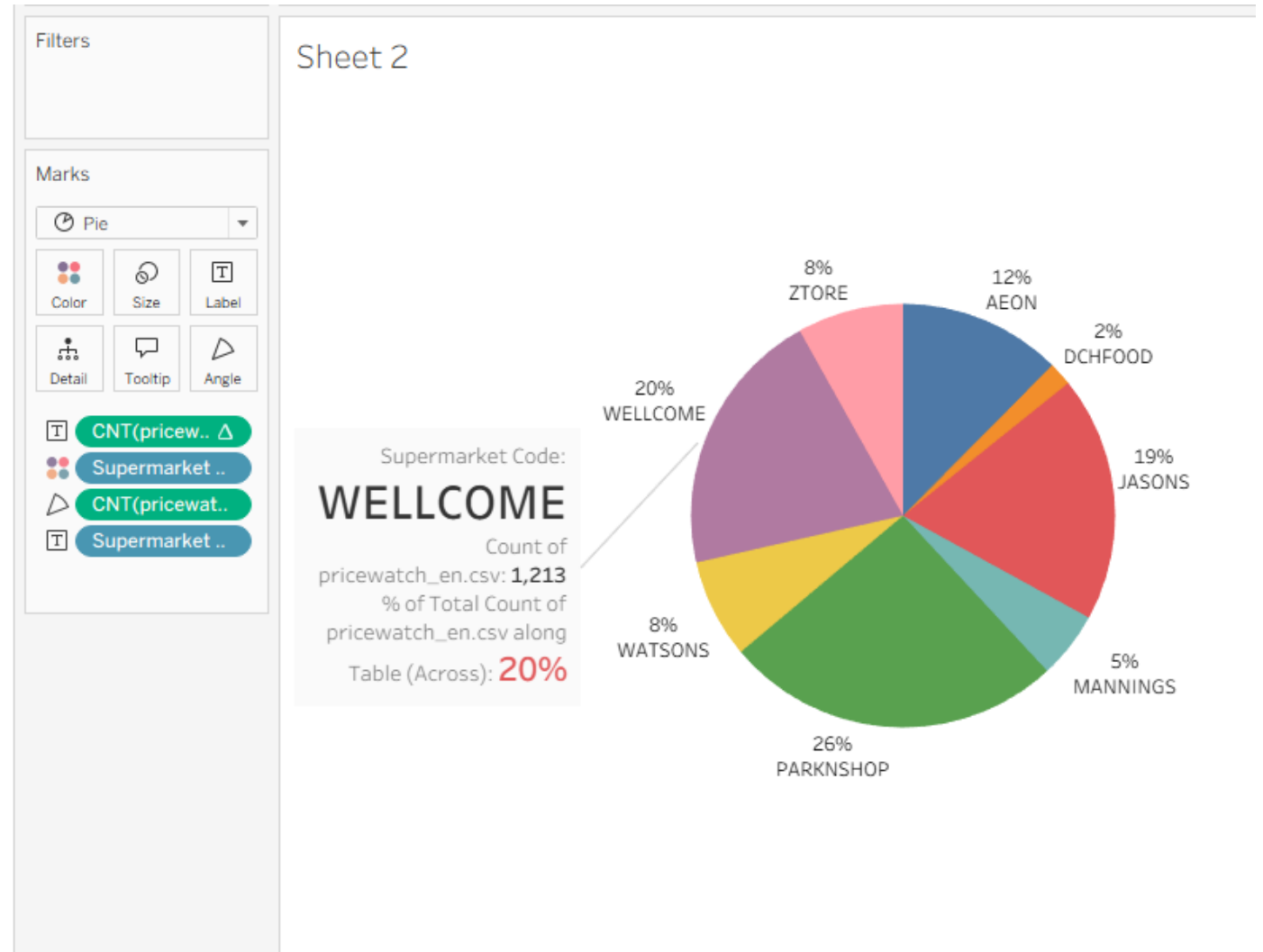
Tableau Book 22 B I U Insert X

Supermarket Code: **<Supermarket Code>**

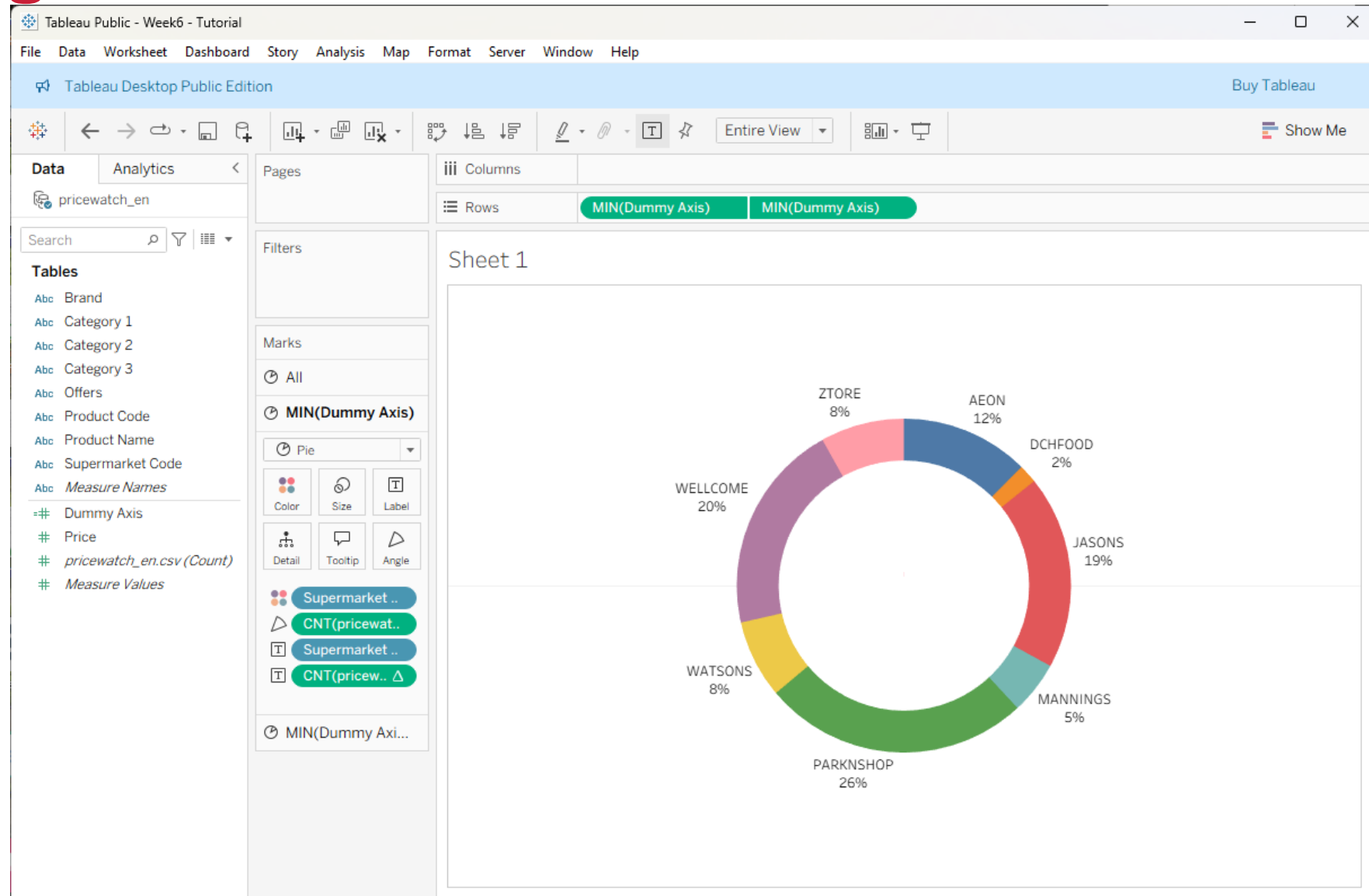
Count of pricewatch_en.csv: **<CNT(pricewatch_en.csv)>**

% of Total Count of pricewatch_en.csv along Table (Across): **<% of Total CNT(pricewatch_en.csv)>**

OK Cancel Apply

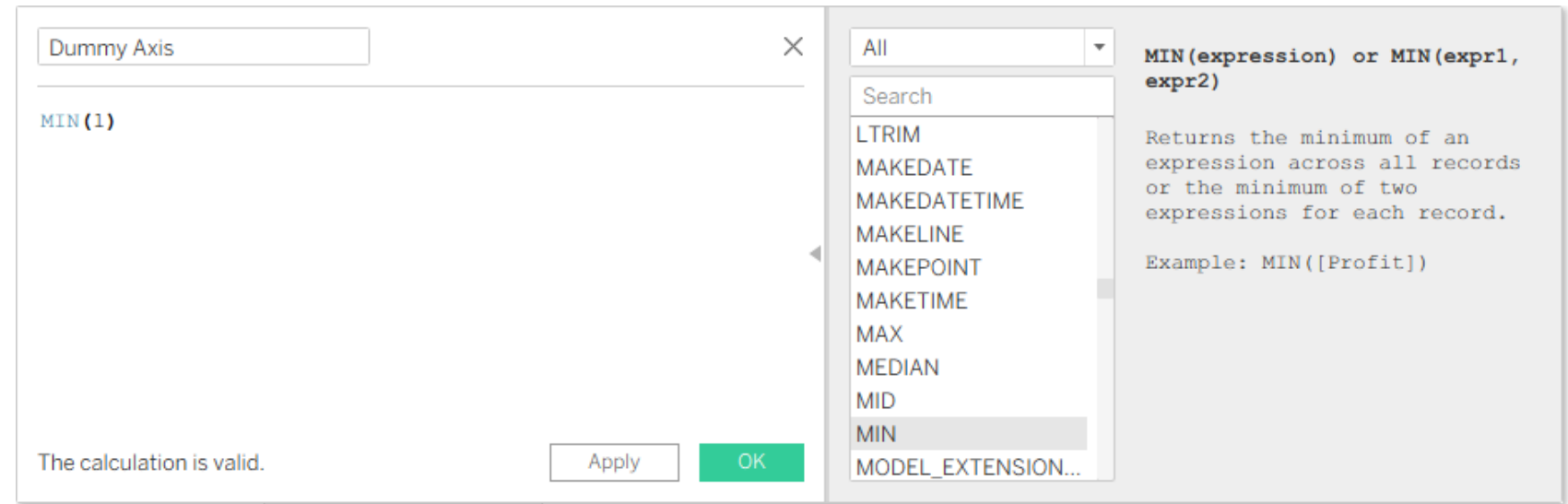
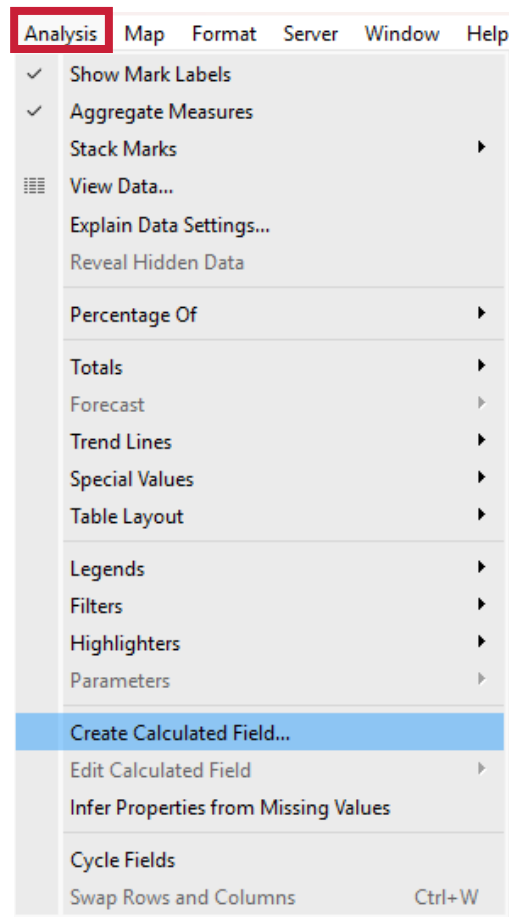


Doughnut Charts



Use two pie charts to create doughnut chart

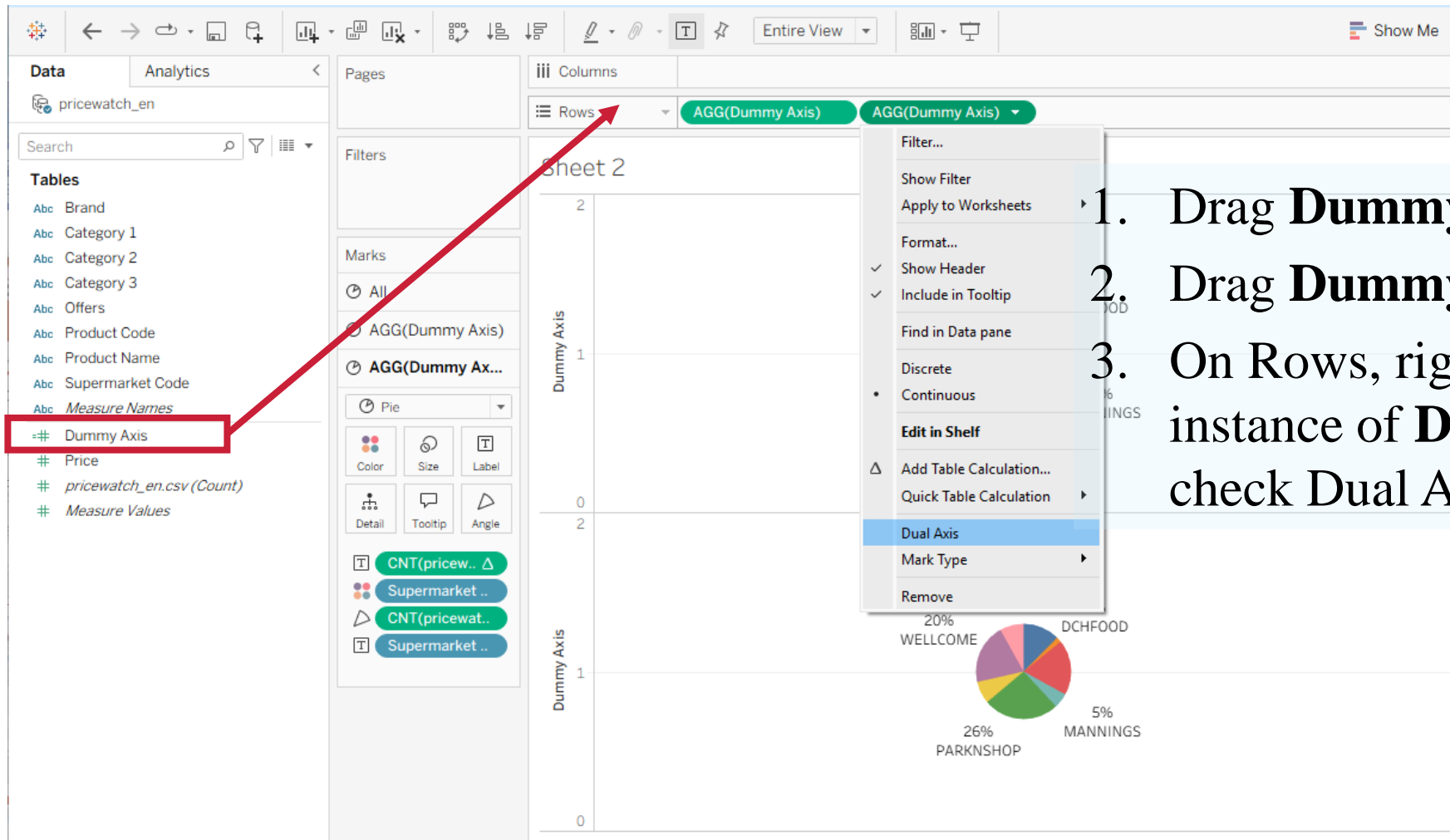
- Create Calculated Field to generate the dual-axis pie chart



1. Select Analysis > **Create Calculated Field.**
2. In the Calculated Field dialog box :
 - a. Name the calculated field, e.g. "**Dummy Axis**"
 - b. In the formula field, enter the formula: **MIN(1)**

Use two pie charts to create doughnut chart

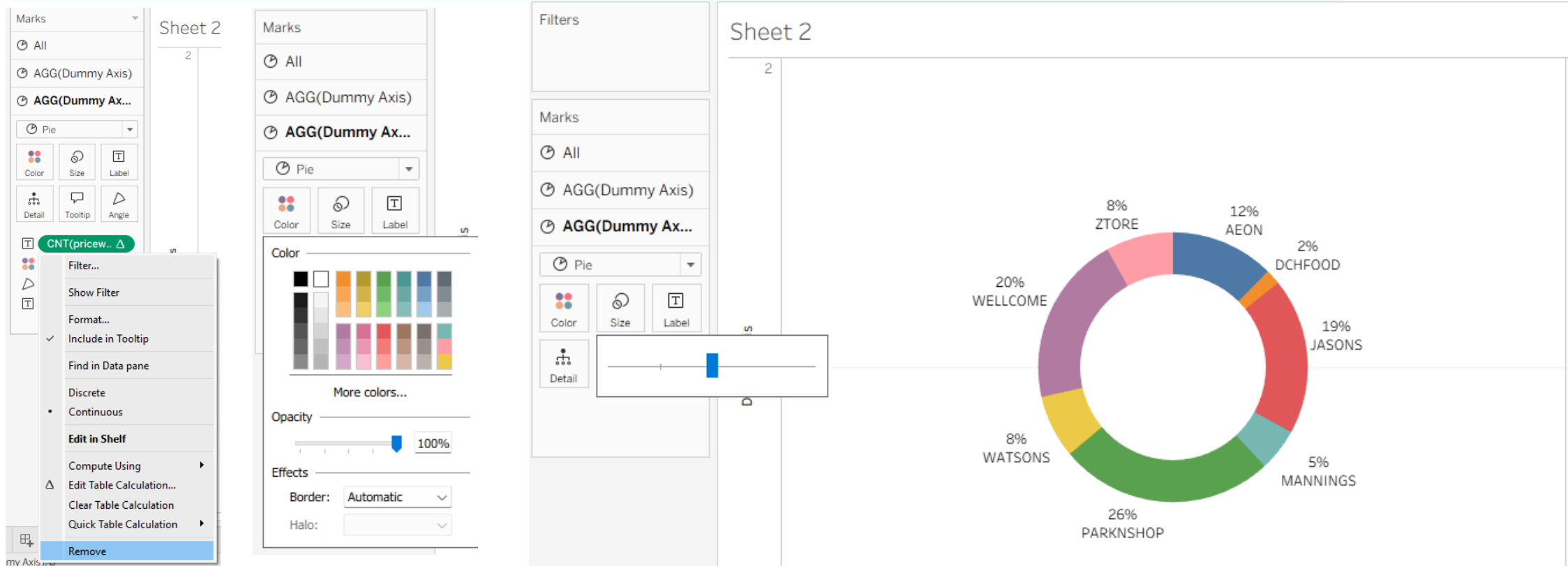
- Create Calculated Field to generate the dual-axis pie chart



1. Drag **Dummy Axis** to Rows.
2. Drag **Dummy Axis** to Rows **again**.
3. On Rows, right-click the second instance of **Dummy Axis**, and then check Dual Axis.

Use two pie charts to create doughnut chart

- **Change the second pie chart to a circle**
 1. At the bottom of the Marks card, click AGG(Dummy Axis) (2). Remove items under marks.
 2. Click Color, and then choose the same color as the background.
 3. Click Size, and then drag the slider to the left to make the circle smaller.



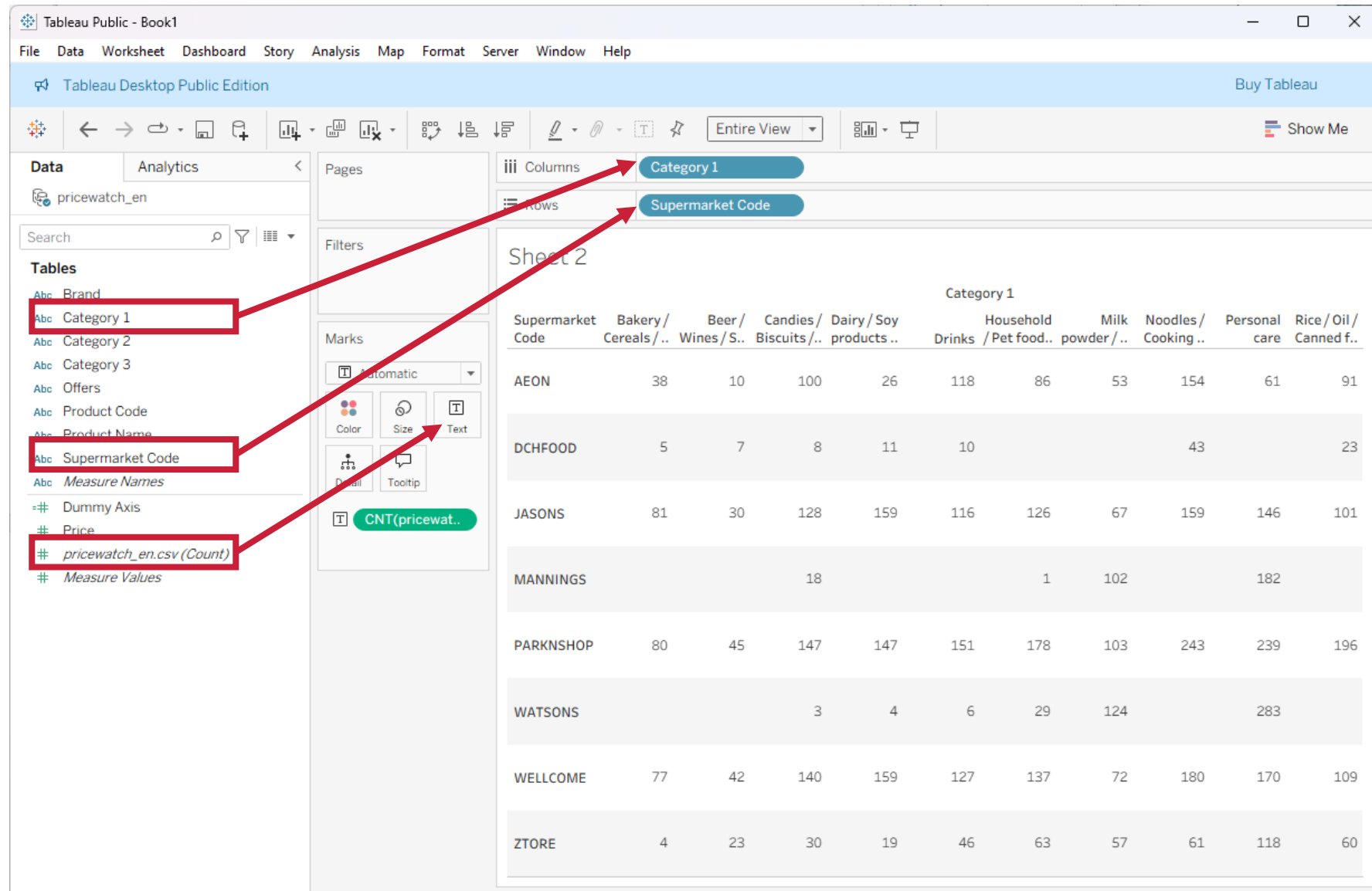
Table

Given: Online Price Watch

Task:

1. Basic table to show quantities of each category in each supermarket.
2. Highlight table

Basic table



Highlight table

Abc Category 2
 Abc Category 3
 Abc Offers
 Abc Product Code
 Abc Product Name
 Abc Supermarket Code
 Abc Measure Names
 =# Dummy Axis
 # Price
 # **pricewatch_en.csv (Count)**
 # Measure Values

Marks

Automatic

Color Size Text

Detail Tooltip

CNT(pricewat..)

Marks

Automatic

Automatic

Bar

Line

Area

Square

Circle

Shape

Text

Map

Pie

Gantt Bar

Polygon

Density

Viz Extensions

+ Add Extension

Edit Colors CNT(pricewatch_en.csv)

Palette

Automatic

Start

Automatic 1

Center

Automatic 142

End

Automatic 283

☐ Stepped Color 5 steps

☐ Reverse

☐ Use full color range

☐ Include totals

Reset

Pages

Filters

Marks

Square

Color Size Label

Detail Tooltip

CNT(pricewat..)

CNT(pricewat..)

Columns

Category 1

Rows

Supermarket Code

Sheet 2

	Category 1										
Supermarket Code	Bakery / Cereals ..	Beer / Wines /..	Candies / Biscuit..	Dairy / Soy pro..	Drinks	Househo Id / Pet ..	Milk powder..	Noodles / Cooki..	Personal care	Rice / Oil / Canne..	
AEON	38	10	100	26	118	86	53	154	61	91	
DCHFOOD	5	7	8	11	10			43		23	
JASONS	81	30	128	159	116	126	67	159	146	101	
MANNINGS			18			1	102		182		
PARKNSHOP	80	45	147	147	151	178	103	243	239	196	
WATSONS			3	4	6	29	124		283		
WELLCOME	77	42	140	159	127	137	72	180	170	109	
ZTORE	4	23	30	19	46	63	57	61	118	60	

Other Charts

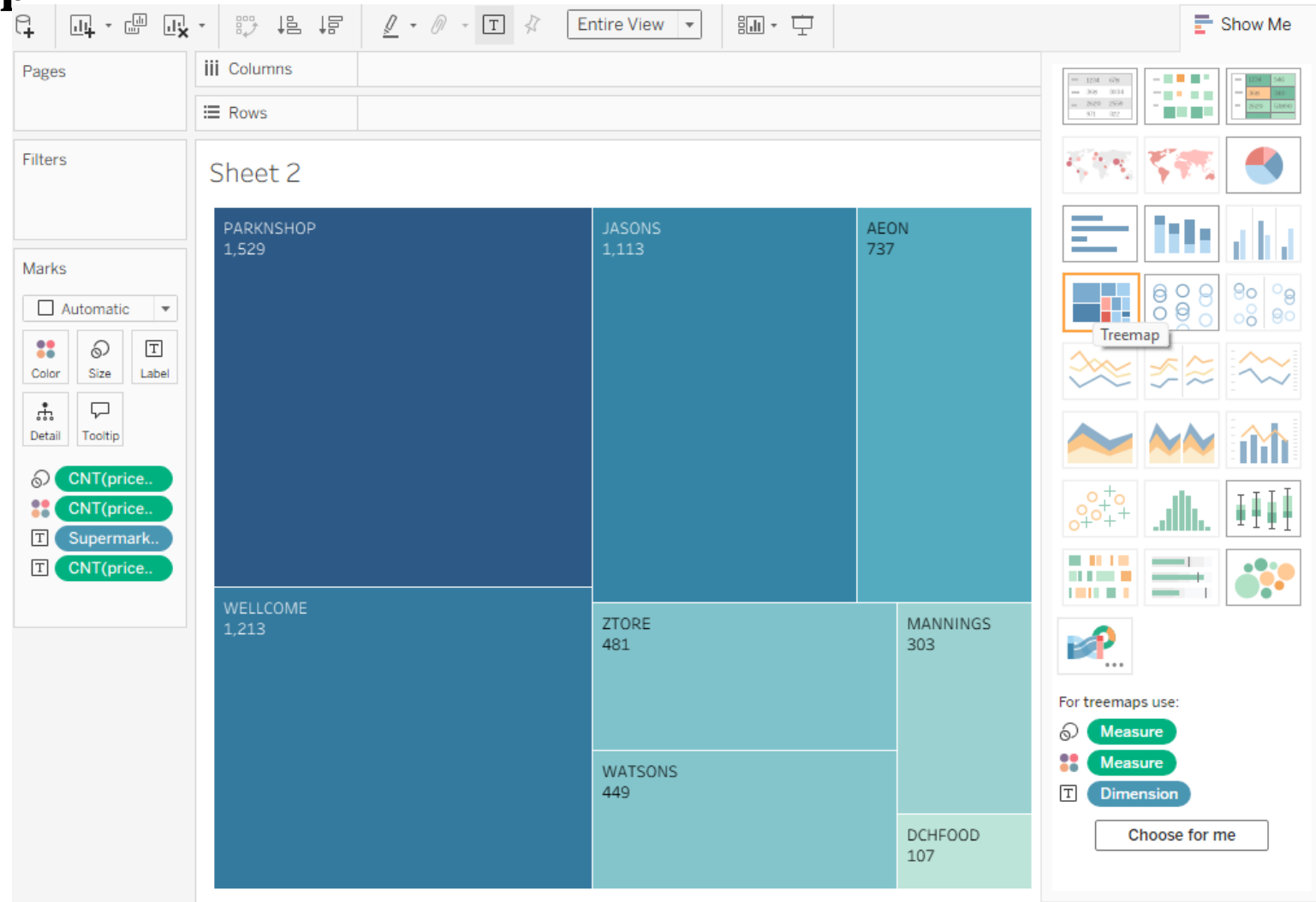
Given: Online Price Watch

Task:

- Quantity of goods in different supermarkets.

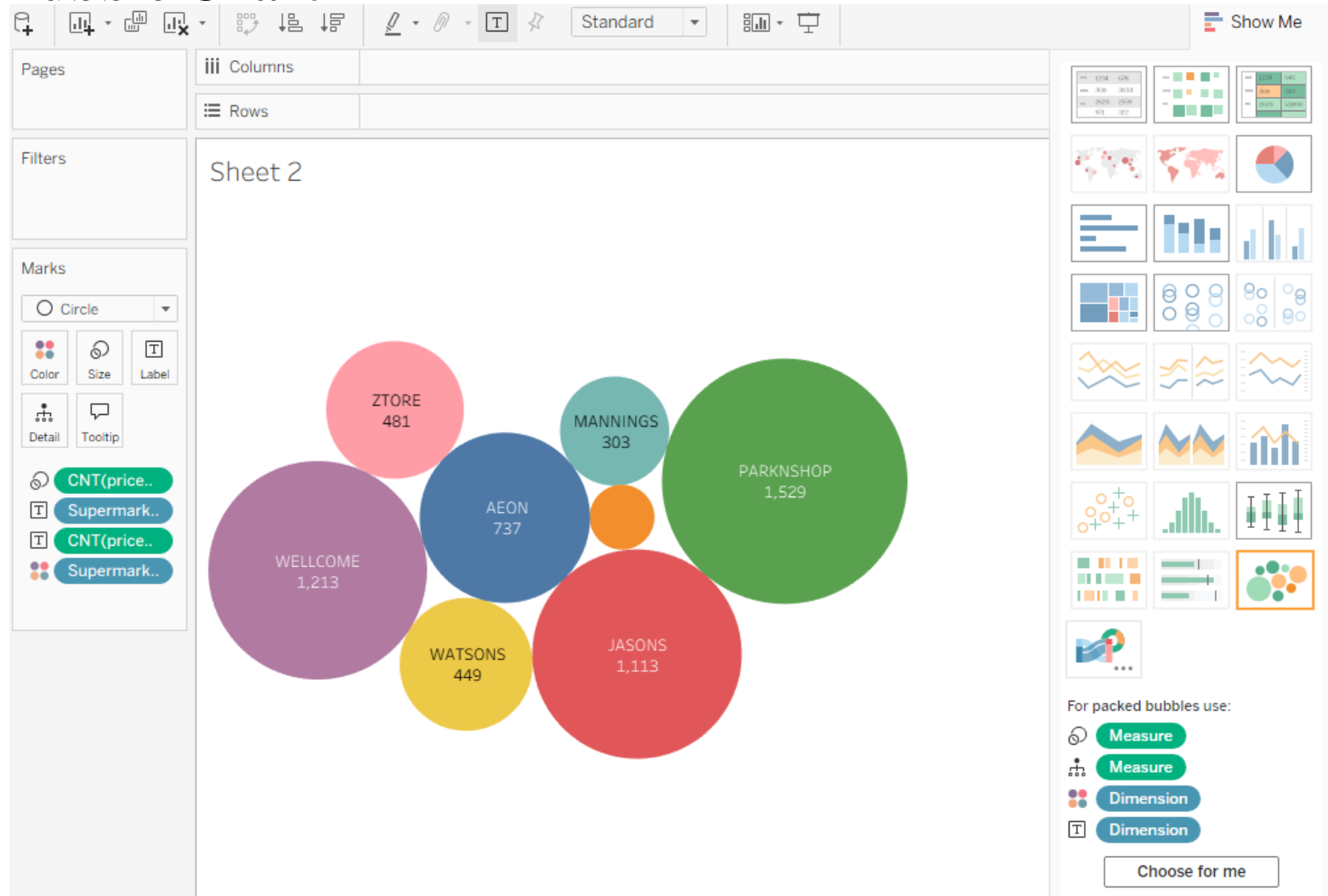
Task: Quantity of goods in different supermarkets.

- **Treemap**



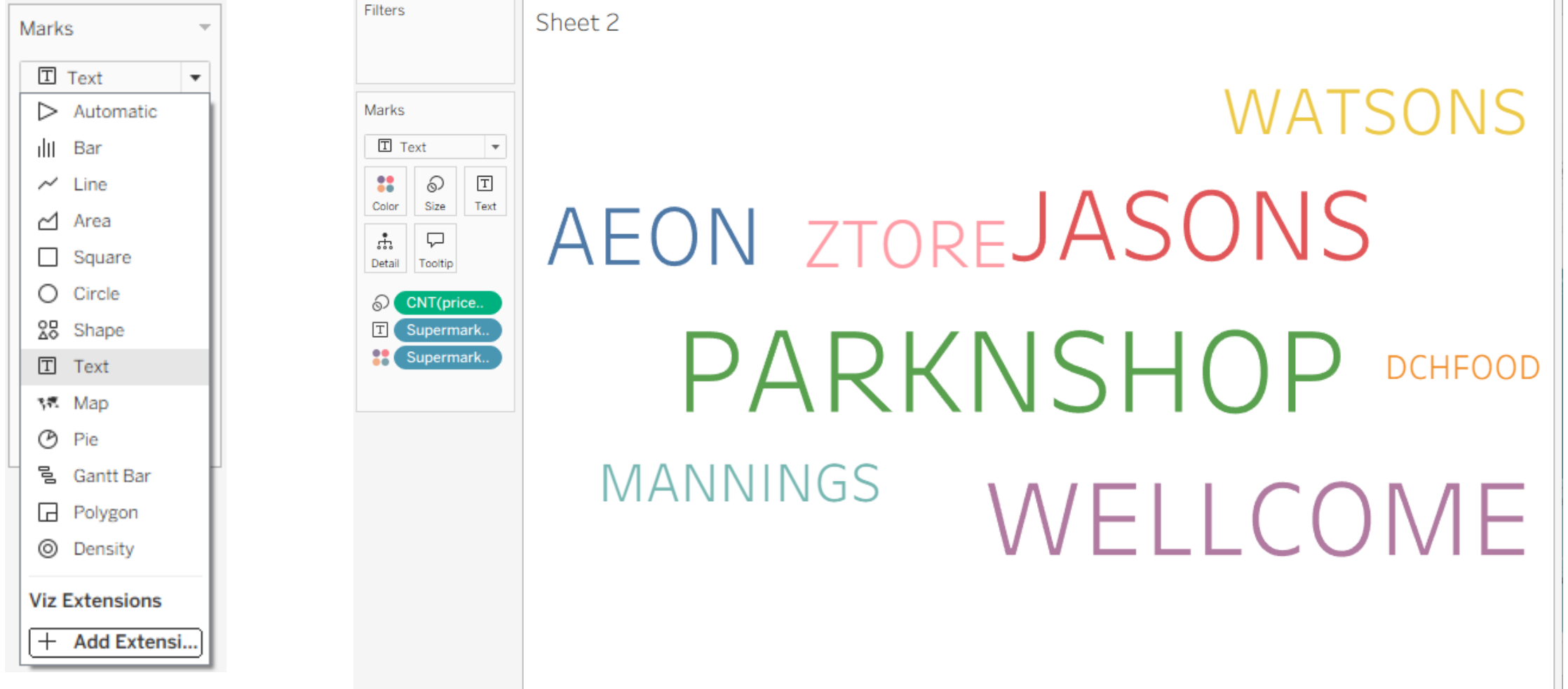
Task: Quantity of goods in different supermarkets.

- Packed Bubble Chart**



Task: Quantity of goods in different supermarkets.

- **Word Cloud**



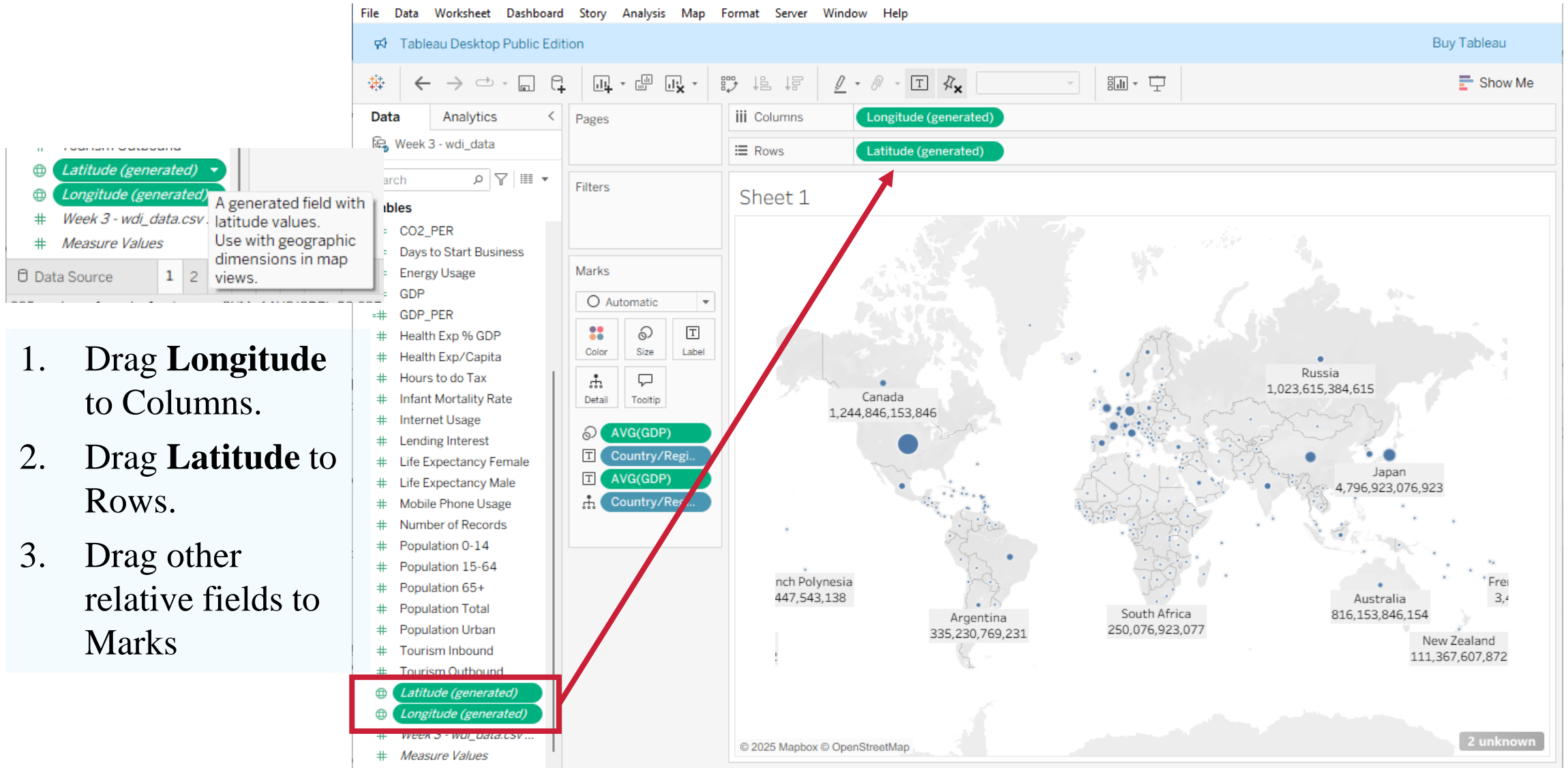
Map

Given: Wdi.csv

Task:

GDP and CO2 Emissions of Various Countries and Regions
Per capita GDP in different regions

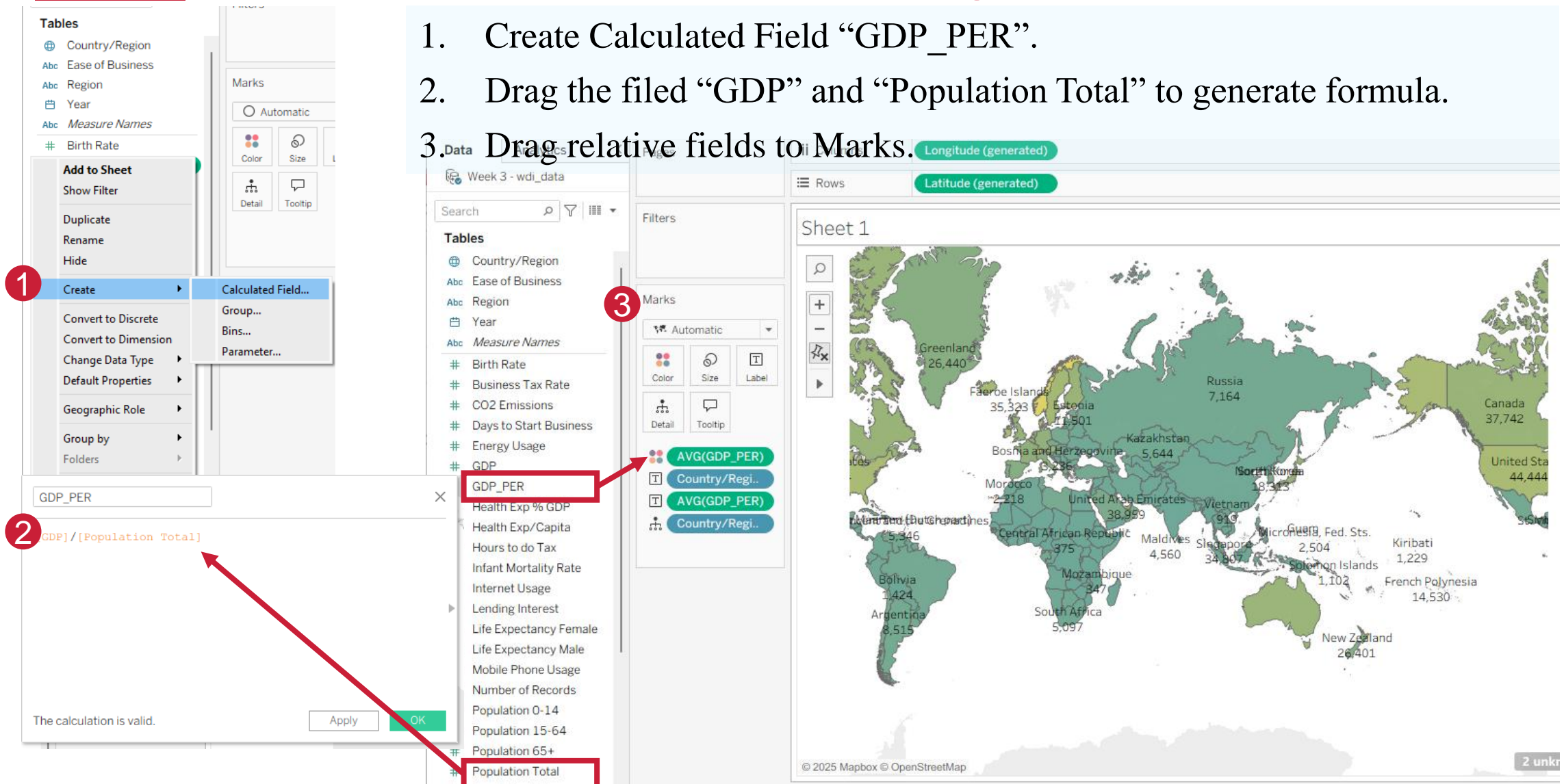
Task: GDP of Various Countries and Regions.



1. Drag **Longitude** to Columns.
2. Drag **Latitude** to Rows.
3. Drag other relative fields to Marks

Task: Per capita GDP in different regions

1. Create Calculated Field “GDP_PER”.
2. Drag the filed “GDP” and “Population Total” to generate formula.
3. Drag relative fields to Marks.



The screenshot illustrates the Tableau workflow for creating a calculated field and visualizing it on a world map. The interface is divided into several panes: Tables, Marks, Filters, and Rows. The 'Tables' pane on the left lists various data fields, including 'GDP' and 'Population Total'. The 'Marks' pane shows the 'Automatic' mark type. The 'Filters' pane is empty. The 'Rows' pane shows 'Longitude (generated)' and 'Latitude (generated)'.

Step 1: Create Calculated Field

The 'Create' button in the 'Tables' pane is highlighted with a red circle and the number 1. A dropdown menu is open, showing 'Calculated Field...' as the selected option.

Step 2: Generate Formula

The 'Calculated Field' dialog box is open, showing the formula $GDP / [Population Total]$. The formula is highlighted with a red circle and the number 2. The 'OK' button is visible at the bottom right of the dialog.

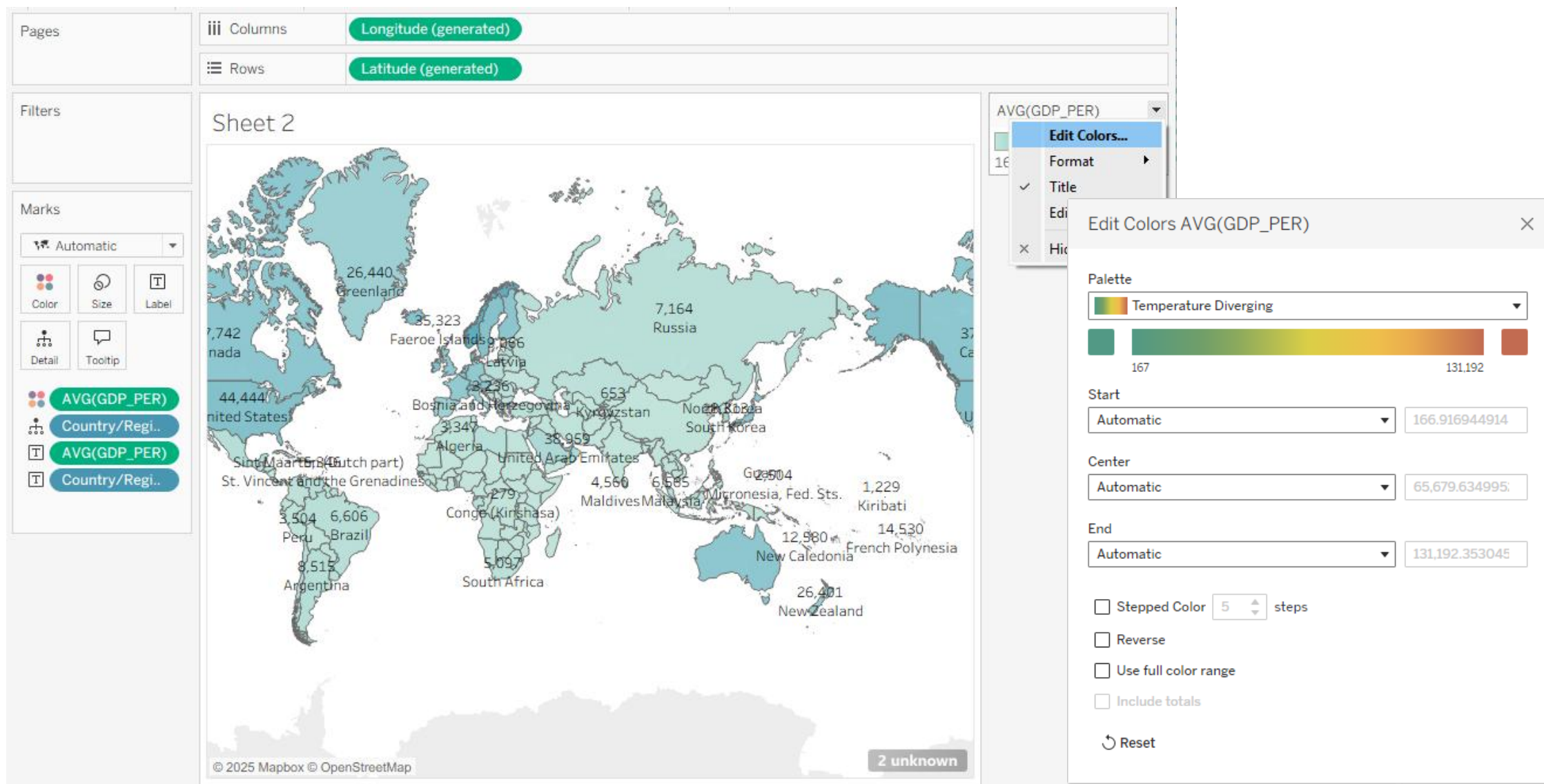
Step 3: Drag relative fields to Marks

The 'GDP_PER' field is highlighted in the 'Tables' pane with a red circle and the number 3. An arrow points from this field to the 'Marks' pane, where it is being dragged. The 'Marks' pane shows the 'Automatic' mark type, and the 'GDP_PER' field is being added to the 'Label' shelf.

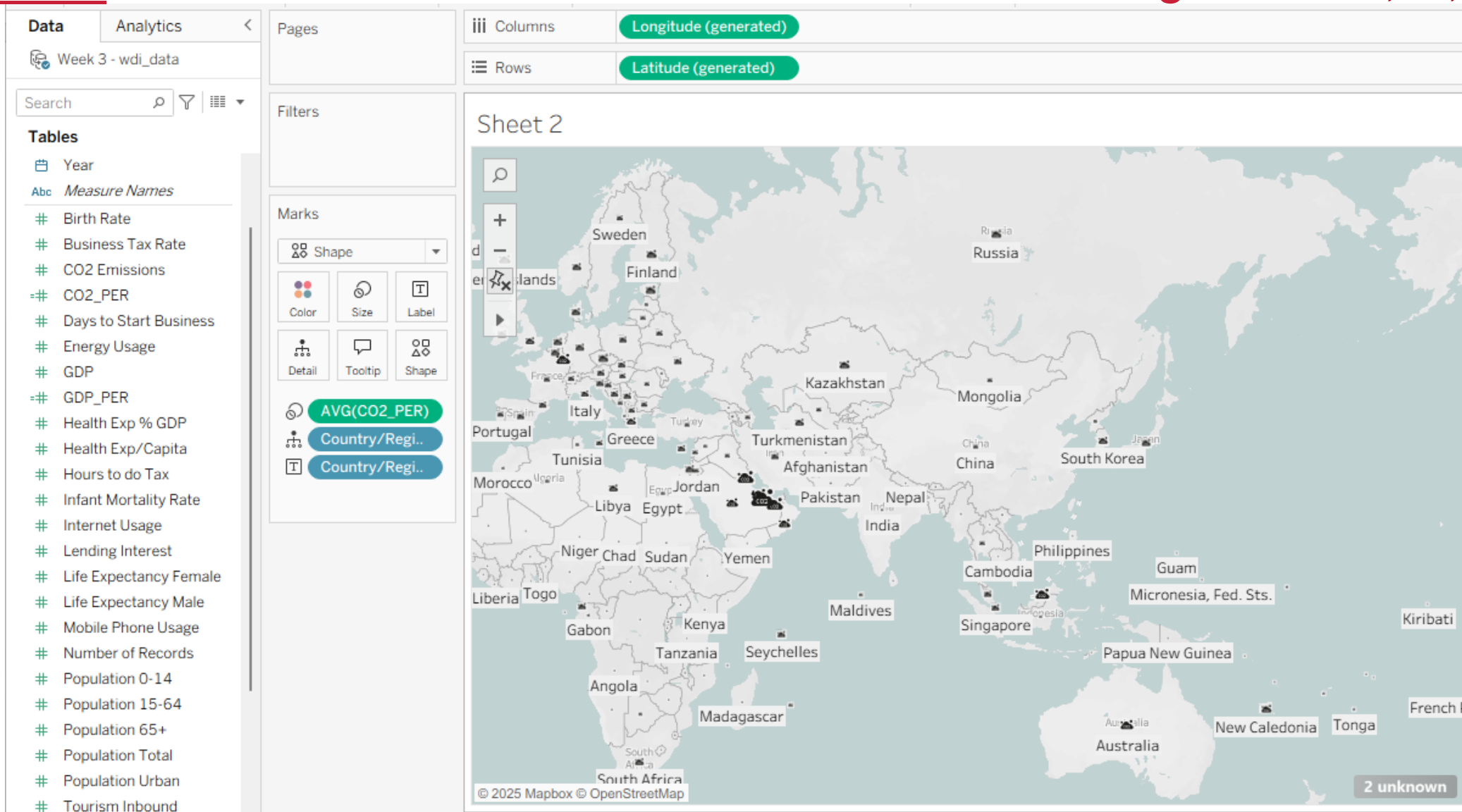
Visualization

The final visualization is a world map titled 'Sheet 1'. The map shows the per capita GDP for various countries, with values labeled on the map. The map is color-coded by the 'GDP_PER' field. The map includes a search bar, zoom controls, and a legend.

Task: Per capita GDP in different regions



Task: CO2 Emissions of Various Countries and Regions.





Change Map Logo

SDSC5002C62 Exploratory Data Anlys & Visua > Datasets

0 selected



<input type="checkbox"/>	Name ▲	Created ↕	Last Modified ↕	Modified By ↕	Size ↕	Status	Actions
<input type="checkbox"/>	 co2-cloud.png	6:47pm	6:47pm	Yanru LI	21 KB	✓	⋮
<input type="checkbox"/>	 gdp.png	6:47pm	6:47pm	Yanru LI	39 KB	✓	⋮

Windows:

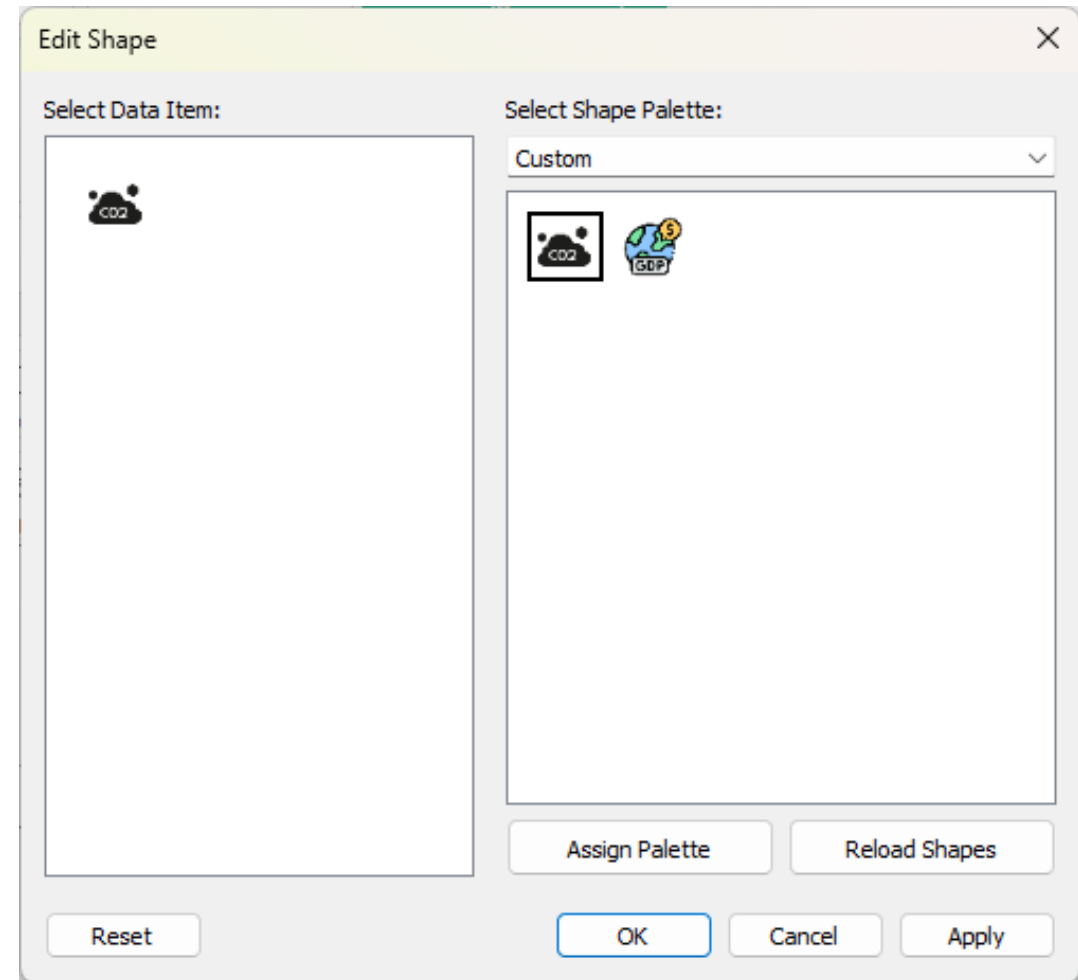
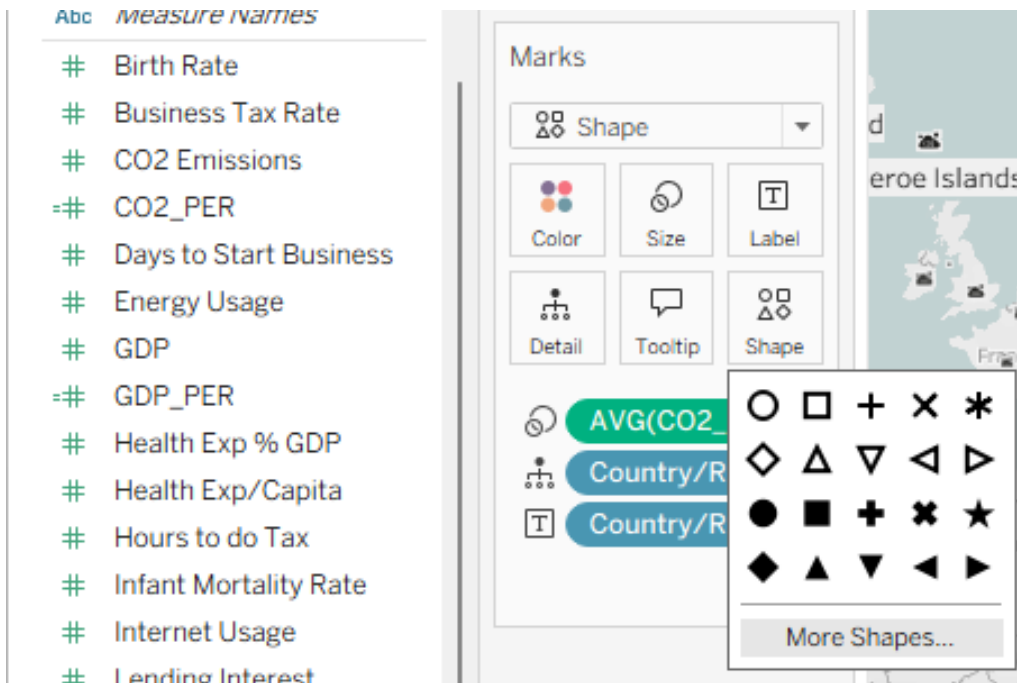
Window Exploer: C:\Users\user name\Documents\My Tableau Repository

Mac:

Cmd+space: My Tableau Repository

Move the figures into 'shape' folder

Change Map Logo



Change the background

Select All

View Data...

Format...

Edit Locations...

Annotate

Trend Lines

Forecast

Drop Lines

Hide View Toolbar

Background Layers...

Map Options...

Background Layers

Background

Style

Normal

Light

Normal

Dark

Streets

Outdoors

Satellite

☒ Land Cover

☐ Terrain

☐ Coastline

☐ Streets, Highways, Routes

☐ Light Country/Region Borders

☐ Light Country/Region Names

☒ Country/Region Borders

☒ Country/Region Names

☐ Light State/Province Borders

Data Layer

Layer

No Data Layer

Make Default

Pages

Filters

Marks

Shape

Color

Size

Label

Detail

Tooltip

Shape

Columns

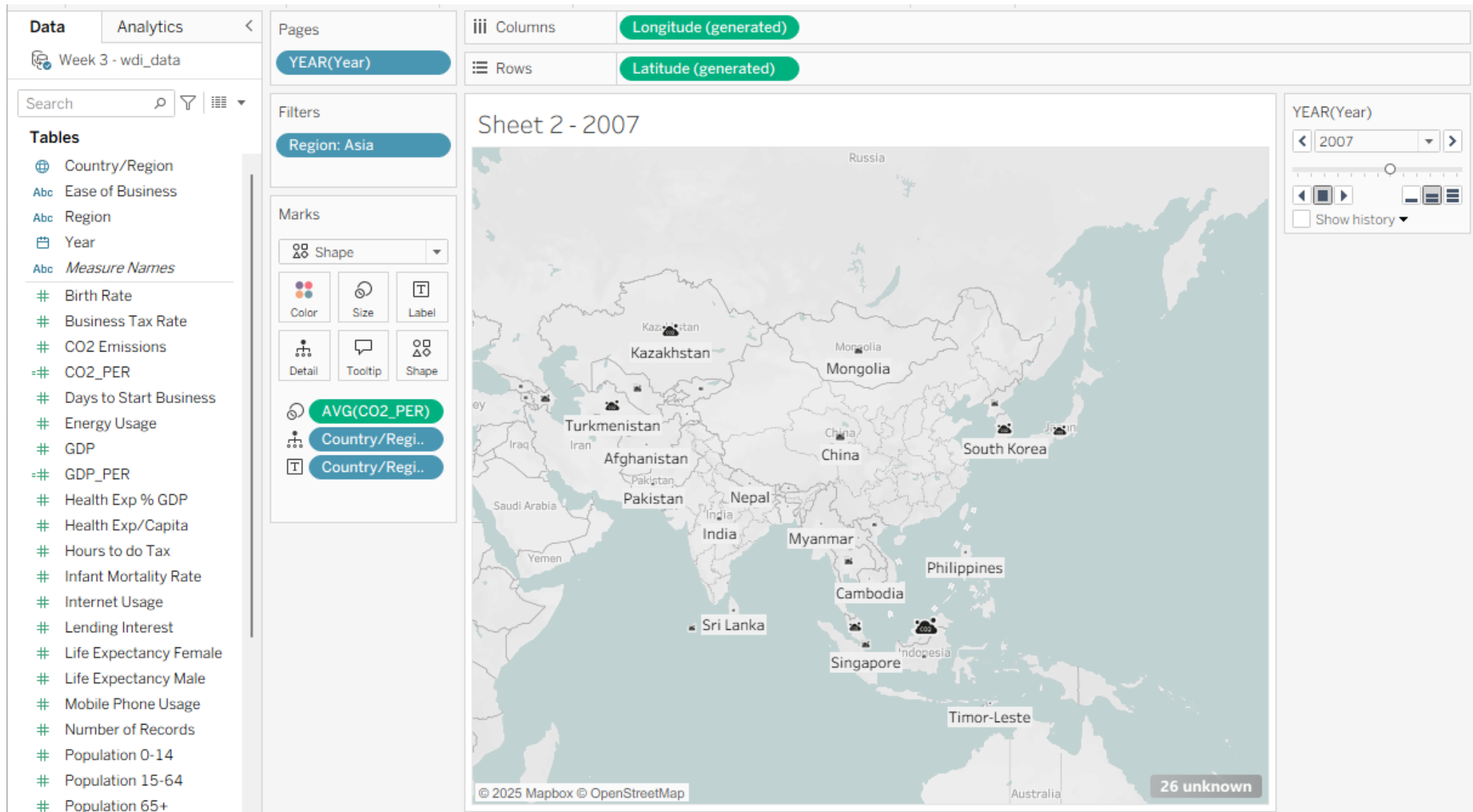
Longitude (generated)

Rows

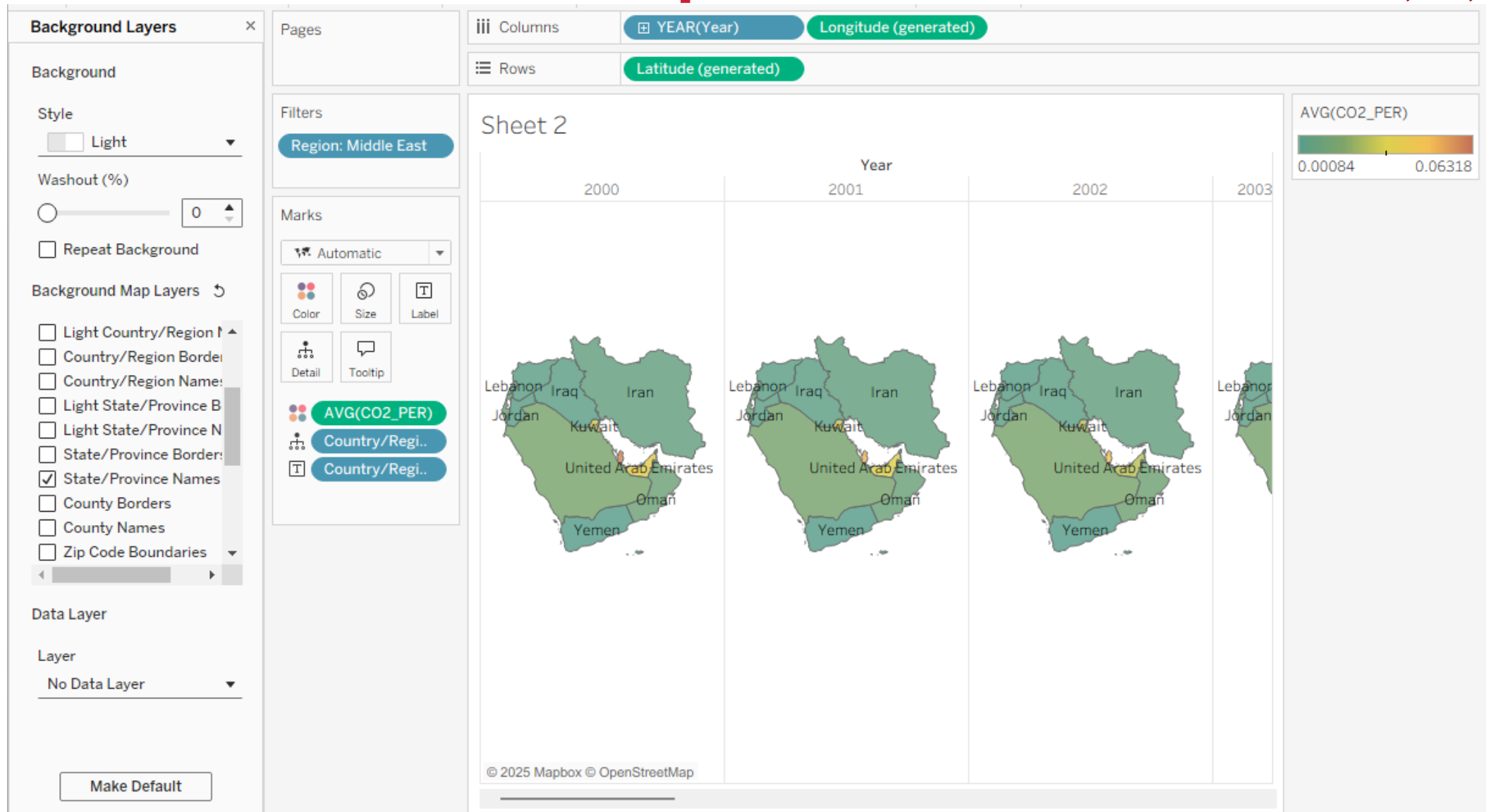
Latitude (generated)

Sheet 2

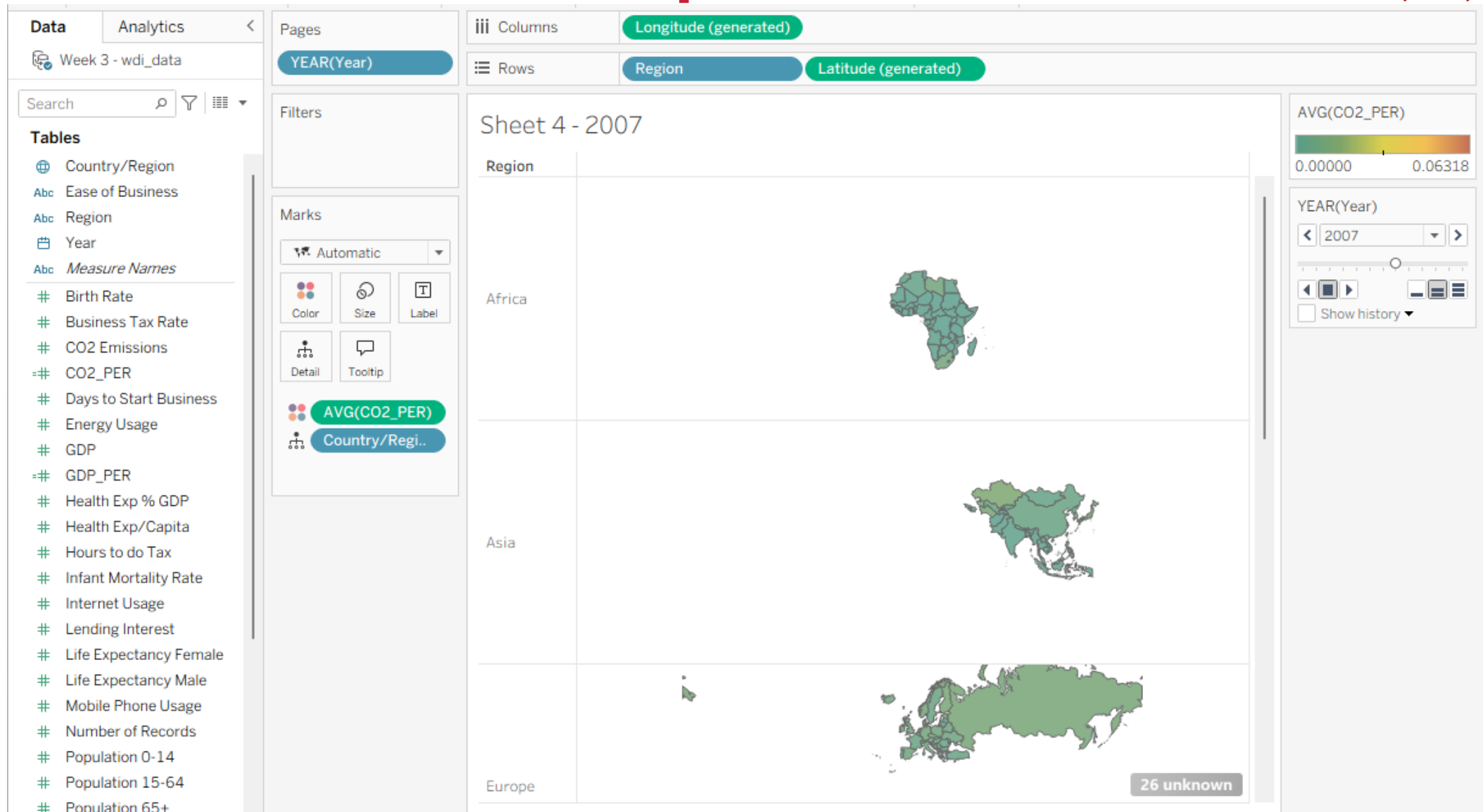
Pages and filters



Multi-dimensional Maps



Multi-dimensional Maps



Hybrid Maps

Marks

All

Latitude (genera...

Automatic

Color Size Label

Detail Tooltip

AVG(GDP_PER)

Country/Regi..

Latitude (generat...

