

Week 1:

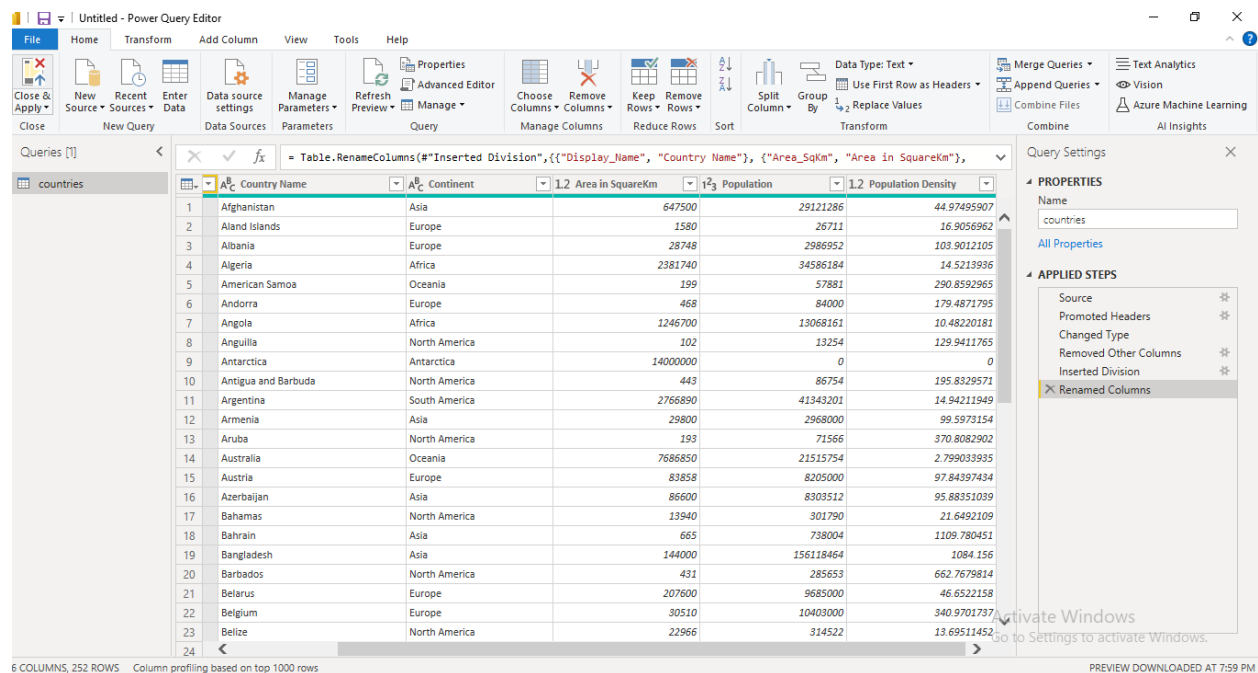
Basic Data Modeling

In this exercise, we will see how the two columns (area and Population) relate to each other. Our question here is, which countries are most densely populated? So to calculate the population density, we used the below formula:

Population density = Population divided by area

Thus, after importing the CSV file, I removed unnecessary columns from the dataset and kept only what I needed to manipulate and create a report. For this reason, I chose transform when importing data instead of loading. After removing extra columns, since I failed to keep a certain column, I again reinserted that particular column, i.e., Continent.

I also added a new column, namely population density, to get the answer to my question.

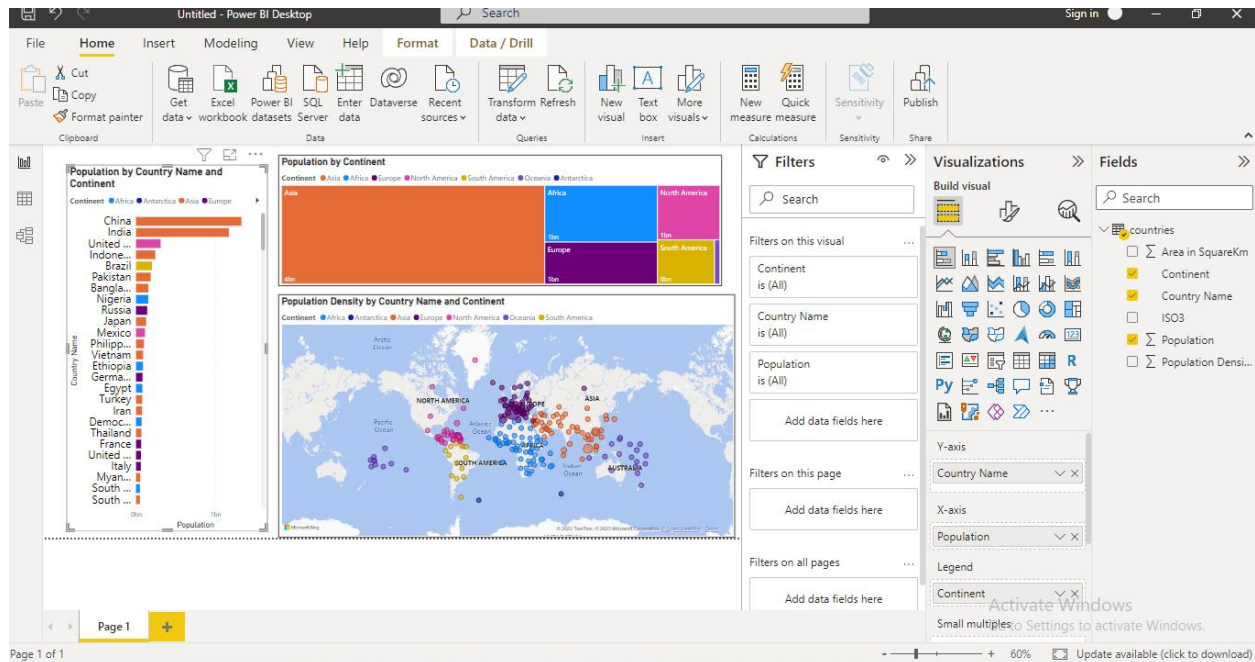


The screenshot shows the Power Query Editor interface. The main area displays a table with the following columns: Country Name, Continent, Area in SquareKm, Population, and Population Density. The table is sorted by Population Density in descending order. The right-hand pane shows the 'Query Settings' for the 'countries' query, with the 'Applied Steps' list including 'Source', 'Promoted Headers', 'Changed Type', 'Removed Other Columns', 'Inserted Division', and 'Renamed Columns'.

	Country Name	Continent	Area in SquareKm	Population	Population Density
1	Afghanistan	Asia	647500	29121286	44.97495907
2	Aland Islands	Europe	1580	26711	16.9056962
3	Albania	Europe	28748	2986952	103.9012105
4	Algeria	Africa	2381740	34586184	14.5213936
5	American Samoa	Oceania	199	57881	290.8592965
6	Andorra	Europe	468	84000	179.4871795
7	Angola	Africa	1246700	13068161	10.48220181
8	Anguilla	North America	102	13254	129.9411765
9	Antarctica	Antarctica	14000000	0	0
10	Antigua and Barbuda	North America	443	86754	195.8329571
11	Argentina	South America	2766890	41343201	14.94211949
12	Armenia	Asia	29800	2968000	99.5973154
13	Aruba	North America	193	71566	370.8082902
14	Australia	Oceania	7686850	21515754	2.799039935
15	Austria	Europe	83858	8205000	97.84397434
16	Azerbaijan	Asia	86600	8303512	95.88351039
17	Bahamas	North America	13940	301790	21.6492109
18	Bahrain	Asia	665	738004	1109.780451
19	Bangladesh	Asia	144000	156118464	1084.156
20	Barbados	North America	431	285653	662.7679814
21	Belarus	Europe	207600	9685000	46.6522158
22	Belgium	Europe	30510	10403000	340.9701737
23	Belize	North America	22966	314522	13.69511452
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Building a report

In this exercise, we created some basic visualizations from our simple dataset. We created three visuals: a stacked bar chart, a tree map, and a simple map.



Measures

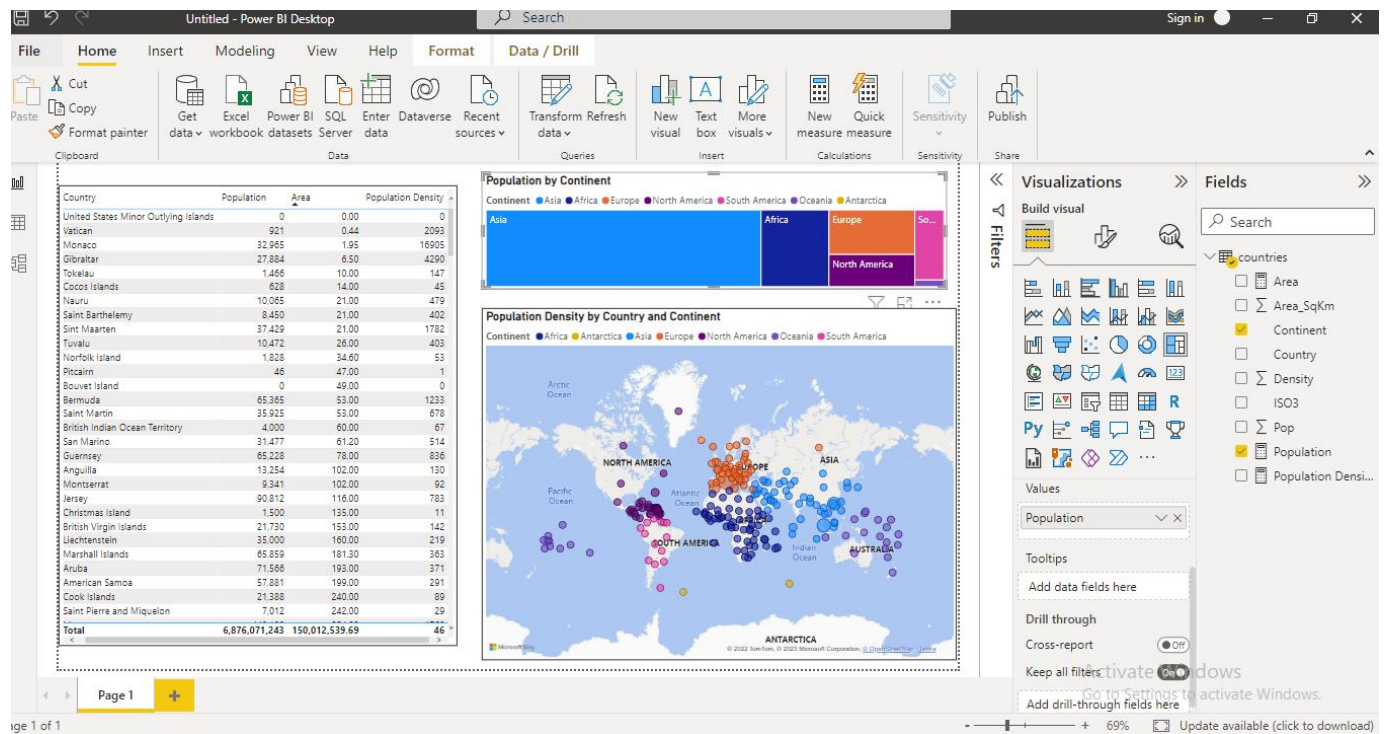
In this exercise, we have to create explicit measures. For this, we first named some fields in our existing files, such as Population = Pop, Area = Area_SqKm, and Population Density = Density. We did this because we will be using Population as our new measure.

For creating our first new measure, we defined the formula: Population = `sum(countries[Pop])`

For our second measure, we created the formula: Area = `sum(countries[Area_SqKm])`

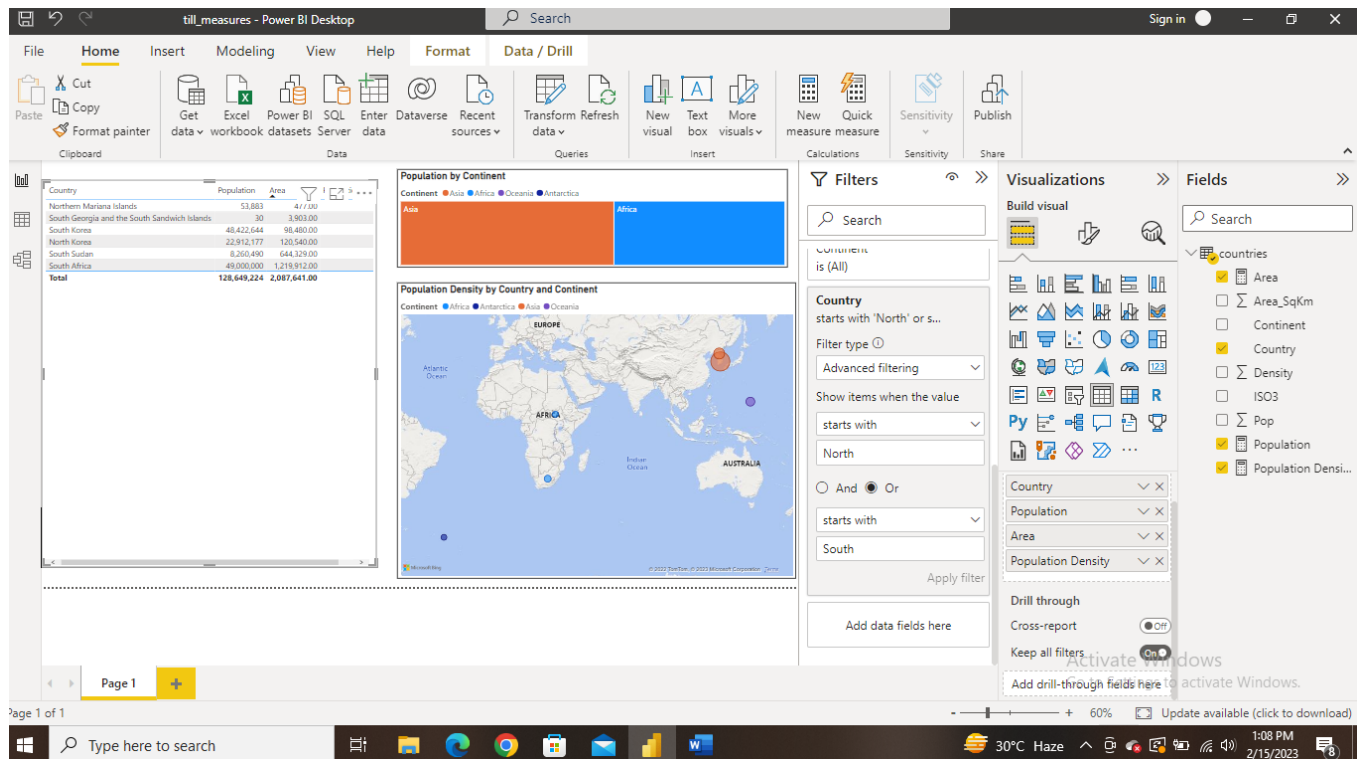
For our third measure, we decided to create it using Quick measure. So we used a mathematical operation: division to get the new measure - population density.

Since the area of the United States Minor Outlying Islands is zero, we tweaked our DAX formula and added an alternate result, so our data doesn't look messed up.



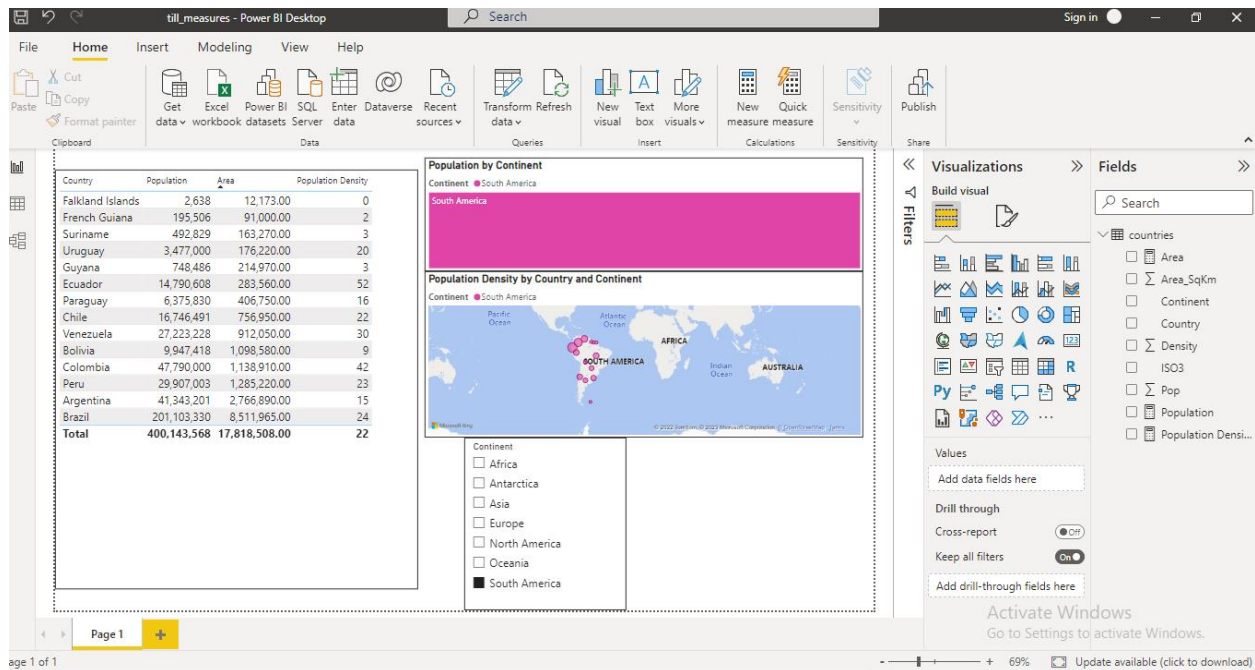
Filters pane

In this section, we explored the filters pane. Based on the previous data, we added Continent and Country fields in the report-level filter pane (filters on all pages). We choose to do advanced filtering. Here, we defined show items that start with the north or start with the south. That's how we learned how to do logical operations.



Slicers

In this task, we used another type of filter – a slicer. We inserted slicers into two categories: continents and areas. When we put our filter on a specific continent (South America), we can see that all the page's visuals show data about that Continent. From the map, we can see the bubble size for Ecuador is the largest, demonstrating that it has the highest population density. We can also verify this by the table on the left.



As for the area slicer, we selected the range between 1,049,424.65 to 3,307,561.64 for the Continent of South America. And it turns out that four countries lie in this range; Argentina, Peru, Colombia, and Bolivia.

