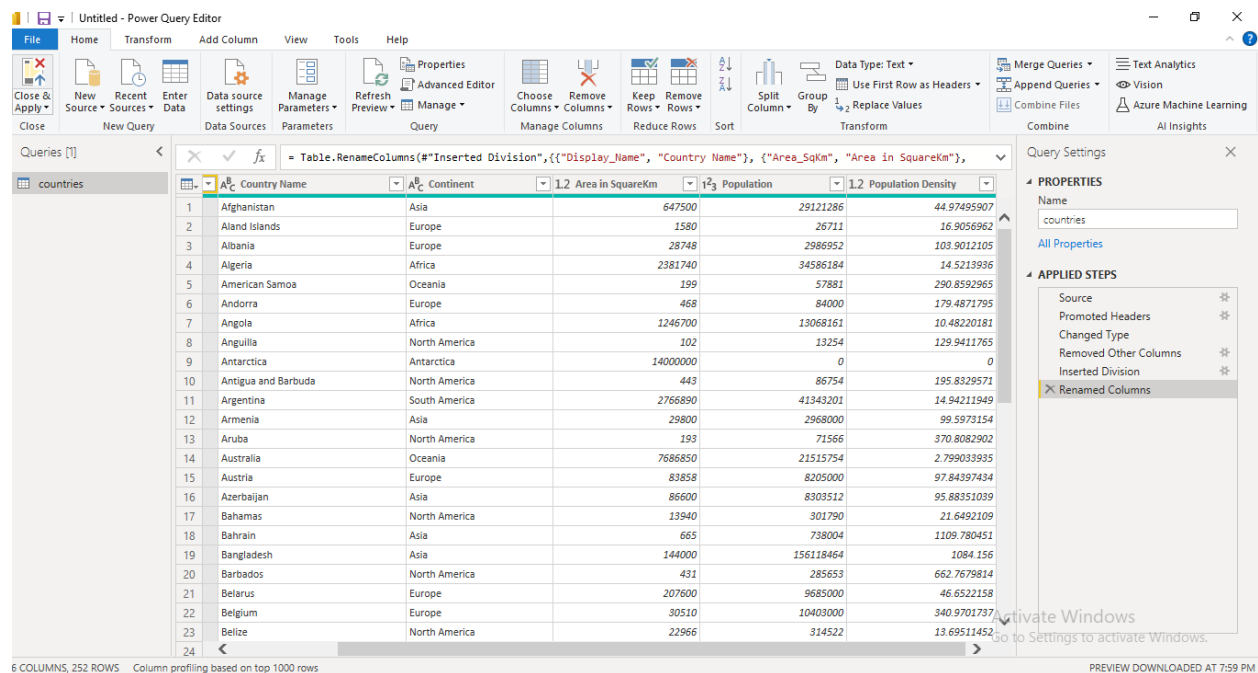**Week 1:**

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.
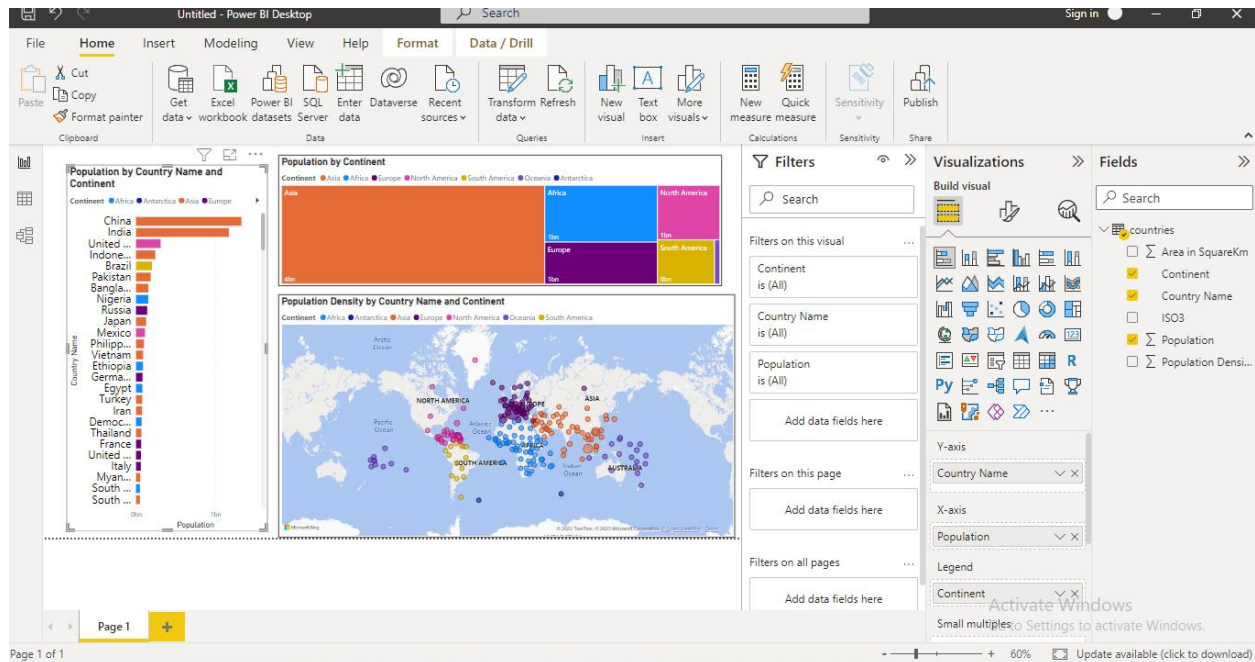

Building a report

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.
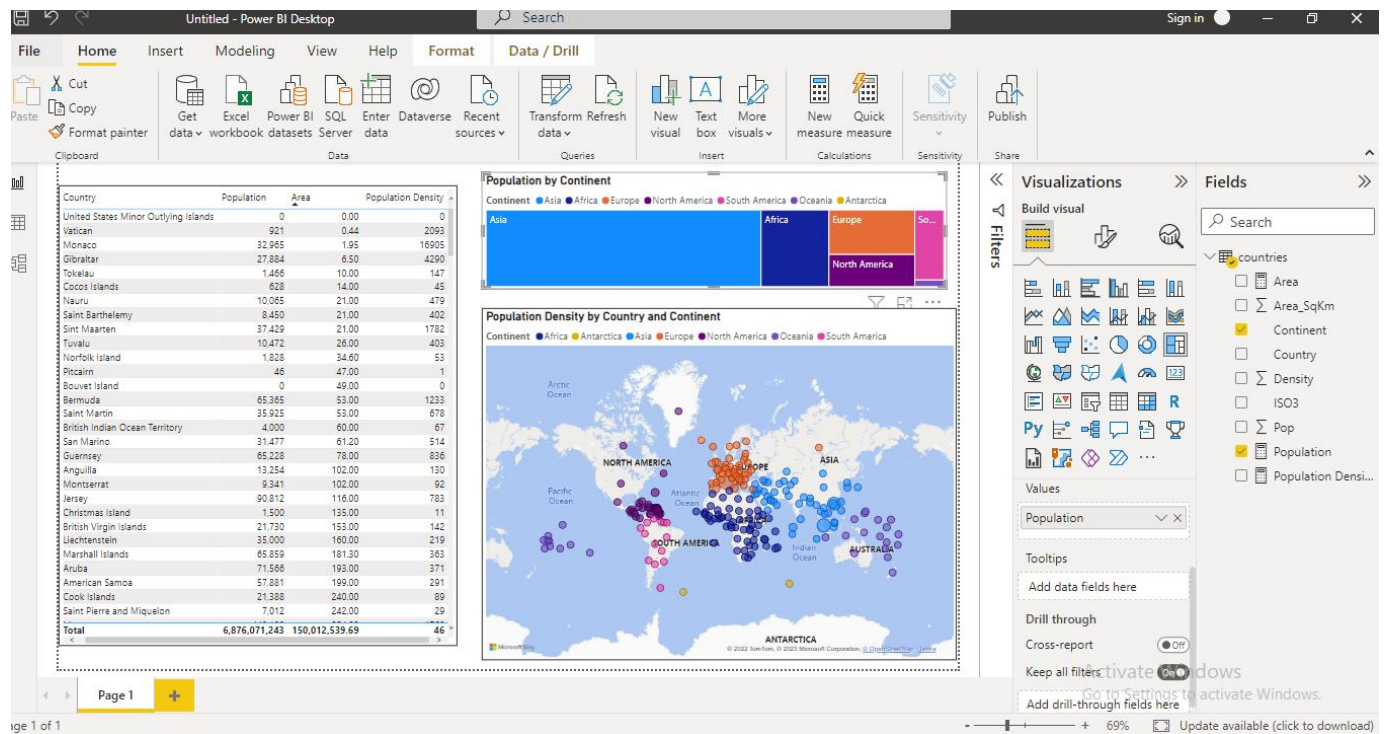
Filters pane

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.
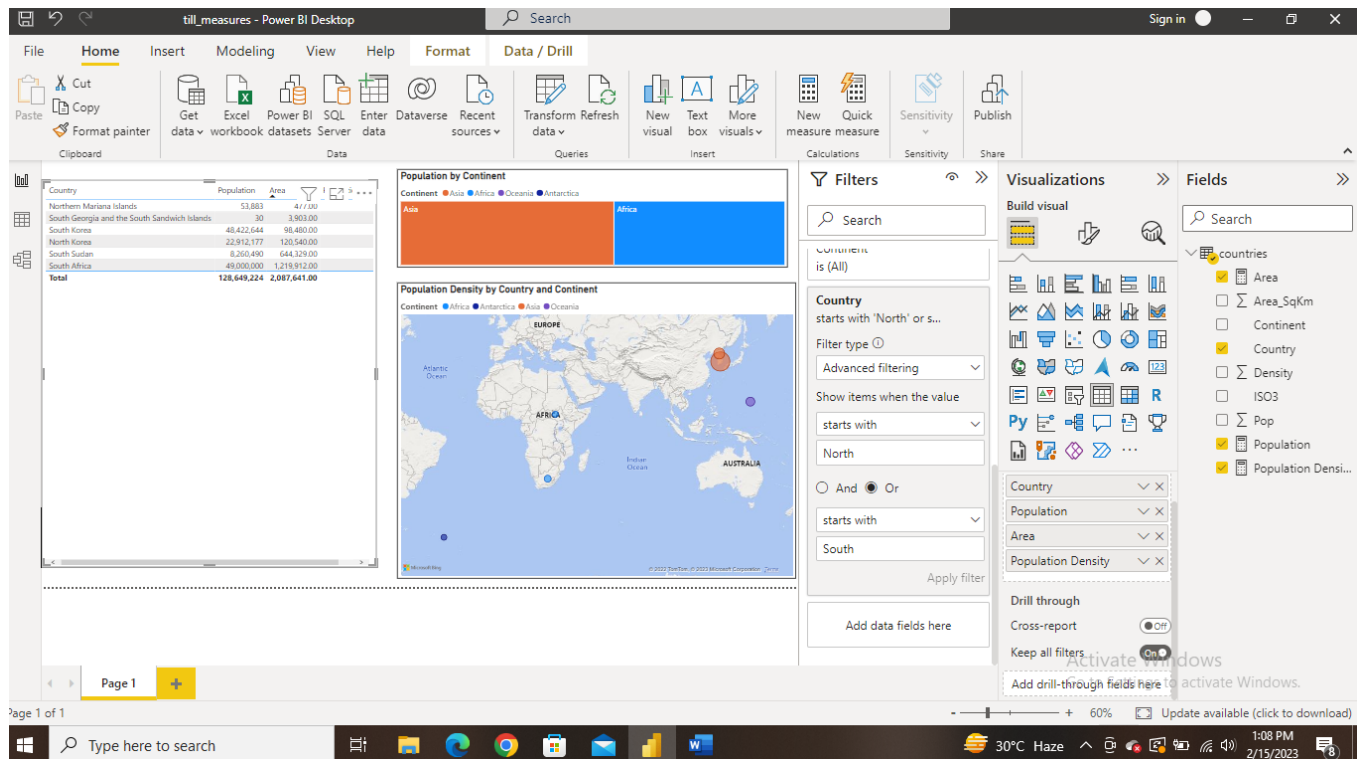
Slicers

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 Eucador is the largest, demonstrating that it has the highest population density. We can also verify this by the table on the left.
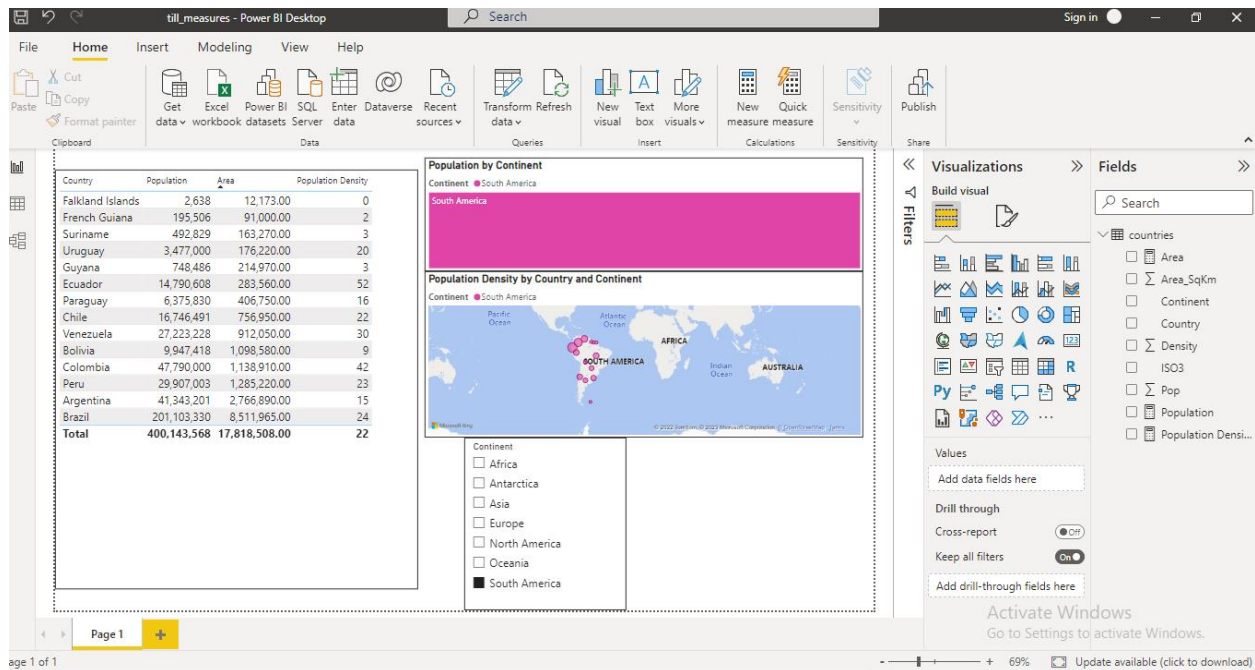
As for the area slicer, we selected the range between 1,049,424.65 to 3,307,561.64 for the Continent of South America. And it turns out that four countries lie in this range; Argentina, Peru, Colombia, and Bolivia.