

## Final Project Presentation

Hi everyone, my data visualization project explores the 2017 world exports data.

### Project Motivation

There are many ways to interpret trade data. We can use a line chart to visualize how trade values grow over the past 40 years. Or we can use a scatter plot to show the correlations between trade value and GDP growth. Additionally, we can use a bar chart to rank all traders in the world by their respective trade values. To me, trade is about connectivity. However, basic graphics such as line charts and bar charts cannot depict the trade flows from a source country to a target country. Therefore, I designed a chord diagram to depict how exported products were exchanged across the globe.

### Data Description

I obtained the trade data from the statistical database from the World Trade Organization. This project only looks at the total merchandise export data in 2017. The original dataset contains 44,562 rows of data. I used Python to extract the data that I need for this project and pivoted the original table into a 7 by 7 matrix that contains the trade values for 7 pairs of regions. In this matrix, orders matter. The index column is the location where the trades start, while regions in the attributes are locations where the trade ends. For example, Africa exported USD 115 billion of products to Asia. On the other hand, Asia exported USD 167 billion of products to Africa.

### Visualization Design

With the data ready in hand, I designed a pie chart to show the composition of exports in each distinct region. Users can click on the button and choose which region to view. As you may observe from the graph, a major shortcoming of this pie chart is that users can only view the trade performance of one region at a time. It becomes extremely inconvenient if one needs to compare the trade performances across all regions. Therefore, I created a diagram to tackle this problem.

In this new graph, users can easily compare the trade performances and observe the trade flows in the world. The length of the arc represents the total trade value for each region. The arcs are sorted in a descending order, with Europe being the largest trade exporter, followed by Asia, North America, Middle East, SCA, CIS and Africa. This shows that export performances were uneven among all regions in the world.

Inside the circle, each ribbon represents a distinct trade flow between two regions. If the ribbon is a semicircle or a semi-oval, then it means the products were exchanged among countries from the same region. As shown in the graph, there is a big semi-oval in Europe, Asia and North America. This means that these regions' exports are less dependent on demands from countries outside of the region. On the contrary, Middle East, SCA, CIS and Africa's exports are highly dependent on demands from Europe and Asia because exports in those regions did not stay within the region, but flows to other regions in the world.

## **Conclusion**

To conclude my presentation today, my data visualization project explores a new way to interpret trade data. Unlike a traditional pie chart that depicts the compositions of exports data for only a single region, a chord diagram not only presents the exports data for all seven regions in one graph, but it also displays the trade flows across all regions, making it easier for users to understand the trade data through a comparative perspective.