Proposal: A visualization of global trade flows

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Problem Statement:

Global trade has been constantly evolving over the past years. From increased globalization exemplified by the accession of China to the WTO in 2001 to current turmoil brought about by Brexit and the US-China trade war. Trade affects many and is a complex process. Therefore a visualization of intercountry trade flows showing trade components over time would be a valuable tool for both policymakers and entrepreneurs. Interested companies can also gain by learning more about consumption patterns of countries.

Solution:

Data and numbers on trade flows can sound abstract to many and distinguishing different types of trade flows can be tedious. A solution to this for would be to visualize the most important trade partners on a map for a given country, as well as to give country by country trade statistics of trade flow components. This would offer a quick and responsive tool for interested parties to have a direct glance of the trade relation between two countries. The page can be further expanded by showing consumption of different goods and services for countries to provide market information to companies and policy makers.

Features:

- A map to select a given country and show the relative importance of countries as trade partners by changing colors (**vital)**
- A bar to slide over the data over different years (**non-vital)**
- Two graphs which show the the main components for export and imports for a given country (**vital**)
- A graph to display the type of goods in the trade flows between two countries (**non-vital**)
- A pie chart to display the components of a country's consumption (**vital)**

Data source:

The World Bank offers both data on trade flows between countries as well as data on the components on imports and exports for a given country. Data on GDP and other macro-economic factors can be obtained from the World Bank as well. A shape file for a worldmap is used from thematicmapping.org

https://wits.worldbank.org/CountryProfile/en/Country/CHN/Year/LTST/TradeFlow/EXPIMP/Partner/WLD/Product/All-Groups

https://wits.worldbank.org/CountryProfile/en/Country/CHN/Year/LTST/TradeFlow/EXPIMP/Partner/by-country

https://data.worldbank.org/

http://thematicmapping.org/downloads/world_borders.php

External components:

- SQL-lite

- Matplotlib's dataframe for showing interactive maps
- D3 for visualizations

Similar apps:

The website of the World Bank already provides flow charts for trade flows. However, the main focus is on the data and moving through the pages can be tedious. The main improvement would be to include all the data on one page and provide a user-friendly interface through a map.

Hardest parts:

- Downloading and formatting all data for all countries over time. The dataset can be limited by including only the most recent year.
- Showing the data on a shapefile. So far I haven't worked with shapefiles so this will be a challenge. Fortunately the literature on the internet on how to work with them is extensive
- Another challenge is the interaction on the page. If a country is selected, new graphs will have to pop up.