

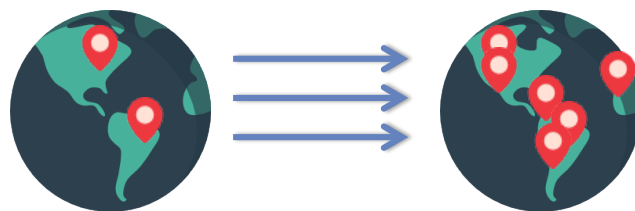
Visualizing International Relations Through The Lens Of Global Media

COMP4901F Group Project

Team Rails

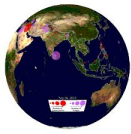
Shivang Gupta, Prashanth Chandra, Suyoung Park, Kang Eun Jeon

Objective



To visualize international relations at a global level over time to **highlight geospatial and chronological patterns.**

The Dataset



GDELT

Global Database of Events Language and Tone
News media data from around the world in 100+ languages updated daily.
Total size over 3.5 TB



Chosen time period: January – December 2016

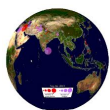


Only included events covered by more than 250 articles



Avg. Goldstein Scale to measure relationship between countries

Data Processing and Extraction



GDELT Data
~3.5 TB



Google BigQuery
~144 GB



Structured Data
~ 192 KB

```
1 SELECT
2 Actor1CountryCode,
3 Actor2CountryCode,
4 AVG(GoldsteinScale)GoldsteinScale,
5 ABS(AVG(GoldsteinScale)) AbsGs
6 FROM
7 [gdel-bq:full.events]
8 WHERE
9 Actor1CountryCode != ''
10 AND Actor2CountryCode != ''
11 AND Actor1CountryCode!=Actor2CountryCode
12 AND MonthYear == 201603
13 AND NumArticles > 250
14 GROUP BY Actor1CountryCode, Actor2CountryCode
15 ORDER BY AbsGs DESC
16 LIMIT 1500
```

Query complete (3.5s elapsed, 12.4 GB processed)

Query complete (2.1s elapsed, 12.4 GB processed)

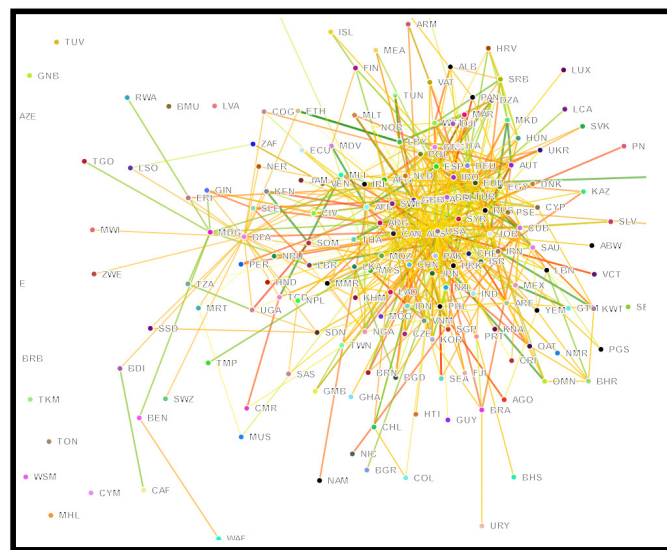
Sample SQL Query and BigQuery Response Times

Visualization Software



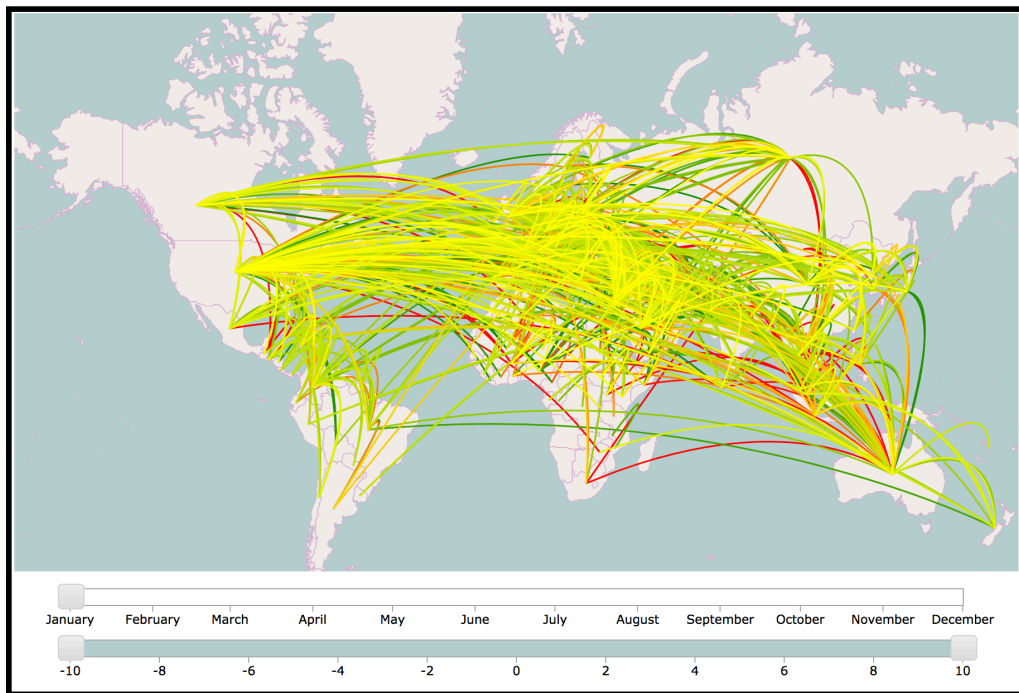
In addition to these visualization libraries, we used HTML, CSS, JS on a Node.js with GitHub for collaboration.

Initial Idea – Force Directed Graph



Not easy to filter based on strength and show responsiveness with time

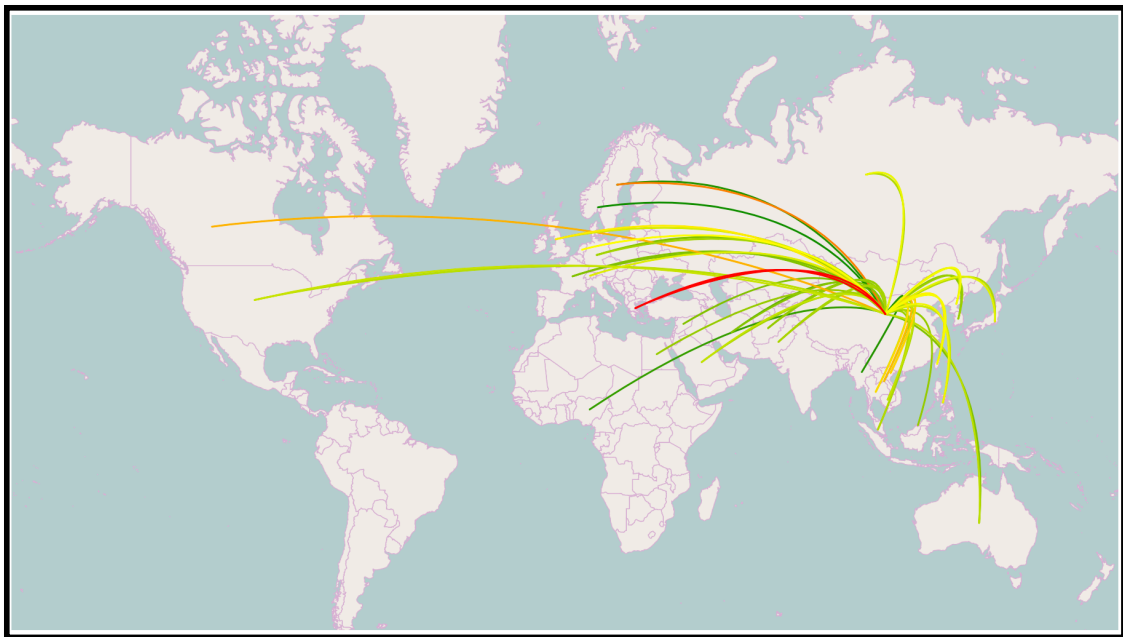
Our Design



Arc Map With Timeline and Linear Scale

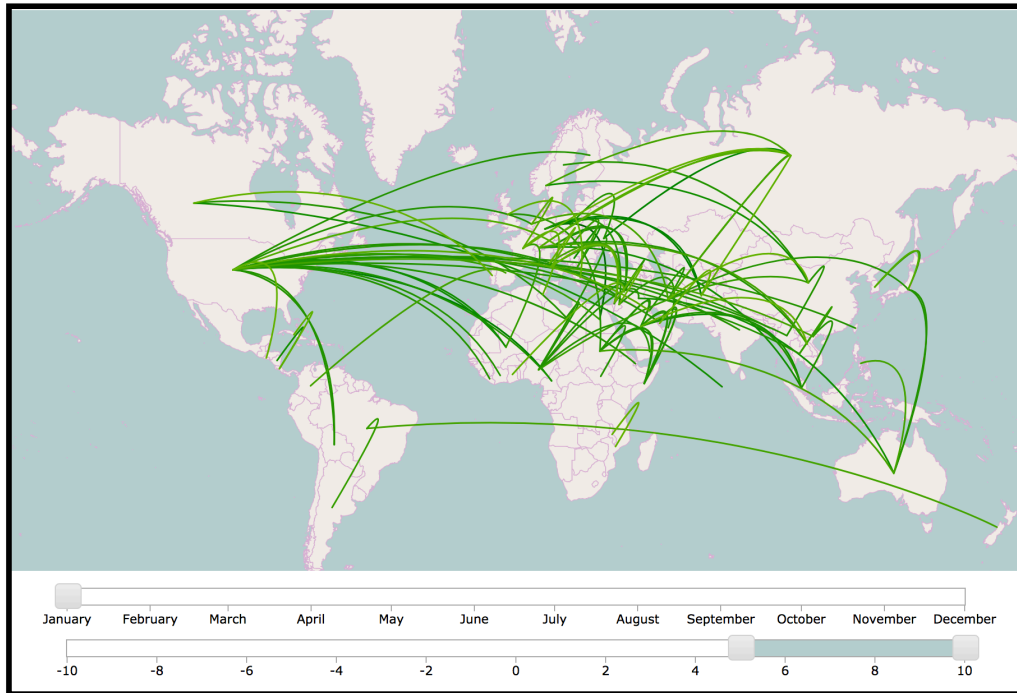
Supports Zoom & Pan

Design Features



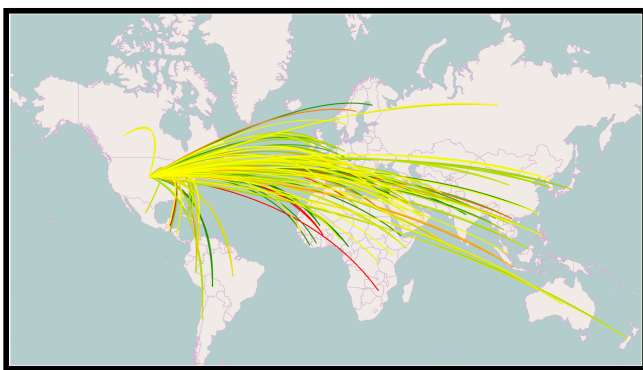
Country Based Filtering

Design Features

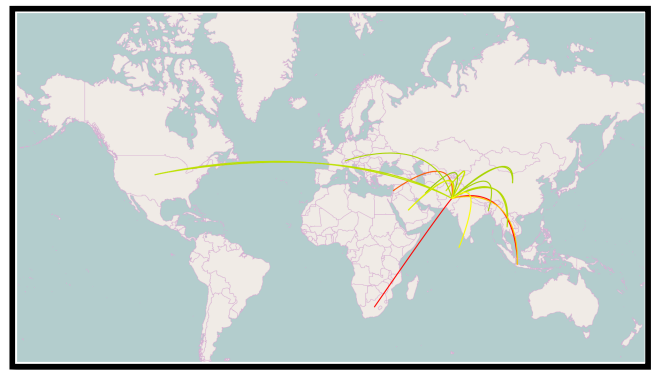


Relationship Strength Based Filtering

Interpretation of Data



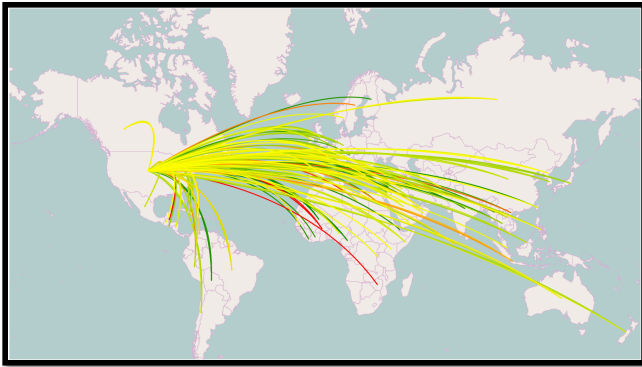
USA



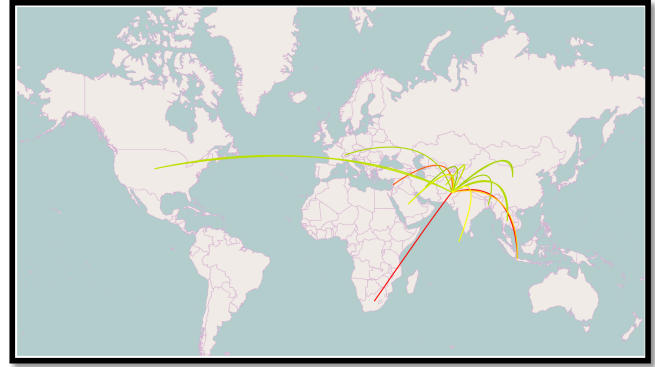
Pakistan

Number of arcs represents the influence of the country.
Developed countries share arcs with other countries all over the world, whereas developing countries have more ties with neighboring countries.

Interpretation of Data



USA



Pakistan

Relationships between neighbors affect others around them

Overall more positive arcs than negative arcs

Pareto Principle is not followed

Relationship between two countries is not bi-directional.