Program Assignment – Part2

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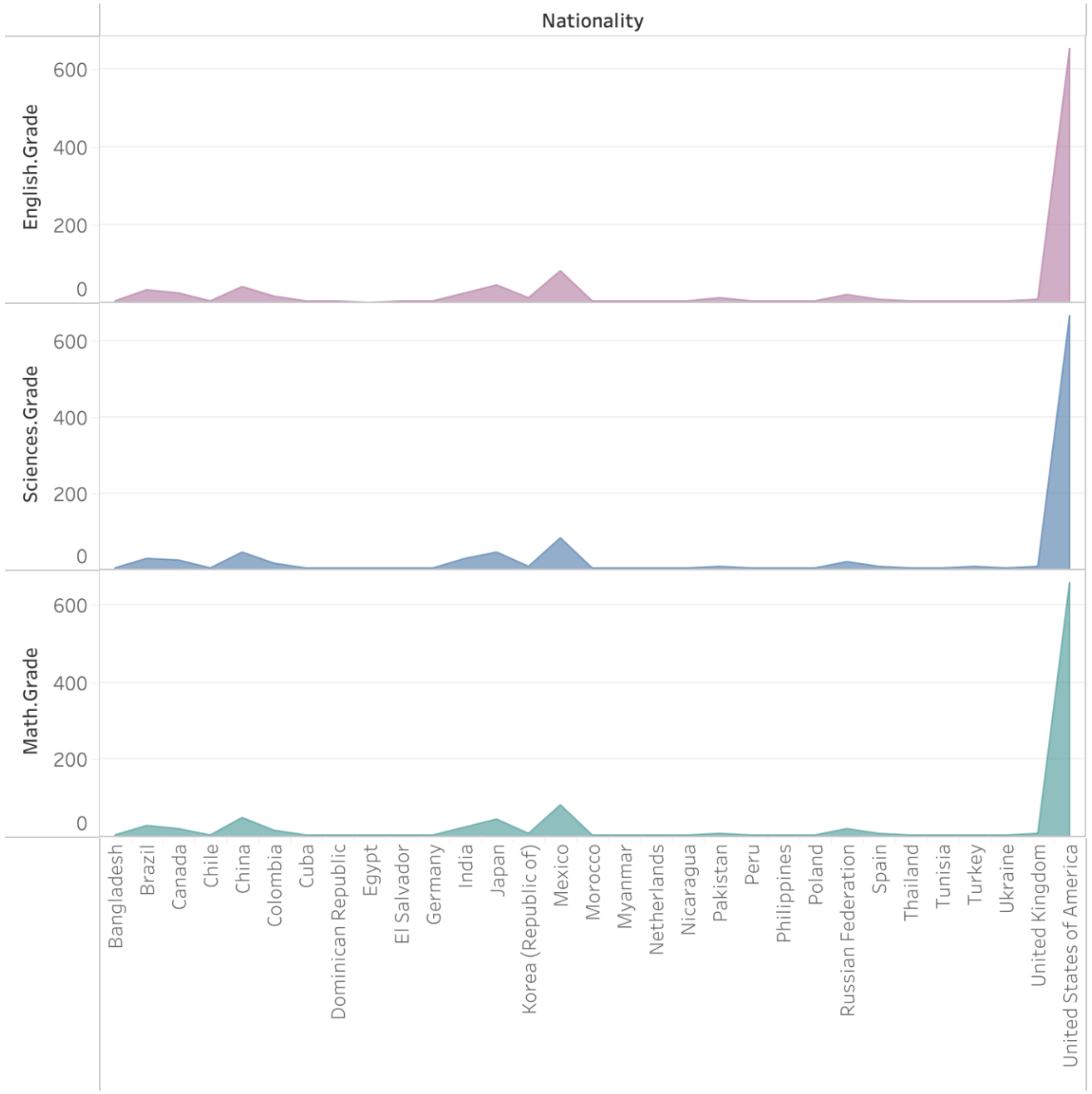
Part 2

Part 2.1: Data analysis

I used Tableau Desktop for this part and dataset in GitHub. I didn't use the database in part 1 since it is small. So, I used this dataset to get butter visualization results.

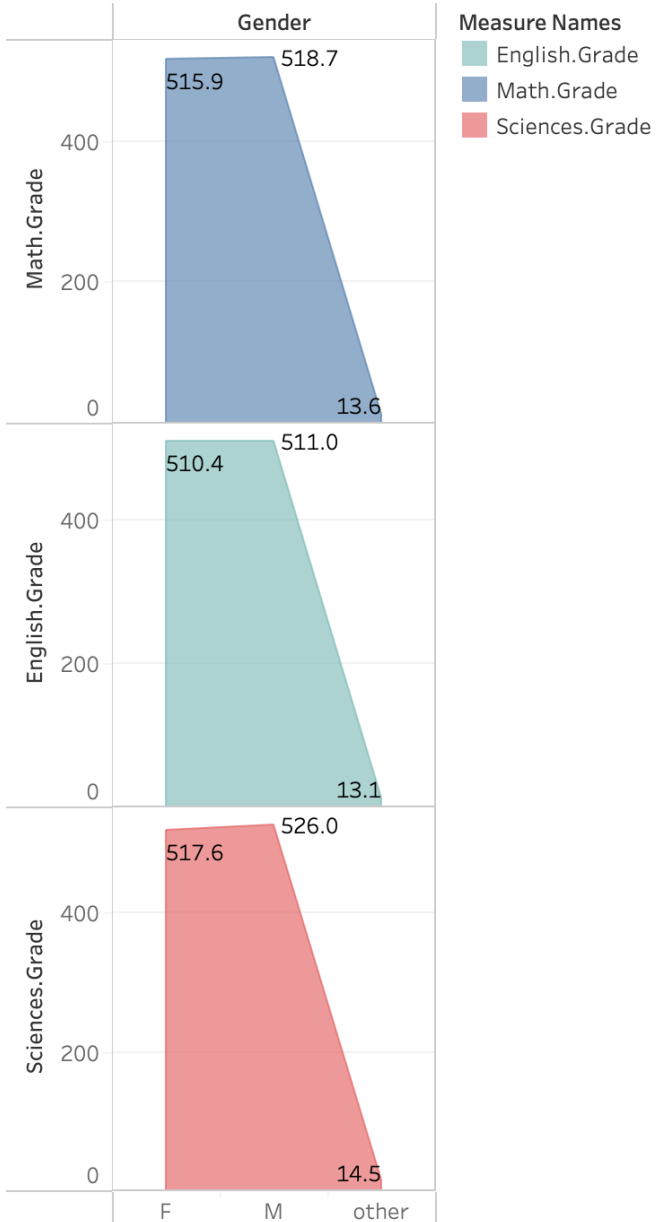
The link for dataset:
https://github.com/ShapeLab/ZooidsCompositePhysicalizations/blob/master/Zooid_Vis/bin/data/student-dataset.csv



Sum of English.Grade, sum of Sciences.Grade and sum of Math.Grade for each Nationality.

This visualization shows the summation grades (English, math, sciences) based on the nationality.

Summary: UK and US have highest grades

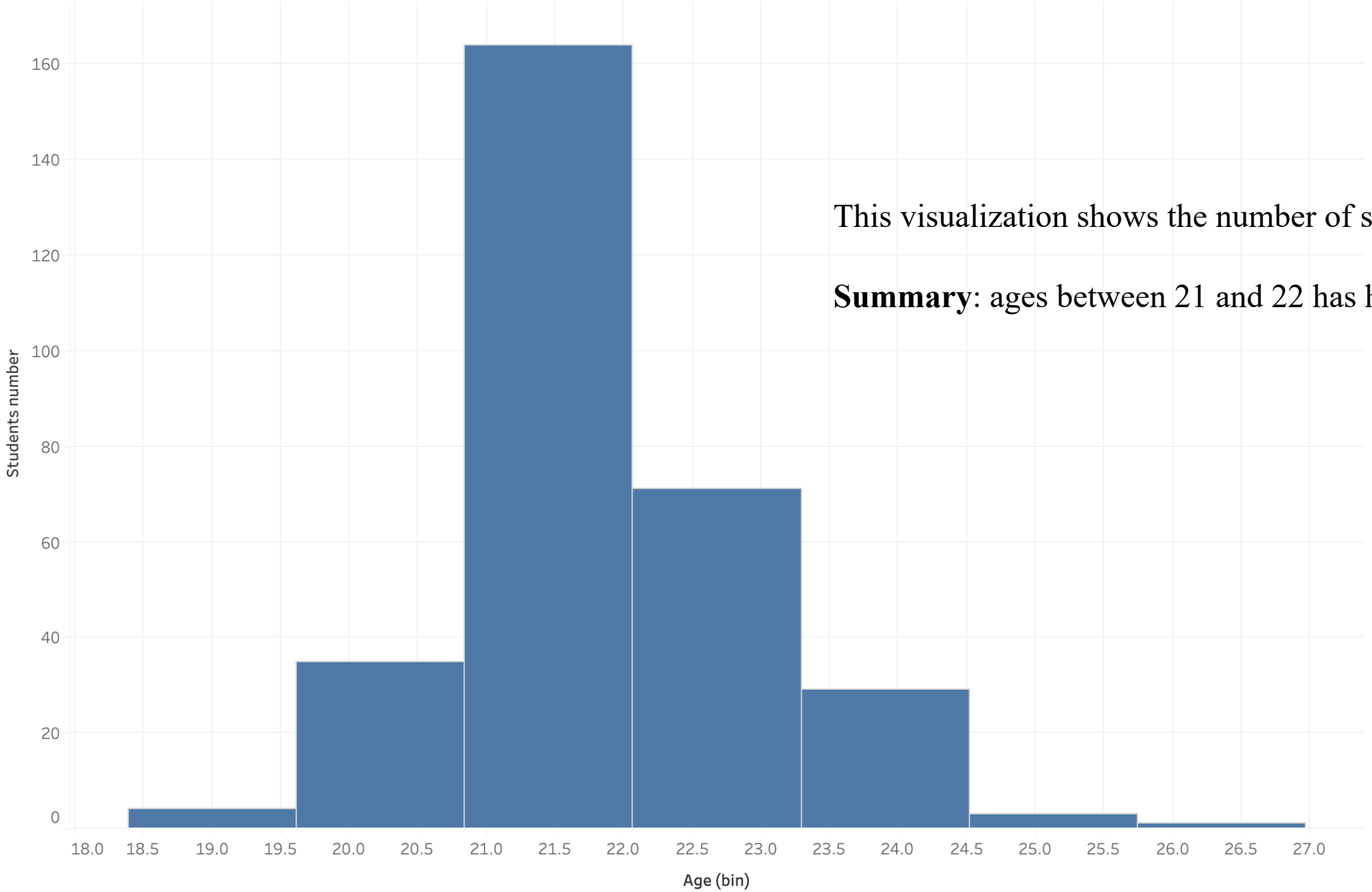


Math.Grade, English.Grade and Sciences.Grade for each Gender. Color shows details about Math.Grade, English.Grade and Sciences.Grade.

This visualization shows the summation grades (English, math, sciences) based on the gender

Summary: the results are similar for female and male

- Such as, the science grades female:517.6 and male:526
  the difference approximately to 9



This visualization shows the number of students based on the age.

Summary: ages between 21 and 22 has highest number of students.

The plot of count of Age for Age (bin).

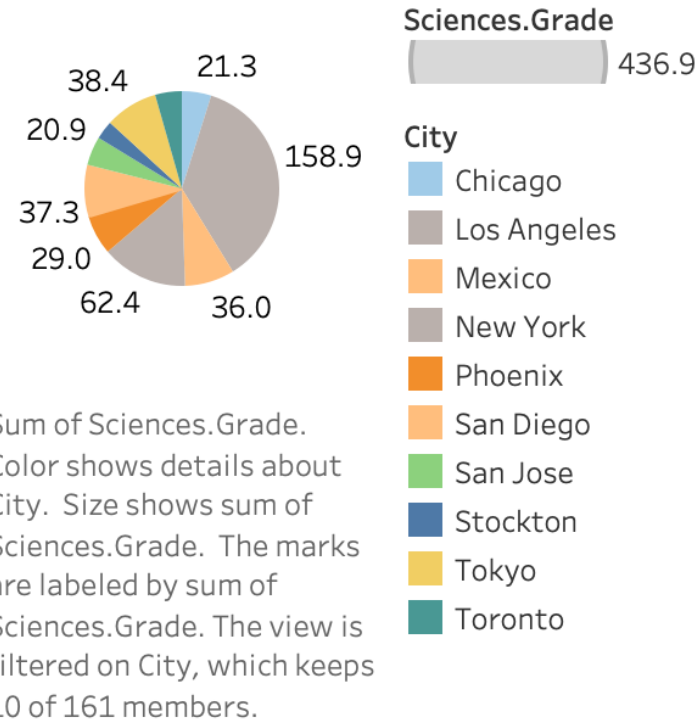
Nationality	Math.Grade
Bangladesh	3.9
Brazil	30.4
Canada	21.1
Chile	3.7
China	49.2
Colombia	17.9
Cuba	2.8
Dominican Republic	3.8
Egypt	3.5
El Salvador	2.9
Germany	3.5
India	26.2
Japan	46.0
Korea (Republic of)	9.2
Mexico	81.3
Morocco	3.6
Myanmar	3.4
Netherlands	3.5
Nicaragua	3.7
Pakistan	8.8
Peru	3.1
Philippines	3.6
Poland	3.8
Russian Federation	20.3
Spain	7.5
Thailand	3.9
Tunisia	3.1
Turkey	5.4
Ukraine	3.3
United Kingdom	6.3
United States of America	659.5

Math.Grade

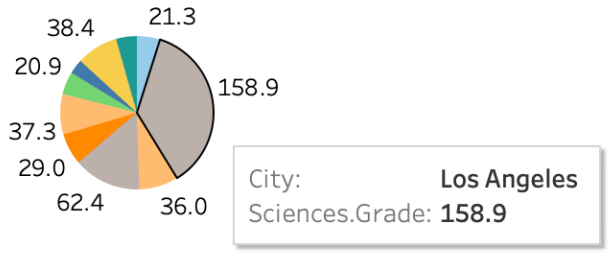
Sum of Math.Grade broken down by Nationality. Color shows sum of Math.Grade. The marks are labeled by sum of Math.Grade.

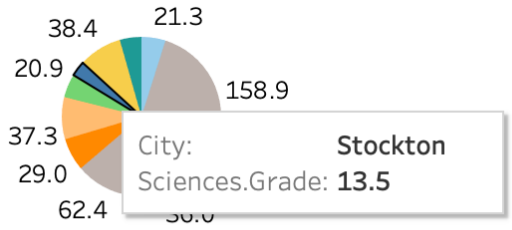
This visualization shows the math grades based on the nationality.
The darker color -> high grade

Summary: US has the highest grade then Mexico, China, Japan.

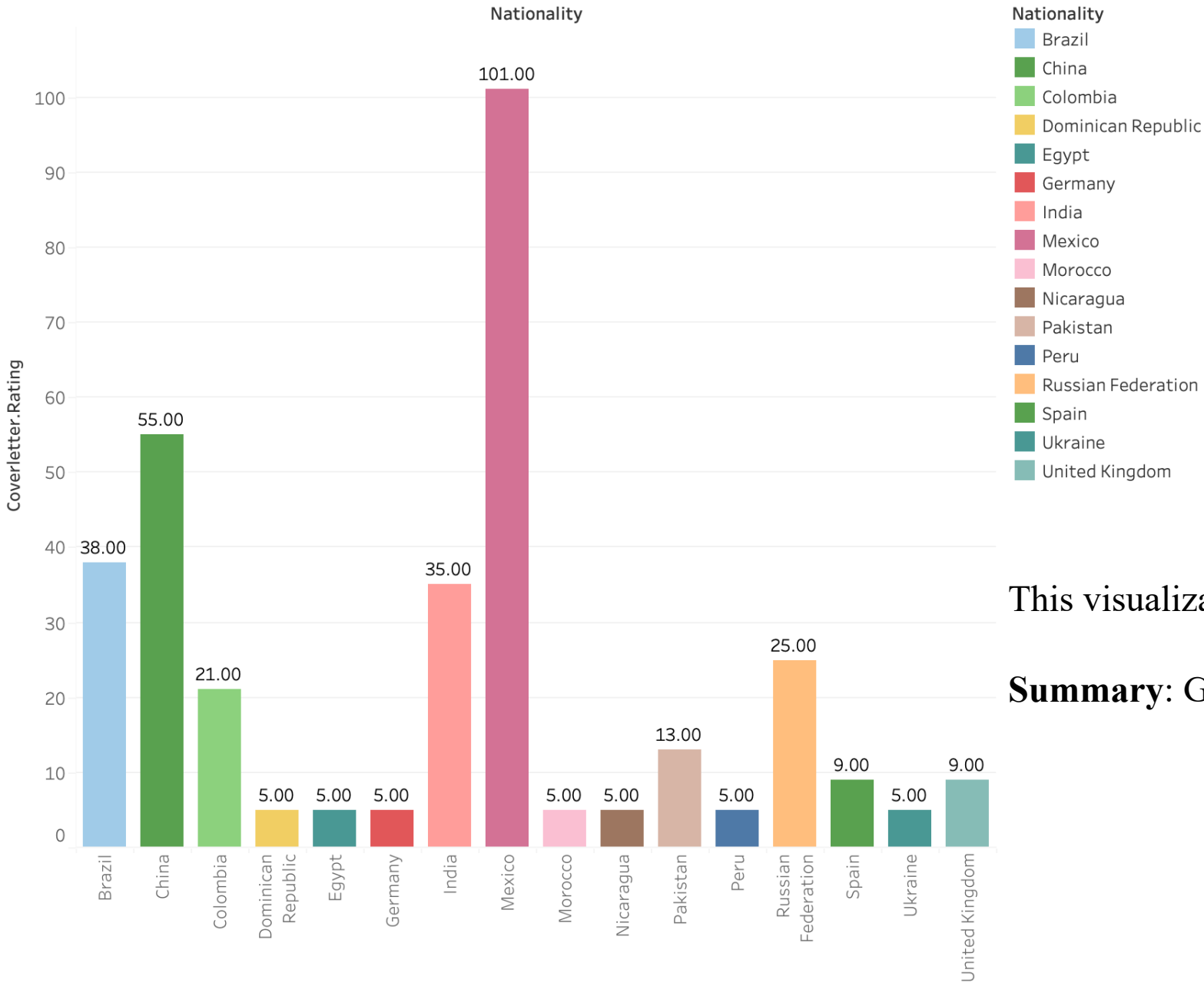


This visualization for the Top 10 Sciences grades by city.





Summary: L.A. is the first city of the Top 10 Sciences grades and Stockton is the last city.



This visualization for the cover letter rate by the nationality.

Summary: Germany has the highest rate.

This visualization for the cover letter rate by the city.

Summary: L.A. has the highest rate.

Map based on Longitude (generated) and Latitude (generated). Color shows details about City. The marks are labeled by sum of English Grade.

City
Aguascalientes
Alfenas
Ankara
Baltimore
Bangalore
Bangkok
Bay Point
Baytown
Belém
Belo Horizonte
Bogotá
Bombay
Boulder
Burlingame
Cairo
Calloza de Segura
Carrollton
Castro Valley
Charlotte
Chelyabinsk
Chernihiv
Chicago
Chongqing
Cohoes
Colorado Springs
Columbus
Cortazar
Dallas
Danville
Davis
Derby
Detroit
Dhaka
Dos Quebradas
East Los Angeles
Edmonton
Ensenada
Fairfield
Fontana
Fort Worth
Foz do Iguaçu
Fremont
Guarujá
Handan
Hebi
Henderson
Hengshui
Hermosillo
Hinsdale
Hospet
Houston
Independence
Indianapolis
Istanbul
Joliet
Joplin
Kanpur
Kansas City
Karachi
Kashiwara
Kawasaki
Kerikeade
Kettering
Khalabat
Lafayette
Laguna Hills
Las Vegas
Lemoore
León
Lima
Lodi
London
Long Beach
Los Angeles
Madrid
Manila
Manteca
Manzanillo
Marcel Tamm
Medellín
Memphis
Mesa
Mexicali
Mexico
Miami
Mission Viejo
Mobile
Modesto
Montgomery Village
Morelia
Moreno Valley
Moscow
New Delhi
New York
Nizhniy Novgorod
Nueva San Salvador
Oakland
Odessa
Omaha
Peking
Pereira
Philadelphia
Phoenix
Pomona
Portland
Prior Lake
Qiqihar
Quincy
Rabat
Rangoon
Rawalpindi
Redwood City
Reno
Rexburg
Rio de Janeiro
Rizhao
Rochester
Roseville
Sabattus
Sacramento
Saint Petersburg
Salinas
San Bernardino
San Diego
San Francisco
San Jose
Santa Ana
Santa Barbara
Santa Clarita
Santa Rosa
Santiago
Santo Domingo
São José dos Campos
São Paulo
Seoul
Shanghai
Shenyang
Shreveport
South Hill
Spokane
Stockton
Sugar Land
Suzhou
Tangshan
Tehuacán
Thana
Tijuana
Tokyo
Toronto
Tucson
Tuxtla Gutiérrez
Vacaville
Vancouver
Visalia
Walnut Creek
Warsaw
Waukegan
West Jordan
Wuhan
Zamora
Zulpich

This visualization for the English grades by the city.

Summary: New York has highest grade: 60.6

Part 2.2: SQL Skills

Link to my SQL query: https://www.mycompiler.io/view/DV9VmZp5nQ5

```sql
-- (1)
select type , max(importvalue) from Imports


-- (2)
select type , sum(importvalue) from Imports
group by(type)

-- (3)
select type , min(importvalue) from Imports

-- (4)
select * from Imports
order by importvalue asc
```

```sql
-- (5) ------------------------------------------------

-- find the average imports value for each type

select type , avg(importvalue) as average  from imports
group by (type)


-- what is the year that they have largest imports value

select yearDate, sum(importvalue) as total from imports
group by(yearDate)
order by total desc
limit 1;


-- show only types that have imports avrage less than 500000000
select type , avg(importvalue) as average  from imports
group by (type)
having average < 500000000


-- show all the data on 2010
select * from imports
where yearDate="2010"
```

continue to the next page …

```sql
-- show all the record on last year in the DB
select type , yearDate , importvalue
FROM Imports
WHERE yearDate = (select max(cast(yearDate AS datetime)) from Imports);



-- show all records for the air port , sea port and land port
select * from Imports
where type like '%port'


-- check  if there any null record in importvalue
select * from Imports
where importvalue is null


-- find the records that importvalue between 100000000 and 800000000

select * from Imports
where importvalue between 100000000 and 800000000



-- the total imports for each years sorted in descending order

select yearDate, sum(importvalue) as total from imports
group by(yearDate)
order by total desc
```