OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Data Set 1 :

Title: Crime in Singapore Data Visualization
Dataset Name: persons-arrested-for-selected-major-offences-by-age-group.csv
Data Source: crime data in data.gov.sg
Dataset Description:

Column Name	Variable type	Description
year	Numerical	Represents the year in which the crime happened. The value ranges from 2011 to 2019.
level_1	Categorical	Represents a) Total person arrested for a particular crime category. b) Male arrested for a particular crime category. c) Female arrested for a particular crime category. There is totally 10 crime category:- a) Murder b) Rape c) Molestation d) Robbery e) Housebreaking f) Theft of vehicle g) Snatch Theft h) Rioting i) Serious Hurt j) Cheating & Related
level_2	Ordinal	Represents the age group of the person who committed the crime. The three age groups of people are given by: a) Youths (7 to 9 years) b) 21 years old & below c) Above 21 years old
value	Numerical	Total crime cases count in the number.

OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Purpose of Visualization :

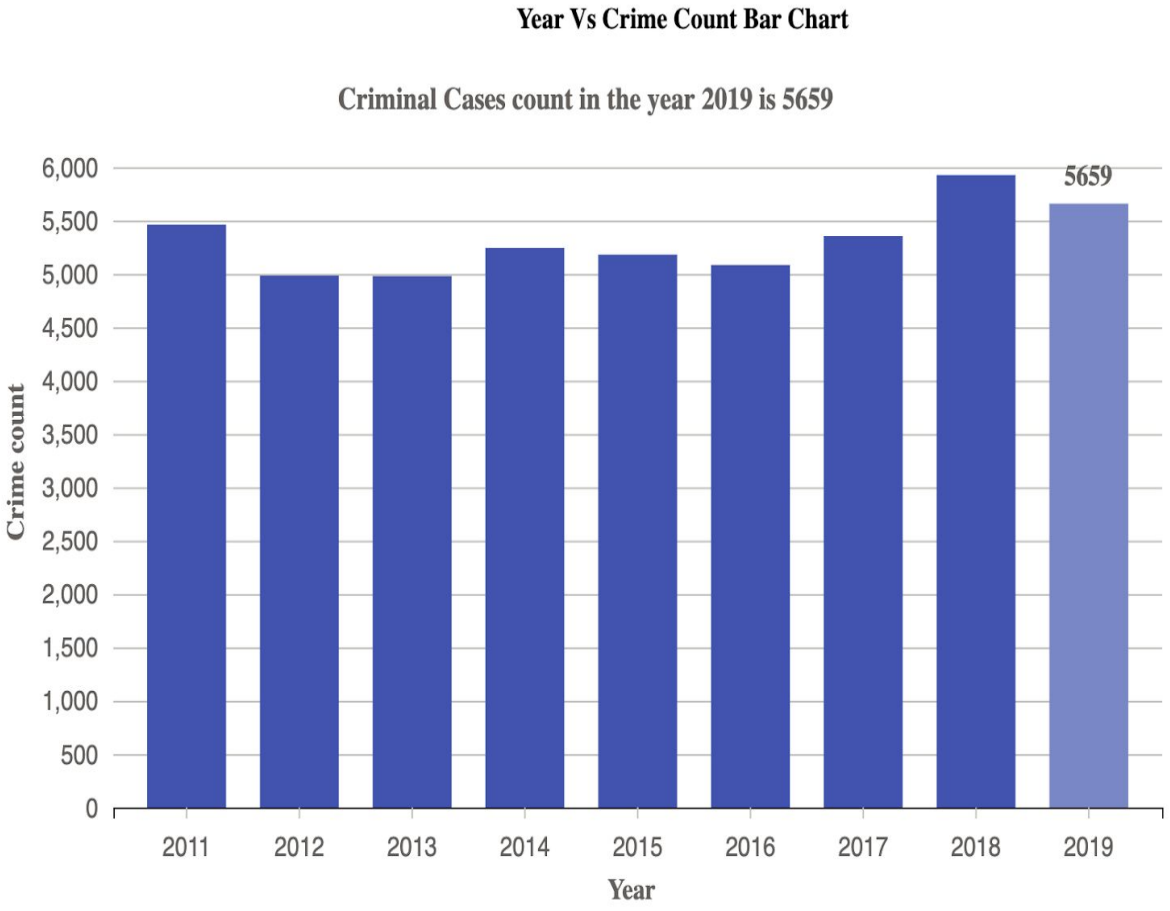
Singapore is one of the safest countries in the world, having a transparent legal system and a quite low crime rate compared to other countries in the world.

a) Yet we need to understand the crimes happening in Singapore to get to know about the insights (presented as visualization below) in order to ensure the safety of people.
b) Prevent more crimes from happening in the future.
c) Setting up a community to help different age groups of people committing crimes.

Visualization 1: Year Vs Crime Count Bar Chart

Queries Answered :

a) **Which year has more number of crimes committed?**
b) **How many crimes are committed in a particular year?**



OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Insights Found:

a) The year 2018 has more number of crimes committed.
b) The number of crimes committed in 2019 is less than in 2018, maybe because of newly started practices.

Visualization Description:

Marks: **Lines**
Channels: **Horizontal Position and Vertical lengths**
Chart Type: **Bar Chart**

X-Axis: Numerical variable year
Y-axis: Crime Count, which is the aggregated value of all crimes committed across different age groups and different categories in a year.

Columns used: year, level_1, value

Hovering on Bars shows the exact count of crimes in the particular year.

Visualization 2: Crime Category with Count Bubble Chart

Queries Answered :

a) **Which crime is committed the most/least number of times so far?**
b) **How many times a particular crime has been committed?**

Insights Found:

a) Cheating related cases are very common in Singapore.
b) More Molestation cases are reported than rape cases in Singapore.

Visualization Description:

Marks: **Points**
Channels: **Colours and Area**
Chart Type: **Bubble Chart**

- Different Categories of Crimes (categorical variable) are represented in different colors.
- The area of the circle occupied by each crime depends on the number of crime cases count (numerical variable).

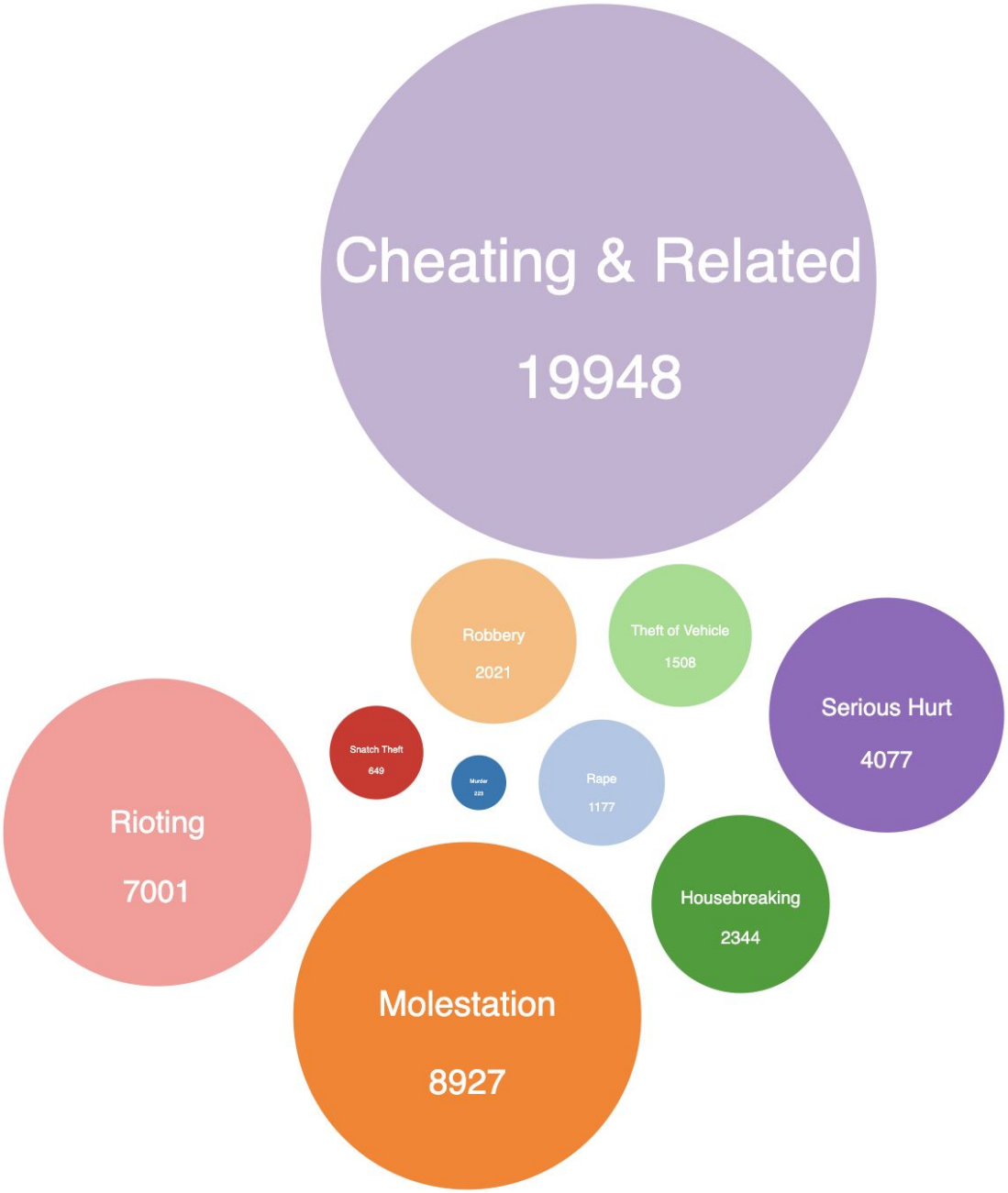
Columns used: level_1, value

Hovering on each Circle shows the percentage of a particular crime in total crime.

OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Crime Category with Count Bubble Chart

The committed crime Cheating & Related is 41.6668407310705 % of total Crime.



OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Visualization 3: Age Group Vs Crime Count By Time Period Donut Chart

Queries Answered :

a) **Which age group has committed the most/least number of crimes in a time period?**
b) **How many numbers of crimes a particular age group has committed in a time period?**

Insights Found:

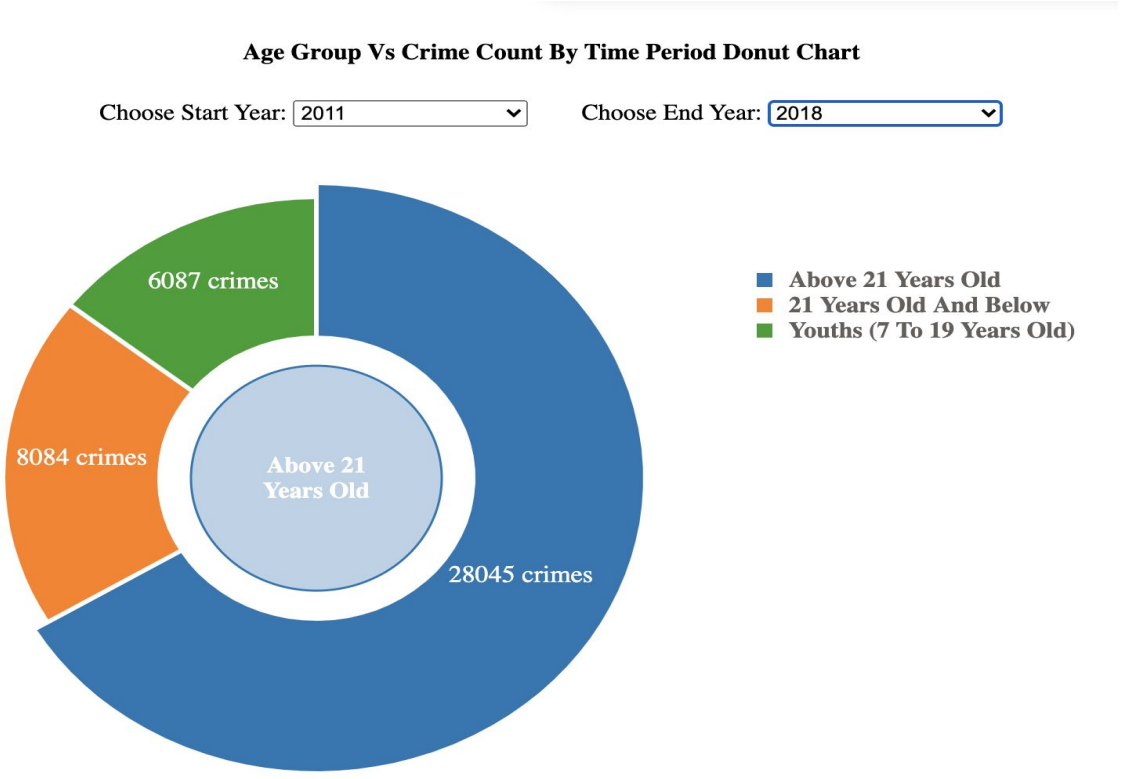
a) People above the age group of 21 have committed more crimes in Singapore.
b) Youths in Singapore have committed the least number of crimes.

Visualization Description:

Marks: **Points**
Channels: **Colours and Area**
Chart Type: **Donut Chart**

The ordinal variable Age group forms arcs in the donut chart based on the numerical variable crime count value.

Columns used: level_1, level_2, value



OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Visualization 4: Year Vs Crime Count By Gender Line Chart

Queries Answered :

a) **Which gender has committed more/fewer crimes in a specific year?**
b) **Is there any trend in crime cases count based on gender?**

Insights Found:

a) Male people have committed more crimes than females in Singapore.
b) In 2019 fewer cases were reported for both males and females.

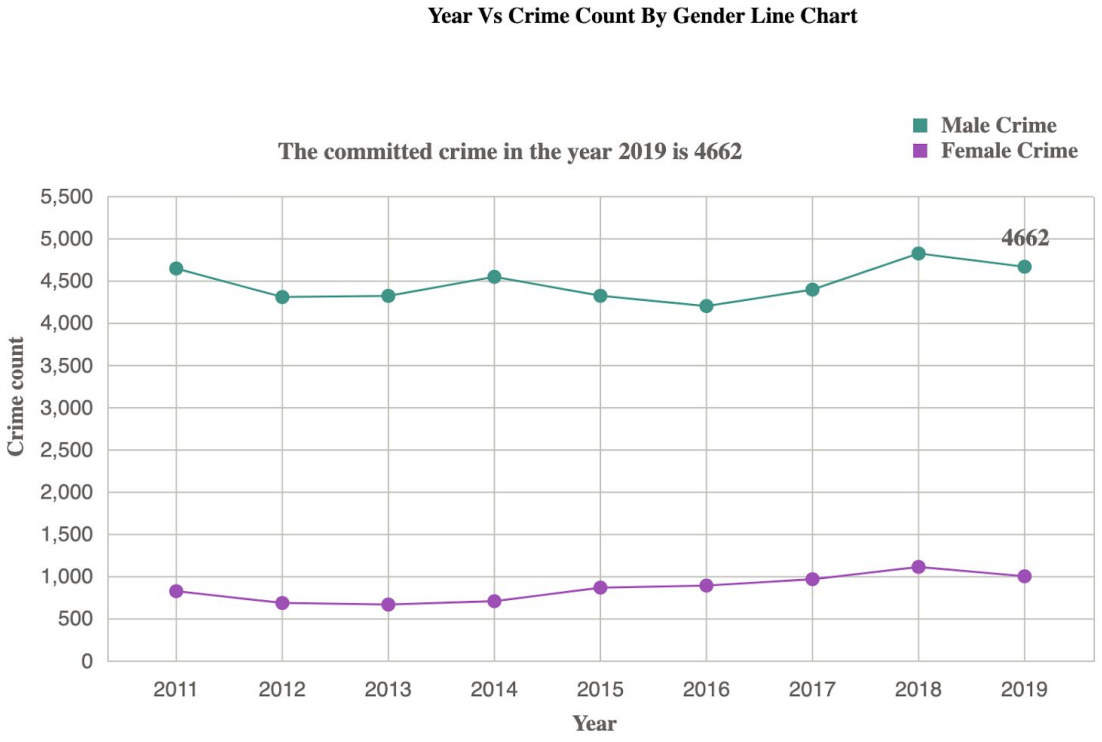
Visualization Description:

Marks: **Points, Lines**
Channels: **Colours, Horizontal Positions, and Vertical Positions**
Chart Type: **Line Chart**

- Categorical variable Gender.
- Numerical variable year in x-axis and Crime cases count in the y-axis

Columns used: year, level_1, value

Hovering on dots shows the exact count of crimes in the particular year.



OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Data Set 2 :

Title: Corona Virus Data Visualization
Dataset Name: coronavirus_dataset
Dataset Type: CSV
Data Source: corona virus dataset in kaggle
Dataset Description:

Column Name	Variable Type	Description
Province.State	**Categorical**	The province within the Country
Country.Region	**Categorical**	Name of the Country
Lat	**Numerical**	Latitude points in Geo Coordinates
Long	**Numerical**	Longitude points in Geo Coordinates
date	**Ordinal**	Date ranging from 22nd Jan to 16th March
cases	**Numerical**	Covid Cases count
type	**Categorical**	Three categories:- a) Confirmed cases b) Recovered cases c) Dead cases

Purpose of Visualization :

COVID 19 has a huge impact across the world. Economy, healthcare, IT industries and even the lifestyle of people have undergone a transition. These visualization helps us to understand the following:

a) Which region or parts of the world has more COVID cases count, so that we can impose travel restrictions.

b) Analyzing Trend in the covid cases count and take actions accordingly to ensure safety of the people.

OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Visualization 1: World Map on COVID Cases Count between 22nd Jan 2020 and 16th March 2020

Queries Answered :

a) **Which country has the most Covid cases in the world?**
b) **How many Confirmed/Recovered/Dead Covid cases a specific country has?**

Insights Found:

a) China has more Covid cases count.
b) The European region has more impact on Covid.

Visualization Description:

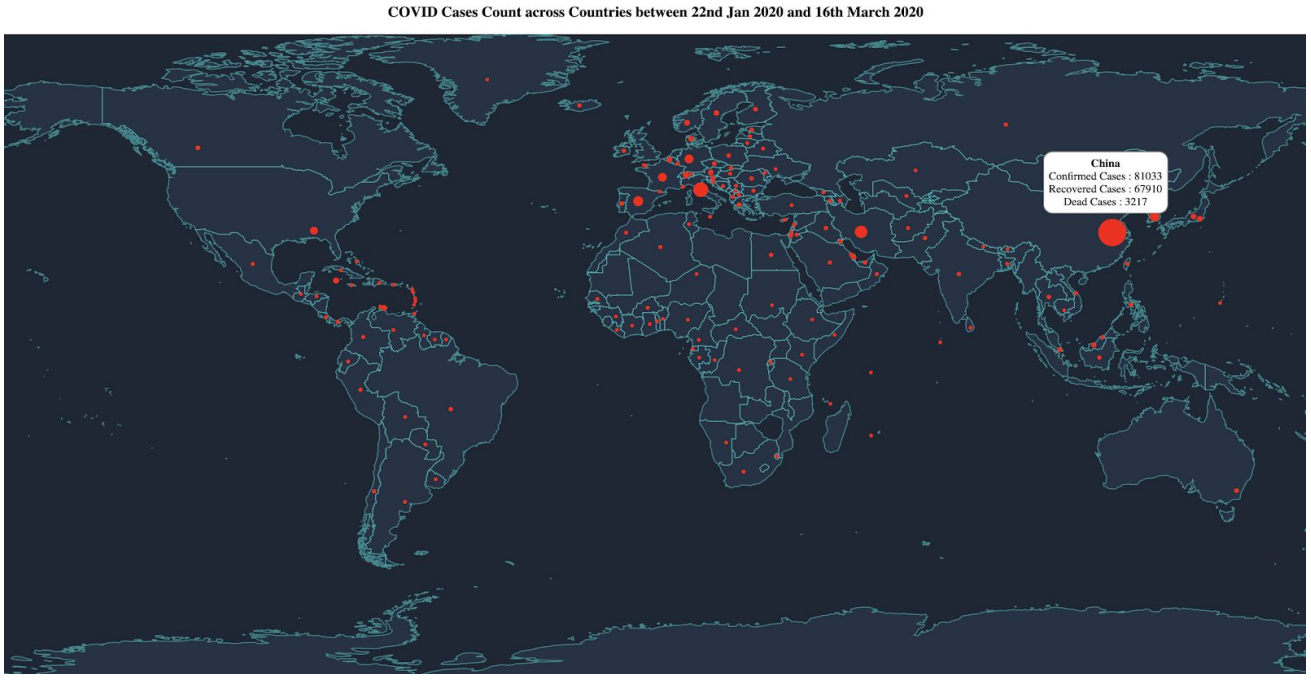
Marks: **Points**
Channels: **Area, Horizontal Positions, and Vertical Positions**
Chart Type: **World Map**

- Categorical variable Country.Region is plotted in world map using numerical variables Lat and Long (Geo-coordinates).

- The area of the circle plotted on the world map depends on the number of Covid cases count (numerical variable).

Columns used: Country.Region, Lat, Long, cases, type

Hovering on each circle shows the Country name, Confirmed cases, Recovered cases and Dead cases count.



OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Visualization 2: Confirmed COVID Cases Count across Countries between 22nd Jan 2020 and 16th March 2020

Queries Answered :

a) **Which country has more Covid cases count on a specific date?**
b) **How many Confirmed Covid cases a specific country has on a specific date?**

Insights Found:

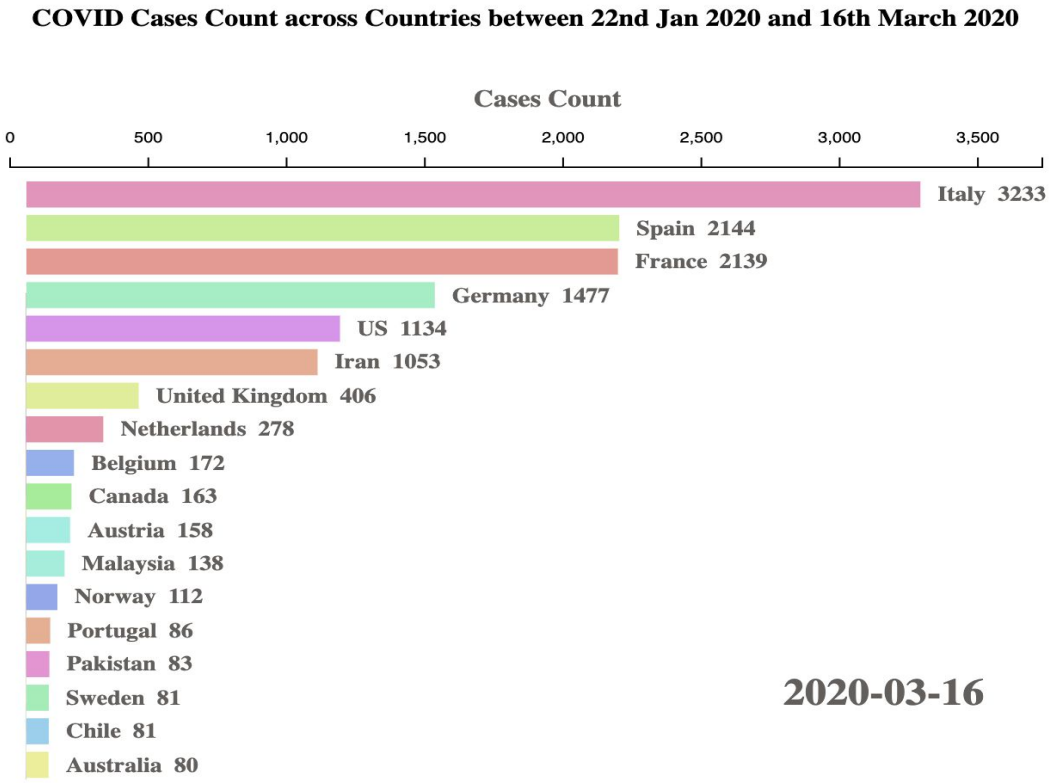
a) In early February more covid cases were found in China.
b) In mid-March European countries had more covid cases count.

Marks: **Lines**
Channels: **Horizontal lengths and Vertical Positions**
Chart Type: **Bar Chart Race**

X-Axis: Numerical variable Covid cases count
Y-axis: Categorical variable countries ranked based on more number of confirmed Covid cases count.

Columns used: Country.Region, cases, type, date

***(Color has been added to the chart just for the purpose of aesthetic sense)**



OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Visualization 3: Trend in confirmed/recovered/dead COVID cases count between 22nd Jan 2020 and 16th March 2020

Queries Answered :

a) **Is there any trend in confirmed/recovered/dead cases count?**
b) **How many confirmed/recovered/dead cases count on a specific date?**

Insights Found:

a) **There is an increasing trend in the confirmed covid cases count.**

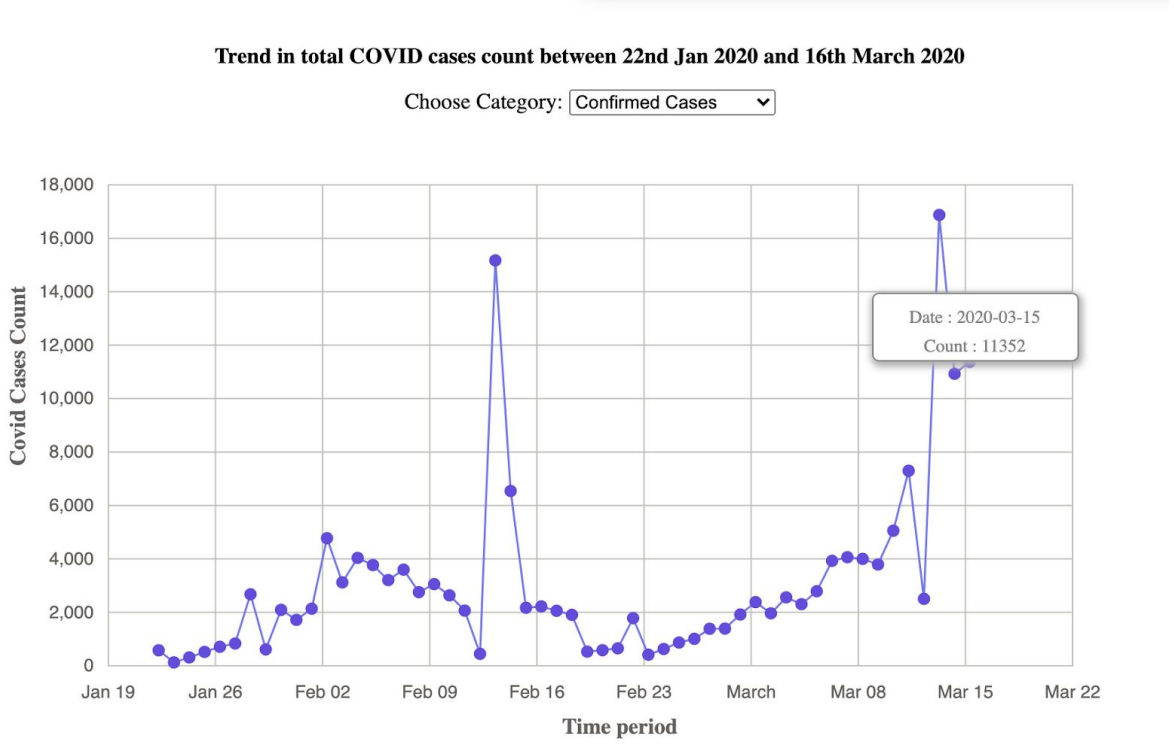
Visualization Description:

Marks: **Points, Lines**
Channels: **Horizontal Positions, and Vertical Positions**
Chart Type: **Line Chart**

- Ordinal variable date on X-axis
- Numerical variable covid cases count on Y-axis

Columns used: cases, type, date

Can switch between Confirmed/Recovered/Dead category
Hovering on dots shows the exact count of covid cases on a specific date



OTOT - Task A1 D3.js
NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Visualization 4: Confirmed, Death, Recovered Cases Count for all Countries in the World.

Queries Answered:

a) **How many Confirmed/Recovered/Dead Covid cases a specific country has?**

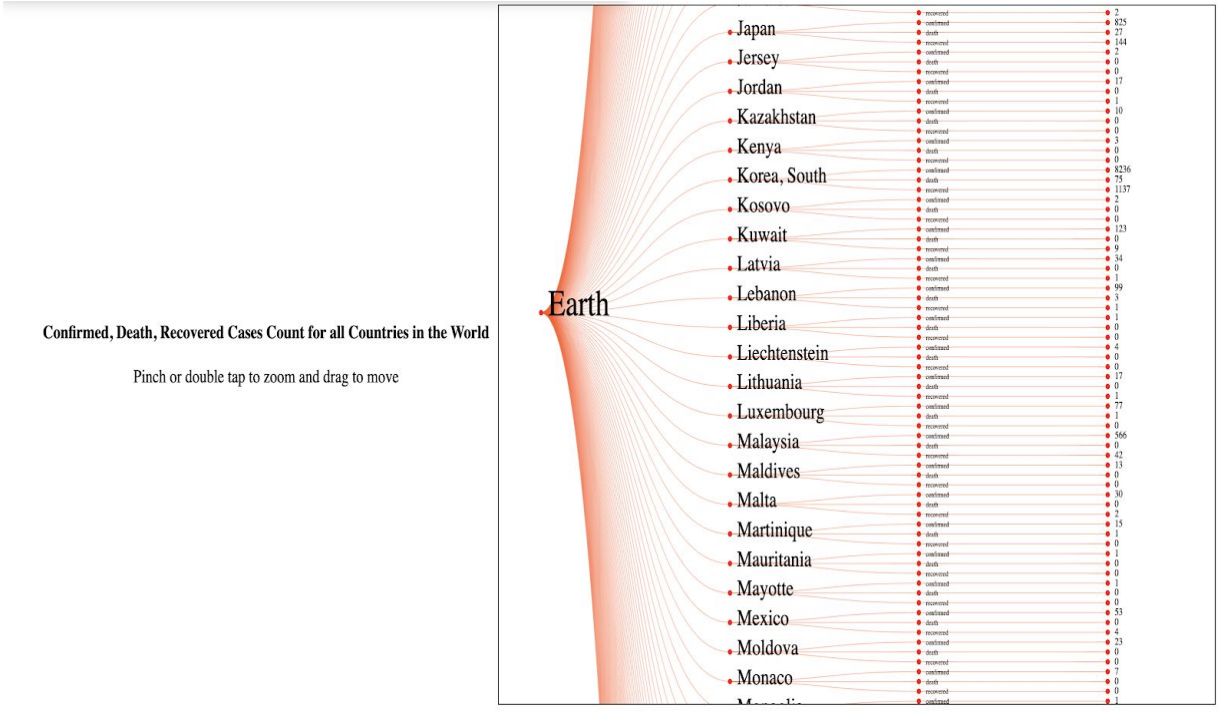
Visualization Description:

Marks: **Lines**
Channels: **Size (Hierarchical Data)**
Chart Type: **Radial Tree Chart**

- Numerical variable covid cases count.
- Categorical variable countries

Columns used: cases, type, Country.Region

Pinch or double tap to zoom and drag to move the Radial Tree.



OTOT - Task A1 D3.js

NAVEEN KUMAR JAKUVA PREMKUMAR - A0212252X

Steps To Run the Source code :

1) **Start the http server inside the directory Covid / Crime.**

   http-server --cors (port 8080)

2) **Open submission.html file inside the directory Covid / Crime in the browser.**