

Report On Analysis of relationship between Confirmed Cases vs Number Of Tests Done Per Million by Country for COVID – 19

**A Project Report submitted in partial fulfillment of
the requirements for the award of
Bachelor of Engineering
IN
COMPUTER SCIENCE AND ENGINEERING**

**Submitted by
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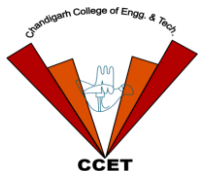
**Under the supervision of
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at CHANDIGARH COLLEGE OF ENGINEERING AND TECHNOLOGY
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**CHANDIGARH COLLEGE OF ENGINEERING AND TECHNOLOGY
(DEGREE WING)**

Government Institute under Chandigarh (UT) Administration, Affiliated to Panjab University, Chandigarh
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CHANDIGARH COLLEGE OF ENGINEERING AND TECHNOLOGY (DEGREE WING)

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COVID 19 Datasets

Confirmed cases dataset:

- <https://data.humdata.org/dataset/novel-coronavirus-2019-ncov-cases>

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	Province/State	Country/Region	Lat	Long	1/22/20	1/23/20	1/24/20	1/25/20	1/26/20	1/27/20	1/28/20	1/29/20	1/30/20	1/31/20	02-01-2020	02-02-2020	02-03-2020	02-04-2020	02-05-2020	02-06-2020	02-07-2020
2		Afghanistan	33	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3		Albania	41.1533	20.1683	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4		Algeria	28.0339	1.6596	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5		Andorra	42.5063	1.5218	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6		Angola	-11.2027	17.8739	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7		Antigua and Barbuda	17.0608	-61.7964	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8		Argentina	-38.4161	-63.6167	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9		Armenia	40.0691	45.0382	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10		Australian (Australia)	-35.4735	149.0124	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11		New South Australia	-33.8688	151.2093	0	0	0	0	3	4	4	4	4	4	4	4	4	4	4	4	4
12		Northern Territory	-12.4634	130.8456	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13		Queensland	-28.0167	153.4	0	0	0	0	0	0	0	1	3	2	3	2	2	3	3	4	5
14		South Australia	-34.9285	138.6007	0	0	0	0	0	0	0	0	0	0	1	2	2	2	2	2	2
15		Tasmania	-41.4545	145.9707	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16		Victoria	-37.8136	144.9631	0	0	0	0	1	1	1	1	2	3	4	4	4	4	4	4	4
17		Western Australia	-31.9505	115.8605	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18		Austria	47.5162	14.5501	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19		Azerbaijan	40.1431	47.5769	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20		Bahamas	25.0343	-77.3963	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21		Bahrain	26.0275	50.55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22		Bangladesh	23.685	90.3563	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23		Barbados	13.1939	-59.5432	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24		Belarus	53.7098	27.9534	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25		Belgium	50.8333	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1
26		Benin	9.3077	2.3158	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27		Bhutan	27.5142	90.4336	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28		Bolivia	-16.2902	-63.5887	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29		Bosnia and Herzegovina	43.9159	17.6791	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30		Brazil	-14.235	-51.9252	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Tests per million done around the world:

- <https://ourworldindata.org/grapher/full-list-cumulative-total-tests-per-million?tab=map>

	A	B	C	D	E	F	G
1	Entity	Code	Date	Daily change in cumulative total tests			
2	Australia	AUS	Apr 3, 2020	16278			
3	Australia	AUS	Apr 7, 2020	8038			
4	Austria	AUT	Feb 26, 2020	103			
5	Austria	AUT	Feb 27, 2020	126			
6	Austria	AUT	Feb 28, 2020	316			
7	Austria	AUT	Feb 29, 2020	886			
8	Austria	AUT	Mar 4, 2020	455			
9	Austria	AUT	Mar 5, 2020	573			
10	Austria	AUT	Mar 6, 2020	289			
11	Austria	AUT	Mar 7, 2020	308			
12	Austria	AUT	Mar 8, 2020	201			
13	Austria	AUT	Mar 9, 2020	225			
14	Austria	AUT	Mar 10, 2020	292			
15	Austria	AUT	Mar 11, 2020	336			
16	Austria	AUT	Mar 12, 2020	507			
17	Austria	AUT	Mar 13, 2020	713			
18	Austria	AUT	Mar 14, 2020	885			
19	Austria	AUT	Mar 15, 2020	700			
20	Austria	AUT	Mar 16, 2020	323			
21	Austria	AUT	Mar 17, 2020	1788			
22	Austria	AUT	Mar 18, 2020	1699			
23	Austria	AUT	Mar 19, 2020	1747			
24	Austria	AUT	Mar 20, 2020	1889			
25	Austria	AUT	Mar 21, 2020	2932			
26	Austria	AUT	Mar 22, 2020	2823			
27	Austria	AUT	Mar 23, 2020	2061			
28	Austria	AUT	Mar 24, 2020	4962			
29	Austria	AUT	Mar 25, 2020	4016			
30	Austria	AUT	Mar 26, 2020	3500			

Problem Statement: Analysis of the relationship between Confirmed Cases vs Number Of Tests Done Per Million by Country for COVID – 19

Graphical plots and Visualizing the dataset:

COVID 19 Cases Visualization 1

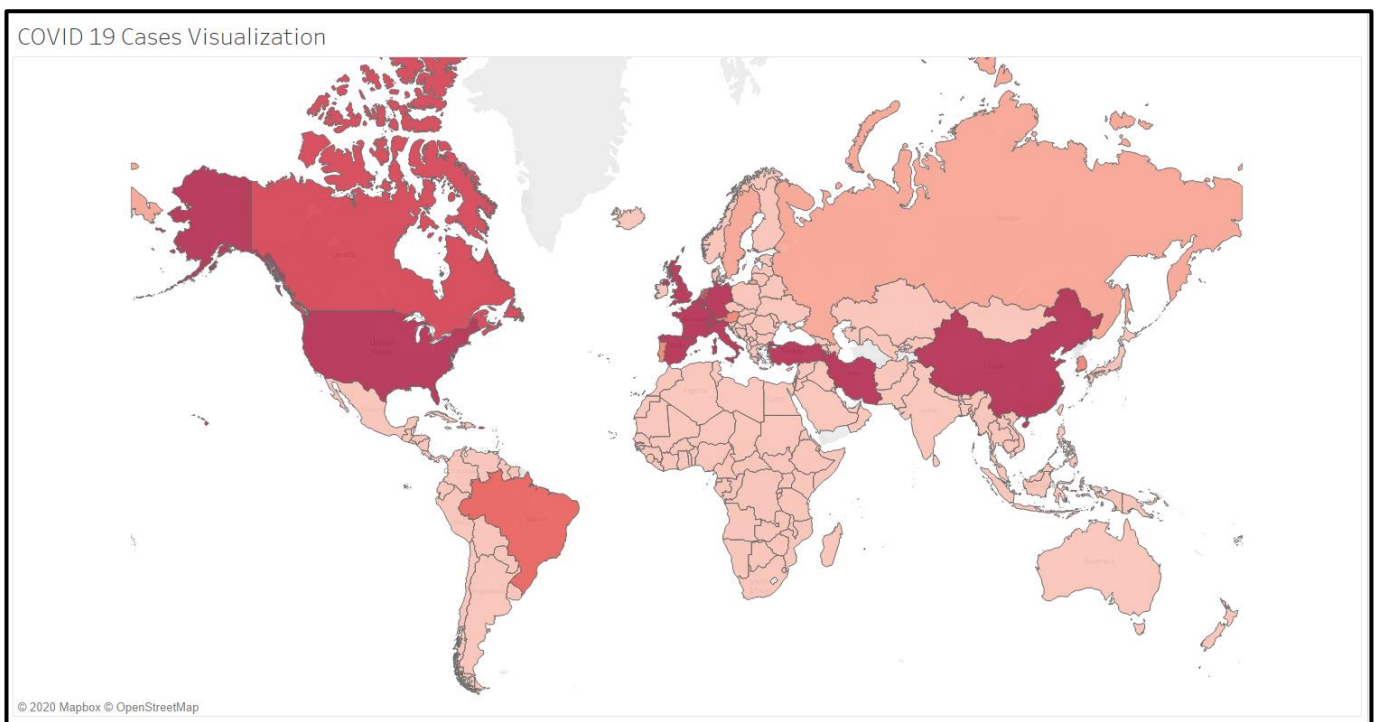


Figure 3: COVID 19 Cases Visualization

1. The severity of the virus throughout the globe has been mapped.
2. A world map-graph has been plotted on the global-scale to check the severity of the disease.
3. Nations in dark red show most affected nations.
4. The most affected nations are:
 - a. China
 - b. USA
 - c. European Union
 - d. Mid-West

COVID 19 Cases Visualization 2

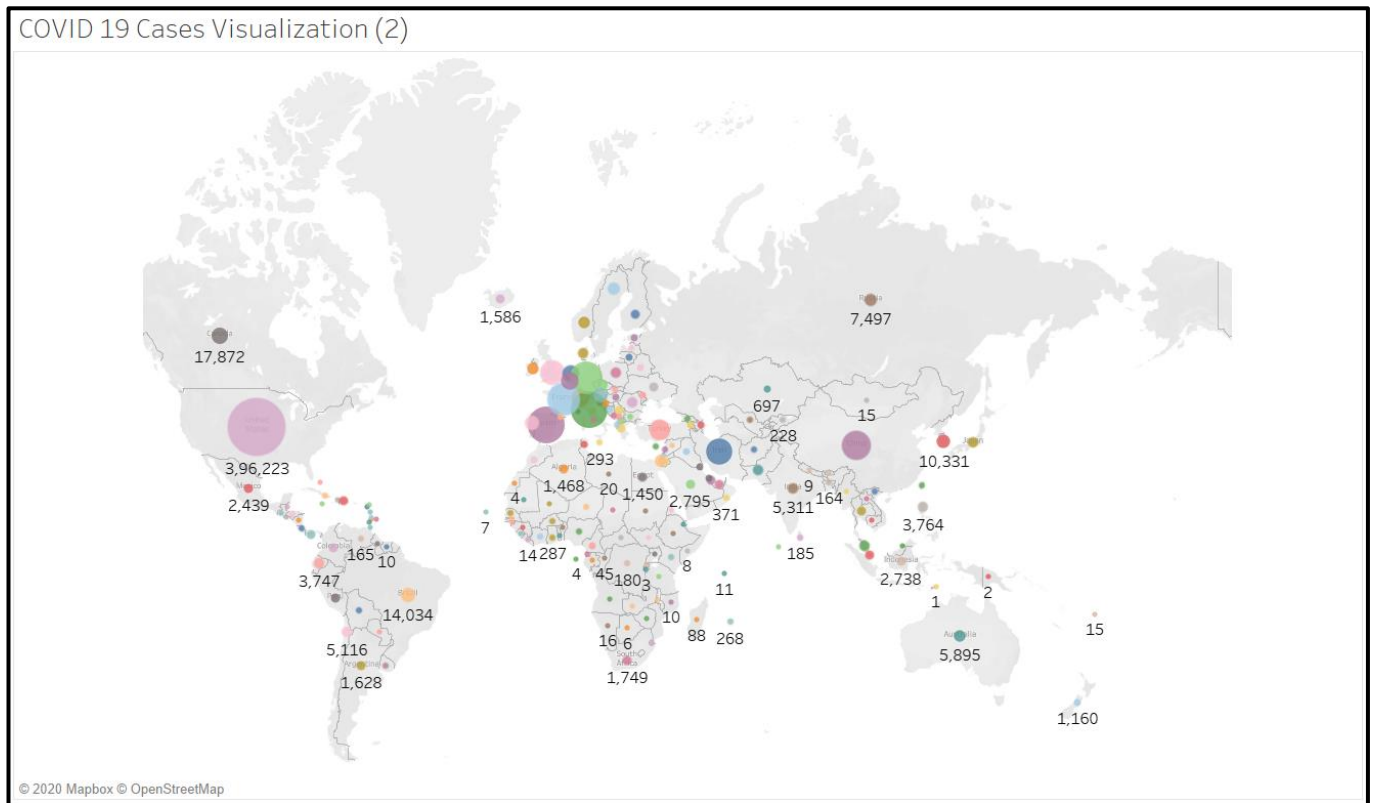


Figure 4: COVID 19 Cases Visualization 2

1. The severity of the virus throughout the globe has been mapped.
2. A world map-Bubble graph has been plotted on the global-scale to check the severity of the disease.
3. Nations with bigger bubbles denote more number of confirmed cases.
4. The most affected nations are:
 - a. China
 - b. USA
 - c. European Union
 - d. Mid-West

Timeline: Increase in Cases

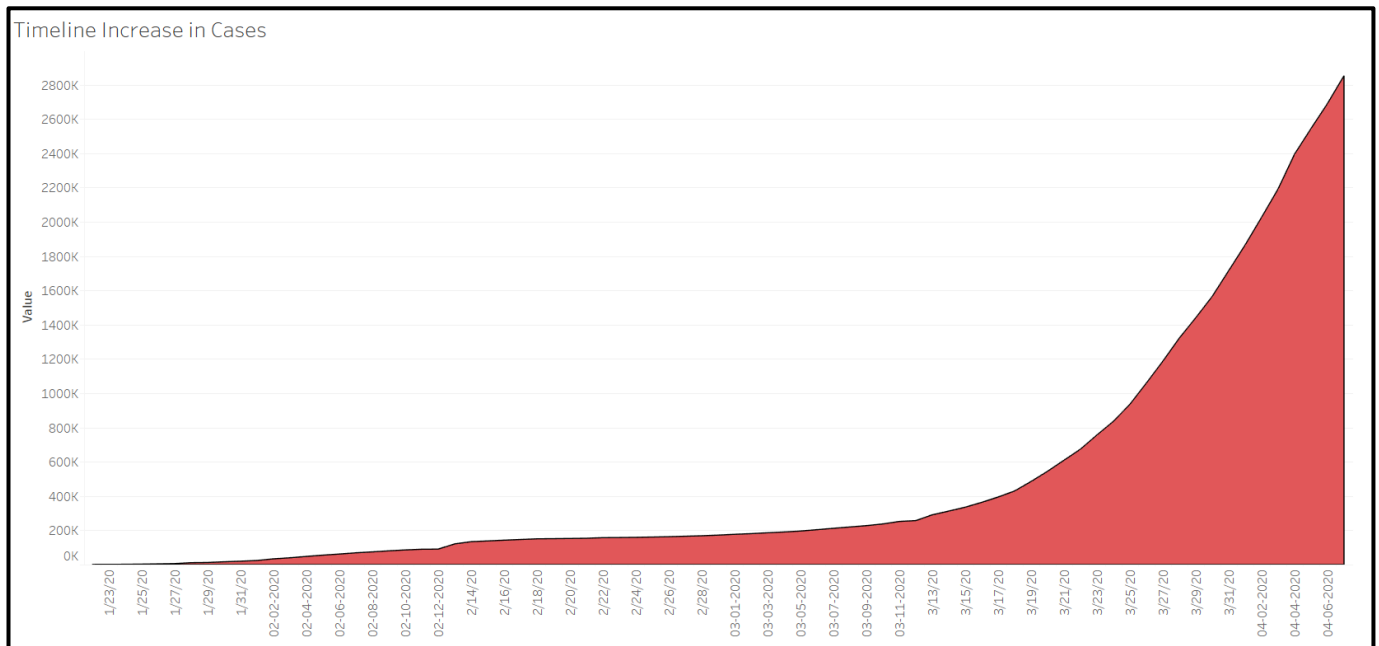


Figure 5: Timeline: Increase in Cases

A timeline has also been generated displaying a daily increase in the number of cases.

The graph here is exponential.

Showing the exponential increase in the number of infected people around the world.

This is in line with the predictions of scientist of exponential growth of number of cases of affected people around the world.

The trajectory for begins on the day when that countries had few 100 confirmed cases.

This allows you to compare how rapidly the number of confirmed cases increased after the outbreak reached a critical stage.

Timeline: Increase in Cases

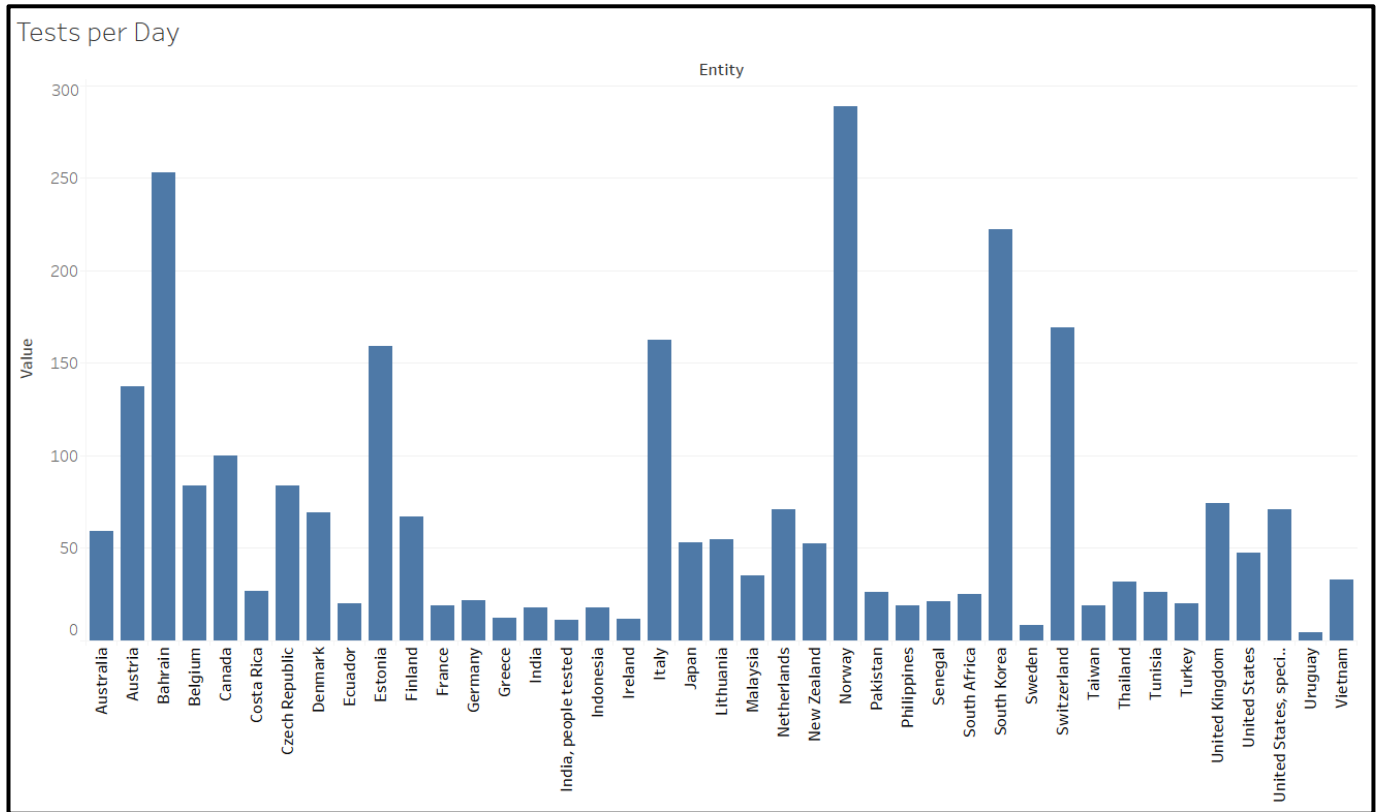


Figure 6: Tests per day per nation per million

A bar graph has been created using dataset describing the number of test cases done per million in various nations around the world.

1. The nations where most testing were done are:
 - a. Norway
 - b. Switzerland
 - c. Iceland
 - d. Bahrain
 - e. South Korea

COVID 19 Tests Visualization

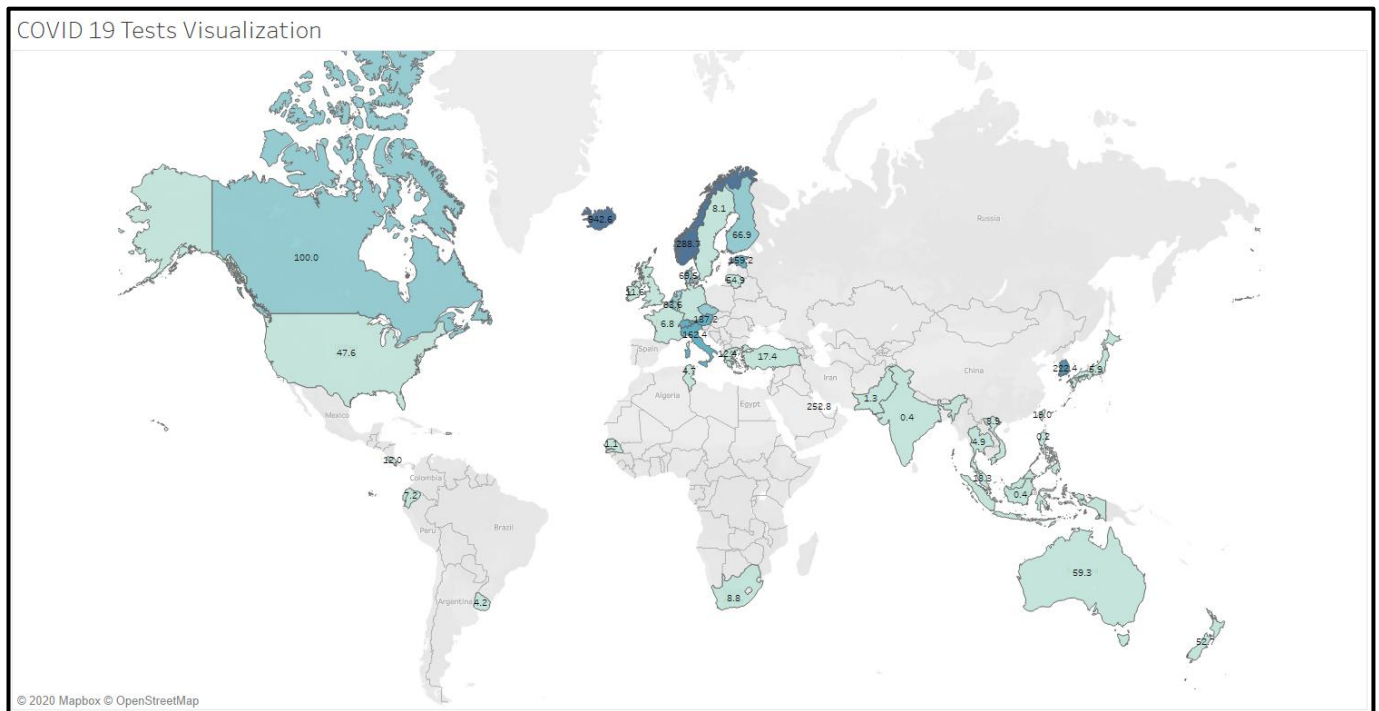


Figure 7: COVID 19 Tests Visualization

1. The number of test cases done per million are mapped.
2. A world map-graph has been plotted on the global-scale to denote the infectiousness testing of the disease and preparedness.
3. Nations in dark blue show most affected nations.
4. The most affected nations are:
 - a. Norway
 - b. Switzerland
 - c. Iceland
 - d. Bahrain

Mostly First World Nations have carried out testing on a large scale.

COVID 19 Tests Visualization 2

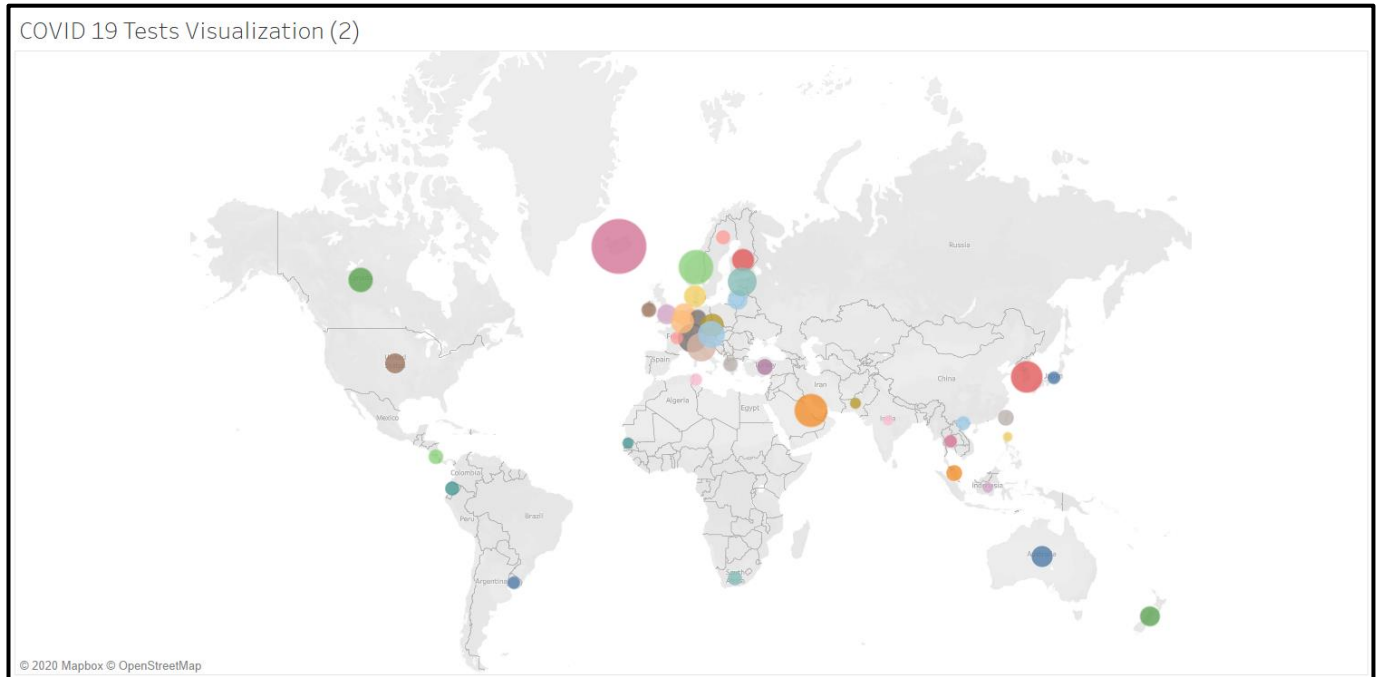


Figure 8: COVID 19 Tests Visualization 2

1. The number of test cases done per million are mapped.
2. A world map-Bubble graph has been plotted on the global-scale to denote the infectiousness testing of the disease and preparedness.
3. Nations in dark blue show most affected nations.
4. The most affected nations are:
 - a. Norway
 - b. Switzerland
 - c. Iceland
 - d. Bahrain

Mostly First World Nations have carried out testing on a large scale.

Final Solution:

Dashboard 1

Dataset 1 was used to analyse the severity of the virus and plot graph on the global-scale to check the severity of the disease. And nations in dark red show most affected nations. Similarly a bubble representation is also calculated to measure hotspot nations.

A timeline has also been generated displaying a daily increase in the number of cases. The graph here is exponential. Showing the exponential increase in the number of infected people around the world. A bar graph below shows the number of test cases done per million in various nations around the world.

Dashboard 1

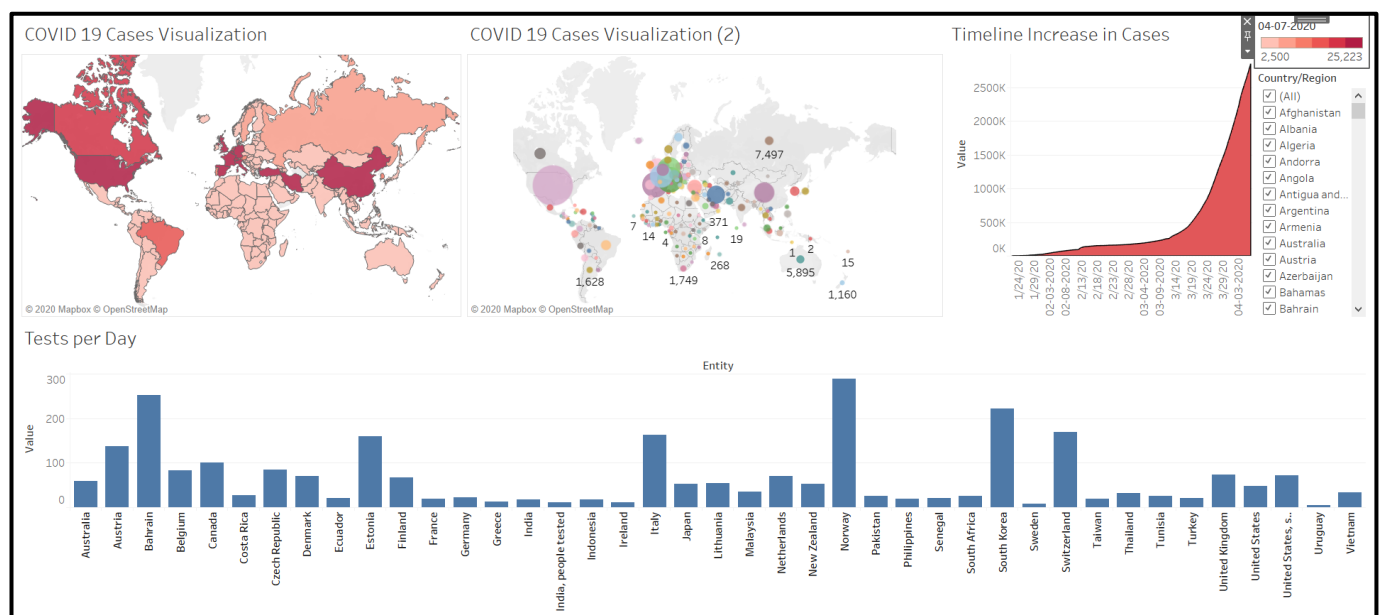


Figure 1: Dashboard 1

Includes:

- COVID 19 Cases Visualization
- COVID 19 Cases Visualization 2
- Timeline increase in the number of cases
- Tests per day per nation per million

Dashboard 2

Dataset 2 was used to analyse the number of test cases done per million and plot graphs on the global-scale to check the infectiousness of disease. And nations in dark blue show nations where most of the testing was done. Similarly a bubble representation is also calculated to measure those nations.

In this graph it can be seen that only Scandinavian or first-world nations carried out testing on a mass scale. And even those nations who carried out less testing like India are not the hotspots for COVID 19. Whereas Iceland where more testing was done has far fewer COVID 19 cases in comparison to the USA and China and Italy. In general there is no co-relation between testing and number of confirmed cases as seen through visualizations.

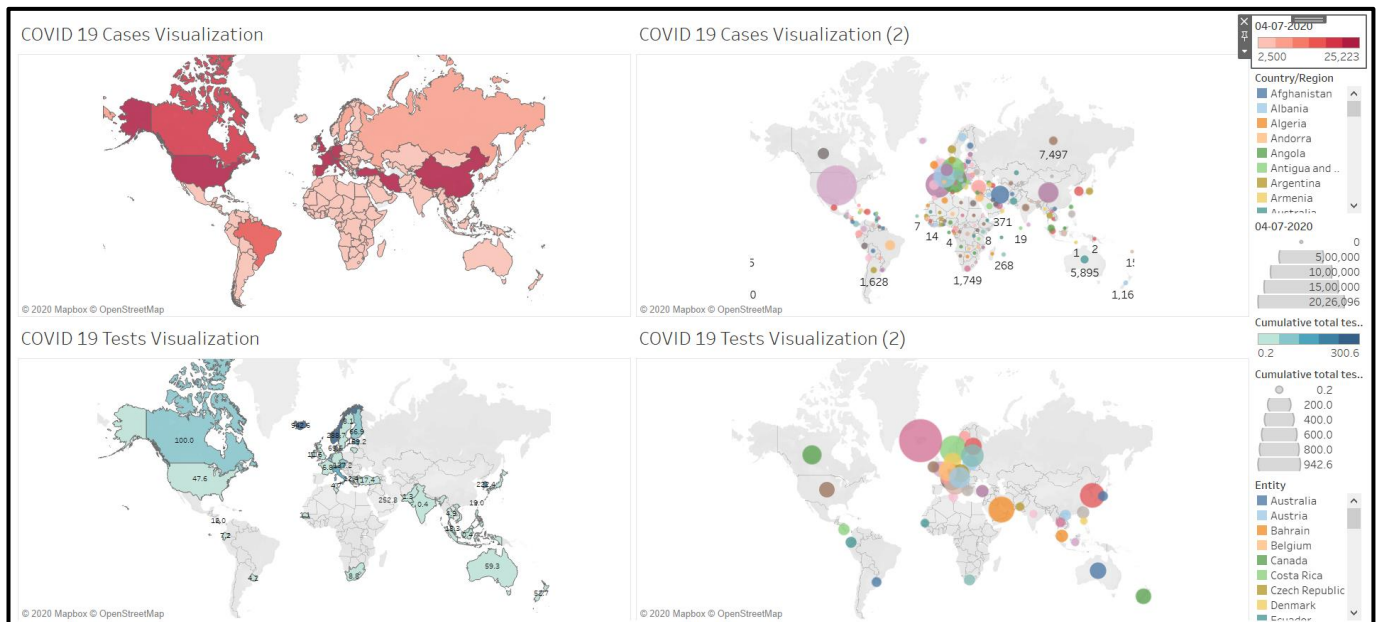


Figure 2: Dashboard 2

Includes:

- COVID 19 Cases Visualization
- COVID 19 Cases Visualization 2
- COVID 19 Tests Visualization
- COVID 19 Tests Visualization 2

Conclusion: In general there is no co-relation between testing and number of confirmed cases. The hypothesis that nations like India have lesser COVID 19 cases due to low testing is false. Hence our research proves on the contrary.