Final Project 2

YEO PING EN CHARMAINE

Setting the Scene

It’s time for Charlie to go to university!

She’s a smart cookie, so she can go to **whichever university she wants.**

She lives in Singapore, and **prefers to enter** a university closer to home.

2 main questions to answer:

- Which **country** should she look for a Uni in?
- Which **factors** should she look into if she wants to get a good quality education?

Cleaning the Data

Already rather clean:

- No duplicates
- Null values only for broad_impact in 2012, 2013, which appears to be a new factor introduced in 2014, so

Just have to note that there're 2200 entries for 4 years. Meaning there are some years where there are more than 100 universities provided in data. Therefore, have extract the pertinent data and be careful when working with the entire dataframe.

Top 10 Countries with Highest Count of Unis world ranked <=100.

USA has the most number of universities ranked top 100 in the world throughout the years 2012-2015.

Japan and Australia are the best countries if Charlie wants to remain closer to home (Singapore)

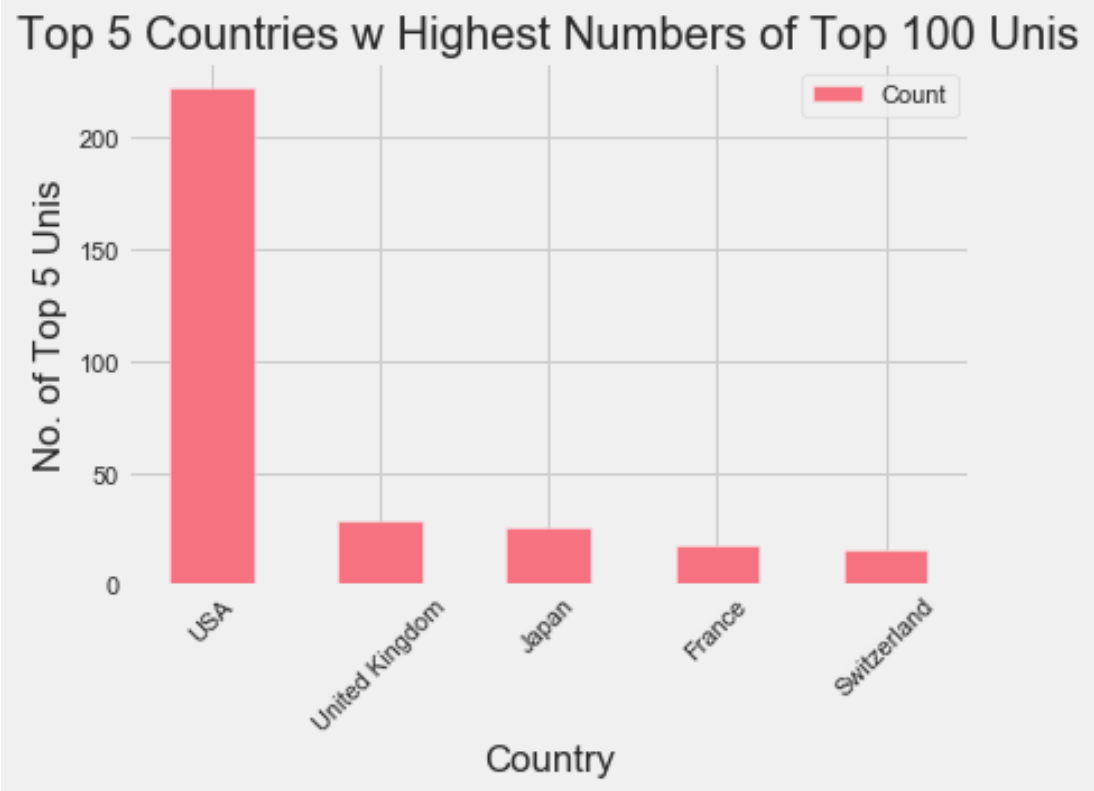
Country	Count
USA	223
United Kingdom	29
Japan	26
France	18
Switzerland	16
Israel	14
Canada	13
Germany	11
Australia	8
Netherlands	6

Which Countries to keep an eye on?

The majority of Top 100 Universities come from **USA**, who has about **8x** more top 100 universities than the next best country: the UK.

The difference between the number of top 100 universities between the UK, Japan, France, and Switzerland is **less drastic** compared to the disparity between USA and UK.

With only integers, it's difficult to see if USA is the best place to go for a quality education because we should be using a percentage figure of: **(Number of world_rank Top 100 schools / Total Universities in country) *100** to get a more accurate representation.



Countries w Unis in Top 100 by Year

+ Russia, Singapore

+ China, Taiwan, Belgium
- Finland, Norway

+ Norway
- Italy

	year	country	count_top100
0	2012	USA	58
1	2012	United Kingdom	8
2	2012	France	5
3	2012	Japan	5
4	2012	Israel	4
5	2012	Switzerland	4
6	2012	Canada	3
7	2012	Germany	3
8	2012	Australia	2
9	2012	Netherlands	2
10	2012	Denmark	1
11	2012	Finland	1
12	2012	Italy	1
13	2012	Norway	1
14	2012	South Korea	1
15	2012	Sweden	1

	year	country	count_top100
16	2013	USA	57
17	2013	United Kingdom	7
18	2013	Japan	6
19	2013	France	5
20	2013	Canada	4
21	2013	Israel	4
22	2013	Switzerland	4
23	2013	Australia	2
24	2013	Germany	2
25	2013	Denmark	1
26	2013	Finland	1
27	2013	Italy	1
28	2013	Netherlands	1
29	2013	Norway	1
30	2013	Russia	1
31	2013	Singapore	1
32	2013	South Korea	1
33	2013	Sweden	1

	year	country	count_top100
34	2014	USA	53
35	2014	Japan	8
36	2014	United Kingdom	7
37	2014	France	4
38	2014	Germany	4
39	2014	Switzerland	4
40	2014	Canada	3
41	2014	Israel	3
42	2014	Australia	2
43	2014	China	2
44	2014	Sweden	2
45	2014	Belgium	1
46	2014	Denmark	1
47	2014	Italy	1
48	2014	Netherlands	1
49	2014	Russia	1
50	2014	Singapore	1
51	2014	South Korea	1
52	2014	Taiwan	1

	year	country	count_top100
53	2015	USA	55
54	2015	Japan	7
55	2015	United Kingdom	7
56	2015	France	4
57	2015	Switzerland	4
58	2015	Canada	3
59	2015	Israel	3
60	2015	Australia	2
61	2015	China	2
62	2015	Germany	2
63	2015	Netherlands	2
64	2015	South Korea	2
65	2015	Belgium	1
66	2015	Denmark	1
67	2015	Norway	1
68	2015	Russia	1
69	2015	Singapore	1
70	2015	Sweden	1
71	2015	Taiwan	1

Countries w Unis in Top 100 by Year

Interestingly, since 2012, **more Asian countries** (Singapore, Taiwan, China) have entered the Top 100 count, suggesting that there could be **growing educational potential** in some East Asian countries.

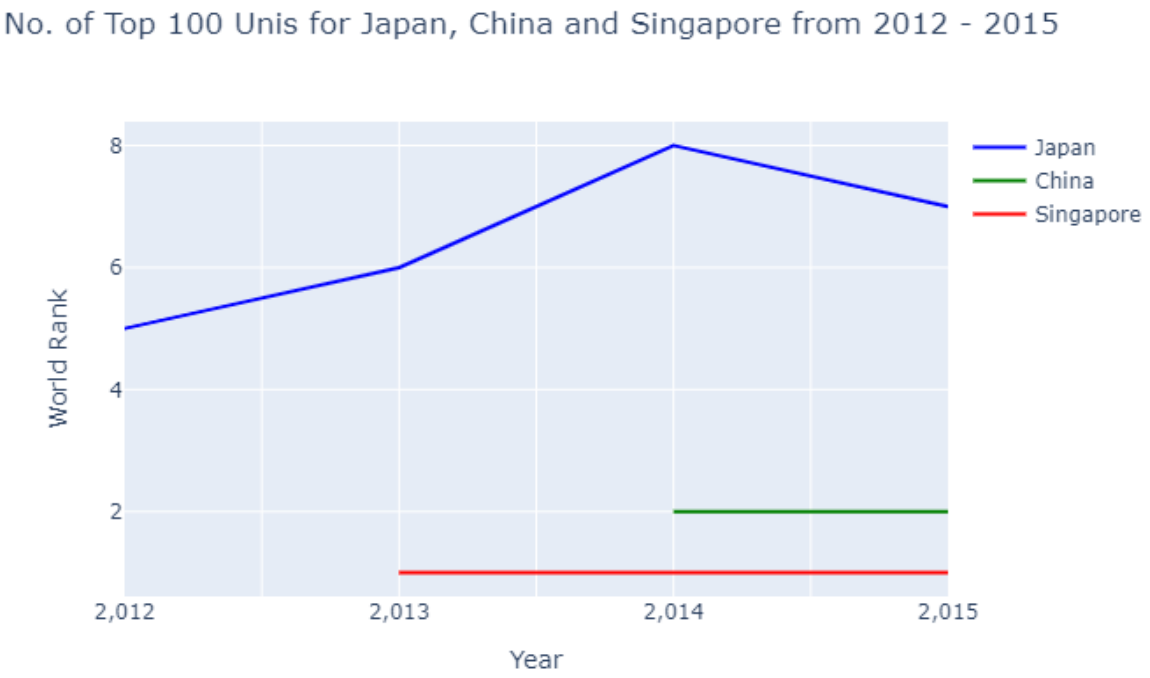
Not only that, there are also **more universities within those countries** that are entering the top 100 count. Japan saw an increase of universities from 5-7, reaching a peak of 8 unis in 2014, and has since **displaced both France and the UK** in 2015 since 2012, ranking as the **2nd country** to have the highest number of universities in the top 100 count.

Comparing Unis Closer to Home

Singapore and China are relatively **new** players to the list, as compared to Japan, a more established country with more (5-8) universities in the top 100 list.

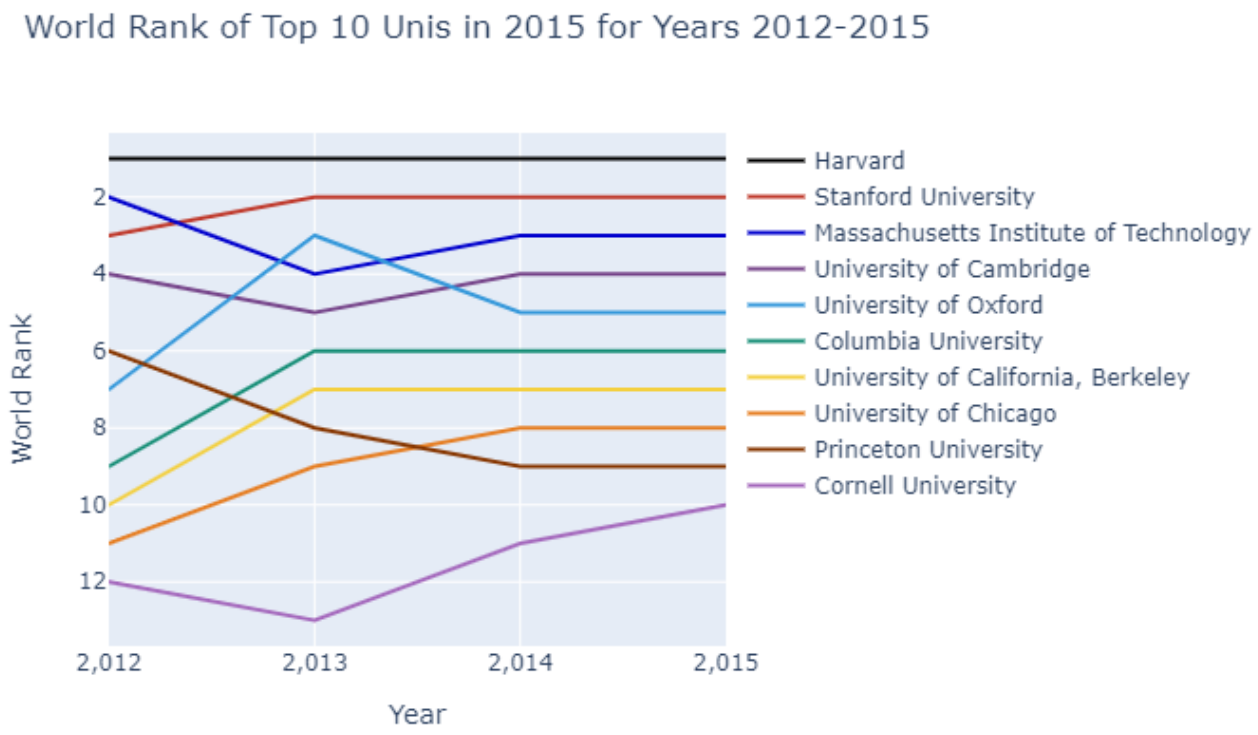
Japan is doing very well from 2012-2015, **increasing from 5-7 universities** and **peaking at 8.**

While **Singapore made the list earlier** in 2013 with 1 university, interestingly, **China started out with 2 universities**, albeit a little later in 2014. Maybe due to them being a larger country with more universities.



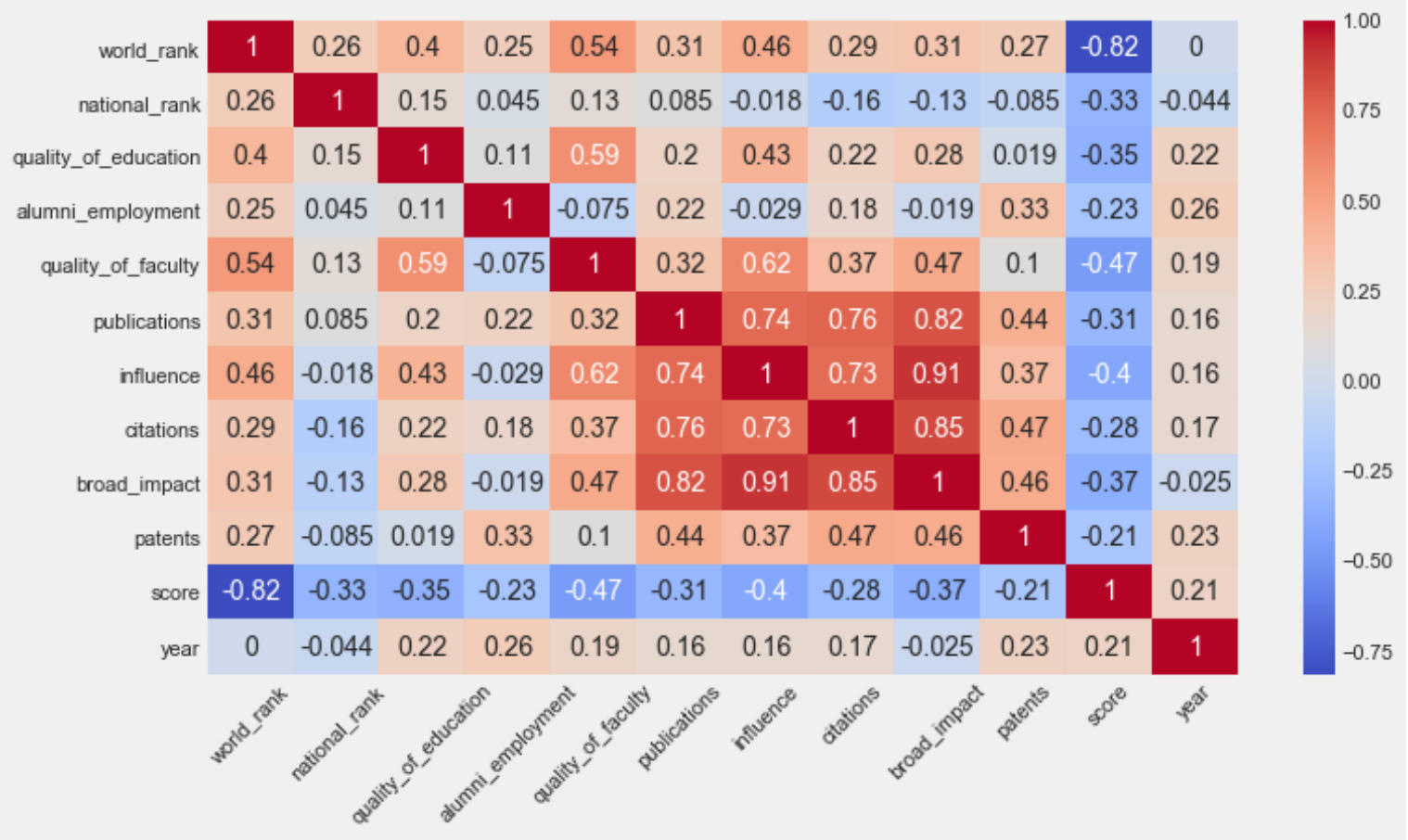
Examining 2015's Top 10

- 8/10 from US.
- **Top, most constant:** Harvard (1st place for all 4 years.)
- **Net decrease:** MIT and Princeton
- **Net increase:** The rest
- **Greatest net increase:** University of Chicago (3 places, from 11th-8th place).
- **Greatest net decrease:** Princeton University (3 places, from 6th-9th place.)
- **Greatest increase in a year:** University of Oxford (4 places, from 7th-3rd place)
- **Greatest decrease in a year:** MIT, Princeton, and Oxford (2 places within a year).
- Interestingly, **only 4/8 renowned Ivy League schools** (Harvard, Cornell, Princeton, Columbia) are within top 10.



Factors correlating to World Rank

1) Quality of Faculty (0.54),
2) Influence (0.46)
3) Quality of Education (0.4)



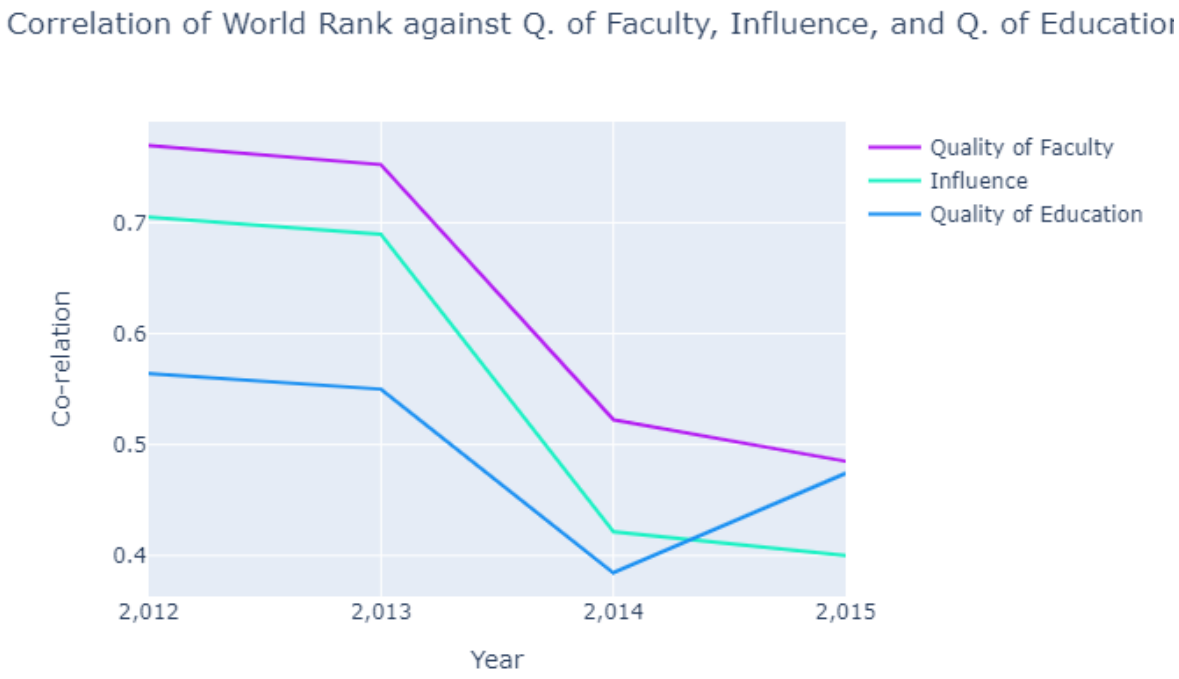
Factors correlating to World Rank

All 3 factors show a **heavy downward trend**, suggesting that they have become **less correlated to world ranks as time progressed**.

The heavy downturn comes **after 2013**, suggesting that CWUR might have adjusted the weightage for the three factors, or the introduction of **broad impact** might have caused the correlations to dip.

Influence was the most affected, **decreasing around 50%** in correlation between 2013-2015.

The only **slight increase** is the correlation for quality of education (2014-2015).



Points to Note:

!!! Very important to note certain inherent biases:

- **Data will always carry bias based on how they are obtained:** For Eg. studies that are in different languages or translated into English may not be ranked highly in citations/ publication as those in English.
- Universities will have different focuses. Need to examine further on how measures are calculated to find a good fit for Charlie.

!!! Other factor to consider:

- **Price point:** Universities in the USA are highly ranked, but **notoriously expensive**. Unless Charlie gets a scholarship, she might not be able to afford it.

Last thoughts

- Which country should she look for a Uni in?
  - If Charlie wishes to find a uni near home, she might want to look further into the Universities in **Japan** as the country appears to be very consistant in having established universities in the top 100.
  - However, if she wants to attend a prestigious world ranked top 10 uni, she'll have to look to the **USA and the UK.**
- Which factors should she look into if she wants to get a good quality education?
  - **Quality of Faculty, Influence, and Quality of Education** all appear to have the highest overall coorelation to world rank. However, they seem to be **dipping in importance** during the course of 2012-2015.
  - It might be worth looking for other factors such as **broad impact** to decide as preliminary findings suggest a high correlation to other factors like **publication, citations, and influence**. Need to determine if the correlation is due to **causation**.
  - Also, while the correlation between world rank and quality of education has decreased from 2012-2015, it is the **only correlation of a factor that has increased**, and thus may be worth looking into to see if it continues on an upward trend in following years.