Dashboard Created By :-
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UNIVERSITY
SUCCESS ANALYSIS
DASHBOARD

मुंबई विद्यापीठ
University of Mumbai

Chikitsak Samuha's
Sir Sitaram & Lady Shantabai Patkar College of Arts & Science
AND V.P.Varde College of Commerce & Economics

SDBI | School of
Data Science &
Business Intelligence

OVERVIEW

The "Global University Analytics Success" dashboard provides an in-depth analysis of higher education trends worldwide. It evaluates university performance across different countries, offering insights into national education systems. The dashboard further breaks down university-specific data, including ranking positions and key success metrics. By incorporating a yearly analysis, it highlights shifts in global rankings and educational outcomes over time. This comprehensive tool enables stakeholders to track trends, assess progress, and make data-driven decisions in the academic sector.

OBJECTIVE

- The goals of this project are to assess and compare university rankings, pinpoint the crucial factors shaping these rankings, and analyze regional trends. Through these objectives, we aim to provide a deeper understanding of the dynamics behind university positions in various ranking systems.

SIGNIFICANCE

This project holds substantial significance in enhancing our comprehension of university performance and the analysis of diverse ranking systems. Seeking to offer valuable insights into the factors influencing the success of universities, contributes to the ongoing efforts to understand and improve the higher education landscape.

DATA DICTIONARY

- **Dataset Description:**

This dataset provides information on university rankings from various systems, including ranking criteria and university-specific data.

- **Table Explanations:**

- **1. country**:

 - Description: A list of countries included in the dataset.

 - Note: While not exhaustive, it encompasses a representative set of countries for the scope of this dataset.

- **2. university:**

 - Description: A list of universities ranked within the specified systems.

 - Note: Each university is associated with a specific country.

- **3. ranking system:**

Description: This table outlines the three distinct ranking systems used: Times Higher Education World University Ranking, Shanghai Ranking, and Center for World University Rankings.

- **4. ranking criteria:**

Description: This table details the various criteria employed by each ranking system, such as Citations and Quality of Education.

Note: It also includes criteria contributing to the Total Score for each respective system.
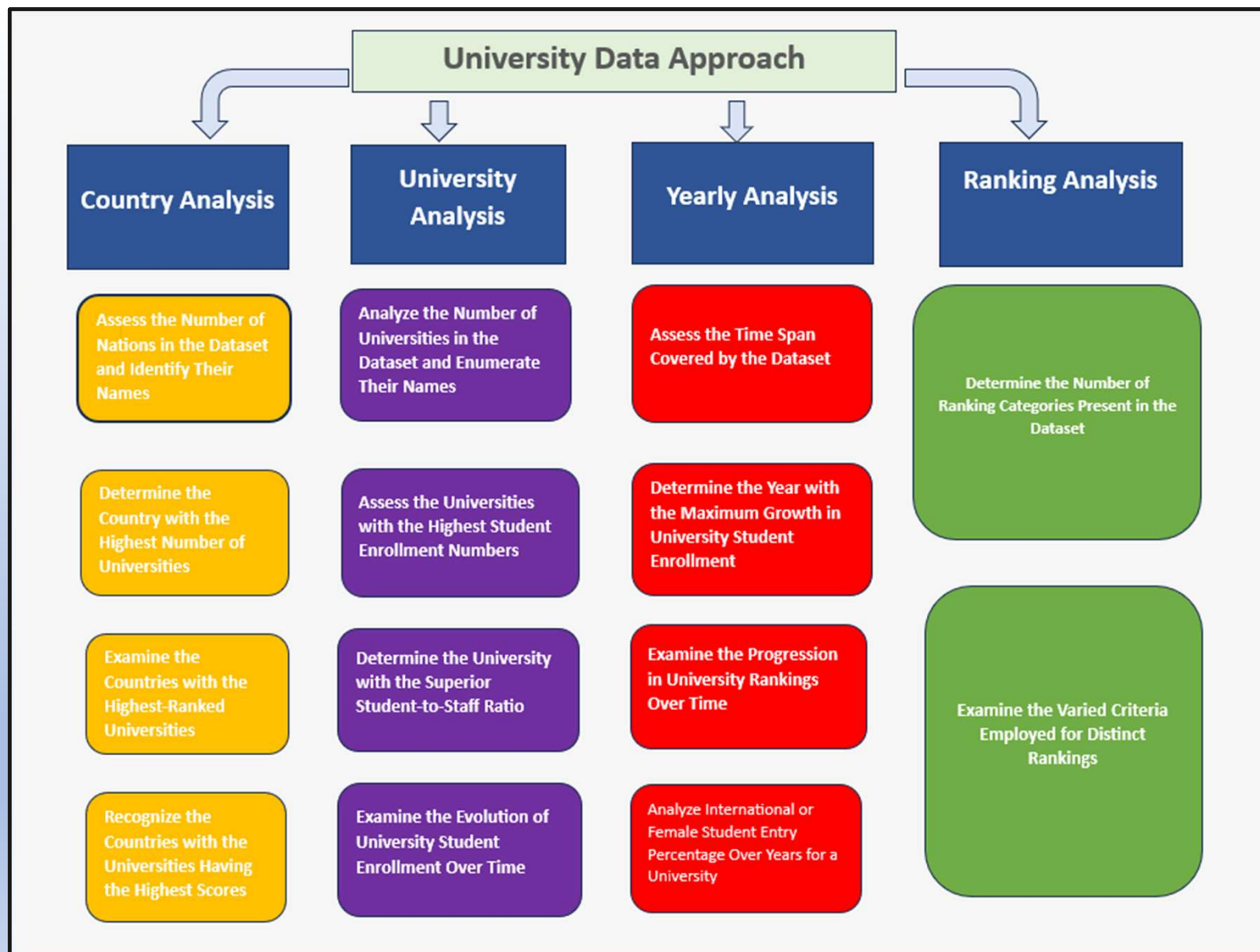
- **5. university year:**

- Description: Contains values for measurements such as the number of students and the student-to-staff ratio for each university over several years.
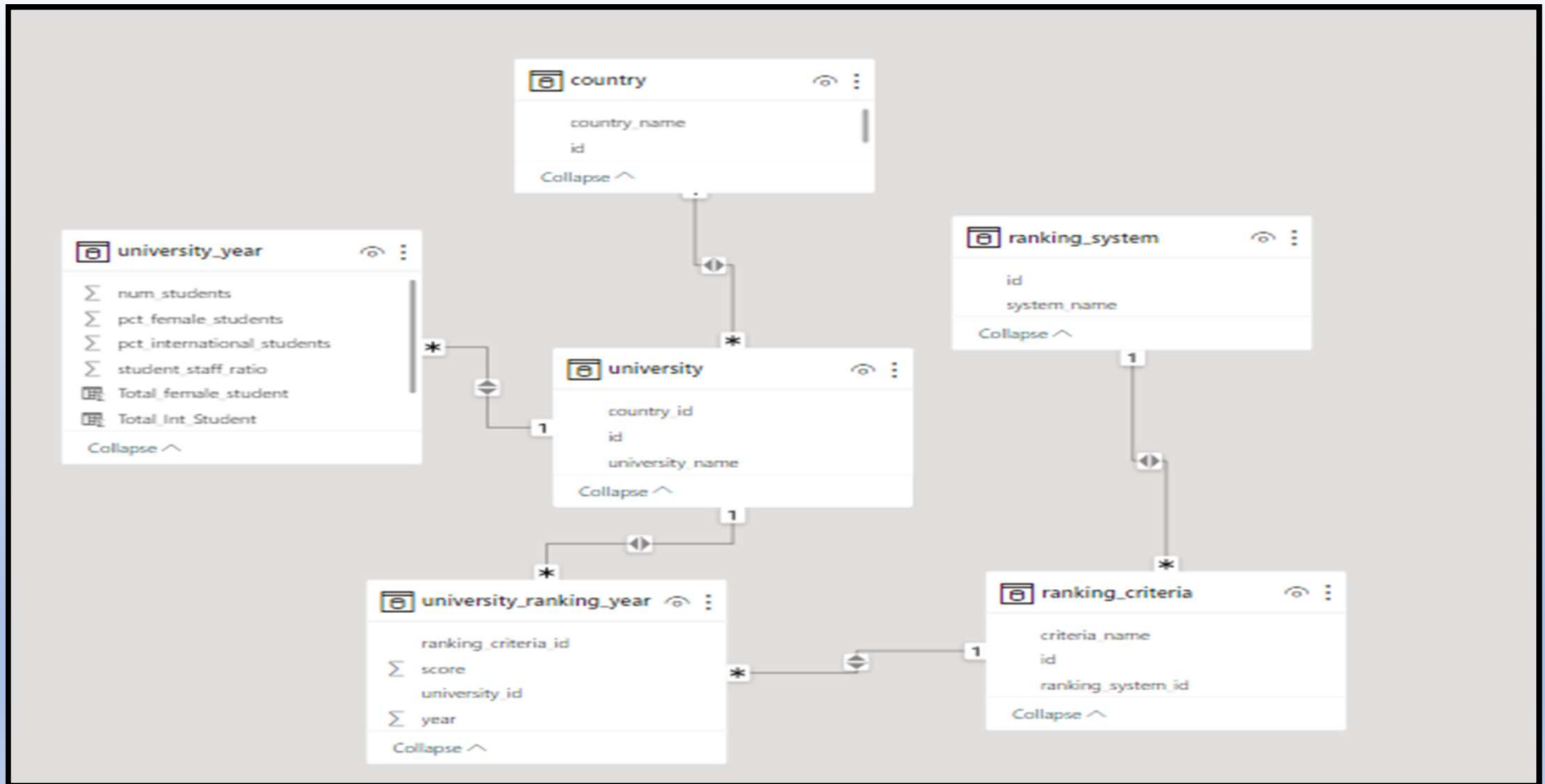
- **6. university ranking year:**

- Description: This table includes the score for each year for each university, along with ranking criteria.

MODEL VIEW

Data Preprocessing
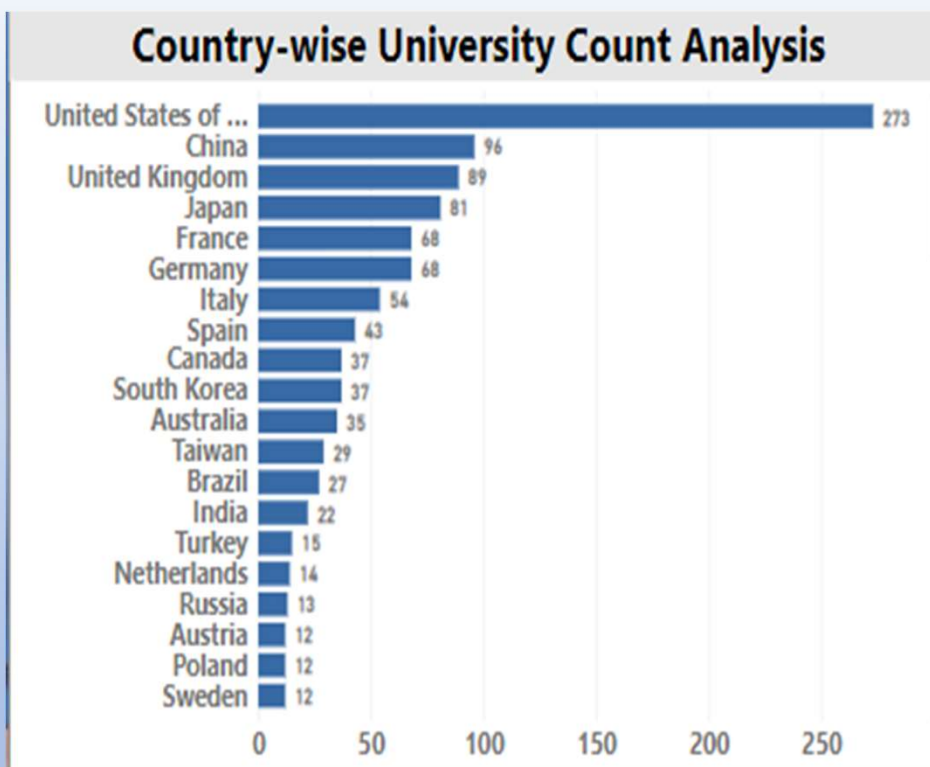**(Data Cleaning, Data Transformation, etc)**

During the data preprocessing for the "Global University Analytics Success" dashboard, I conducted thorough **data cleaning**, eliminating missing values, duplicates, and ensuring consistency in university names and country data. In the **data transformation** phase, I created new measures like student success rates and faculty-to-student ratios to provide insightful metrics. Additionally, I utilized **quick measures** to automate calculations for yearly trends and regional ranking comparisons and many more. To optimize performance, I applied **data reduction** techniques by filtering out irrelevant columns and focusing on key variables such as university rankings, research output, and graduation rates. This streamlined the dataset and ensured that the dashboard delivered meaningful insights.

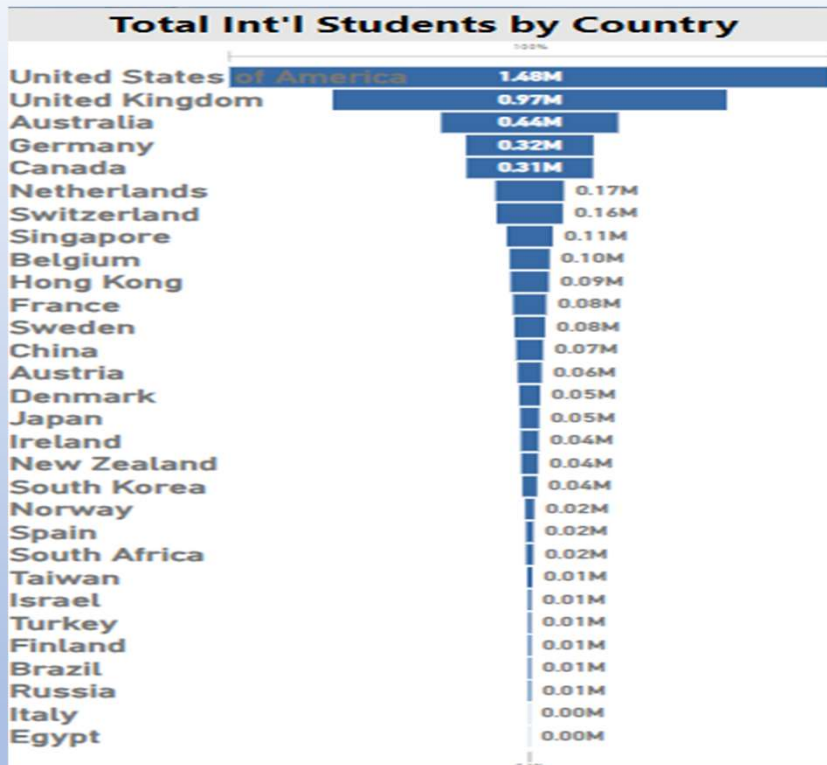Transforming Data into Insights: Building the Dashboard

POWER BI

Problem Statement 1 :- How many universities are there in each country?

Country-wise University Count Analysis

Country	Count
United States of ...	273
China	96
United Kingdom	89
Japan	81
France	68
Germany	68
Italy	54
Spain	43
Canada	37
South Korea	37
Australia	35
Taiwan	29
Brazil	27
India	22
Turkey	15
Netherlands	14
Russia	13
Austria	12
Poland	12
Sweden	12

INSIGHT

Upon analysis, it becomes evident that most universities are in the United States. However, it is important to note that the distribution of universities varies across different countries.

**Problem Statement 2 :- What is the distribution of international students across different countries?**

Total Int'l Students by Country

Country	Students
United States of America	1.48M
United Kingdom	0.97M
Australia	0.44M
Germany	0.32M
Canada	0.31M
Netherlands	0.17M
Switzerland	0.16M
Singapore	0.11M
Belgium	0.10M
Hong Kong	0.09M
France	0.08M
Sweden	0.08M
China	0.07M
Austria	0.06M
Denmark	0.05M
Japan	0.05M
Ireland	0.04M
New Zealand	0.04M
South Korea	0.04M
Norway	0.02M
Spain	0.02M
South Africa	0.02M
Taiwan	0.01M
Israel	0.01M
Turkey	0.01M
Finland	0.01M
Brazil	0.01M
Russia	0.01M
Italy	0.00M
Egypt	0.00M

INSIGHT

Analysis reveals the USA as a prominent destination for international students, with diverse student preferences observed across various countries.

Problem Statement 4 :- How many universities are ranked by each ranking system?

University Count by Rankings
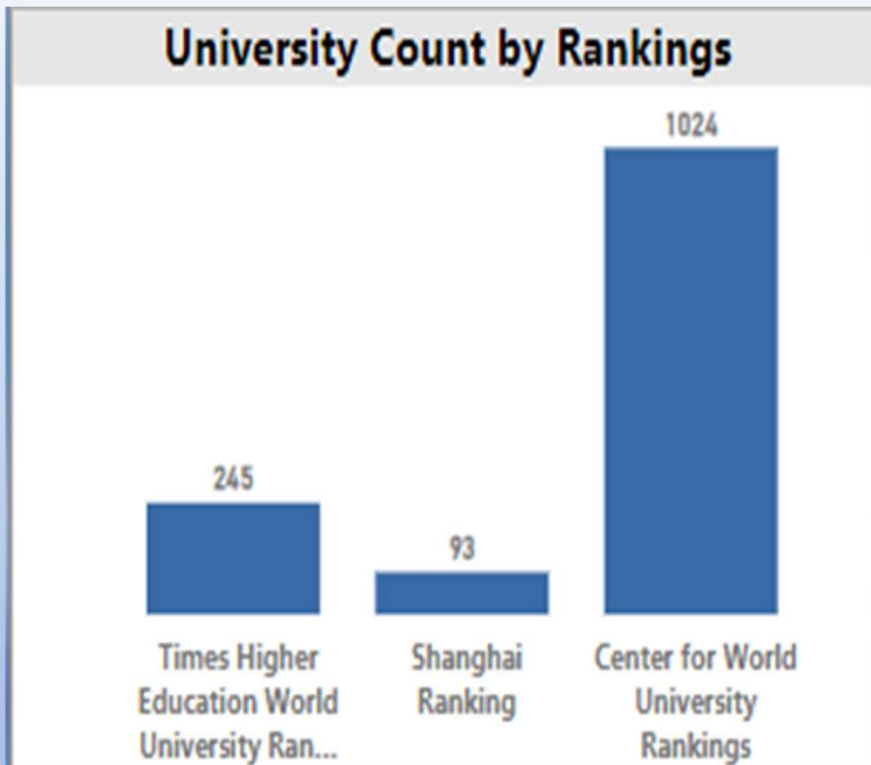
INSIGHT

This analysis reveals that a significant number of universities, approximately 1024, are ranked by the Center for World University Rankings. Additionally, 245 universities are ranked by the Times Higher Education ranking, and 93 universities are ranked by the Shanghai Ranking.

Problem Statement 5 :- What is the average score for universities according to each ranking system?

University Performance Analysis by Ranking

Shanghai Rank... 35.29
Times Higher Educat...
59.14
Center for World Univer...
328.17
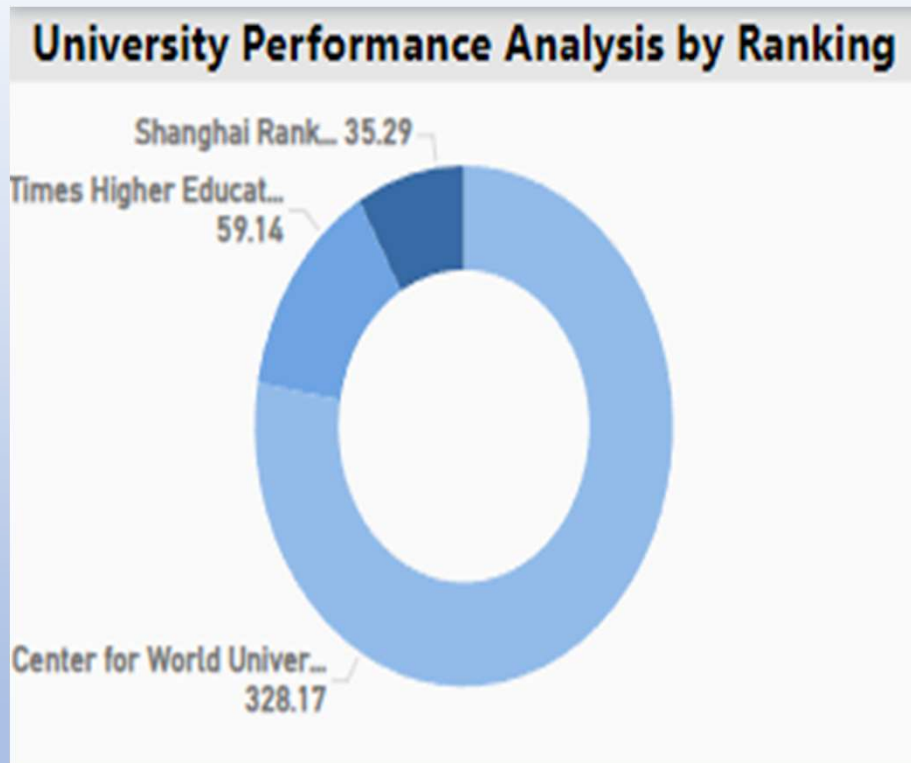
INSIGHT

In this analysis, the Center for World University Rankings system consistently achieves the highest scores, while the Shanghai ranking system tends to attain comparatively lower average scores.

Problem Statement 7 :- What are the most important criteria considered by ranking systems?

Aggregate Criteria by Ranking

Times Higher Educatio...
6

Center for World Uni...
8

Shanghai Ranking
7

INSIGHT

This analysis reveals that the Center for World University Rankings favors the "Total CWUR" criteria, while the Shanghai Ranking system prefers the "Total Shanghai" criteria. Meanwhile, the Times Higher Education World Ranking leans towards the "Total Times" criteria.

Problem Statement 8 :- Is there a correlation between a university's score and the number of international students?
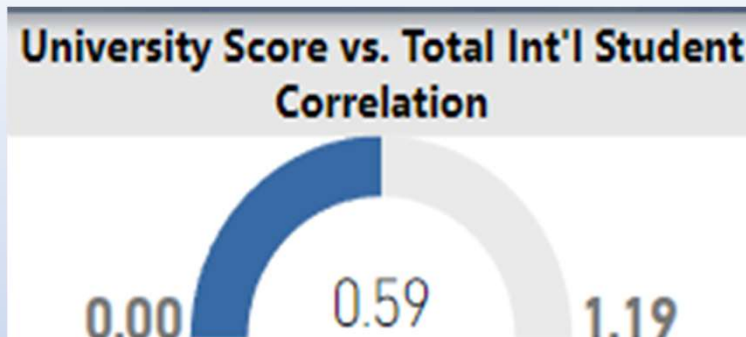
INSIGHT

The scatter and gauge analysis unmistakably indicates a strong positive correlation between a university's score and the number of international students.

Problem Statement 9 :- How does the percentage of female students impact a university's ranking?

Percentage of Female Students by Rankings

Times Higher Education World U... — 48.86K
Center for World University Ranki... — 40.63K
Shanghai Ranking — 21.72K
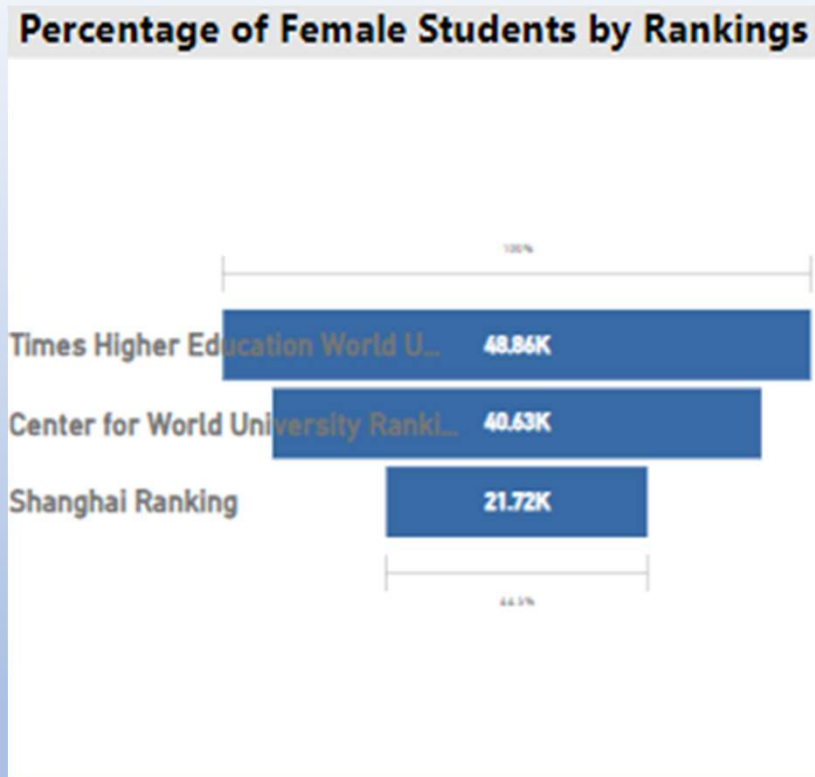
INSIGHT

This analysis suggests a notable trend: a higher preference among female students for universities ranked by Times Higher Education. This preference not only impacts that specific ranking but also influences other ranking systems.

Problem Statement 10 :- Which university has the highest number of students?

Total Student By University	
University	**Total students** ▼
Arizona State University	499416
University of Massachusetts	341754
University of Toronto	330990
Indiana University	312340
Monash University	305292
University of British Columbia	300912
Pennsylvania State University	267006
Total	26050855

INSIGHT

The analysis reveals that Arizona State University has the highest number of students enrolled, making it the university with the maximum student population.
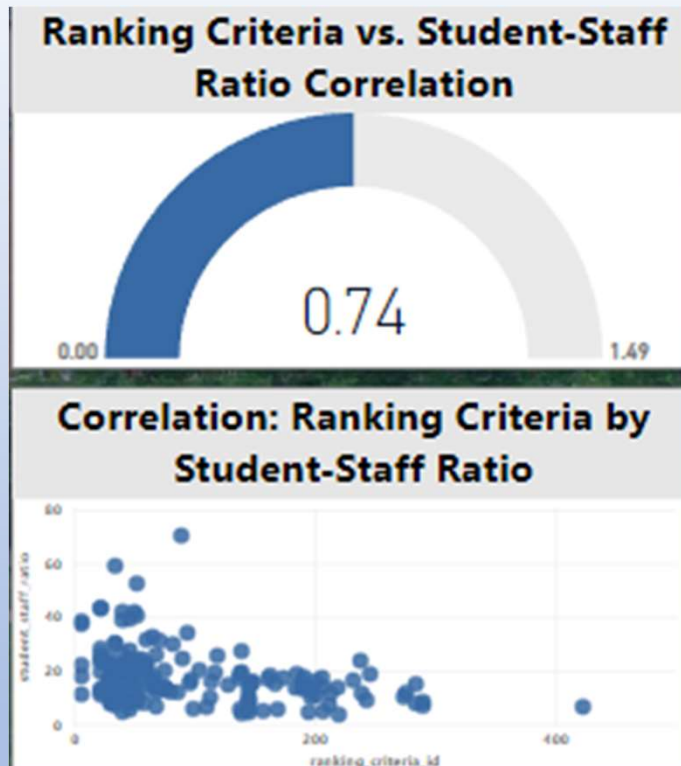
Problem Statement 11 :- How does the percentage of international students vary across different universities?
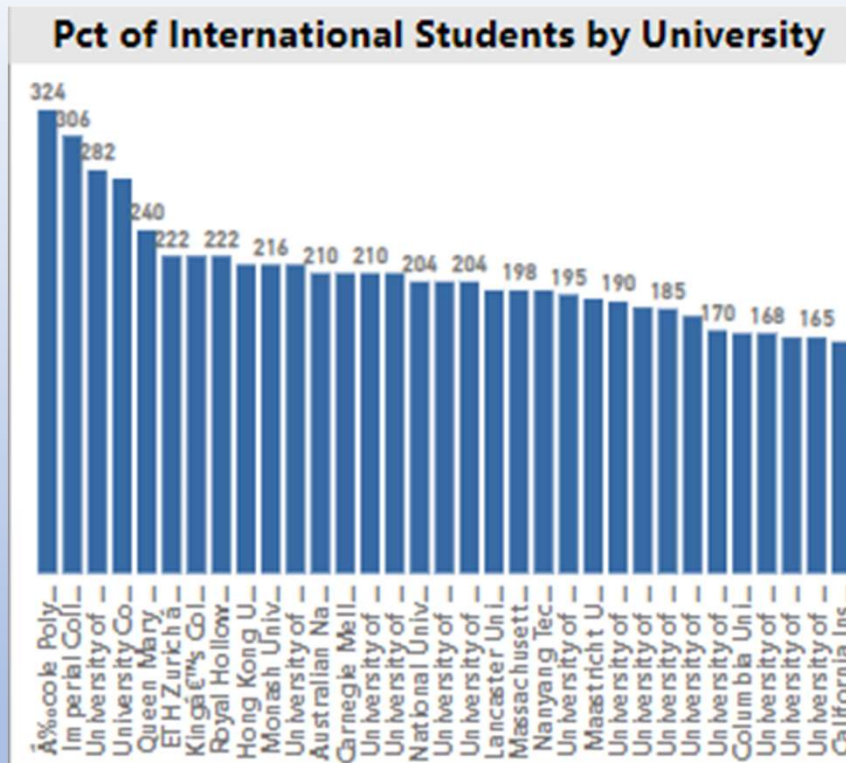
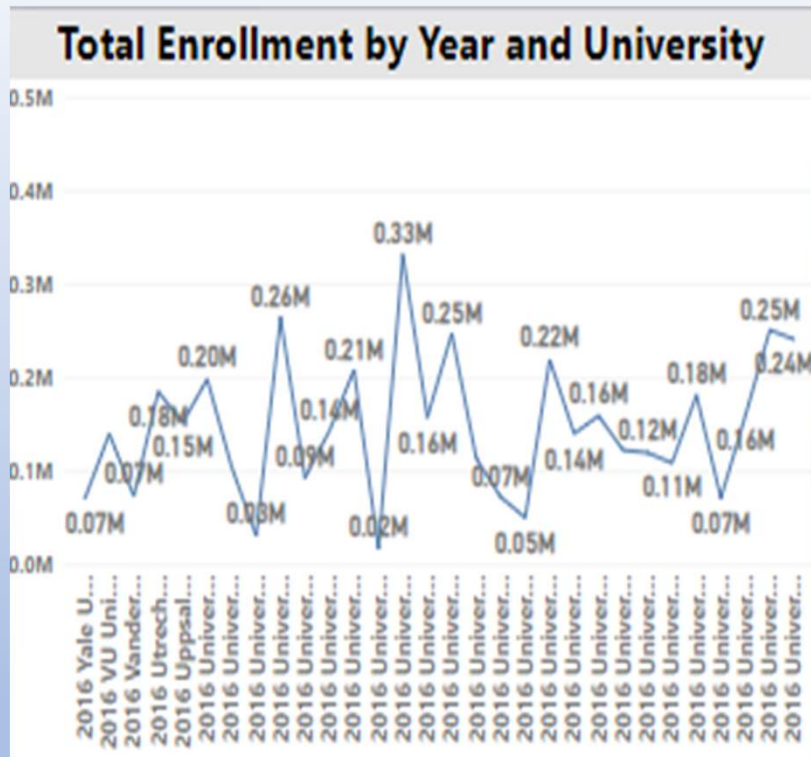
Pct of International Students by University

Problem Statement 12 :- Is there a correlation between a university's ranking and its student-staff ratio?

INSIGHT

The scatter and gauge analysis clearly reveals a strong positive correlation between a university's ranking and its student-staff ratio.

Problem Statement 13 :- How does the number of students in universities change over time?
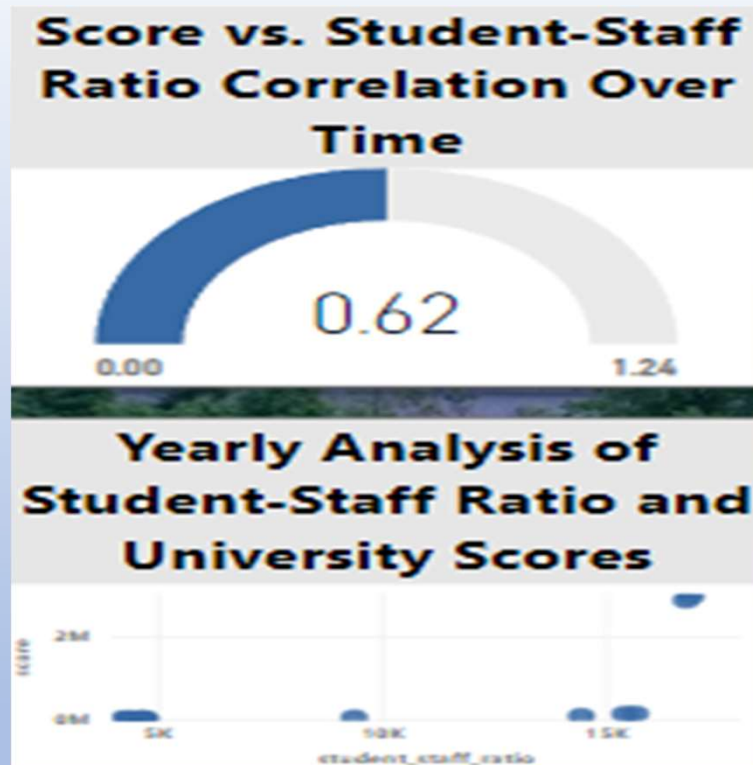

Total Enrollment by Year and University

INSIGHT

This analysis suggests that the number of students in universities is fluctuating, whereas Arizona University consistently maintains the same student population.
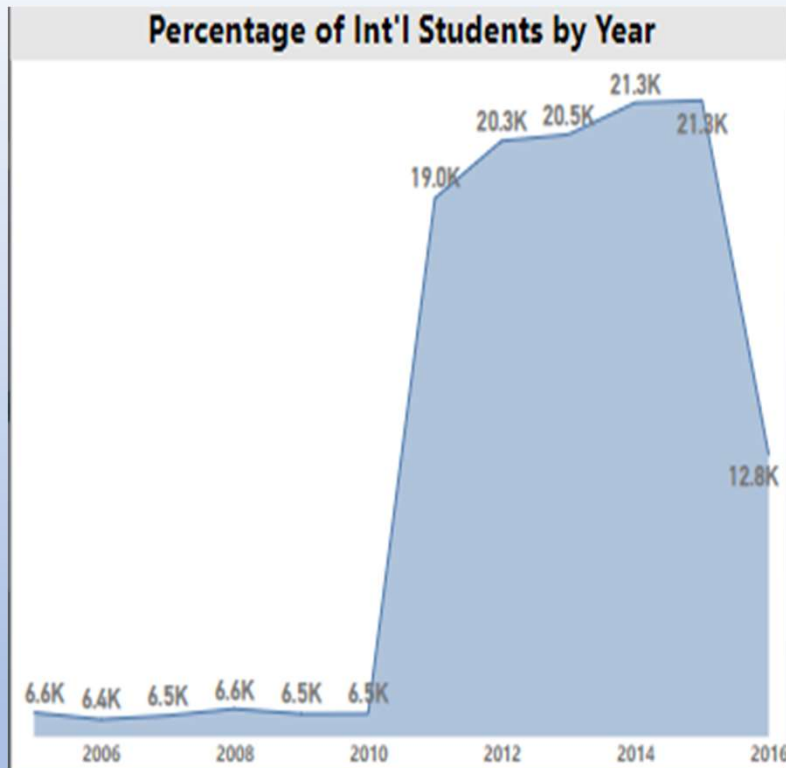
Problem Statement 14 :- Is there a correlation between a university's ranking score and the student-staff ratio over the years?

INSIGHT

In examining the scatter and gauge data, a robust positive correlation emerges between the university score and the student-staff ratio.
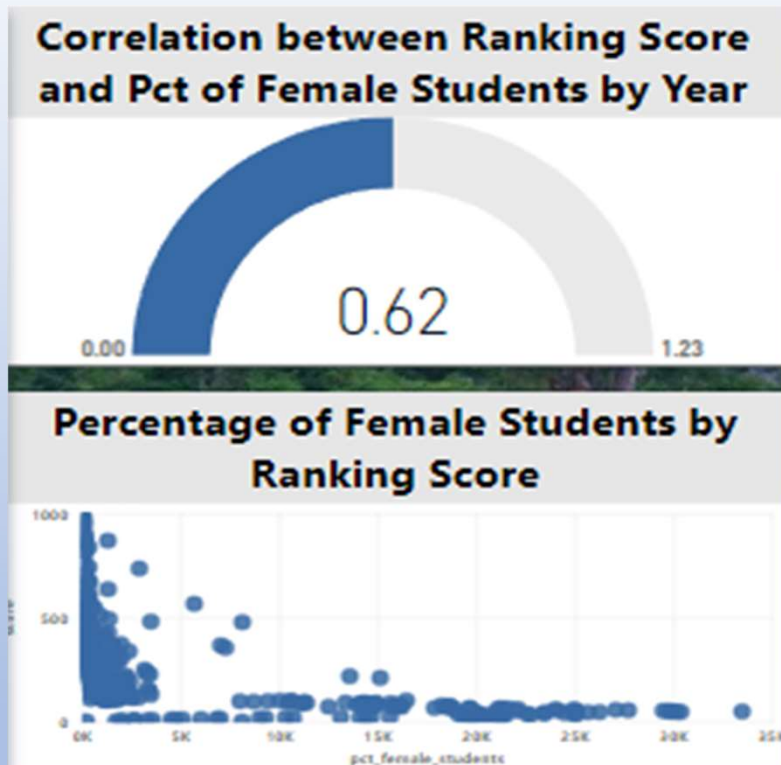
Problem Statement 15 :- How does the percentage of international students vary across different years?

INSIGHT

This analysis reveals a consistent increase in the number of international students in universities from 2005 to 2015, followed by a sudden drop in 2016.

Problem Statement 17 :- Is there a relationship between a university's ranking score and the percentage of female students enrolled?

Correlation between Ranking Score and Pct of Female Students by Year

0.00   0.62   1.23

**Percentage of Female Students by Ranking Score**

pct_female_students

INSIGHT

In the scatter and gauge analysis, a clear and strong positive relationship is observed between university scores and the percentage of female students.

Problem Statement 16 :- What is the impact of a university's ranking on the number of international students it attracts?

Total_Int_Student by Ranking
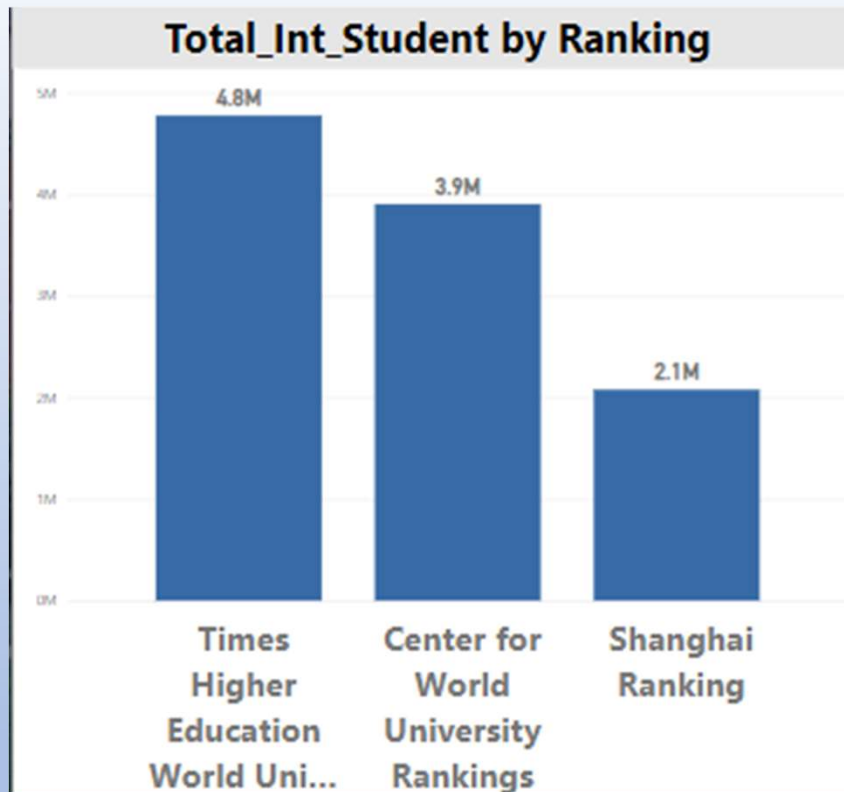
INSIGHT

This analysis suggests a preference among international students for universities ranked higher in the Times Higher Education ranking compared to other ranking systems.

Problem Statement 3 :- Which country has the highest number of female students enrolled in universities?

Total Female Student Count by Country Analysis	
Country	**Total Students** ▼
United States of America	49,32,361.63
United Kingdom	16,01,481.83
Germany	9,10,780.97
Australia	7,32,340.79
Canada	6,91,623.44
Netherlands	6,16,589.94
Belgium	3,43,649.94
Switzerland	2,38,675.93
Total	1,20,16,7...

INSIGHT

Analysis indicates that the United States boasts the highest enrollment of female students in universities.

PUBLICATIONS

UNIVERSITY SUCCESS ANALYSIS

Country Analysis

University Analysis

Ranking Analysis

Yearly Analysis

COUNTRY ANALYSIS: The analysis reveals the United States as a dominant force in higher education, boasting a concentration of universities, a top destination for international students, and the highest enrollment of female students. The country also leads in the number of top-ranked universities globally. Interestingly, university rankings show no consistent trend across countries, highlighting the dynamic nature of higher education landscapes worldwide. The diversity in university rankings underscores the unique strengths and characteristics of educational systems in different parts of the world.

UNIVERSITY ANALYSIS: The university analysis emphasizes the United States' leading position in higher education, with a significant number of top-ranked institutions globally, showcasing its academic excellence. Furthermore, the shifting trends in university rankings across countries underscore the dynamic nature of the global higher education landscape. This dynamism reflects the unique strengths and characteristics that contribute to the rich diversity of educational systems worldwide.

RANKING ANALYSIS: The ranking analysis spotlights the United States' dominance in higher education, marked by a substantial number of top-ranked universities globally. This underscores the country's academic excellence and its influential role in the global education landscape. Additionally, the analysis delves into the distribution of universities by each ranking system and identifies which ranking is most preferred by international and female students, providing valuable insights into university preferences among diverse student demographics.

YEARLY ANALYSIS: The annual university analysis reveals changing trends in higher education, covering enrollment, international student preferences, and university rankings. This concise snapshot provides insights into the dynamic global education landscape, showcasing evolving priorities. It serves as a valuable tool for understanding yearly shifts in the sector.
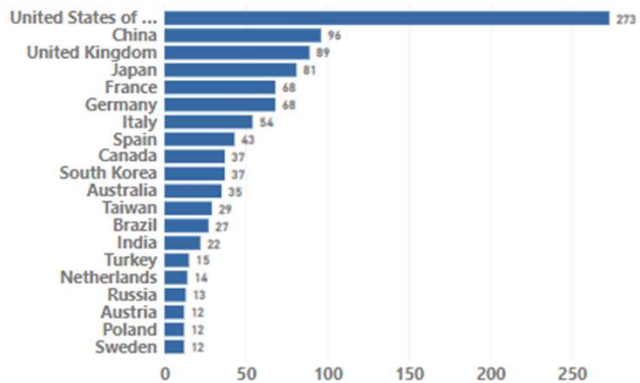
POWER BI DASHBOARDS

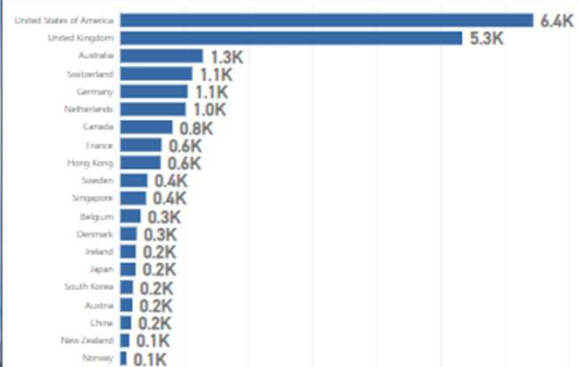Argentina | Australia | Austria | Bangladesh | Belarus | Belgium | Brazil | Bulgaria | Canada | Chile | China | Colombia | Croatia

Country-wise University Count Analysis

Country	Count
United States of ...	273
China	96
United Kingdom	89
Japan	81
France	68
Germany	68
Italy	54
Spain	43
Canada	37
South Korea	37
Australia	35
Taiwan	29
Brazil	27
India	22
Turkey	15
Netherlands	14
Russia	13
Austria	12
Poland	12
Sweden	12

Pct of Int'l Students by Country

Country	Count
United States of America	6.4K
United Kingdom	5.3K
Australia	1.3K
Switzerland	1.1K
Germany	1.1K
Netherlands	1.0K
Canada	0.8K
France	0.6K
Hong Kong	0.6K
Sweden	0.4K
Singapore	0.4K
Belgium	0.3K
Denmark	0.3K
Ireland	0.2K
Japan	0.2K
South Korea	0.2K
Austria	0.2K
China	0.2K
New Zealand	0.1K
Norway	0.1K

Count Of University

1247

Total International Student

4.78M

Total FemaleStudent

12.02M

Total Int'l Students by Country

Country	Count
United States of America	1.48M
United Kingdom	0.97M
Australia	0.44M
Germany	0.32M
Canada	0.31M
Netherlands	0.17M
Switzerland	0.16M
Singapore	0.11M
Belgium	0.10M
Hong Kong	0.09M
France	0.08M
Sweden	0.08M
China	0.07M
Austria	0.06M
Denmark	0.05M
Japan	0.05M
Ireland	0.04M
New Zealand	0.04M
South Korea	0.04M
Norway	0.02M
Spain	0.02M
South Africa	0.02M
Taiwan	0.01M
Israel	0.01M
Turkey	0.01M
Finland	0.01M
Brazil	0.01M
Russia	0.01M
Italy	0.00M
Egypt	0.00M

Total Female Student Count by Country Analysis

Country	Total Students
United States of America	49,32,361.6
United Kingdom	16,01,481.8
Germany	9,10,780.9
Australia	7,32,340.7
Canada	6,91,623.4
Netherlands	6,16,589.9
Belgium	3,43,649.9
Switzerland	2,38,675.9
Total	1,20,16,7...

University Ranking Count by Country
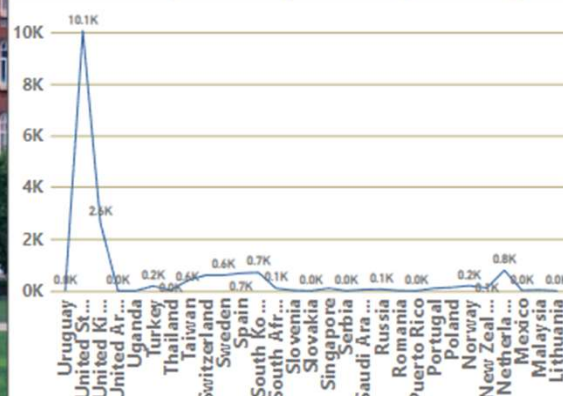
Total Student Count by Country
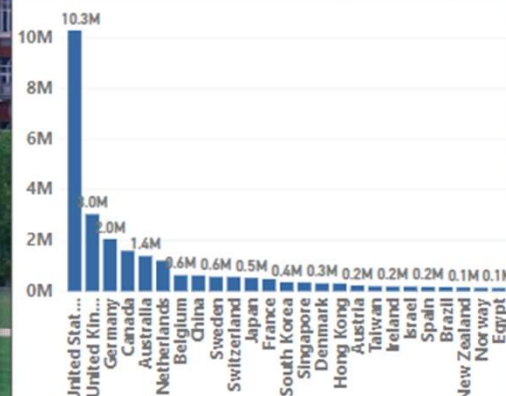
UNIVERSITY ANALYSIS

University Performance Analysis by Ranking

Shanghai Rank... 35.29
Times Higher Educat... 59.14
Center for World Univer... 328.17

University Score vs. Total Int'l Student Correlation

0.00   0.59   1.19
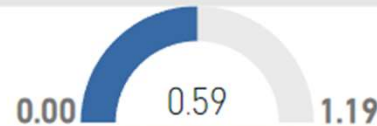
Total International Students vs. University Score

Total Student By University

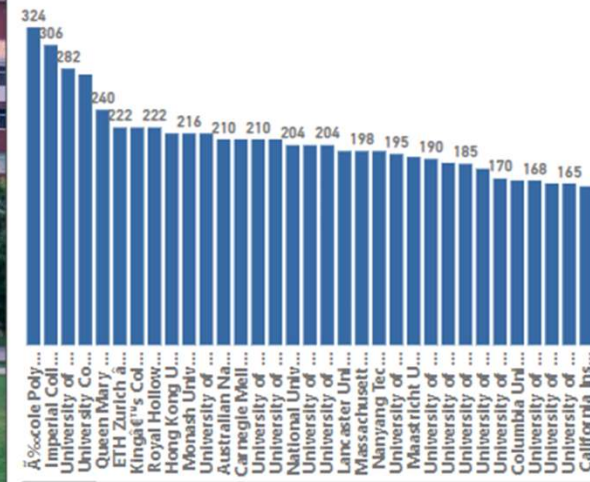| University	Total students
Arizona State University	499416
University of Massachusetts	341754
University of Toronto	330990
Indiana University	312340
Monash University	305292
University of British Columbia	300912
Pennsylvania State University	267006
Total	26050855

Total Student

26M

Total International Student

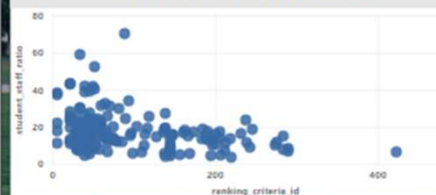### 4.78M

Total Female Student

12.02M

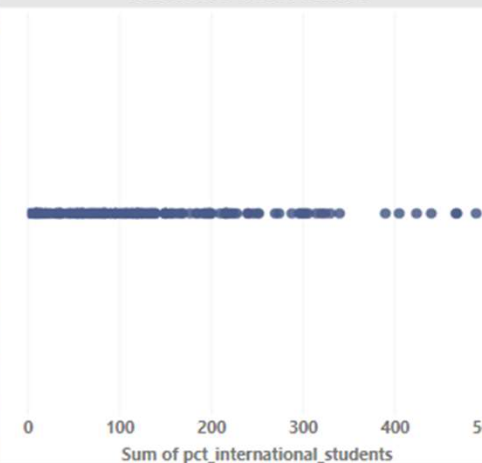## Pct of International Students by University

324, 306, 282, 240, 222, 222, 216, 210, 210, 204, 204, 198, 195, 190, 185, 170, 168, 165
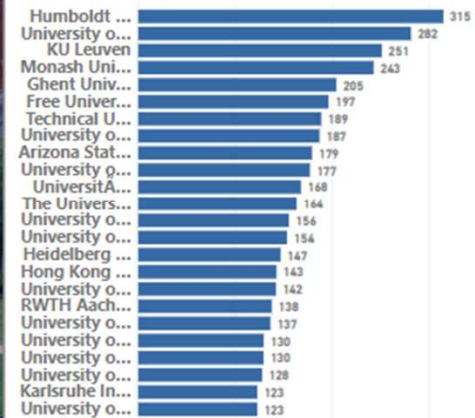
Ranking Criteria vs. Student-Staff Ratio Correlation

0.00   0.74   1.49

Correlation: Ranking Criteria by Student-Staff Ratio

International Students vs. University Student-Staff Ratio

Sum of pct_international_students

University Student-Staff Ratio Analysis

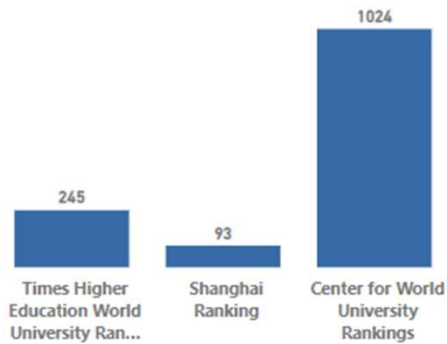| University	
Humboldt ...	315
University o...	282
KU Leuven	251
Monash Uni...	243
Ghent Univ...	205
Free Univer...	197
Technical U...	189
University o...	187
Arizona Stat...	179
University o...	177
UniversitÃ...	168
The Univers...	164
University o...	156
University o...	154
Heidelberg ...	147
Hong Kong ...	143
University o...	142
RWTH Aach...	138
University o...	137
University o...	130
University o...	130
University o...	128
Karlsruhe In...	123
University o...	123

Center for World University Rankings | Shanghai Ranking | Times Higher Education World University Ranking

University Count by Rankings

- Times Higher Education World University Ran... : 245
- Shanghai Ranking : 93
- Center for World University Rankings : 1024

Student-to-Staff Ratio by Rankings

- Times Higher Education World Univer... : 17.0K
- Shanghai Ranking : 6.7K
- Center for World University Ra... : 14.2K

Aggregate Criteria by Ranking

- Times Higher Educatio... : 6
- Center for World Uni... : 8
- Shanghai Ranking : 7
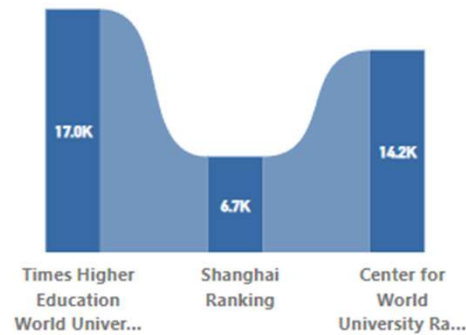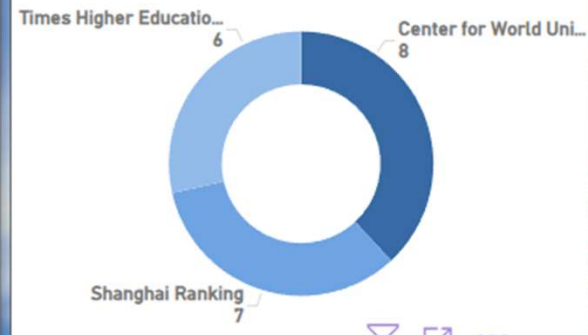
Ranking Score

6M

Best Year

2016

Top Country

Argentina

Percentage of Female Students by Rankings
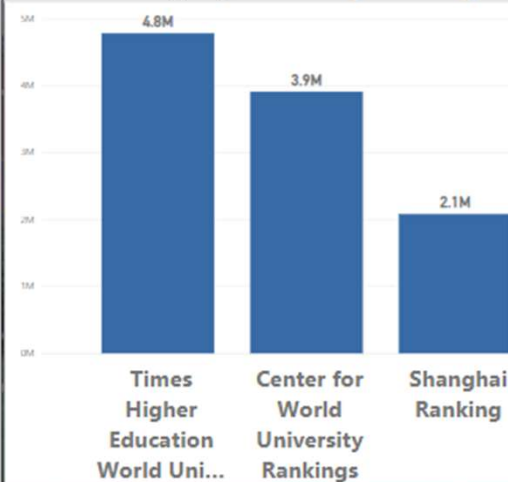
- Times Higher Education World U... : 49K (103%)
- Center for World University Ranki... : 41K
- Shanghai Ranking : 22K (44.5%)

Total_Int_Student by Ranking

- Times Higher Education World Uni... : 4.8M
- Center for World University Rankings : 3.9M
- Shanghai Ranking : 2.1M

Correlation between Ranking Score and Pct of Female Students by Year

0.00 — 0.62 — 1.23

Percentage of Female Students by Ranking Score

pct_female_students

Total score by Ranking

- Center for World University Rankings : 5.8M
- Times Higher Education World University... : 0.4M
- Shanghai Ranking : 0.2M
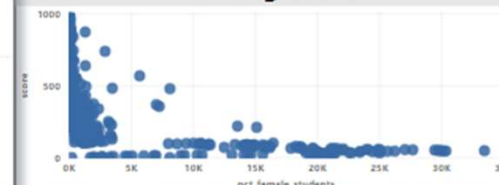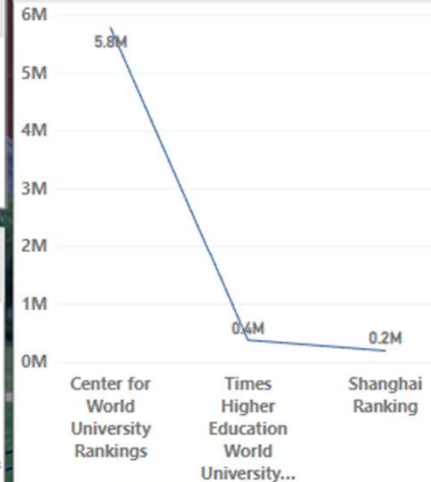
| 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |

Total Enrollment by Year and University

0.5M
0.4M
0.3M — 0.33M
0.2M — 0.26M 0.25M 0.25M 0.25M
0.20M 0.21M 0.22M 0.24M
0.18M 0.14M 0.16M 0.18M
0.15M 0.16M 0.12M 0.16M
0.1M — 0.07M 0.09M 0.14M 0.11M
0.07M 0.08M 0.07M 0.07M
0.02M 0.05M
0.0M
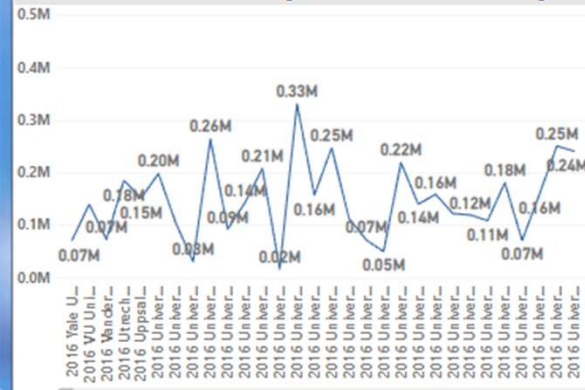
University Rankings Over Time

3
2 — 2 — 2 2
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
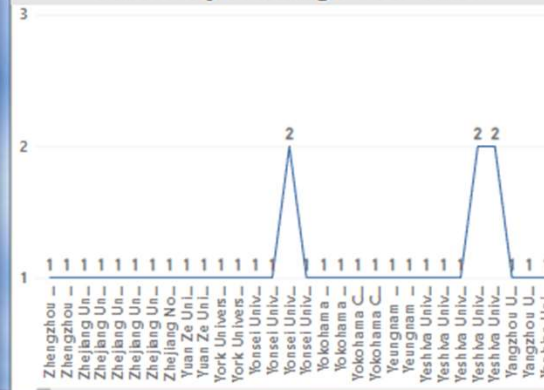
Annual International Student Enrollment

5.0M
4.5M — 4.55M 4.76M
4.26M 4.75M
4.0M
3.5M
3.0M — 2.94M
2.5M
2.0M
1.58M 1.64M 1.59M
1.5M — 1.54M 1.61M
2006 2008 2010 2012 2014 2016
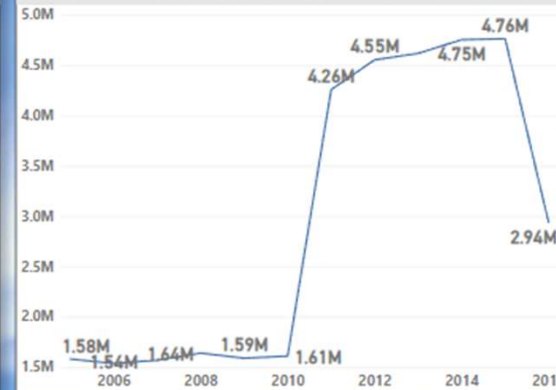
Total University
1247

Total Female Student
12.02M

Total International Student
4.78M

Score vs. Student-Staff Ratio Correlation Over Time

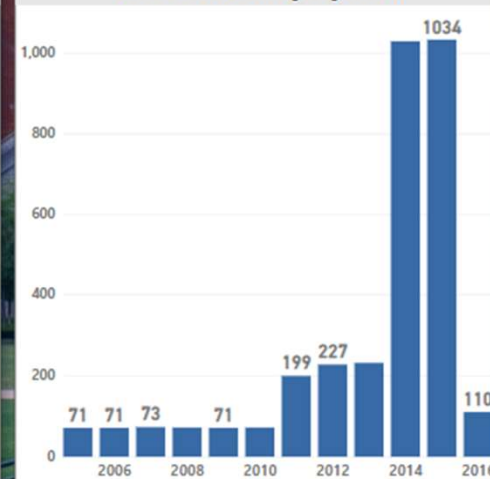0.00 **0.62** 1.24

Yearly Analysis of Student-Staff Ratio and University Scores

2M
0M
5K 10K 15K
student_staff_ratio

Percentage of Int'l Students by Year

21.3K
20.3K 20.5K 21.3K
19.0K
12.8K
6.6K 6.4K 6.5K 6.6K 6.5K 6.5K
2006 2008 2010 2012 2014 2016
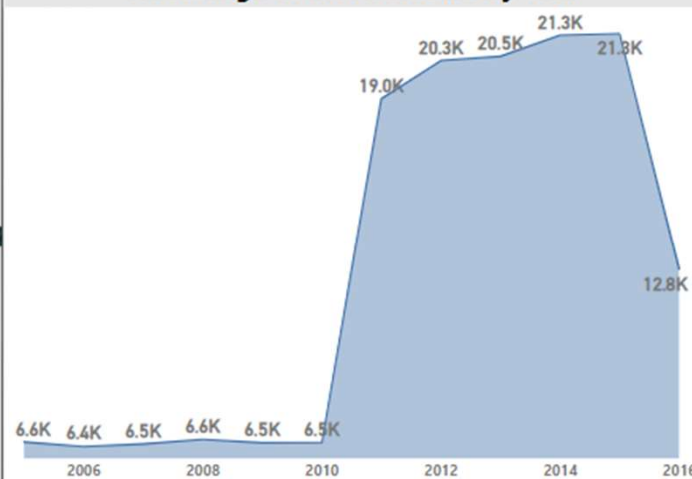
Total Female Student By Year

11.3K 12.0M
10.5M
6.8M
4.1M 4.2M 4.4M 4.2M 4.4M
2006 2008 2010 2012 2014 2016
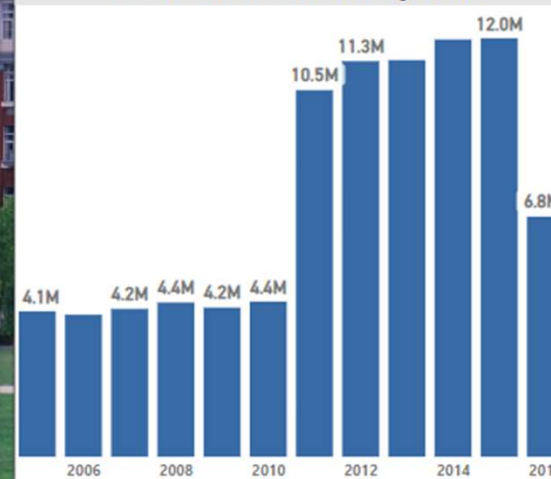
Total University By Year

1,000 — 1034
800
600
400
199 227
200 — 71 71 73 71 110
2006 2008 2010 2012 2014 2016

CONCLUSION

Taking a closer look at the university data, it's like peeking into this amazing global classroom. You can't miss how the United States plays a major role, with its universities taking center stage in the academic world. Then, when you dive into how we rank these schools, it's a bit like untangling a web of preferences and rules.

But what caught my eye was how these rankings change over time and across countries. It's a reminder that things are always shifting in education, like in life. When we connect the dots between a university's score, how many teachers they have for each student, and the mix of international students, it tells a story about what makes an institution tick.

And speaking of stories, looking at the students, there are some fascinating trends. It's not just about numbers; it's about who's in the room. This project is like holding up a mirror to our universities, showing us the need to create spaces that embrace everyone. In a nutshell, it's not just about rankings; it's about understanding and adapting to our big, interconnected world of higher education.