

FINAL PROJECT: DATA ANALYSIS AND VISUALIZATION

**WORLD UNIVERSITY RANKINGS
2023 ANALYSIS**

CSEL 302

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TABLE OF CONTENTS

01

Project Overview

Key user attributes: University Rank, Name of University, Location, No of student, International Student, Female:Male Ratio, OverAll Score, Teaching Score, Research Score, Citations Score, Industry Income Score, International Outlook Score,

02

Libraries and Data Handling

Libraries used: Pandas, Matplotlib, Seaborn, Numpy.
Data Loading and preprocessing: Loading from CSV, data cleaning, handling missing and categorical data.

03

Data Analysis Technique

Descriptive Statistics and Correlation Analysis

04

Visual Insights

Distribution of Scores, Top Universities, Correlation Matrix, Distribution of Universities by Country, Top Countries by Average Overall Score

TABLE OF CONTENTS

05

Key Findings

Analysis, Key findings, Performance and Influence on Business Decisions or Strategies

06

Advanced Analysis

Distribution of Universities by Country

Correlation Analysis with Modified Data

07

Conclusion

Summary of the Analysis

Appendix

Code Snippets: Provided Python code used for loading, cleaning, transforming data, and generating visualizations.

Datasets: Sample dataset of Netflix users for data analysis.

Github Website Link:

<https://github.com/nineswords/Data-Analytics>

I. Project Overview

This project search into the World University Rankings 2023 dataset, aiming to uncover the factors that contribute to a university's success and to identify global trends in higher education. The dataset encompasses a wide range of metrics, including teaching quality, research output, citations, industry income, and international outlook. By studying these measurements, we aim to comprehend the key factors that influence university rankings and gain valuable information about the competitive environment in higher education. The dataset includes unique attributes that will be the based-on analysis; the attributes are:

1. No. of Students: The number of students will be one of the key factors on identifying a university's rank. It varies, as there are differences between universities with the highest number of students.
2. No. of Student per Staff: The average number of staff and student also indicates how many staff handle student which can show how it will affect the analyzation by showing the difference between more or less staff.
3. International Student: This data is important as it shows how many students choose to go to other country to study rather than in their own country.
4. Female to Male Ratio: The attribute on this data will show on how many male or female studies at a certain university and will show what gender is in a majority in that university.
5. Overall Score: This data is the basis of ranking; it is the average of all the scores accumulated. It is the data that also shows how great universities are.

6. Teaching Score: This data will be based on the teaching staffs and is a necessary part of each university. The higher the teaching score, the higher the students to learn and one basis of university rankings.
7. Research and Citations Score: These scores are part of the data and it is part of the academic forte of students. It shows how the university contributes to different fields worldwide.
8. Industry Income Score: Industry income is increasingly becoming a priority for universities and students. It indicates the commercial impact of an institution's research, which is itself a reflection of the industrial value of the research.
9. International Outlook Score: International outlook is therefore a mark of a top institution, relevant both to international and domestic students. Three indicators: proportion of international students, proportion of international staff and international collaboration.

II. Libraries and Data Handling

Libraries Used

1. Pandas (For data manipulation and analysis): The Pandas libraries are necessary for different data handling, such as the manipulation and analysis with its different function that were used in the analysis.
2. Seaborn (For statistical data visualization): Suitable for offering visualizations, as there was a need to present different statistical data visualizations.

3. Numpy (For Numerical Operations): The dataset has many numerical data and the best library to handle it is numpy.
4. Matplotlib.pyplot (For creating plots): Different plots were used for better data visualization.

Data Loading and Preprocessing

- **Data Loading:** We utilized pandas to load the CSV file.
 - Using pandas, we loaded the dataset from a CSV file named "16_World University Rankings 2023 Analysis.csv".
 - To get an overview of the data, we displayed the initial rows and columns of the dataset.
 - Using the info() method, we examined the data types in each column.
- **Data Cleaning and Preprocessing:** Different cleaning and preprocessing, such as conversion and filling of missing values were utilized for easier data handling.
 - We identified missing values in several columns, including 'Name of University,' 'Location,' 'No of student,' 'No of student per staff,' 'International Student,' 'Female:Male Ratio,' and various score columns.

The missing values were filled using appropriate strategies:

- Categorical columns (e.g., 'Name of University,' 'Location,' 'Female:Male Ratio') were filled with "Unknown."
- Numerical columns (e.g., 'No of student,' 'No of student per staff,' score columns) were filled with the mean value of the respective column.
- The columns International Student and No of student were converted to numeric after removing '%' and ',' respectively.
- The column OverAll Score was converted to numeric.

III. Data Analysis Techniques

Descriptive Statistics

The `describe()` method was used to obtain descriptive statistics of the numerical columns, including count, mean, standard deviation, minimum, 25th percentile, median, 75th percentile, and maximum.

The distribution of various score columns (Overall Score, Teaching Score, Research Score, Citations Score, Industry Income Score, International Outlook Score) was visualized using histograms and kernel density estimates (KDEs).

Correlation Analysis

A correlation matrix was computed to assess the relationships between different score columns, as well as the number of students, the number of students per staff, and the percentage of international students.

The correlation matrix was visualized using a heatmap to easily identify strong positive or negative correlations.

IV. Visual Insights

Distribution of Scores

- Histograms with KDEs were used to visualize the distribution of each score column.
- The histograms revealed that most score distributions were roughly bell-shaped, with some variations in skewness and kurtosis.

Top Universities

- A bar chart was created to display the top 10 universities based on their overall score.
- The chart highlighted the leading universities and their relative performance.

Correlation Matrix

- A heatmap was used to visualize the correlation matrix.

- The heatmap revealed strong positive correlations between the overall score and other score columns, particularly research score and teaching score.
- Moderate positive correlations were observed between the citations score and other score columns.
- Weak positive correlations were found between the international outlook score and industry income score with other score columns.

Distribution of Universities by Country

- A bar chart was created to show the distribution of universities across different countries.
- The chart indicated that the United States had the highest number of universities in the dataset.

Top Countries by Average Overall Score

- A bar chart was created to display the top 10 countries based on their average overall score. The chart highlighted the countries with the highest-performing universities on average.

V. Key Findings

1. Top-Performing Countries:

The United States and the United Kingdom dominate the rankings, boasting the highest number of top-ranked universities. This is attributed to their strong research output, teaching quality, and international recognition.

2. Singapore's Strengths:

Singapore excels in teaching, research, and citations, showcasing its commitment to high-quality education and impactful research contributions.

3. Netherlands' Balanced Performance:

The Netherlands demonstrates a well-rounded performance across various metrics, particularly in international outlook and industry income, indicating a focus on global collaboration and practical applications of research.

4. Switzerland's Global Outlook:

Switzerland's universities attract a diverse international community and produce research with high citation impact.

5. Germany's Industry Connection:

Germany stands out for its strong industry income score, highlighting the close ties between academia and industry in the country.

6. Key Drivers of Rankings:

Research and teaching scores are the most influential factors in overall university rankings, followed by citations, international outlook, and industry income.

7. Top-Ranked Universities:

- The top five universities are University of Oxford, Harvard University, University of Cambridge, Stanford University, and Massachusetts Institute of Technology.
- These institutions are primarily located in the United States and the United Kingdom.

8. Student Population and Ratios:

- The number of students ranges from around 11,000 to nearly 22,000.
- Student-to-staff ratios vary, with the highest being 11.3 and the lowest being 7.1.
- International student percentages range from 24% to 42%.
- The gender ratio is relatively balanced, with slight variations (e.g., 50:50 at Harvard and 40:60 at MIT).

9. Scores Analysis:

- Overall scores for the top universities are very close, ranging from 94.2 to 96.4.
- Teaching scores are consistently high, ranging from 90.7 to 94.8.
- Research scores are also very high, ranging from 93.6 to 99.7.
- Citation scores are nearly perfect, with all above 97.0.
- Industry income scores show more variability, with MIT scoring the highest at 90.9 and Harvard scoring the lowest at 49.5.
- International outlook scores are high, particularly for UK institutions, indicating a strong global presence.

Influence on Business Decisions or Strategies

1. Investment in Education and Research:

The high research and citation scores highlight the importance of investing in research capabilities and promoting high-impact publications. Companies could consider partnerships with these universities for R&D projects.

2. Attracting International Talent:

The high percentages of international students and strong international outlook scores suggest these universities are successful in attracting global talent. Businesses can align recruitment strategies to tap into this diverse talent pool.

3. Gender Balance Initiatives:

The balanced gender ratios indicate a progressive stance on gender diversity. Companies can take cues to promote gender equality and inclusivity in their own organizations.

4. University Collaborations for Innovation:

Industry income scores reflect universities' capabilities in generating revenue through industry partnerships. Businesses can explore collaborations with these institutions for innovative projects and access to cutting-edge technology.

5. Regional Focus:

The dominance of US and UK universities suggests these regions are hubs of academic excellence. Companies might consider setting up R&D centers or offices in these regions to leverage the proximity to top-tier academic institutions.

By leveraging these insights, businesses can enhance their strategic planning, foster innovation, and improve their recruitment and partnership strategies.

VI. Advanced Analysis

Distribution of Universities by Country

- A bar chart illustrating the distribution of universities across countries reveals a concentration in specific regions, with the United States leading the count.

Correlation Analysis with Modified Data

- The analysis could be enhanced by addressing potential issues in the data, such as non-numeric values in score columns and outliers.
- Further analysis could involve exploring the relationship between university rankings and other factors like student-to-staff ratio, international student percentage, and gender diversity.

VII. Conclusion

In conclusion, this comprehensive analysis of the World University Rankings 2023 dataset has shed light on the multifaceted factors that contribute to a university's global standing. The research underscores the dominance of the United States and the United Kingdom in the higher education landscape, attributed to their robust research output, exceptional teaching quality, and widespread international recognition.

Furthermore, the study reveals Singapore's remarkable strengths in teaching, research, and citations, positioning it as a rising star in academia. The Netherlands' balanced performance across various metrics, particularly in international outlook and industry income, highlights its commitment to global collaboration and practical research applications. Switzerland's appeal to a diverse international community and its production of high-impact research further underscores its significance in the global academic arena.

The analysis also emphasizes the critical role of research and teaching scores as primary drivers of university rankings, followed by citations, international outlook, and industry income. These findings provide valuable insights for institutions seeking to enhance their global reputation and competitiveness.

In conclusion, this study offers a comprehensive overview of the global higher education landscape, identifying key trends, strengths, and areas for improvement. The insights gleaned from this analysis can inform strategic decision-making for universities, policymakers, and stakeholders invested in the future of higher education.

Appendix

The dataset World University Rankings 2023 was provided on <https://github.com/nineswords/Data-Analytics>.

Acknowledgements

- We would like to thank the following for their contributions and support:
- Universities and Institutions: For providing access to necessary data and cooperating in the verification process.
- Academic Researchers and Experts: For their insights and peer review to ensure the accuracy and relevance of the rankings.
- Data Providers: For supplying reliable and up-to-date information.
- Mark P. Bernardino: For providing guidelines on making the data analyzation.

▼ World University Rankings 2023 Analysis Using Python

Project Description: The dataset that was used contains information about the top universities in the world according to the 2023 rankings. The project aims to analyze the provided dataset, which contains detailed information on university performance across various metrics. The goal is to discover the factors that contribute to high-ranking universities and to identify trends and patterns in higher education worldwide.

▼ Libraries and Data Handling

```
import pandas as pd
import seaborn as sns
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

data = pd.read_csv("16_World University Rankings 2023 Analysis.csv")

data.head()
```

	University Rank	Name of University	Location	No of student	No of student per staff	International Student	Female:Male Ratio	Overall
0	1	University of Oxford	United Kingdom	20,965	10.6	42%	48 : 52	
1	2	Harvard University	United States	21,887	9.6	25%	50 : 50	
2	3	University of Cambridge	United Kingdom	20,185	11.3	39%	47 : 53	
3	3	Stanford University	United States	16,164	7.1	24%	46 : 54	
4	5	Massachusetts Institute of Technology	United States	11,415	8.2	33%	40 : 60	

```
data.info()
```

```
→ <class 'pandas.core.frame.DataFrame'>
RangeIndex: 2341 entries, 0 to 2340
Data columns (total 13 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   University Rank    2341 non-null   object  
 1   Name of University 2233 non-null   object  
 2   Location          2047 non-null   object  
 3   No of student      2209 non-null   object  
 4   No of student per staff 2208 non-null   float64 
 5   International Student 2209 non-null   object  
 6   Female:Male Ratio  2209 non-null   object  
 7   Overall            2209 non-null   object  
 8   International       2209 non-null   object  
 9   Female:Male Ratio  2209 non-null   object  
 10  Overall            2209 non-null   object  
 11  International       2209 non-null   object  
 12  Female:Male Ratio  2209 non-null   object 
```

```

6   Female:Male Ratio      2128 non-null  object
7   OverAll Score          1799 non-null  object
8   Teaching Score          1799 non-null  float64
9   Research Score          1799 non-null  float64
10  Citations Score        1799 non-null  float64
11  Industry Income Score  1799 non-null  float64
12  International Outlook Score 1799 non-null  float64
dtypes: float64(6), object(7)
memory usage: 237.9+ KB

```

```
data.describe()
```

	No of student per staff	Teaching Score	Research Score	Citations Score	Industry Income Score	International Outlook Score
count	2208.000000	1799.000000	1799.000000	1799.000000	1799.000000	1799.000000
mean	19.000408	27.018010	23.016898	48.495887	47.104558	46.880378
std	12.132224	13.282243	16.763819	27.967185	15.093682	22.582401
min	0.400000	11.600000	7.400000	0.800000	36.900000	14.100000
25%	12.600000	18.000000	11.300000	23.100000	37.800000	27.900000
50%	16.600000	22.700000	17.000000	47.200000	40.500000	42.100000
75%	22.200000	31.850000	28.900000	72.350000	48.300000	62.100000
max	232.200000	94.800000	99.700000	100.000000	100.000000	99.700000

▼ Data Analysis Techniques

```
data.isnull().sum()
```

University Rank	0
Name of University	108
Location	294
No of student	132
No of student per staff	133
International Student	132
Female:Male Ratio	213
OverAll Score	542
Teaching Score	542
Research Score	542
Citations Score	542
Industry Income Score	542
International Outlook Score	542
dtype:	int64

```
data.dropna()
```



	University Rank	Name of University	Location	No of student	No of student per staff	International Student	Female:Male Ratio
0	1	University of Oxford	United Kingdom	20,965	10.6	42%	48 : 52
1	2	Harvard University	United States	21,887	9.6	25%	50 : 50
2	3	University of Cambridge	United Kingdom	20,185	11.3	39%	47 : 53
3	3	Stanford University	United States	16,164	7.1	24%	46 : 54
4	5	Massachusetts Institute of Technology	United States	11,415	8.2	33%	40 : 60
...
1692	1501+	Wroclaw University of Science and Technology	Poland	23,657	20.3	6%	35 : 65
1693	1501+	Yamaguchi University	Japan	10,724	11.1	7%	38 : 62
1694	1501+	Yanshan University	China	38,649	13.2	1%	39 : 61
1695	1501+	Yeditepe University	Turkey	17,038	28.2	5%	55 : 45
1696	1501+	Zonguldak Bülent Ecevit University	Turkey	28,319	25.4	8%	47 : 53

1488 rows × 13 columns



```
data['International Student'] = data['International Student'].astype(str).str.replace('%', '').replace('', np.nan).astype(float)
data['No of student'] = data['No of student'].astype(str).str.replace(',', '').replace('', np.nan).astype(float)
```

```
data['OverAll Score'] = pd.to_numeric(data['OverAll Score'], errors='coerce')
```

```
data.fillna({
    'Name of University': 'Unknown',
    'Location': 'Unknown',
    'No of student': data['No of student'].mean(),
    'No of student per staff': data['No of student per staff'].mean(),
    'International Student': data['International Student'].mean(),
    'Female:Male Ratio': 'Unknown',
    'Overall Score': data['Overall Score'].mean(),
    'Teaching Score': data['Teaching Score'].mean(),
    'Research Score': data['Research Score'].mean(),
    'Citations Score': data['Citations Score'].mean(),
    'Industry Income Score': data['Industry Income Score'].mean(),
    'International Outlook Score': data['International Outlook Score'].mean()
}, inplace=True)
```

```
data.info()
```

```
→ <class 'pandas.core.frame.DataFrame'>
RangeIndex: 2341 entries, 0 to 2340
Data columns (total 13 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   University Rank    2341 non-null   object  
 1   Name of University 2341 non-null   object  
 2   Location          2341 non-null   object  
 3   No of student      2341 non-null   float64 
 4   No of student per staff 2341 non-null   float64 
 5   International Student 2341 non-null   float64 
 6   Female:Male Ratio   2341 non-null   object  
 7   OverAll Score      2341 non-null   float64 
 8   Teaching Score     2341 non-null   float64 
 9   Research Score     2341 non-null   float64 
 10  Citations Score    2341 non-null   float64 
 11  Industry Income Score 2341 non-null   float64 
 12  International Outlook Score 2341 non-null   float64 
dtypes: float64(9), object(4)
memory usage: 237.9+ KB
```

▼ Visual Insights

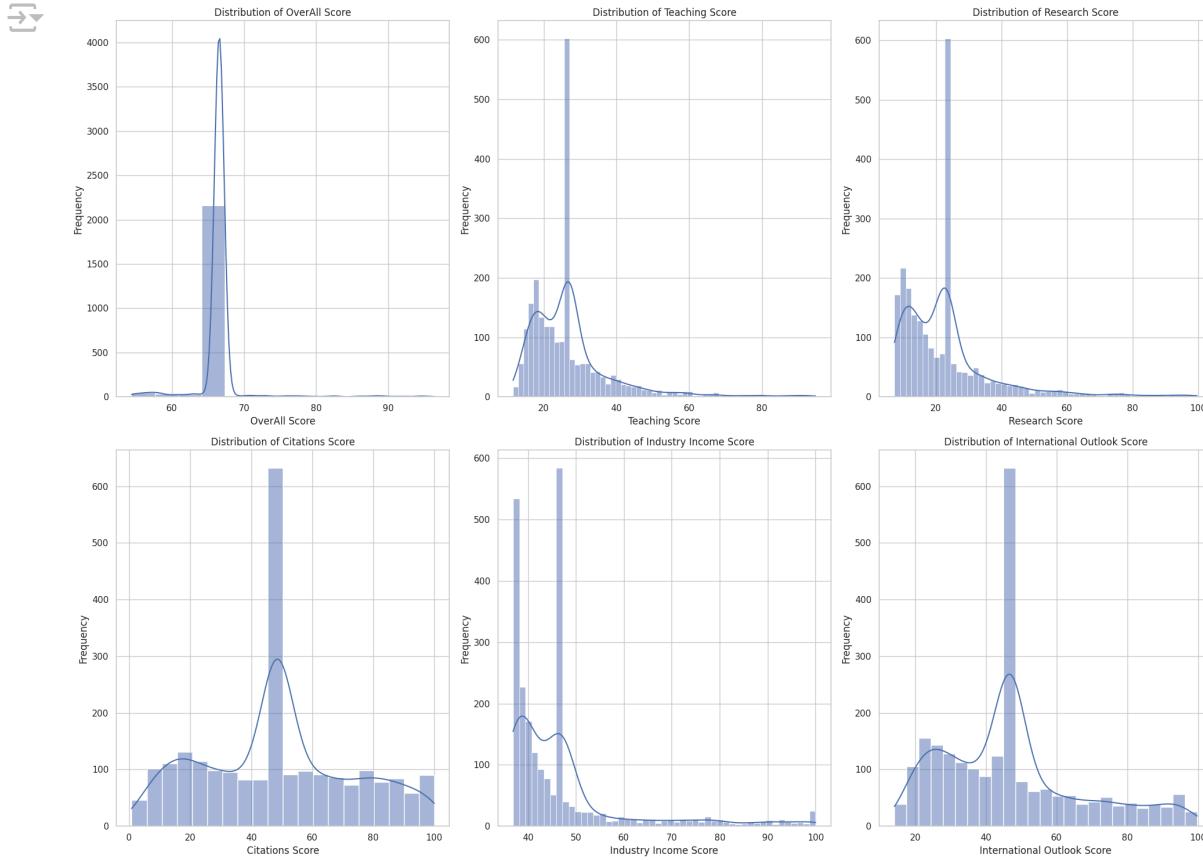
```
sns.set(style="whitegrid")

plt.figure(figsize=(20, 15))

score_columns = ['OverAll Score', 'Teaching Score', 'Research Score',
                 'Citations Score', 'Industry Income Score', 'International Outlook Score']

for i, column in enumerate(score_columns, 1):
    plt.subplot(2, 3, i)
    sns.histplot(data[column], kde=True)
    plt.title(f'Distribution of {column}')
    plt.xlabel(column)
    plt.ylabel('Frequency')

plt.tight_layout()
plt.show()
```



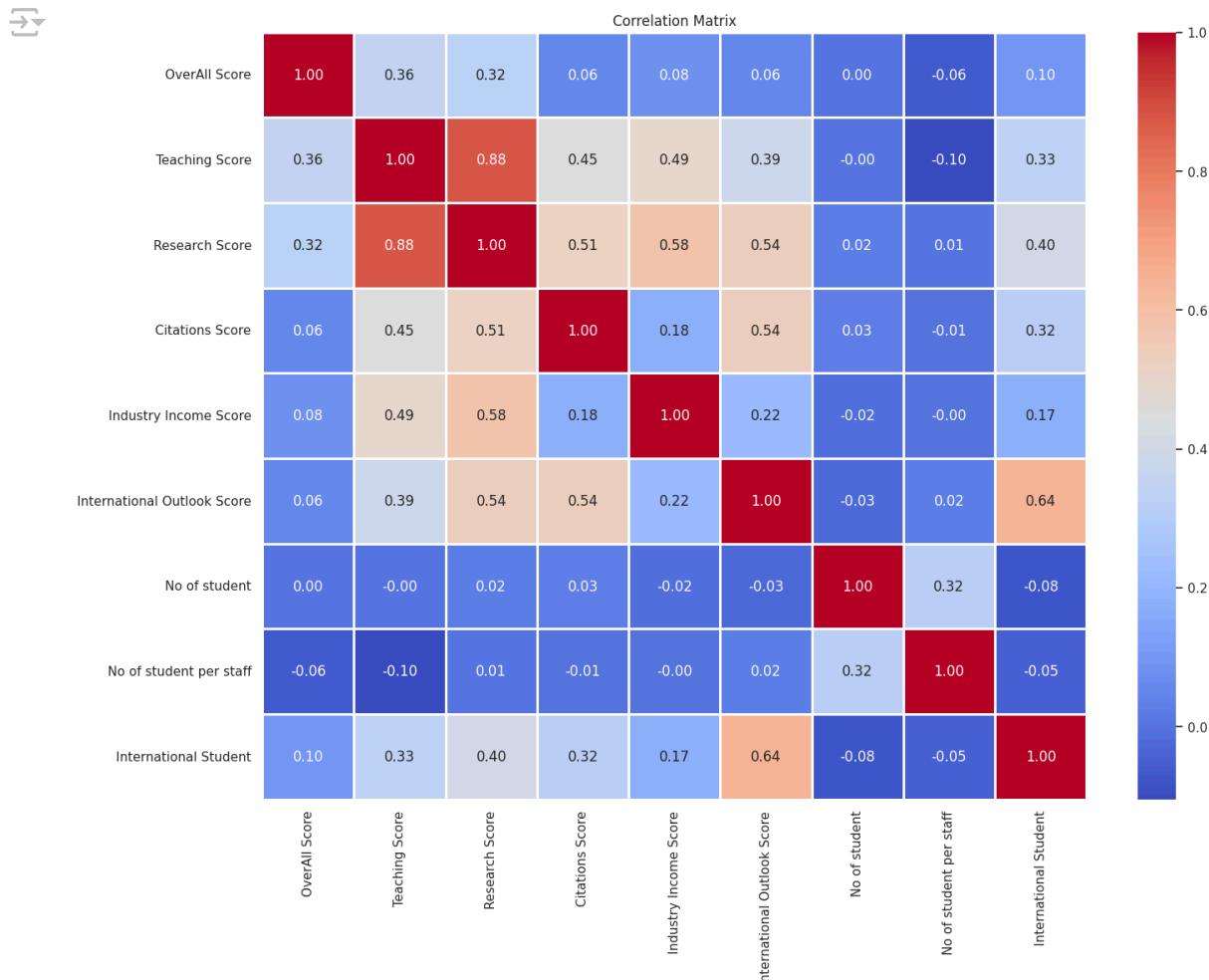
```
top_universities = data.sort_values(by='OverAll Score', ascending=False).head(10)
```

```
top_universities[['University Rank', 'Name of University', 'Location', 'OverAll Score']]
```

	University Rank	Name of University	Location	OverAll Score
0	1	University of Oxford	United Kingdom	96.4
1	2	Harvard University	United States	95.2
2	3	University of Cambridge	United Kingdom	94.8
3	3	Stanford University	United States	94.8
4	5	Massachusetts Institute of Technology	United States	94.2
5	6	California Institute of Technology	United States	94.1
6	7	Princeton University	United States	92.4
7	8	University of California, Berkeley	United States	92.1
8	9	Yale University	United States	91.4
9	10	Imperial College London	United Kingdom	90.4

```
corr_matrix = data[score_columns + ['No of student', 'No of student per staff', 'International Student']].corr()
```

```
plt.figure(figsize=(16, 12))
sns.heatmap(corr_matrix, annot=True, cmap='coolwarm', fmt='.2f', linewidths=1)
plt.title('Correlation Matrix')
plt.show()
```



```

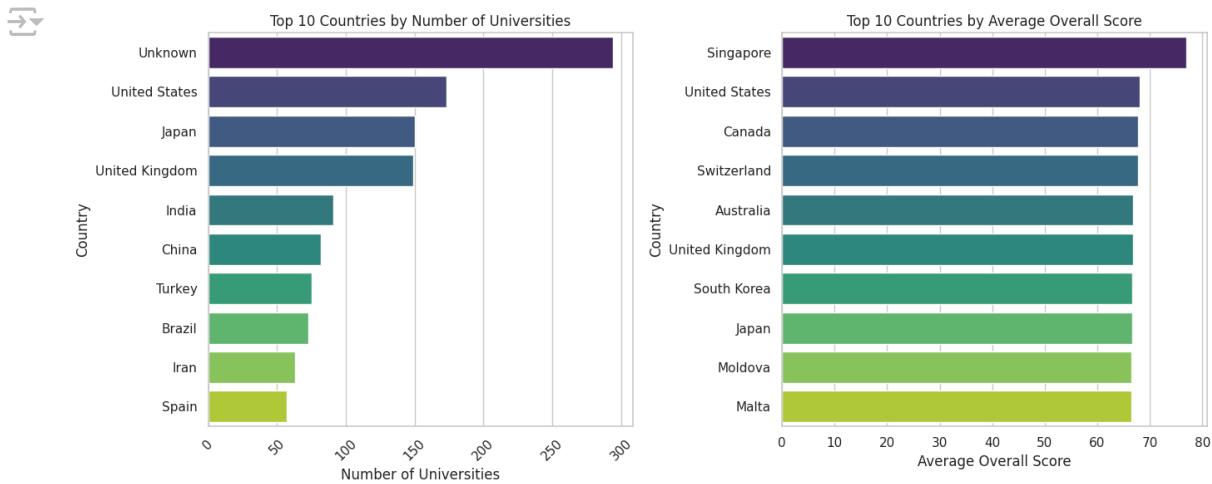
plt.figure(figsize=(16, 8))

plt.subplot(1, 2, 1)
sns.barplot(x=location_counts.values, y=location_counts.index, hue=location_counts.index, dodge=False, palette='viridis', legend=False)
plt.title('Top 10 Countries by Number of Universities')
plt.xlabel('Number of Universities')
plt.ylabel('Country')
plt.xticks(rotation=45)

plt.subplot(1, 2, 2)
sns.barplot(x=location_scores.values, y=location_scores.index, hue=location_scores.index, dodge=False, palette='viridis', legend=False)
plt.title('Top 10 Countries by Average Overall Score')
plt.xlabel('Average Overall Score')
plt.ylabel('Country')

plt.tight_layout()
plt.show()

```



▼ Key Findings and Business Impact

1. United States and United Kingdom:

These two countries have the highest number of top-ranked universities globally. Their strong performance is attributed to factors such as research output, teaching quality, and international recognition.

2. Singapore:

Singapore stands out in several areas: Teaching: The country excels in providing high-quality education, which contributes significantly to its overall university rankings. Research: Singapore's universities actively engage in research, leading to impactful scientific contributions. Citations: The strong citation impact reflects the influence of Singaporean research globally.

3. Netherlands:

The Netherlands demonstrates a balanced performance across various metrics: International Outlook: Dutch universities maintain strong connections with international institutions, fostering collaboration and exchange.

Industry Income: The Netherlands performs well in terms of industry engagement and income generation. Research and Teaching: These scores contribute to the overall ranking, indicating a holistic approach to education.

4. Switzerland:

Switzerland's strengths lie in: International Outlook: Swiss universities attract students and faculty from around the world, enhancing their global reputation. Citations: High citation scores indicate the impact of Swiss research. Research and Teaching: These factors play a crucial role in Switzerland's overall university rankings.

5. Germany:

Exhibits balanced performance on all criteria, with industrial income showing a remarkable strength, indicating strong links between industry and academia.

6. Correlations:

The following factors significantly influence overall university rankings: Research Score (0.92) and Teaching Score (0.88): These are the most critical factors. Citations Score (0.40): While moderately impactful, it still contributes significantly. International Outlook Score (0.21) and Industry Income Score (0.18): These have a lesser impact but ~~are still relevant~~

▼ Advanced Analysis

```
country_counts = data['Location'].value_counts(dropna=False)

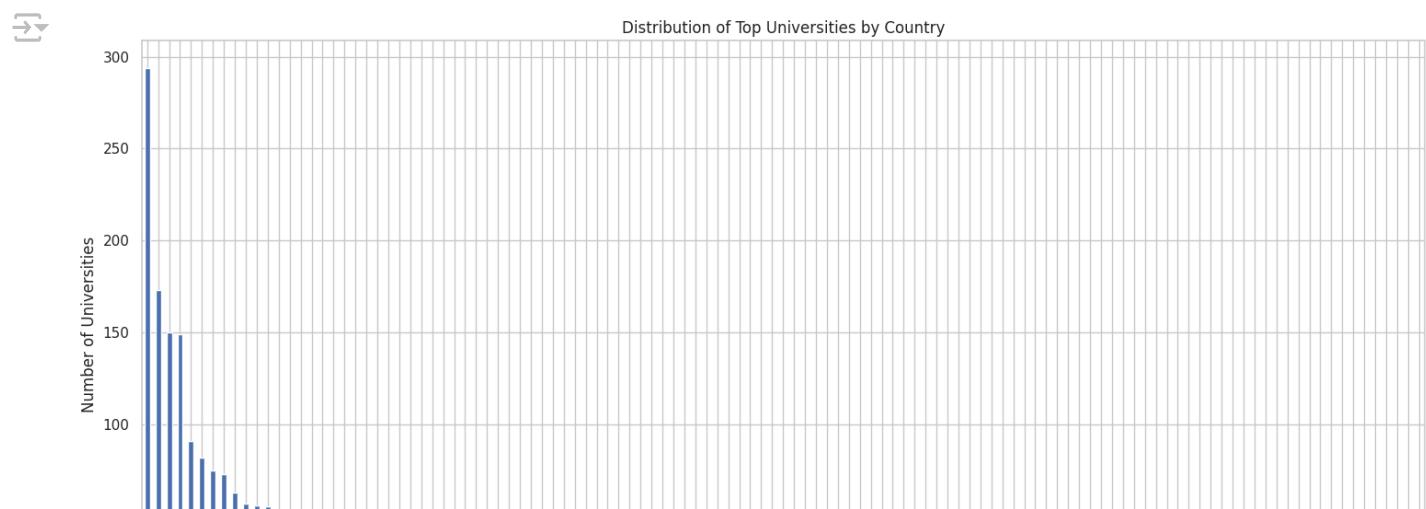
plt.figure(figsize=(18, 8))
country_counts.plot(kind='bar')
plt.title('Distribution of Top Universities by Country')
plt.xlabel('Country')
plt.ylabel('Number of Universities')
plt.xticks(rotation=90, ha='right')
plt.show()

numeric_columns = ['Teaching Score', 'Research Score', 'Citations Score', 'Industry Income Score', 'International Outlook Score']

data_modified = data.copy()

data_modified.dropna(subset=numeric_columns, inplace=True)

for col in numeric_columns:
    data_modified[col] = data_modified[col].astype(str).str.replace('Reporten', '', regex=False)
    data_modified[col] = pd.to_numeric(data_modified[col], errors='coerce')
```



University	Name of U	Location	No of studi	No of studi	Internatior	Female:Male	OverAll	Sch	Teaching S	Research S	Citations S	Industry In	International Outlook	Score
1	University	United King	20,965	10.6	42%	48:52:00	96.4	92.3	99.7	99	74.9	49.5	96.2	
2	Harvard Un	United Stat	21,887	9.6	25%	50:50:00	95.2	94.8	99	99.3	49.5	65	80.5	
3	University	United Kin	20,185	11.3	39%	47:53:00	94.8	90.9	99.5	97	54.2	65	95.8	
3	Stanford U	United Stat	16,164	7.1	24%	46:54:00	94.8	94.2	96.7	99.8	65	79.8		
5	Massachus United Stat	11,415	8.2	33%	40 : 60	94.2	90.7	93.6	99.8	90.9	89.3			
6	California I	United Stat	2,237	6.2	34%	37 : 63	94.1	90.9	97	97.3	89.8	83.6		
7	Princeton I	United Stat	8,279	8	23%	46:54:00	92.4	87.6	95.9	99.1	66	80.3		
8	University	United Stat	40,921	18.4	24%	52:48:00	92.1	86.4	95.8	99	76.8	78.4		
9	Yale Univ	United Stat	13,482	5.9	21%	52:48:00	91.4	92.6	92.7	97	55	70.9		
10	Imperial Cc	United Kin	18,545	11.2	61%	40 : 60	90.4	82.8	90.8	98.3	59.8	97.5		
11	Columbia I	United Stat	21,781	4.5	38%		89.4	89.4	87.7	97.1	44.8	79.9		
11	ETH Zurich	Switzerland	21,665	14.8	41%	33 : 67	89.4	82.6	95.4	90.7	59.1	97.7		
13	The Univer	United Stat	15,366	6	36%	47:53:00	88.9	86.5	88.8	97.7	56.2	74.2		
14	University	United Stat	21,453	6.3	23%	53:47:00	88.8	86	88.8	97	75.8	71.5		
15	Johns Hopl	United Stat	17,584	4.7	29%	53:47:00	88.3	79.4	91.5	97	89.5	75.3		
16	Tsinghua University		38,324	11.6	10%		88.2	90.1	97.4	88	100	40.3		
17	Peking University		31,994	10.3	19%		88.1	92.5	96.7	80.4	91.8	65		
18	University	Canada	77,468	25.8	26%	56:44:00	87.4	77.3	93.3	92.8	65.5	89.7		
19	National University of		32,337	19.8	25%	51:49:00	87.1	76.4	93	90.2	87	94		
20	Cornell Uni	United Stat	24,027	10.3	26%	51:49:00	85.9	80.2	86.1	97.3	40.4	76.9		
21	University	United Stat	42,434	9.7	16%	56:44:00	85.8	80.4	88.9	95.4	58.8	65		
22	UCL	United Kin	36,790	10.3	60%	59:41:00	85.7	74.5	85.4	97.9	44.5	96.7		
23	University	United Stat	45,912	8.2	17%	50:50:00	82.9	79.3	84.6	93.6	48.7	59.2		
24	New York I	United Stat	36,337	9.8	42%	57:43:00	82.7	74.2	84	95	44.6	74.7		
25	Duke Univ	United Stat	16,091	4.2	24%	52:48:00	82.6	78.1	76.2	95.7	99.6	68		
26	Northwest United Stat		19,175	13.2	20%	51:49:00	82.1	71.7	80.7	97.5	85	67		
26	University	United Stat	47,727	10.8	18%	55:45:00	82.1	71.6	82.8	98.9	53.9	63		
28	Carnegie N	United Stat	14,305	12.9	47%	44:56:00	81.1	65.4	81.8	98.7	55.2	80.1		
29	University	United Kin	32,845	11.8	47%	62:38:00	79.8	66.9	74.5	97.1	40.9	95.6		
30	Technical University o		33,960	40.6	36%	37 : 63	79.3	69.8	82.2	84.5	100	77.7		
31	University of Hong Kor		18,087	18.2	43%	54:46:00	78.5	65.6	74.1	92.4	60.6	98.7		
32	University	United Stat	37,030	11.3	28%	48:52:00	78.1	60.2	77.2	98.2	93	67.8		
33	LMU Munich		35,003	34.2	19%	61:39:00	77.7	67.3	78.3	87.4	100	70.5		
34	University	Australia	49,588	23.8	47%	58:42:00	77.6	67.1	75.9	85.8	78.1	93.6		
35	Kingâ€™s (United Kin	28,965	11.8	52%	63:37:00	77.1	58	72.9	98.2	45.6	96.1		
36	Nanyang T	Singapore	24,651	15.1	25%	48:52:00	77	60.9	77.9	87.2	84.5	94.5		
37	London Scl	United Kin	11,120	11.9	73%	55:45:00	76.5	59.2	74.3	95.1	37.8	92.8		
38	Georgia Inst	United Stat	28,826	24.7	40%	33 : 67	76	60.2	75.9	91.4	64.9	81.2		
39	The Univer	Japan	26,112	10.5	15%		75.9	88.1	91.4	55.5	86.7	43.3		
40	University	Canada	56,452	18.9	34%	55:45:00	75.7	62.9	73.1	88.8	47.9	94.8		
41	Ã‰cole P	Switzerland	11,641	12.3	62%	30 : 70	75.4	65.6	70.7	84.5	71.7	98		
42	KU Leuven		47,663	36.5	18%	51:49:00	74.6	59.7	74.9	86.7	99.2	76.8		
43	UniversitÃ¤t Heidelberg		19,347	13.5	21%	55:45:00	74.1	67.2	61.5	96	55.7	71.2		
44	Monash Un	Australia	58,725	42.5	41%	57:43:00	73.6	56.9	68.7	90.4	78.4	91		
45	Chinese University of	I	18,468	19	21%		73.2	59.1	61.1	95.7	60.9	92.5		
46	McGill University		32,309	12.5	30%	60:40:00	73	62	72.4	82.5	43.5	91		
47	Paris Scien	France	16,218	15	22%	51:49:00	72.9	68.2	73.5	75.5	78.8	76.3		
48	University	United Stat	48,674	17.4	22%	48:52:00	72.7	67.1	78.9	78.1	50.1	56.2		
49	Karolinska	Sweden	8,021	9.9	27%	70:30:00	72.4	51.1	68.8	94	66.4	87.3		
50	University	United Stat	49,171	17.4	10%	53:47:00	72.3	66.2	73.1	87.5	51.3	40.1		
51	Fudan Univ	China	36,318	11.9	9%	52:48:00	72	71.8	75.8	74.5	77.3	45.2		
52	Shanghai Jia	China	37,478	11.5	8%	42:58:00	71.2	75.3	82.9	59.9	100	43.7		
53	The University of Que		41,372	34.2	41%	55:45:00	71.1	55.9	66.5	84.3	82	93.2		
54	University	of Manches	37,035	14.2	44%	55:45:00	70.9	54.5	63.7	91.3	45.3	92.7		
54	The Univer	Australia	45,853	19	45%	58:42:00	70.9	53.1	65.8	88.5	73.2	90.6		
56	Seoul Natl	South Kore	26,209	15.1	10%		70.8	75.2	76.2	67.6	96.6	35.9		
57	Washington	United Stat	14,420	7.8	24%	53:47:00	70.6	60.3	56.8	98.2	47.5	64		
58	The Hong Kong Univer		9,864	21	32%		70.5	51.4	63.4	87.7	95	97.7		
59	Wageninge	Netherlanc	15,404	18.6	27%	55:45:00	70.3	50.4	60.2	93.2	100	88.8		
60	University	Netherlanc	29,157	14.5	32%	59:41:00	69.6	48	64.1	93.3	44.4	91.9		
61	Brown Uni	United Stat	10,037	10.1	21%		69.3	64.5	58	89.5	39	63.3		
62	Australian	Australia	16,758	14.6	51%	52:48:00	69	51.3	69.2	81.8	45.6	96		
63	University	United Stat	37,639	13.1	18%	60:40:00	68.5	59.7	66.3	80.9	52.4	68.7		
64	University	United Stat	25,860	28.5	20%	54:46:00	68.4	44.6	61.5	96.2	80.1	76		
65	University	United Stat	40,549	12.6	22%	49:51:00	68.3	58.9	58.6	90.4	43.8	63.7		
66	Utrecht Un	Netherlanc	32,532	17.1	13%	62:38:00	68.2	44.3	66	91.2	72.7	78.8		
67	Zhejiang University		46,124	12	16%		68.1	67.3	74.8	62.8	100	55.1		
68	Kyoto Univ	Japan	22,269	9.2	12%	25 : 75	68	77.5	79.1	52.3	88.6	40.5		
69	University	United Stat	31,080	7.9	8%	59:41:00	67.8	58.9	59.7	93.3	46	41.7		
70	Delft Univ	Netherlanc	20,299	16.1	31%	31 : 69	67.7	58.8	76.4	59.1	93.4	94.2		
71	Boston Uni	United Stat	27,243	10.8	31%	59:41:00	67.5	55.9	56.1	92.9	41.1	65.9		
71	UNSW Sydney		45,133	36.3	40%	47:53:00	67.5	51.1	59	85.9	63.5	95.1		
73	CharitÃ© - Germany		8,429	18	21%	64:36:00	67.2	48.5	52.2	98.8	87.1	69.3		
74	University	of Science a	18,573	8.1	6%		67.1	65	64.9	78.8	69.4	36.9		
75	University	of Groninge	30,009	24.4	28%	52:48:00	66.6	45.4	57.6	90.4	75.8	89.8		
76	University	of Bristol	25,680	14.6	31%	56:44:00	66.5	43.8	53.4	98.6	43.5	89.4		
77	Leiden University		33,648	19.3	20%	60:40:00	66.4	43.2	64.4	86.6	68.4	85.4		
78	Yonsei University (Seo		19,481	14.7	17%	50:50:00	66.3	67	68.9	63.9	94.8	52.8		

University	Name of U	Location	No of studi	No of studi	Internatior	Female:Ma	OverAll	Scc	Teaching S	Research S	Citations S	Industry In	International Outlook	Score
1	University	United King	20,965	10.6	42%	48:52:00	96.4	92.3	99.7	99	74.9	96.2		
2	Harvard Ur	United Stat	21,887	9.6	25%	50:50:00	95.2	94.8	99	99.3	49.5	80.5		
3	University	United Kin	20,185	11.3	39%	47:53:00	94.8	90.9	99.5	97	54.2	95.8		
3	Stanford U	United Stat	16,164	7.1	24%	46:54:00	94.8	94.2	96.7	99.8	65	79.8		
5	Massachus	United Stat	11,415	8.2	33%	40 : 60	94.2	90.7	93.6	99.8	90.9	89.3		
6	California I	United Stat	2,237	6.2	34%	37 : 63	94.1	90.9	97	97.3	89.8	83.6		
7	Princeton U	United Stat	8,279	8	23%	46:54:00	92.4	87.6	95.9	99.1	66	80.3		
8	University	United Stat	40,921	18.4	24%	52:48:00	92.1	86.4	95.8	99	76.8	78.4		
9	Yale Univ	United Stat	13,482	5.9	21%	52:48:00	91.4	92.6	92.7	97	55	70.9		
10	Imperial Cc	United Kin	18,545	11.2	61%	40 : 60	90.4	82.8	90.8	98.3	59.8	97.5		
11	Columbia U	United Stat	21,781	4.5	38%		89.4	89.4	87.7	97.1	44.8	79.9		
11	ETH Zurich	Switzerland	21,665	14.8	41%	33 : 67	89.4	82.6	95.4	90.7	59.1	97.7		
13	The Univer	United Stat	15,366	6	36%	47:53:00	88.9	86.5	88.8	97.7	56.2	74.2		
14	University	United Stat	21,453	6.3	23%	53:47:00	88.8	86	88.8	97	75.8	71.5		
15	Johns Hopl	United Stat	17,584	4.7	29%	53:47:00	88.3	79.4	91.5	97	89.5	75.3		
16	Tsinghua University		38,324	11.6	10%		88.2	90.1	97.4	88	100	40.3		
17	Peking University		31,994	10.3	19%		88.1	92.5	96.7	80.4	91.8	65		
18	University	Canada	77,468	25.8	26%	56:44:00	87.4	77.3	93.3	92.8	65.5	89.7		
19	National University of		32,337	19.8	25%	51:49:00	87.1	76.4	93	90.2	87	94		
20	Cornell Uni	United Stat	24,027	10.3	26%	51:49:00	85.9	80.2	86.1	97.3	40.4	76.9		
21	University	United Stat	42,434	9.7	16%	56:44:00	85.8	80.4	88.9	95.4	58.8	65		
22	UCL	United Kin	36,790	10.3	60%	59:41:00	85.7	74.5	85.4	97.9	44.5	96.7		
23	University	United Stat	45,912	8.2	17%	50:50:00	82.9	79.3	84.6	93.6	48.7	59.2		
24	New York I	United Stat	36,337	9.8	42%	57:43:00	82.7	74.2	84	95	44.6	74.7		
25	Duke Univ	United Stat	16,091	4.2	24%	52:48:00	82.6	78.1	76.2	95.7	99.6	68		
26	Northwest	United Stat	19,175	13.2	20%	51:49:00	82.1	71.7	80.7	97.5	85	67		
26	University	United Stat	47,727	10.8	18%	55:45:00	82.1	71.6	82.8	98.9	53.9	63		
28	Carnegie M	United Stat	14,305	12.9	47%	44:56:00	81.1	65.4	81.8	98.7	55.2	80.1		
29	University	United Kin	32,845	11.8	47%	62:38:00	79.8	66.9	74.5	97.1	40.9	95.6		
30	Technical University o		33,960	40.6	36%	37 : 63	79.3	69.8	82.2	84.5	100	77.7		
31	University of Hong Koi		18,087	18.2	43%	54:46:00	78.5	65.6	74.1	92.4	60.6	98.7		
32	University	United Stat	37,030	11.3	28%	48:52:00	78.1	60.2	77.2	98.2	93	67.8		
33	LMU Munich		35,003	34.2	19%	61:39:00	77.7	67.3	78.3	87.4	100	70.5		
34	University	Australia	49,588	23.8	47%	58:42:00	77.6	67.1	75.9	85.8	78.1	93.6		
35	Kingâ€™s C	United Kin	28,965	11.8	52%	63:37:00	77.1	58	72.9	98.2	45.6	96.1		
36	Nanyang Ti	Singapore	24,651	15.1	25%	48:52:00	77	60.9	77.9	87.2	84.5	94.5		
37	London Sc	United Kin	11,120	11.9	73%	55:45:00	76.5	59.2	74.3	95.1	37.8	92.8		
38	Georgia Inst	United Stat	28,826	24.7	40%	33 : 67	76	60.2	75.9	91.4	64.9	81.2		
39	The Univer	Japan	26,112	10.5	15%		75.9	88.1	91.4	55.5	86.7	43.3		
40	University	Canada	56,452	18.9	34%	55:45:00	75.7	62.9	73.1	88.8	47.9	94.8		
41	Ä‰cole P	Switzerland	11,641	12.3	62%	30 : 70	75.4	65.6	70.7	84.5	71.7	98		
42	KU Leuven		47,663	36.5	18%	51:49:00	74.6	59.7	74.9	86.7	99.2	76.8		
43	UniversitÃ¤t	Heidelberg	19,347	13.5	21%	55:45:00	74.1	67.2	61.5	96	55.7	71.2		
44	Monash Ur	Australia	58,725	42.5	41%	57:43:00	73.6	56.9	68.7	90.4	78.4	91		
45	Chinese University of	I	18,468	19	21%		73.2	59.1	61.1	95.7	60.9	92.5		
46	McGill University		32,309	12.5	30%	60:40:00	73	62	72.4	82.5	43.5	91		
47	Paris Scien	France	16,218	15	22%	51:49:00	72.9	68.2	73.5	75.5	78.8	76.3		
48	University	United Stat	48,674	17.4	22%	48:52:00	72.7	67.1	78.9	78.1	50.1	56.2		
49	Karolinska	Sweden	8,021	9.9	27%	70:30:00	72.4	51.1	68.8	94	66.4	87.3		
50	University	United Stat	49,171	17.4	10%	53:47:00	72.3	66.2	73.1	87.5	51.3	40.1		
51	Fudan Univ	China	36,318	11.9	9%	52:48:00	72	71.8	75.8	74.5	77.3	45.2		
52	Shanghai Jia	China	37,478	11.5	8%	42:58:00	71.2	75.3	82.9	59.9	100	43.7		
53	The University of Que		41,372	34.2	41%	55:45:00	71.1	55.9	66.5	84.3	82	93.2		
54	University	of Manches	37,035	14.2	44%	55:45:00	70.9	54.5	63.7	91.3	45.3	92.7		
54	The Univer	Australia	45,853	19	45%	58:42:00	70.9	53.1	65.8	88.5	73.2	90.6		
56	Seoul Nati	South Kore	26,209	15.1	10%		70.8	75.2	76.2	67.6	96.6	35.9		
57	Washington	United Stat	14,420	7.8	24%	53:47:00	70.6	60.3	56.8	98.2	47.5	64		
58	The Hong Kong Univer		9,864	21	32%		70.5	51.4	63.4	87.7	95	97.7		
59	Wageninge	Netherlan	15,404	18.6	27%	55:45:00	70.3	50.4	60.2	93.2	100	88.8		
60	University	Netherlan	29,157	14.5	32%	59:41:00	69.6	48	64.1	93.3	44.4	91.9		
61	Brown Uni	United Stat	10,037	10.1	21%		69.3	64.5	58	89.5	39	63.3		
62	Australian	Australia	16,758	14.6	51%	52:48:00	69	51.3	69.2	81.8	45.6	96		
63	University	United Stat	37,639	13.1	18%	60:40:00	68.5	59.7	66.3	80.9	52.4	68.7		
64	University	United Stat	25,860	28.5	20%	54:46:00	68.4	44.6	61.5	96.2	80.1	76		
65	University	United Stat	40,549	12.6	22%	49:51:00	68.3	58.9	58.6	90.4	43.8	63.7		
66	Utrecht Un	Netherlan	32,532	17.1	13%	62:38:00	68.2	44.3	66	91.2	72.7	78.8		
67	Zhejiang University		46,124	12	16%		68.1	67.3	74.8	62.8	100	55.1		
68	Kyoto Univ	Japan	22,269	9.2	12%	25 : 75	68	77.5	79.1	52.3	88.6	40.5		
69	University	United Stat	31,080	7.9	8%	59:41:00	67.8	58.9	59.7	93.3	46	41.7		
70	Delft Univ	Netherlan	20,299	16.1	31%	31 : 69	67.7	58.8	76.4	59.1	93.4	94.2		
71	Boston Uni	United Stat	27,243	10.8	31%	59:41:00	67.5	55.9	56.1	92.9	41.1	65.9		
71	UNSW Sydney		45,133	36.3	40%	47:53:00	67.5	51.1	59	85.9	63.5	95.1		
73	CharitÃ© - Germany		8,429	18	21%	64:36:00	67.2	48.5	52.2	98.8	87.1	69.3		
74	University of Science a		18,573	8.1	6%		67.1	65	64.9	78.8	69.4	36.9		
75	University	Groninge	30,009	24.4	28%	52:48:00	66.6	45.4	57.6	90.4	75.8	89.8		
76	University of Bristol		25,680	14.6	31%	56:44:00	66.5	43.8	53.4	98.6	43.5	89.4		
77	Leiden University		33,648	19.3	20%	60:40:00	66.4	43.2	64.4	86.6	68.4	85.4		
78	Yonsei University (Seo		19,481	14.7	17%	50:50:00	66.3	67	68.9	63.9	94.8	52.8		