

Project Brief: University Rankings

Data Source

World University Rankings

- [Times Higher Educations World University Ranking \(times\)](#)
Widely regarded as one of the most influential and widely observed university measures.
- [Academic Ranking of World Universities \(shanghai\)](#)
It was founded in China in 2003 and has been criticized for focusing on raw research power and for undermining humanities and quality of instruction.
- [Center for World Universities Rankings \(cwur\)](#)

Why did I chose this data? Since I will graduate in the summer of 2023, I am already trying to get an overview of universities around the world where I might want to study Computer or Data Science. It is also interesting to see how the rankings differ from each other based on their sources.

Cleaning

- Check missing/duplicate/mixed data

Data	Missing	Duplicates	mixed
Times	Num_students: 59 Students_staff_ratio: 59 International_students: 67 Female_male_ratio: 233	None	num_students, international_students, female_male_ratio
Shanghai	University_name: 1 National_rank: 1 Total_score: 3796 Alumni: 1 Award: 2 Hici: 2 Ns: 22 Pub: 2 Pcp: 2 ➤ One data entry deleted	None	University_name, National_rank
Cwur	Broad_impact: 200	None	None

Understanding

Times

2603 x 14

Column	Description	Data Type	Time variant
World_rank	world rank for the university. Contains rank ranges and equal ranks (eg. =94 and 201-250)	Qualitative, ordinal	
University_name	name of university	Qualitative, nominal	

Country	country of each university	Qualitative, nominal	
Teaching	university score for teaching (the learning environment)	Quantitative, discrete	
International	university score international outlook (staff, students, research)	Quantitative, discrete	
Research	university score for research (volume, income and reputation)	Quantitative, discrete	
Citations	university score for citations (research influence)	Quantitative, discrete	
Income	university score for industry income (knowledge transfer)	Quantitative, discrete	
Total_score	total score for university, used to determine rank	Quantitative, discrete	
Num_students	number of students at the university	Quantitative, discrete	
Student_staff_ratio	Number of students divided by number of staff	Quantitative, discrete	
International_students	Percentage of students who are international	Quantitative, discrete	
Female_male_ratio	Female student to Male student ratio	Quantitative, discrete	
Year	year of the ranking (2011 to 2016 included)	Quantitative, discrete	

Shanghai
4896 x 11

Column	Description	Data Type	Time variant
World_rank	world rank for university. Contains rank ranges and equal ranks (eg. 101-152)	Qualitative, ordinal	
University_name	name of university	Qualitative, nominal	
National_rank	rank of university within its country	Qualitative, ordinal	
Total_score	total score, used to determine rank	Quantitative, discrete	
Alumni	Alumni Score, based on the number of alumni of an institution winning nobel prizes and fields medals	Quantitative, discrete	
Award	Award Score, based on the number of staff of an institution winning Nobel Prizes in Physics, Chemistry, Medicine, etc.	Quantitative, discrete	

Hici	HiCi Score, based on the number of Highly Cited Researchers selected by Thomson Reuters	Quantitative, discrete	
Ns	N&S Score, based on the number of papers published in Nature and Science	Quantitative, discrete	
Pub	PUB Score, based on total number of papers indexed in the Science Citation Index-Expanded and Social Science Citation	Quantitative, discrete	
Pcp	PCP Score, the weighted scores of the above five indicators divided by the number of full time academic staff	Quantitative, discrete	
Year	year of ranking (2005 to 2015)	Quantitative, discrete	yes

Cwur
2200 x 14

Column	Description	Data Type	Time variant
World_rank	world rank for the university. Contains rank ranges and equal ranks (eg. =94 and 201-250)	Qualitative, ordinal	
Institution	name of university	Qualitative, nominal	
Country	country of each university	Qualitative, nominal	
National_rank	rank of university within its country	Qualitative, ordinal	
Quality_of_education	rank for quality of education	Qualitative, ordinal	
Alumni_employment	rank for alumni employment	Qualitative, ordinal	
Quality_of_faculty	rank for quality of faculty	Qualitative, ordinal	
Publications	rank for publications	Qualitative, ordinal	
Influence	rank for influence	Qualitative, ordinal	
Citations	number of students at the university	Quantitative, discrete	
Broad_impact	rank for broad impact (only available for 2014 and 2015)	Qualitative, ordinal	

Patents	rank for patents	Qualitative, ordinal	
Score	total score, used for determining world rank	Quantitative, discrete	
Year	year of ranking (2012 to 2015)	Quantitative, discrete	yes

Limitation and Ethics

World University Rankings

- [Times Higher Educations World University Ranking \(times\)](#)
Founded in the United Kingdom in 2010, it has been criticized for its commercialization and for undermining non-English-instructing institutions.
- [Academic Ranking of World Universities \(shanghai\)](#)
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A less well known listing that comes from Saudi Arabia, it was founded in 2012.

Questions

Which country has the best universities?

Are there differences in ranking between the three data sets? (e.g. same top 10)

What are the general strengths or weaknesses of the universities?