



MGMT 582

Final Project: College Review Website

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Group 7

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Background

We are consulting for Niche.com, a college review website partnering with over 1700 schools to provide a thorough and comprehensible dataset to prospective students and parents alike. Niche offers many metrics of measurements, from national university rankings to demographic breakdowns as well as the all important information regarding cost of attendance to name just a few. While Niche is a reputable resource in the American market, their website is limited to this specific country. It is probable that Niche.com receives a large amount of traffic from individuals overseas researching US schools, but the full international market is not being captured due to the limitations Niche.com currently has. In a world of ever-increasing globalization, the added value from having a more internationally inclusive database will be significant: Students from all around the world, including the US, will be better able to research all universities and the additional traffic from these new users will generate more advertising revenue.

Introduction

While Niche boasts an impressive website with a thorough database and intuitive UX, they are operating in a highly competitive market. Websites such as Studentsreview.com, bigfuture.collegeboard.org, as well as individual school websites all stand to diminish Niche.com's traffic. Some of these websites boast a more global dataset by providing information on foreign universities in addition to the American domestic ones.

Our firm has been brought in to expand upon their current data set by introducing more distinguishing fields as well as to establish data on universities from abroad in order to grow their user base internationally. Offering a broader array of variables to search on in addition to introducing international universities will make Niche.com a proverbial one-stop-shop for all those researching universities. We set out to do this optimally to ensure high performance and minimize server requirements that would be put under more strain due to the higher volume of website traffic.

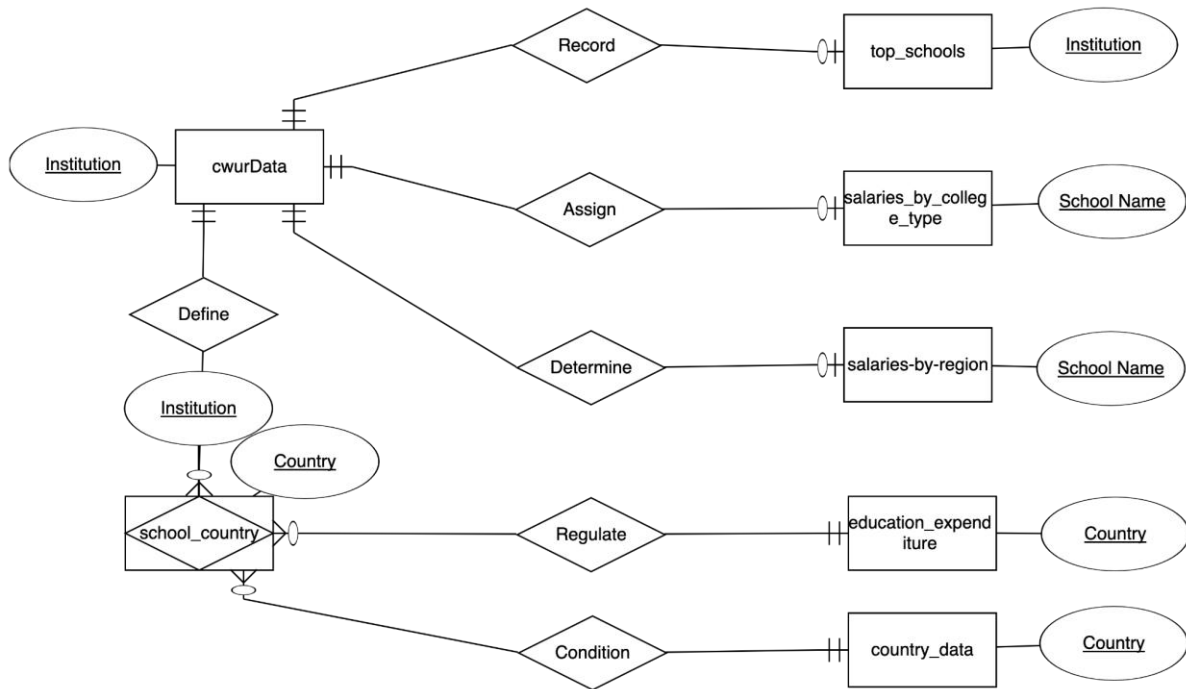
Datasets

The majority of our data were obtained from two Kaggle datasets listed in the Appendix that were composed of multiple tables. The first dataset, World University Rankings, allowed us to introduce the international universities that will allow Niche.com to enter a market of countless more people. World University Rankings (**cwurData**) provides many of the metrics Niche has, such as overall rankings, but it also introduces variables such as citations and patents- variables that are of interest to many highly motivated college hopefuls.

Our second dataset consists of **Salaries_by_Region** and **Salaries_by_College_Type**, a broad dataset that breaks down payoffs from different types of schools (state, private, party, etc.), majors, and US regions. Since attending a college is one of the most important, and costly, investments people will make in their life, it is crucial to know what awaits a graduate, regarding salary.

Two smaller datasets were also created to fill gaps in the aforementioned sets: **top_schools** takes a look at the acceptance rate, cost of attendance for resident students, and median starting salary for graduates for the top 100 ranked universities in the world. While this data was present for the US schools, it did not exist for the international institutions and was procured through various websites. The second dataset was created to answer follow-up questions students would have when researching international schools. **Country_data** provides the human development index rank (obtained from UN.org), happiness rankings, and cost of living rankings for the nations represented in the top 100 schools. This dataset is essential to provide since the real cost of tuition and salary data is highly dependent on the economics of a nation. Additionally, the HDI and happiness rank provide some information on what life is like for people living in these countries.

Entity-Relationship Diagram



Relational Data Model

education-expenditure-Supplementary data (Country, institution-type, direct-expenditure-type, 1995, 2000, 2005, 2009, 2010, 2011)

top-schools (Institution, Acceptance-Rate, Cost-of-attendance, start-salary, Region)

salaries-by-college-type (SchoolName, SchoolType, StartingMedianSalary, MidCareerMedianSalary, MidCareer10thPercentileSalary, MidCareer25thPercentileSalary, MidCareer75thPercentileSalary, MidCareer90thPercentileSalary)

salaries-by-region (SchoolName, Region, StartingMedianSalary, MidCareerMedianSalary, MidCareer10thPercentileSalary, MidCareer25thPercentileSalary, MidCareer75thPercentileSalary, MidCareer90thPercentileSalary)

cwurData (institution, country, world-rank, national-rank, quality-of-education, alumni-employment, quality-of-research, publications, influence, citations, broad-impact, patents, score, year)

country-data (Country, HDI, Happiness, Cost-of-Living)

school-and-country-tables (school-name, country)

Explanation of Choices

Data was imported utilizing MySQL's import wizard capability, hence the lack of manually created tables, other DDL, and triggers.

Some basic cleaning occurred to get data in correct forms. An example of this was replacing the 0 values in the start_salary column of the top_schools table with NULL since 0s were in the dataset due to no data being found for certain schools.

SELECT NULLIF(start_salary, 0) AS start_salary FROM top_schools

Queries

1. Natural Language Description of Query: Group Universities into brackets based on tuition so website users can click on links like “Affordable”; “Average”; “Expensive” to quickly see universities based on their financial restraints.

SQL Code and Results:

```
SELECT *  
  , CASE WHEN Cost_of_attendance between 0 and 20000 then 'Affordable'  
        WHEN Cost_of_attendance between 20000 and 35000 then 'Average'  
        WHEN Cost_of_attendance between 50000 and 10000 then 'Expensive'  
        END AS Level_of_Expense  
FROM top_schools
```

#	Institution	Acceptance_Rate	Cost_of_attendance	start_salary	Region	Level_of_Expense
1	Harvard University	4.60%	73800	63400	North America	Expensive
2	Massachusetts Institute of Te...	7.00%	73160	72200	North America	Expensive
3	Stanford University	4.00%	74570	70400	North America	Expensive
4	University of Cambridge	21.00%	12751.12	43450.32	Europe	Affordable
5	California Institute of Technol...	6.00%	74763	75500	North America	Expensive
6	Princeton University	6.00%	74150	66500	North America	Expensive
7	University of Oxford	17.50%	12751.12	44731.16	Europe	Affordable
8	Yale University	6.00%	76645	59100	North America	Expensive
9	Columbia University	5.00%	79752	59400	North America	Expensive
10	University of California, Berkel...	16.00%	39376	59900	North America	Expensive
11	University of Chicago	6.00%	81531	72000	North America	Expensive

Description of Business Problem Addressed: Financial resources are hugely influential when it comes to selecting a university to attend. This query creates brackets of schools based on their cost of attendance (“Affordable”; “Average”; “Expensive”) in order to make the searching process

easier for website visitors as these 3 levels are easier to search on than continuous numerical variables in Cost_of_attendance.

2. Natural Language Description of Query: Create a filter condition to get a list of EU universities since they often have benefits for EU citizens regardless of countries. This will be attractive to Europeans and will grow our user base in this region.

SQL Code and Results:

```
SELECT * FROM cwurData
```

```
INNER JOIN top_schools
```

```
ON top_schools.Institution = cwurData.institution
```

```
WHERE country in Austria", "Belgium", "Bulgaria", "Croatia", "Cyprus",  
"Czech Republic", "Denmark", "Estonia", "Finland", "France", "Germany",  
"Greece", "Hungary", "Iceland", "Ireland", "Italy", "Lithuania",  
"Netherlands", "Norway", "Poland", "Portugal", "Romania", "Serbia",  
"Slovenia", "Spain", "Sweden")
```

```
ORDER BY world rank DESC
```



#	world_rank	institution	country	national_rank	quality_of_education	alumni_employment	quality_of_faculty
1	35	École normale supérieure - Paris	France	1	8	478	59
2	36	University of Paris-Sud	France	1	26	101	26
3	36	École Polytechnique	France	2	150	6	208
4	36	École Polytechnique	France	1	98	7	216
5	37	École normale supérieure - Paris	France	2	8	502	54
6	48	University of Paris-Sud	France	1	48	101	25
7	48	Pierre-and-Marie-Curie Univer...	France	2	19	101	84
8	50	University of Paris-Sud	France	3	26	410	25
9	54	École normale supérieure - Paris	France	2	3	61	77

Note: Joined Data not Captured on Screenshot. It is to the right.

Description of Business Problem Addressed: Since we are expanding business operations abroad, it is important to consider international unions that have an influence on our variables. In this case, admissions into EU universities is easier and more affordable for EU citizens so a page on the website can be developed with the SQL code above to show students from the EU where they are eligible to attend as “in-state” residents.

3. Natural Language Description of the Query: How does happiness index affect college quality of education?

SQL Code and Results:

```
SELECT c.quality_of_education,c.institution, c.country, c1.Happiness
FROM cwurData as c
INNER JOIN country_data as c1
GROUP BY country
HAVING min(quality_of_education)
ORDER BY quality_of_education
```

quality_of_education	institution	country	Happiness
4	Weizmann Institute of Science	Israel	12
7	Harvard University	United States	12
10	University of Cambridge	United Kingdom	12
14	Lomonosov Moscow State University	Russia	12
26	Swiss Federal Institute of Technology in Zurich	Switzerland	12
32	University of Tokyo	Japan	12
48	University of Paris-Sud	France	12
51	Karolinska Institute	Sweden	12
79	University of the Witwatersrand	South Africa	12
87	Ruprecht Karl University of Heidelberg	Germany	12
87	Eötvös Loránd University	Hungary	12
88	Leiden University	Netherlands	12
96	University of Helsinki	Finland	12
101	University of Toronto	Canada	12
101	Seoul National University	South Korea	12
101	Sapienza University of Rome	Italy	12
101	University of Oslo	Norway	12
101	University of Queensland	Australia	12
101	University of Copenhagen	Denmark	12
101	National University of Singapore	Singapore	12
103	American University of Beirut	Lebanon	12
113	National Taiwan University	Taiwan	12
119	University of Warsaw	Poland	12
171	University of Tehran	Iran	12
192	University of Buenos Aires	Argentina	12
200	University of Vienna	Austria	12

Description of Business Problem Addressed: From the output, it seems that the best quality of education coincides with the maximum happiness index, which is 12. This might be explained by the fact that being depressed actually decreases academic performance according to Dr. Heiligenstein's research. The decreased academic performance is explained by the fact that students miss class, spend less time dedicating themselves to studying, and miss out on interpersonal collaboration to solve problems.

4. Natural Language Description of the Query: Which region results in the highest starting median salary?

SQL Code and Results:

```
SELECT s1.SchoolName, s1.Region,  
max(s1.StartingMedianSalary) as MaxMedianSalaryBySchoolType,  
s2.SchoolType  
FROM salaries_by_region as s1  
INNER JOIN salaries_by_college_type as s2  
ON s1.SchoolName = s2.SchoolName  
GROUP BY SchoolType
```

SchoolName	Region	MaxMedianSalaryBySchoolType	SchoolType
Massachusetts Institute of Technology	Northeastern	\$75,500.00	Engineering
Dartmouth College	Northeastern	\$66,500.00	Ivy League
Bucknell University	Northeastern	\$54,500.00	Liberal Arts
University of Illinois at Urbana-Champaign	Midwestern	\$52,900.00	Party
University of California, Berkeley	California	\$59,900.00	State

Description of Business Problem Addressed: From the output, it's possible to observe that the schools with the highest median salary are located in the Northeastern region. This could be explained by the fact that the first 13 colonies were formed in the Northeastern region, leading to the emergence of the first schools. The longer the schools existed, the more time there was for the teaching staff to improve on their teaching, thus leading to earning a more valuable brand name and resulting in higher median salaries for their alumni.

5. Natural Language Description of the Query: Is having a higher rate of international students and smaller student to staff ratio related to higher Mid-Career 90th Percentile Salary?

SQL Code and Results:


```

SELECT s1.SchoolName, s1.SchoolType,
s1.MidCareer90thPercentileSalary, t1.student_staff_ratio,
T1.international_students
FROM salaries_by_college_type as s1
INNER JOIN timesData as t1
on s1.SchoolName = t1.university_name
WHERE s1.MidCareer90thPercentileSalary != 'N/A'
and s1.SchoolName != 'University of Wisconsin'
GROUP BY s1.SchoolName, s1.SchoolType
ORDER BY s1.MidCareer90thPercentileSalary desc

```

SchoolName	SchoolType	MidCareer90thPercentileSalary	student_staff_ratio	international_students
Yale University	Ivy League	\$326,000.00	4.4	20%
Dartmouth College	Ivy League	\$321,000.00	6.6	16%
Harvard University	Ivy League	\$288,000.00	8.9	25%
University of Pennsylvania	Ivy League	\$282,000.00	6.5	20%
Princeton University	Ivy League	\$261,000.00	8.4	27%
Columbia University	Ivy League	\$241,000.00	5.9	28%
Brown University	Ivy League	\$228,000.00	10.1	19%
Massachusetts Institute of Technology	Engineering	\$220,000.00	9	33%
University of Virginia	State	\$215,000.00	10.2	12%
Cornell University	Ivy League	\$210,000.00	10.2	19%
Carnegie Mellon University	Engineering	\$209,000.00	13.1	35%
University of California, Davis	State	\$202,000.00	13.9	13%
University of California, Berkeley	State	\$201,000.00	16.4	15%
Georgia Institute of Technology	Engineering	\$183,000.00	20.1	26%
University of Michigan	State	\$182,000.00	9	16%
Stony Brook University	State	\$181,000.00	10.9	24%
University of Illinois at Urbana-Champaign	Party	\$177,000.00	18.7	20%
University of California, San Diego	State	\$177,000.00	6.5	11%
University of Illinois at Urbana-Champaign	State	\$177,000.00	18.7	20%
University of California, Santa Barbara	Party	\$173,000.00	27.3	11%
University of California, Santa Barbara	State	\$173,000.00	27.3	11%
University of California, Irvine	State	\$172,000.00	16.1	16%
Michigan State University	State	\$170,000.00	15.7	15%
Purdue University	State	\$168,000.00	18.1	22%
University of Massachusetts	State	\$168,000.00	13	11%
University of Maryland, College Park	Party	\$166,000.00	8.4	9%

Description of Business Problem Addressed: After exploring this topic, it was discovered that having a lower student to faculty ratio and higher percentage of international students leads to higher midcareer 90th percentile salary. The lower student to faculty ratio helps professors to develop more personal relationships with students, which not only results into professors answering all of the students' questions, but also in professors assisting their students place into higher paying jobs. The higher international student percentage can be explained by the fact that in the diverse environment there are more opportunities to learn how to approach a problem

solution from multiple perspectives, which enriches the student experience and results into improved learning tactic, thus placing students in a better position.

6. Natural Language Description of Query: Identifying institutions that have return on investment between starting salary and cost of attendance that are higher than the average return on investment among top schools across different regions.

SQL Code and Results:

```
SELECT *, (start_salary-Cost_of_attendance)/Cost_of_attendance*100 AS ROI
FROM top_schools,
      (SELECT AVG((start_salary-Cost_of_attendance)/Cost_of_attendance*100) AS AvgROI
FROM top_schools) AS Average
WHERE (start_salary-Cost_of_attendance)/Cost_of_attendance*100 >= Average.AvgROI
ORDER BY ROI DESC;
```

Institution	Acceptance_Rate	Cost_of_attendance	start_salary	Region	AvgROI	ROI
Swiss Federal Institute of Technology in Zurich	27.00%	1332	112000	Europe	207.10911487053252	8308.408408408408
McGill University	46.30%	1905	53000	North America	207.10911487053252	2682.1522309711286
Hebrew University of Jerusalem	25.00%	3002	72708	Middle East	207.10911487053252	2321.9853431045967
University of Edinburgh	10.00%	2508	43248.59	Europe	207.10911487053252	1624.4254385964912
University of British Columbia	52.40%	4800	51000	North America	207.10911487053252	962.5
Weizmann Institute of Science		9288	93696	Europe	207.10911487053252	908.7855297157622
University of Toronto	43.00%	5251	50000	North America	207.10911487053252	852.1995810321844
University of Tokyo	34.20%	3190	22720.77	Asia	207.10911487053252	612.2498432601881
Kyoto University	37.00%	4957	31434	Asia	207.10911487053252	534.1335485172483
Imperial College London	14.30%	12751	52409	Europe	207.10911487053252	311.01874362795076
Rockefeller University		25000	98000	North America	207.10911487053252	292
University of Oxford	17.50%	12751.12	44731.16	Europe	207.10911487053252	250.80181191926667
University College London	63.00%	12751	43810.94	Europe	207.10911487053252	243.58826758685598
University of Cambridge	21.00%	12751.12	43450.32	Europe	207.10911487053252	240.75689037511995
University of Bristol	67.30%	12751	41216.11	Europe	207.10911487053252	223.23825582307268
University of Utah	62.00%	14364	45400	North America	207.10911487053252	216.06794764689502

Description of Business Problem Addressed: The ratio between starting salary and cost of attendance is an important factor when it comes to choosing a prospective institution. As it is shown here, interestingly, European universities tend to have the highest return on investment due to many subsidies for college tuition followed by North American universities. It should also be taken into consideration that acceptance rates for top ROI schools are among average universities but not the Ivy League. Thus, it can be a great deciding factor for students who are targeting good ROI without the fierce competition to get accepted.

7. Natural Language Description of Query: We chose the variables institution, average score over the years available, and average rank of quality of education over the years available. Then, we grouped by institution to get averages for each institution and ordered the results by the highest average college score.

SQL Code and Results:

```
SELECT institution, avg(score), avg(quality_of_education)
FROM `582_clean_schema`.cwurData
GROUP BY institution
ORDER BY avg(score) desc
limit 10;
```

#	institution	avg(score)	avg(quality_of_education)
1	Harvard University	100	2.5000
2	Stanford University	95.29749999999999	12.0000
3	Massachusetts Institute of Te...	94.8375	4.2500
4	University of Cambridge	92.715	4.2500
5	University of Oxford	92.21249999999999	8.5000
6	Columbia University	90.155	15.5000
7	University of California, Berkel...	87.17750000000001	7.7500
8	Princeton University	85.66250000000001	5.2500
9	University of Chicago	83.9275	11.2500
10	California Institute of Technol...	83.17500000000001	4.7500

Description of Business Problem Addressed: The task was to look at the impact of quality of education on the final college score to see if there was any apparent relationship. This could help in determining which scoring component is the most critical to the final score. From the table, looking solely at the top 10 in average total score over each year available, we can see that there doesn't seem to be a strong relationship between quality of education and average score for schools that are strong overall. The number 2 school Stanford even is ranked 12th on average for quality of education and Columbia at number 6 is ranked 12th on average. Thus, we suggest the client look at other factors to see if there is a stronger relationship elsewhere.

8. Natural Language Description of Query: We selected the country, the institution type (public, private, total), and the expenditure in 2011. Then, we grouped by country and type to get the education expenditure value for each country and school type combination. After that, we ordered it by expenditure amount to see which countries spend the most money on education.

SQL Code and Results:

```
SELECT country, direct_expenditure_type, `2011`  
FROM education_expenditure_supplementary_data  
WHERE `2011` < 2011 AND `2011` IS NOT NULL #this was added because the first row was  
column titles  
GROUP BY country, direct_expenditure_type  
ORDER BY `2011` desc ;
```

#	country	direct_expenditure_type	2011
1	United States	Total	2.7
2	Korea, Repub...	Total	2.6
3	Chile	Total	2.4
4	Finland	Public	1.9
5	Korea, Repub...	Private	1.9
6	Denmark	Total	1.9
7	Finland	Total	1.9
8	Denmark	Public	1.8
9	United States	Private	1.8
10	Netherlands	Total	1.8

Description of Business Problem Addressed: The task was to examine education expenditure by type of institution and country to see if there are any noticeable trends. While the US does come in first as expected in total education expenditure, it is interesting to note countries like Korea, Finland, and Denmark have high expenditures given the size of their country. With this information, our client could decide to focus some exploration into schools in those countries, assuming that higher spending on education leads to better education outcomes. Starting with these countries could help our client expand its college reviews to schools outside the US. The analysis would be further benefitted by including population size as a variable to get expenditure per capita.

9. Natural Language Description of Query: We first joined the rankings table and the school and country table together to get a country for each of the schools. Then we found the average score by country and ordered them from highest to lowest scores.

SQL Code and Results:

```
SELECT s1.country, avg(c1.score)
FROM school_and_country_table as s1
JOIN cwurData as c1
ON s1.school_name = c1.institution
GROUP BY country
ORDER BY avg(c1.score) desc
LIMIT 10;
```

#	country	avg(c1.score)
1	United States	54.975172
2	Singapore	50.16
3	United Kingdom	50.159917
4	Japan	49.987721
5	Canada	48.461224
6	Netherlands	48.075925
7	Switzerland	48.01125
8	Denmark	47.774166
9	Sweden	47.658181
10	Belgium	47.460000

Description of Business Problem Addressed: The task was to understand the average score for universities in each country to see which countries had the best schools on average. From the results, we can see that the United States leads, but we see Singapore as a country with stronger academics. Since Singapore is less common for US high school students to study at, whether for a degree or just for a study abroad, it might make sense for our client to promote Singapore as an up-and-coming education center.

10. Natural Language Description of Query: We had to join three tables together: one table with the schools and scores, one table with the school name and countries, and one table with the

countries and the expenditures. After those three tables were joined, we selected for the country, average score, and 2011 expenditure where expenditure type is the total spent and where we group by the country and order the results by the average scores.

SQL Code and Results:

```
SELECT t1.country, avg(c1.score), t1.2011
FROM education_expenditure_supplementary_data as t1
JOIN school_and_country_table as s1
ON t1.country = s1.country
JOIN cwurData as c1
ON s1.school_name = c1.institution
WHERE t1.`2011` < 2011 AND t1.direct_expenditure_type = 'Total'
GROUP BY country
ORDER BY avg(c1.score) desc
LIMIT 10
```

#	country	avg(c1.score)	2011
1	United States	54.97517241379309	2.7
2	United Kingd...	50.159917355371896	1.2
3	Japan	49.987721518987335	1.6
4	Canada	48.461224489795896	
5	Netherlands	48.075925925925915	1.8
6	Switzerland	48.01125	
7	Denmark	47.774166666666666	1.9
8	Sweden	47.658181818181816	1.7
9	Belgium	47.460000000000001	1.4
10	Israel	47.193999999999996	1.7
11	Norway	47.190000000000005	1.7
12	France	47.130666666666666	1.5
13	Germany	46.88418181818184	1.3
14	Italy	45.92339285714285	1
15	Australia	45.86081632653061	1.6
16	Mexico	45.785	1.3
17	Finland	45.647777777777777	1.9
18	Austria	45.51571428571429	1.5
19	Spain	45.43869565217392	1.3
20	Portugal	45.376000000000005	1.4
21	New Zealand	45.112500000000004	1.5
22	Iceland	44.98	1.2
23	Greece	44.955833333333334	
24	Chile	44.896666666666667	2.4
25	Czech Republic	44.845000000000006	1.4
26	Poland	44.81875	1.3

Description of Business Problem Addressed: The task was to understand if there was a relationship between total education expenditure for a country in 2011 and the average scores of schools in that country. In this case, we do find that there might be a small correlation between expenditure and score, but it seems like the average is around 1.3 to 1.9. What is interesting to note is that Chile spends the second most money on education but is ranked 24 out of 26. Thus, it is important for our client to not always assume that expenditure is equal to outcome.

11. Natural Language Description of Query: In order for Masters or PhD students to choose universities with good research resources, we list universities with number of publications and patents gained per year and see how it relates to quality of education and quality of faculty in the same year.

SQL Code and Results:

```
SELECT institution, year, world_rank, AVG(quality_of_education), AVG(quality_of_faculty),
SUM(publications), SUM(patents)
FROM cwurData
GROUP BY institution, year
ORDER BY SUM(publications) DESC;
```

institution	year	world_rank	country	AVG(quality_of_education)	AVG(quality_of_faculty)	SUM(publications)	SUM(patents)
National University of Ireland, Maynooth	2014	820	Ireland	215.0000	210.0000	1000	552
University of Wales, Trinity Saint David	2015	830	United Kingdom	367.0000	218.0000	1000	871
University of Puerto Rico at Mayagüez	2014	977	Puerto Rico	355.0000	210.0000	999	737
Ibaraki University	2015	970	Japan	367.0000	218.0000	999	562
University of Évry Val d'Essonne	2014	739	France	355.0000	210.0000	998	737
University of Puerto Rico at Mayagüez	2015	962	Puerto Rico	367.0000	218.0000	998	871
University of Seoul	2014	970	South Korea	355.0000	210.0000	997	552
Alexandria University	2015	997	Egypt	236.0000	218.0000	997	871
University of Évry Val d'Essonne	2015	750	France	367.0000	218.0000	996	871
École Centrale Paris	2014	523	France	355.0000	210.0000	995	637
Ibaraki University	2014	949	Japan	355.0000	210.0000	995	737
École Centrale Paris	2015	548	France	367.0000	218.0000	995	839
University of Chemistry and Technology...	2014	963	Czech Republic	355.0000	210.0000	994	737
United Arab Emirates University	2015	950	United Arab E...	367.0000	218.0000	994	689
Albany Medical College	2014	623	United States	142.0000	210.0000	993	737
Saitama Medical University	2015	798	Japan	367.0000	218.0000	993	488
Queens College, City University of New ...	2014	835	United States	303.0000	210.0000	992	637
National University of Ireland, Maynooth	2015	853	Ireland	244.0000	218.0000	992	561
University of Dayton	2014	538	United States	335.0000	210.0000	991	552
University of Chemistry and Technology...	2015	980	Czech Republic	367.0000	218.0000	991	778
University of Maine (Le Mans)	2014	995	France	355.0000	210.0000	990	637

Description of Business Problem Addressed: This table shows that the ranking of the university does not necessarily result in high quality of education and more publications getting published. Instead, the quality of education and quality faculty directly affects the number of publications and patents that schools achieve. This is a good reference for research scholars when it comes to choosing a research university that fits their needs.

Appendix

Sources:

Primary Data sets:

World University Rankings

<https://www.kaggle.com/mylesoneill/world-university-rankings?select=cwurData.csv>

Salaries by College Type

<https://www.kaggle.com/wsj/college-salaries?select=salaries-by-college-type.csv>

Secondary Sources:

<https://www.kornferry.com/about-us/press/Recent-College-Grads-Can-Expect-to-Make-the-Highest-Salaries-in-Germany-and-U.S.>

HDR from the UN for HDI

Cost of living: <https://www.expatistan.com/cost-of-living/country/ranking>