

2025

“Analysing International Education Costs Using MySQL”

HITHA SETHU

Abstract:

This project investigates the costs of international education using structured SQL queries. It covers tuition fees, living expenses, visa, and insurance costs from over 900 programs across 69 countries. The aim is to extract meaningful insights for students and decision-makers by identifying cost-effective study destinations and highlighting high-expense regions.

Source:

A structured dataset with information about tuition, living index, rent, insurance, and visa costs from global universities.

Dataset Info:

- **Rows:** 907
- **Columns:** 12
- **Columns Include:**
 - Country, City, University, Program, Level, Duration_Years
 - Tuition_USD, Living_Cost_Index, Rent_USD, Visa_Fee_USD, Insurance_USD, Exchange_Rate

```

1   Use Files;
2 •  show tables;
3 •  describe international_education;
4
5

```

Field	Type	Null	Key	Default	Extra
Country	text	YES		NULL	
City	text	YES		NULL	
University	text	YES		NULL	
Program	text	YES		NULL	
Level	text	YES		NULL	
Duration_Years	int	YES		NULL	
Tuition_USD	int	YES		NULL	
Living_Cost_Index	double	YES		NULL	
Rent_USD	int	YES		NULL	
Visa_Fee_USD	int	YES		NULL	
Insurance_USD	int	YES		NULL	
Exchange_Rate	double	YES		NULL	

```

1   Use Files;
2 •  show tables;
3 •  describe international_education;
4
5 •  select * from international_education;
6
7

```

Country	City	University	Program	Level	Duration_Years	Tuition_USD	Living_Cost_Index	Rent_I
USA	Cambridge	Harvard University	Computer Science	Master	2	55400	83.5	2200
UK	London	Imperial College London	Data Science	Master	1	41200	75.8	1800
Canada	Toronto	University of Toronto	Business Analytics	Master	2	38500	72.5	1600
Australia	Melbourne	University of Melbourne	Engineering	Master	2	42000	71.2	1400
Germany	Munich	Technical University of Munich	Mechanical Engineering	Master	2	500	70.5	1100
Japan	Tokyo	University of Tokyo	Information Science	Master	2	8900	76.4	1300
Netherlands	Amsterdam	University of Amsterdam	Artificial Intelligence	Master	1	15800	73.2	1500
Singapore	Singapore	National University of Singapore	Finance	Master	2	35000	81.1	1900
France	Paris	Sorbonne University	International Relations	Master	2	4500	74.6	1400
Switzerland	Zurich	ETH Zurich	Physics	Master	2	1460	91.5	2100
Sweden	Stockholm	KTH Royal Institute	Sustainable Technology	Master	2	0	71.8	1200
Denmark	Copenhagen	University of Copenhagen	Bioinformatics	Master	2	0	73.4	1300
China	Beijing	Tsinghua University	Computer Engineering	Master	3	8900	52.3	800
South Korea	Seoul	Seoul National University	Digital Media	Master	2	7200	68.7	900
Ireland	Dublin	Trinity College Dublin	Data Analytics	Master	1	28900	72.9	1600

Basic Exploration Queries

1. Show all columns for the first 5 universities

```
7      -- --1. Show all columns for the first 5 universities
8 •  select * from international_education limit 5;
9
10
11
12
```

Result Grid | Filter Rows: Export: Wrap Cell Content: Fetch rows:

Country	City	University	Program	Level	Duration_Years	Tuition_USD	Living_Cost_Index	Rent_USD	Visa_Fee_USD	Insurance_USD	Exchange_Rate
USA	Cambridge	Harvard University	Computer Science	Master	2	55400	83.5	2200	160	1500	1
UK	London	Imperial College London	Data Science	Master	1	41200	75.8	1800	485	800	0.79
Canada	Toronto	University of Toronto	Business Analytics	Master	2	38500	72.5	1600	235	900	1.35
Australia	Melbourne	University of Melbourne	Engineering	Master	2	42000	71.2	1400	450	650	1.52
Germany	Munich	Technical University of Munich	Mechanical Engineering	Master	2	500	70.5	1100	75	550	0.92

2. Count Unique Programs

```
10
11      -- --2. Count Unique Program across all countries
12 •  select count(distinct program) from international_education;
```

Result Grid | Filter Rows: Export: Wrap Cell Content: Fetch rows:

count(distinct program)
92

3. Count the total number of rows (universities)

```
10      -- --3. Count the total number of rows
11 •  select count(University)  from international_education;
12
13
14
```

Result Grid | Filter Rows: Export: Wrap Cell Content: Fetch rows:

count(University)
907

Key Analysis Queries

1. Top 5 Most Expensive Universities (Total Cost)

```
20      -- -5. Top 5 most expensive universities (Total Cost)
21 •   select distinct University,Country,(Tuition_USD+Living_Cost_Index*100 +Insurance_USD+Rent_USD+Visa_Fee_USD) as Total_cost
22     from international_education
23     order by Total_cost desc
24     limit 5;
```

University	Country	Total_cost
Columbia University	USA	76160
Stanford University	USA	70580
Harvard University	USA	70070
MIT	USA	69970
University of Chicago	USA	69970

2. Top 5 most affordable universities

```
-- 
33      -- - Most affordable Universities
34 •   select distinct University,Country,(Tuition_USD+Living_Cost_Index*100 +Insurance_USD+Rent_USD+Visa_Fee_USD) as Total_cost
35     from international_education
36     order by Total_cost asc
37     limit 5;
38
```

University	Country	Total_cost
National University of Cuyo	Argentina	4280
National University of La Plata	Argentina	4360
National University of Rosario	Argentina	4480
University of Carthage	Tunisia	4590
National University of Cordoba	Argentina	4630

3. Programs with duration over 2 years

```
38
39      -- -7. Programs with duration over 2 years
40 •   Select distinct Program from international_education where Duration_years>2;
41
```

Program
Computer Engineering
Business
Marine Biology
Social Sciences
Biomedical Sciences
Aerospace Engineering
Industrial Engineering
Chemical Engineering
Mathematics
Political Science
Finance
Architecture
Computer Science
Electronics Engineering
Medicine
Electrical Engineering

4. Get the number of programs per country

```
17    -- -4. Get the number of programs per country  
18 •  select Country, count(*) as Program_count from international_education group by Country;
```

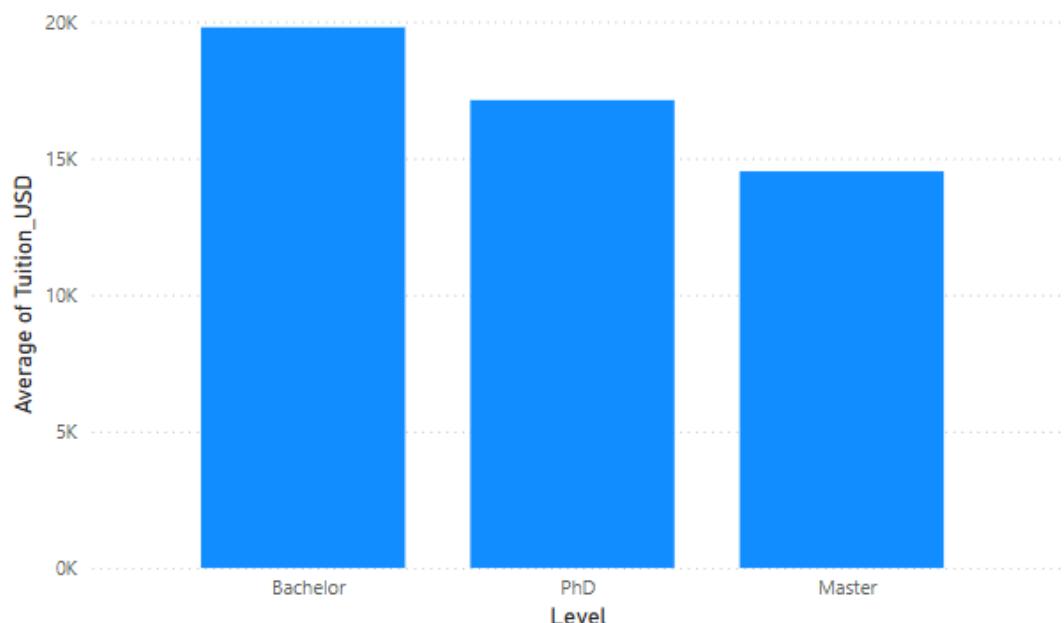
Country	Program_count
USA	78
UK	93
Canada	76
Australia	86
Germany	33
Japan	12
Netherlands	21
Singapore	18
France	27
Switzerland	20
Sweden	10
Denmark	15
China	12
South Korea	23
Ireland	10
New Zealand	9

5. Average tuition by level (e.g., Master, Bachelor)

```
42  
43    -- -8. Average tuition by level (e.g., Master, Bachelor)  
44 •  Select level, Avg(Tuition_USD) as Avg_Tuition_Cost  
45    from international_education  
46    group by level;
```

level	Avg_Tuition_Cost
Master	14521.9956
Bachelor	19792.6936
PhD	17129.5597

Average of Tuition_USD by Level



6. Countries with Free Tuition Options

```
48 -- --9 Countries with Free Tuition Options
49 • select Country,count(*) as free_programs
50   from international_education
51   where Tuition_USD = 0
52   group by Country
53   order by free_programs DESC;
```

Result Grid | Filter Rows: Export: Wrap Cell Content:

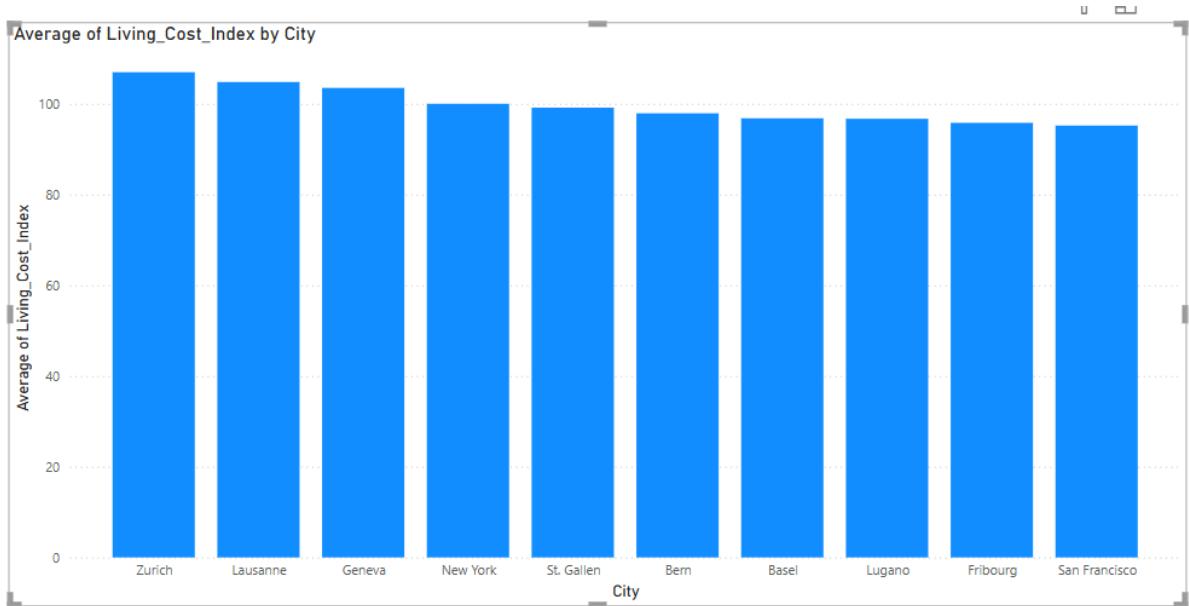
Country	free_programs
Germany	21
Greece	16
Denmark	12
Finland	11
Norway	11
Sweden	10
Brazil	7
Argentina	6
Iceland	6
Uruguay	3

7. Cities with Highest Living Costs

```
55 -- --10. Cities with Highest Living Costs
56 • select City,Country,avg(Living_Cost_Index) as Avg_Living_Cost
57   from international_education
58   group by City,Country
59   order by Avg_Living_cost desc
60   limit 10;
```

Result Grid | Filter Rows: Export: Wrap Cell Content: Fetch rows:

City	Country	Avg_Living_Cost
Zurich	Switzerland	106.95
Lausanne	Switzerland	104.8
Geneva	Switzerland	103.5
New York	USA	100
St. Gallen	Switzerland	99.15
Bern	Switzerland	97.9
Basel	Switzerland	96.8
Lugano	Switzerland	96.7
Fribourg	Switzerland	95.8
San Francisco	USA	95.2



8. Average Annual Cost per Program

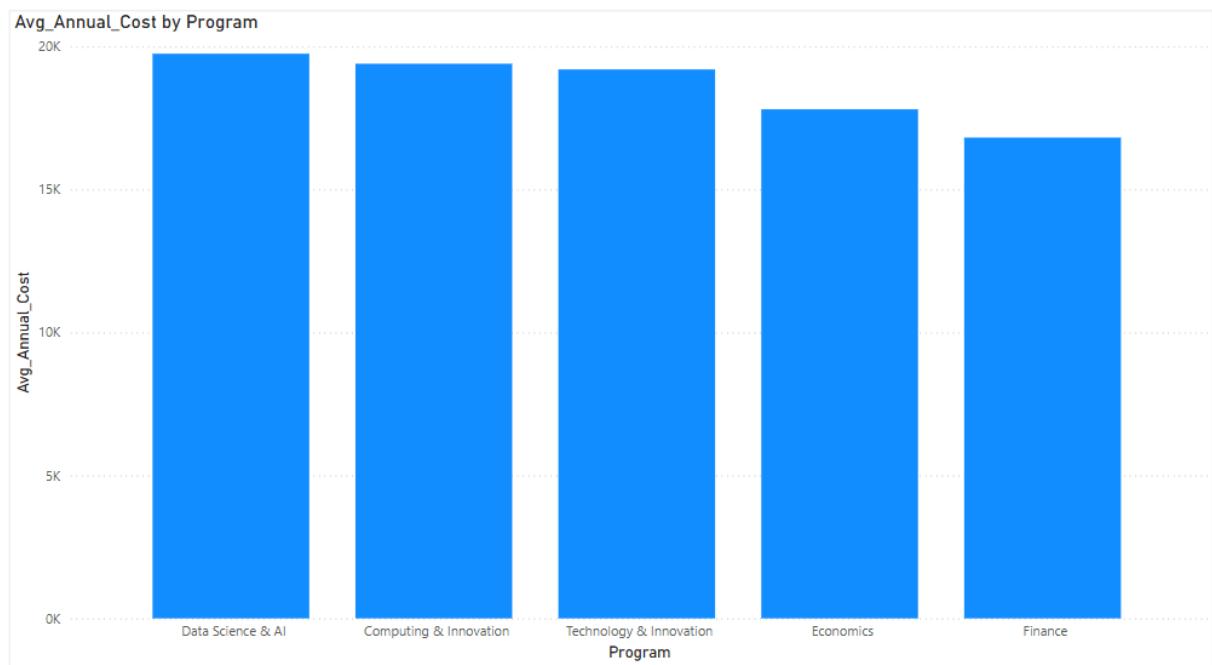
```

62
63      -- --11. Average Annual Cost per Program
64 •  Select program, avg((Tuition_USD + Rent_USD + Visa_Fee_USD + Insurance_USD) / Duration_Years) AS Avg_Annual_Cost
65   from international_education
66   group by Program
67   order by Avg_Annual_Cost desc;

```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

program	Avg_Annual_Cost
Data Science & AI	18645.00000000
Computing & Innovation	18295.00000000
Technology & Innovation	18095.00000000
Economics	16347.22223333
Business Analytics	12526.10000000
Finance	12475.00000000
Chemistry	12410.15000000
Engineering	11594.11111111
Chemical Engineering	11040.00000000
Mathematics	10465.87500000
Machine Learning	10272.00000000
Digital Systems & AI	10072.50000000
Computer Science	9879.72382532
Computing Systems	9845.00000000
Data Science	9699.21544756
Computing Science	9490.91666667
Biotechnology	9210.62500000



9.Distribution of universities by study level

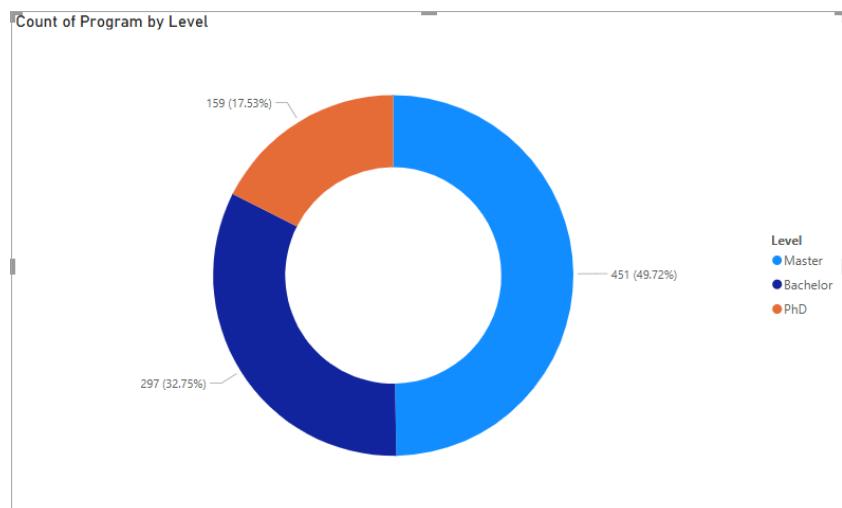
```

68
69      -- -12. Distribution of universities by study level
70 •  Select Level,count(University) as Uni_Count
71   from international_education
72   group by Level;
73

```

Result Grid | Filter Rows: _____ | Export: _____ | Wrap Cell Content: _____

Level	Uni_Count
Master	451
Bachelor	297
PhD	159



10. Rent vs. Living Cost Index by City

```
73
74      -- -13.Rent vs. Living Cost Index by City
75 •  Select Country,City,avg(Rent_USD) as Avg_Rent,avg(Living_Cost_Index*100) as Avg_Living_Cost
76      from international_education
77      group by Country,city;
78
```

Result Grid				
	Country	City	Avg_Rent	Avg_Living_Cost
▶	USA	Cambridge	2250.0000	8350
	UK	London	1937.5000	7843.75
	Canada	Toronto	1725.0000	7332.5
	Australia	Melbourne	1654.5455	7261.818181818182
	Germany	Munich	1200.0000	7116.666666666667
	Japan	Tokyo	1200.0000	7640.000000000001
	Netherlands	Amsterdam	1300.0000	7596.666666666667
	Singapore	Singapore	1394.4444	8202.222222222223
	France	Paris	1625.0000	7945
	Switzerland	Zurich	2050.0000	10695
	Sweden	Stockholm	1150.0000	7510
	Denmark	Copenhagen	1433.3333	7956.666666666667
	China	Beijing	783.3333	5156.666666666667
	South Korea	Seoul	893.3333	8236.666666666666
	Ireland	Dublin	1650.0000	7825
	South Korea	Busan	626.6667	6960
	New Zealand	Auckland	1183.3333	7626.666666666667

11. Visa and Insurance fees by country

```
78
79      -- -14. Visa and Insurance fees by country
80 •  Select Country,avg(Visa_Fee_USD) as Avg_Visa_Fee,avg(Insurance_USD) as Avg_Insurance
81      from international_education
```

Result Grid			
	Country	Avg_Visa_Fee	Avg_Insurance
▶	USA	160.0000	1500.0000
	UK	487.6882	800.0000
	Canada	235.0000	682.8947
	Australia	450.0000	650.0000
	Germany	96.2121	762.1212
	Japan	220.0000	750.0000
	Netherlands	176.5714	720.0000
	Singapore	90.0000	800.0000
	France	99.0000	768.5185
	Switzerland	108.8000	1200.0000
	Sweden	118.0000	680.0000
	Denmark	338.0000	713.3333
	China	140.0000	400.0000
	South Korea	95.2174	760.8696
	Ireland	150.0000	730.0000
	New Zealand	320.5556	600.0000
	Austria	160.0000	811.1111

12. Total Cost Comparison: USA vs UK vs Canada vs Australia

```
83      -- -15. Total Cost Comparison: USA UK Australia
84 •   select Country,avg(Tuition_USD+(Living_Cost_Index*100)+Rent_USD+Visa_Fee_USD+Insurance_USD) as Total_cost
85     from international_education
86     where Country in ('USA','UK','Australia')
87     group by Country;
88
```

The screenshot shows a database query results grid. At the top, there are buttons for 'Result Grid' (highlighted), 'Filter Rows', 'Export', and 'Wrap Cell Content'. The results grid has two columns: 'Country' and 'Total_cost'. The data rows are:

Country	Total_cost
USA	59040.89743589744
UK	39905.10752688172
Australia	43896.62790697674

This project provided a comprehensive analysis of international education costs using SQL. By exploring over 900 entries from 69 countries, we were able to draw meaningful insights that can help students make informed decisions when selecting universities abroad.

Key Observations:

1. Total Cost Matters More Than Just Tuition

Many students focus solely on tuition, but our analysis clearly shows that **rent, visa fees, and insurance** contribute significantly to the **actual financial burden**. For instance, even universities with moderate tuition in cities like London or New York can become unaffordable due to high rent and living costs.

2. High Quality Doesn't Always Mean High Cost

Countries like **Germany, Norway**, and the **Czech Republic** offer world class education at extremely low or even zero tuition fees. This demonstrates that affordable education doesn't necessarily mean compromising on quality.

3. The United States is the Most Expensive Overall

With average total costs exceeding \$50,000 per year, the USA stands out as the most expensive country to study in, especially at top universities like Stanford, Harvard, and MIT.

4. Canada and Australia Are Relatively More Balanced

These countries maintain a good balance between tuition and living costs, offering quality education with manageable expenses making them attractive for international students.

5. Wide Variation in Program Durations and Costs

Programs like **Medicine** and **Architecture** tend to have longer durations (often over 2 years), increasing the total cost even if annual fees are moderate. In contrast, shorter programs like many **Masters in Europe** offer quicker and more cost-effective paths.

6. City-Level Analysis Highlights Affordability Hotspots

Cities like **Munich, Porto**, and **Warsaw** provide affordable education options in vibrant European settings, while cities such as **Zurich, Geneva**, and **Oslo** are significantly more expensive due to high living costs.

Final Recommendations:

- **For students on a budget:** Focus on countries with low or no tuition (e.g., Germany, Czech Republic) and cities with reasonable rent.
- **For long-term value:** Look beyond tuition — calculate total cost per year and evaluate scholarships, cost of living, and employment opportunities.
- **For universities/governments:** Transparency in cost structures can help attract more international students and improve global accessibility to education.

Summary:

This SQL-based analysis has not only demonstrated the power of structured queries in deriving insights from large datasets but also emphasized the importance of **data-driven decision-making in international education planning**. Future enhancements can include integrating exchange rate fluctuations, scholarship data, and employability metrics for a more holistic analysis.

Tools Used:

- MySQL
- PowerBI
- Word

Skills Demonstrated:

- SQL querying
- Data aggregation and grouping
- Real-world cost analysis
- Data visualization
- Analytical storytelling