World University Rankings

With thousands of universities worldwide, choosing the right one can be overwhelming. Students often rely on global rankings to guide their decisions—but rankings alone don't tell the full story. Factors like research strength, teaching quality, international diversity, and industry partnerships all play a role in shaping an institution's true value.
This dataset, compiled by *Times Higher Education*, offers a detailed look into these metrics—making it a powerful tool for exploring what really defines the world's top universities.

by Moaz Gehad

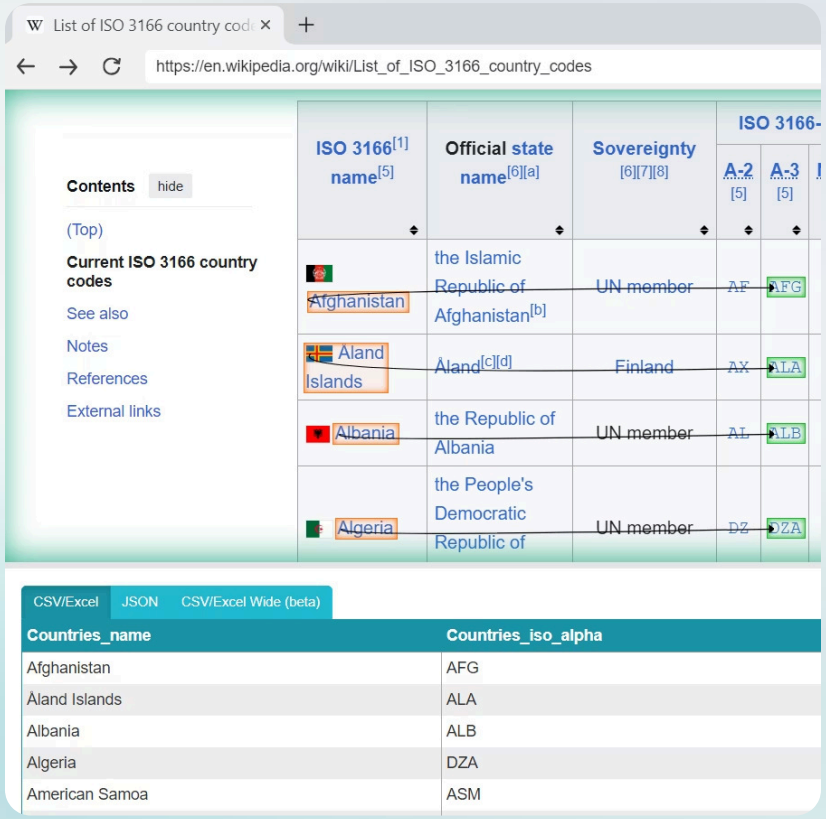
Project Objective & Goals

🎯 Objective:

Analyze global university rankings to identify trends in education quality, research output, International Diversity and economic impact, with insights on how countries compare and improve over time.

📌 Goals:

- Identify key factors affecting university rankings
- Compare countries' education systems
- Find missing data patterns and clean them logically
- Finding suitable university for each student



CSV/Excel | JSON | CSV/Excel Wide (beta)

Countries_name	Countries_iso_alpha
Afghanistan	AFG
Aland Islands	ALA
Albania	ALB
Algeria	DZA
American Samoa	ASM

Data Collection: Web Scraping & Python

World University Rankings (THE) from Kaggle

- 14522 Record
- 2336 Universities
- 115 Countries
- 2016 - 2025 Year Range

Scraping Country Iso alpha for Visualization

Used Parse Hub for scraping Wikipedia

Data Cleaning and Preprocessing

1 Data Validation

Ensured data consistency and accuracy through validation.

2 Handling Missing Values

Imputed missing data using appropriate techniques.

3 Data Transformation

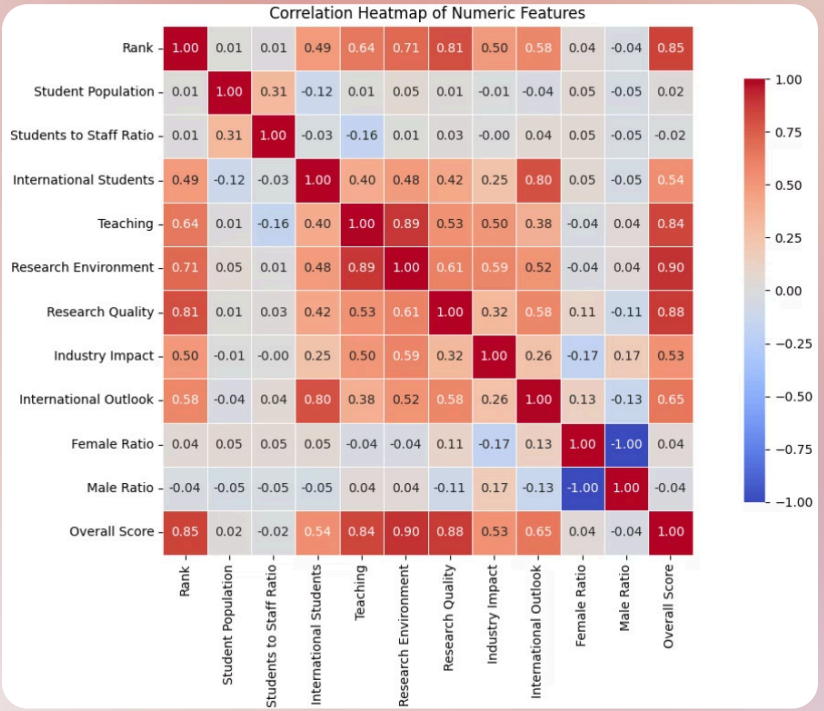
Transformed data into a suitable format for analysis.

4 Detecting Outliers

Storing extreme outliers for analysis

5 Data Scaling

Scaling data for normalization



Exploratory Data Analysis and Visualization

Universities by Country

Analyzed the distribution of top-ranked universities across different countries.

Correlation of Metrics

Identified relationships between ranking factors using correlation analysis.

Trend Analysis

Examined how university rankings have changed over time.

International Diversity

Detected Universities which most attract foreigners.

Dataset Info	
Field	**Value**
Dataset Name	World University Rankings
Source	Times Higher Education, Wikipedia
Year Range	2016–2025
Total Records	14522
Created By	Moaz Gehad
Tools Used	Python, Excel, MSSQL, Power BI

Column Descriptions		
Column Name	**Type**	**Description**
Rank	Integer	Global university rank
Name	Text	University name
Country	Text	Country where the university is located
Student Population	Float	Total number of enrolled students
Students to Staff Ratio	Float	Number of students per staff
International Students	Float	% of international students
Overall Score	Float	Score out of 100 based on multiple academic criteria
Teaching	Float	Score measuring the university's quality of teaching
Research Environment	Float	Score measuring the ability to provide a conducive environment for research
Research Quality	Float	Score measuring the ability to spread new knowledge and ideas
Industry Impact	Float	Score measuring the ability to help industry with innovations, inventions
International Outlook	Float	Score measuring the ability to attract undergraduates and postgraduates
Year	Integer	Year of ranking
Female Ratio	Float	% of female students
Male Ratio	Float	% of male students
iso_alpha	Text	ISO 3166 Alpha-3 country code (e.g., 'USA', 'GBR')

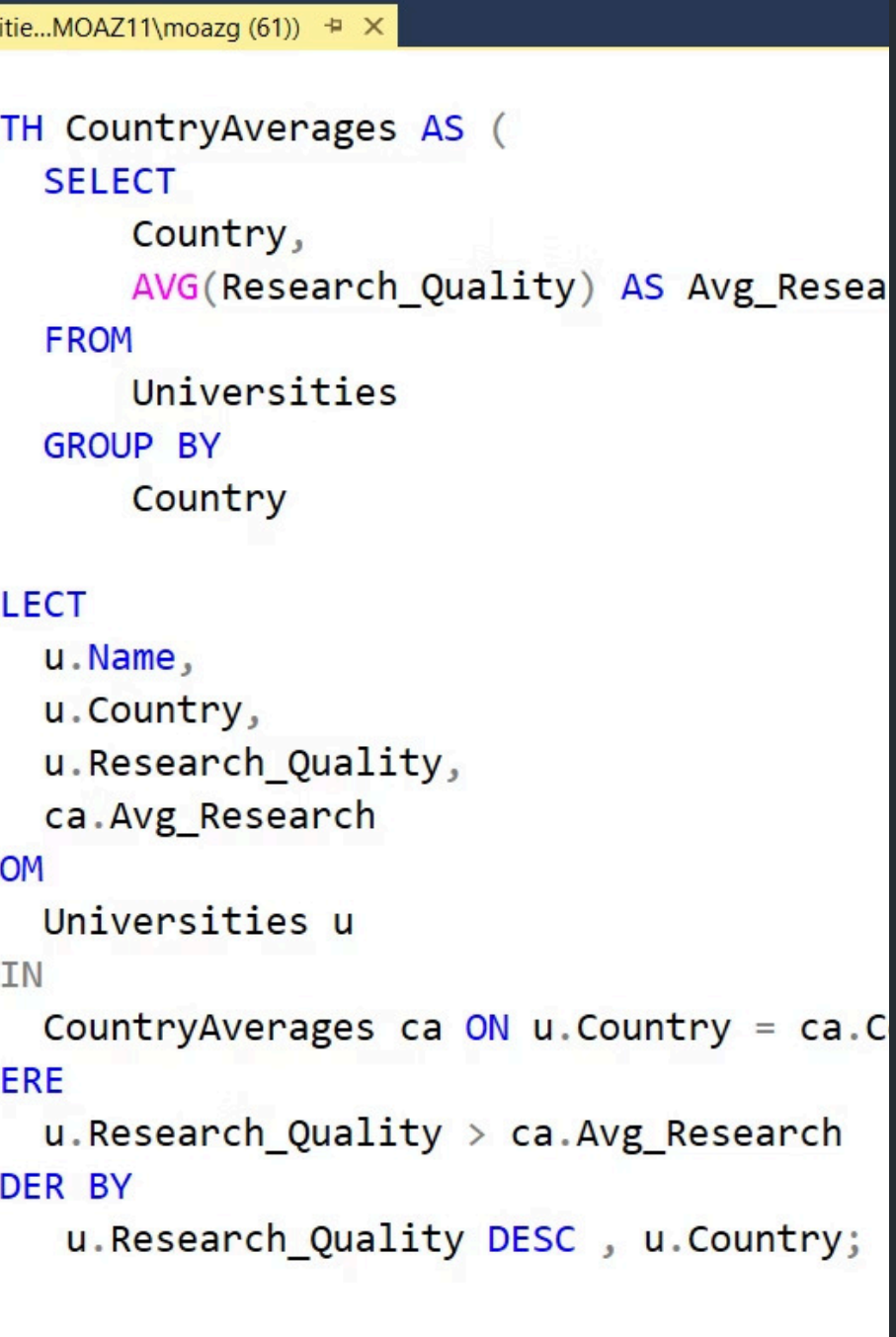
Leveraging Excel for Pivot Tables and Metadata

Pivot Tables

Created pivot tables to summarize and group data.

Metadata Sheet

Created a metadata sheet to document data sources and definitions.



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TH CountryAverages AS (
  SELECT
      Country,
      AVG(Research_Quality) AS Avg_Resea
  FROM
      Universities
  GROUP BY
      Country

LECT
  u.Name,
  u.Country,
  u.Research_Quality,
  ca.Avg_Research
OM
  Universities u
IN
  CountryAverages ca ON u.Country = ca.C
ERE
  u.Research_Quality > ca.Avg_Research
DER BY
   u.Research_Quality DESC , u.Country;
```

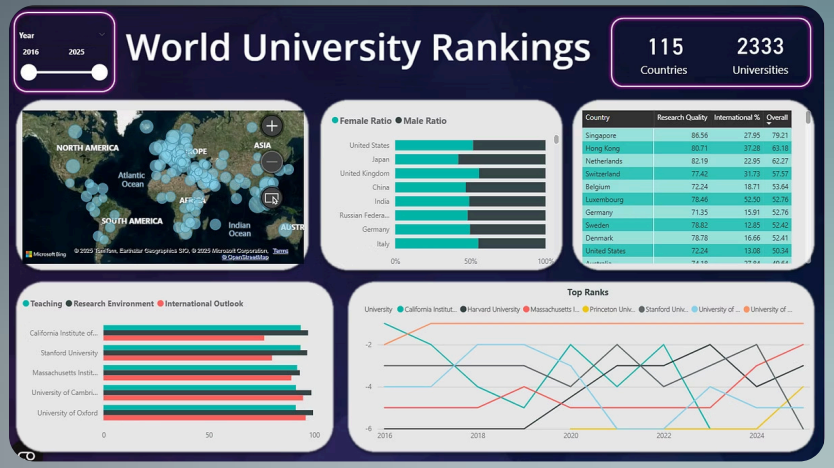
Utilizing SQL for Advanced Queries

1. **Data Storage**

   Stored the data in a relational database.

2. **SQL Queries**

   Used SQL to perform complex queries and generate insights.



Integrating Power BI for Reporting and Dashboarding

1

Visualizations

Created interactive visualizations in Power BI.

2

Data Storytelling

Presented findings in a clear and engaging manner.

Key Data Insights: Summarizing the Journey

2336

Universities

Analyzed data from over 1000 universities.

5

Top Universities

Identified top universities in each factor and overall score