**Project Report: University Rankings Analysis**

**1. Introduction**

**Objective**

This project aims to analyze university rankings based on various criteria, such as student-staff ratio, international student percentage, and ranking scores. The analysis explores trends, correlations, and relationships between different ranking systems and university attributes.

**Scope**

The dataset includes multiple tables:

* **Country**: Contains country names.
* **Ranking Criteria**: Lists the criteria used for university rankings.
* **Ranking System**: Provides details of different ranking systems.
* **University**: Contains university details along with their country ID.
* **University Ranking Year**: Stores ranking scores over different years.
* **University Year**: Includes student-related data like student-staff ratio and international student percentage.

**2. Data Analysis**

**2.1 Common Criteria Across Ranking Systems**

To determine common ranking criteria, we analyzed the criteria used in multiple ranking systems. A **bar chart** was created, where:

* The X-axis represents different ranking criteria.
* The Y-axis represents the number of ranking systems using each criterion.
* Higher bars indicate widely used ranking criteria.

**2.2 University Ranking Trends Over Time**

* Universities' ranking scores were analyzed over different years to identify trends.
* A **line chart** was plotted with:
  + X-axis: Year
  + Y-axis: Average ranking score
* Findings suggest fluctuations in rankings due to changes in ranking methodologies and institutional performance.

**2.3 Correlation Between Ranking Score and Student Attributes**

To understand how university ranking scores relate to other factors:

* **Student-Staff Ratio vs. Ranking Score**
  + A correlation analysis was performed using SQL queries.
  + Findings: No significant correlation, indicating that ranking scores depend on more than just student-staff ratios.
* **International Students vs. Ranking Score**
  + The percentage of international students was analyzed to see its effect on ranking.
  + Results show a positive correlation, suggesting that universities with higher international student enrollment tend to have better rankings.

**2.4 Relationship Between University Numbers and Country Attributes**

* The number of universities per country was counted and compared against factors like GDP and population.
* Due to the unavailability of GDP data, an alternative analysis was conducted using **university count per country**.
* A **bar chart** was used to visualize this data, showing which countries have the highest number of universities.

**3. Key Findings**

1. **Common Ranking Criteria**: Research and Teaching were the most used ranking criteria across multiple systems.
2. **Ranking Score Trends**: Universities have experienced fluctuating scores, influenced by changing ranking methodologies.
3. **International Students' Impact**: A positive correlation was found between a university’s international student percentage and its ranking score.
4. **Student-Staff Ratio vs. Ranking Score**: No clear correlation was observed.
5. **Country-Wise University Count**: The number of universities varied significantly among countries, reflecting differences in higher education investment.

**4. Conclusion and Future Work**

**Conclusion**

This project provided valuable insights into how universities are ranked and what factors influence their rankings. It also highlighted the importance of international student enrollment in rankings.

**Future Work**

1. **Include GDP Data**: Future analysis can incorporate GDP per country to better understand its impact on the number of universities.
2. **Weightage Analysis**: Investigate how ranking criteria weights change across different ranking systems over time.
3. **Expanded Data Collection**: Incorporate more years of data for a deeper historical analysis.

**5. References**

* Data Source: University ranking datasets
* SQL Queries: Used for data extraction and correlation analysis
* Visualization Tools: Python (Matplotlib, Seaborn) and SQL charts

**End of Report**