**Data Study Report: Analysis of College Teaching Faculties Data in Tamil Nadu**

**Objective:**

This study aimed to explore and analyse a dataset provided by the interviewer, containing detailed information about college teaching faculty in Tamil Nadu. Although no specific analysis goals were given, the aim was to uncover meaningful insights and highlight key metrics that could support decision-making and further exploration.

**Scope:**

The dataset consists of **3,560 rows** of faculty information from colleges across Tamil Nadu. The analysis was performed entirely in Power BI, using data transformation, calculated metrics, and visualizations to extract valuable insights. The report includes college rankings, faculty performance scores, and visualized data distributions across various categories.

**Data Sources:**

The interviewer provided the dataset directly, containing faculty information at the college level across Tamil Nadu.

**Data Preparation:**

* **Data Cleaning and Transformation**: Data was transformed for efficient visualization. Two new columns, **Male Count** and **Female Count**, were extracted from the original gender column to simplify gender-based analysis.
* **New Calculations**:
  + **College Value Score**: Calculated as the average of each college’s funds received and student pass percentage.
  + **Faculty Value Score**: Based on a combination of faculty attendance, pass percentage of their students, number of patents, and years of experience.

**Analysis Techniques**

The data was visualized using Power BI with various slicers, calculated measures, and charts to allow for dynamic exploration across several dimensions:

* **Slicers**: Enabled filtering of data by categories like district, gender, and designation.
* **Hierarchies**: Developed to highlight the top-ranking colleges and faculty.

**Tools Used:**

* **Power BI**: Used for data cleaning, calculations, and all visualizations.

**Visualizations:**

Some interactive charts and dashboards were created to represent the data effectively:

* **Designations-wise Chart**: Illustrates the distribution of faculty by their designation.
* **Faculty Community-wise Chart**: Highlights faculty community demographics.
* **District-wise Chart**: Shows faculty distribution by district across Tamil Nadu.
* **Overall Classifications 1 and 2**: Provide broad categorizations of faculty and college data for comparative analysis.
* **Main Page Dashboard**: Highlights the top-ranking colleges and faculty hierarchies based on calculated scores.

**Calculated Metrics and Key Insights:**

* **College Value Score**: This metric ranks colleges based on an average of funds received and student pass percentage, identifying colleges with the strongest support and student outcomes.
* **Faculty Value Score**: A performance indicator for faculty members, factoring in attendance, student pass rates, patents held, and years of experience, resulting in a score that highlights individual faculty impact.

**Hierarchies:**

* **Best Colleges**: Colleges are ranked by funds received and student pass percentages, with a hierarchy of top performers presented on the main dashboard.
* **Best Faculty**: Faculty are ranked according to attendance, student pass percentage, number of patents, and years of experience, highlighting top faculty contributors.

**Analysis of Results:**

* **College Performance**: The **College Value Score** highlights a direct relationship between funding and student success, with higher funding often correlating with higher pass rates.
* **Faculty Performance**: The **Faculty Value Score** helps identify high-performing faculty, indicating that factors such as experience and attendance contribute to better student outcomes.
* **Designation and Community Trends**: Insights into designation and community distributions can guide recruitment and policy decisions for college administrations.

**Implications:**

These findings offer a foundation for understanding resource allocation, faculty engagement, and student success at the college level. This analysis could assist policymakers, college administrators, and education stakeholders in making informed decisions about resource distribution, faculty recruitment, and performance incentives.

**Summary of Findings:**

The Power BI dashboard developed for this study provides an interactive overview of college and faculty performance across Tamil Nadu, with calculated scores that highlight key areas of excellence among colleges and faculty.

**Actionable Recommendations:**

* **For Administrators**: Use the College and Faculty Value Scores to identify and recognize high-performing entities, potentially establishing benchmarks for college funding and faculty performance.
* **For Policymakers**: Consider targeted investments in lower-ranked colleges to improve their resources and student outcomes.
* **For Further Study**: Additional analysis could explore the causal relationship between funding and student pass rates in greater detail.

**Appendices:**

**Additional Charts and Data Tables**: Supplementary visualizations and raw data tables can be found in the appendix section for reference.

**References:**

Dataset provided by ***IN22 labs***. Data preprocessing, analysis, and visualization conducted in Power BI.