**Education Post 12th Data Analysis**

Data

The objective of this analysis is to gain insights into the characteristics of colleges and answer key questions related to the educational landscape. By understanding the data, we aim to inform strategies for improving the quality of education and enhancing the overall college experience. The analysis will provide valuable insights and recommendations for stakeholders in the education sector.

Data Description

* **Names**: Names of various university and colleges
* **Apps**: Number of applications received
* **Accept**: Number of applications accepted
* **Enroll**: Number of new students enrolled
* **Top10perc**: Percentage of new students from top 10% of Higher Secondary class
* **Top25perc**: Percentage of new students from top 25% of Higher Secondary class
* **F**.**Undergrad**: Number of full-time undergraduate students
* **P**.**Undergrad**: Number of part-time undergraduate students
* **Outstate**: Number of students for whom the particular college or university is Out-of-state tuition
* **Room**.**Board**: Cost of Room and board
* **Books**: Estimated book costs for a student
* **Personal**: Estimated personal spending for a student
* **PhD**: Percentage of faculties with Ph.D.’s
* **Terminal**: Percentage of faculties with terminal degree
* **S.F.Ratio**: Student/faculty ratio
* **perc.alumni**: Percentage of alumni who donate
* **Expend**: The Instructional expenditure per student
* **Grad**.**Rate**: Graduation rate

**Basic Steps:**

* + 1. Display the top 5 rows.
    2. Display the last 5 rows
    3. Check the shape of dataset.
    4. Check the datatypes of each feature.
    5. Check the Statistical summary
    6. Check the null values
    7. Check the duplicate values
    8. Check the anomalies or wrong entries.
    9. Check the outliers and their authenticity.
    10. Do the necessary data cleaning steps like dropping duplicates, unnecessary columns, null value imputation, outliers treatment etc.

1. **Application and Enrollment Analysis**
   * What is the average number of applications received by colleges?
   * What percentage of applications are accepted on average across all colleges?
   * What is the average enrollment rate (number of students enrolled divided by number of applications accepted)?
   * Which college has the highest number of applications received?
2. **Academic Excellence**
   * What is the average percentage of new students from the top 10% of their higher secondary class across all colleges?
   * What is the average percentage of new students from the top 25% of their higher secondary class?
   * Is there a correlation between the percentage of students from the top 10% and the top 25% of their higher secondary class?
3. **Student Demographics**
   * What is the average number of full-time undergraduate students per college?
   * What is the average number of part-time undergraduate students per college?
   * Which college has the highest number of out-of-state students?
4. **Cost and Spending**
   * What is the average cost of room and board across all colleges?
   * What is the average estimated book cost for a student?
   * What is the average estimated personal spending for a student?
   * How does the instructional expenditure per student vary across colleges?
5. **Faculty Qualifications**
   * What is the average percentage of faculties with Ph.D.s across all colleges?
   * What is the average percentage of faculties with terminal degrees?
   * Is there a correlation between the percentage of faculties with Ph.D.s and the graduation rate?
6. **Student-Faculty Interaction**
   * What is the average student/faculty ratio across all colleges?
   * Which college has the lowest student/faculty ratio?
   * Is there a correlation between the student/faculty ratio and the graduation rate?
7. **Alumni Engagement**
   * What is the average percentage of alumni who donate across all colleges?
   * Is there a correlation between the percentage of alumni who donate and the graduation rate?
8. **Graduation Rates**
   * What is the average graduation rate across all colleges?
   * Which college has the highest graduation rate?
   * Is there a correlation between the instructional expenditure per student and the graduation rate?
9. **Overall Insights**
   * Which factors (applications, acceptance rate, enrollment, academic excellence, costs, faculty qualifications, student/faculty ratio, alumni donations, expenditures) are most strongly associated with higher graduation rates?
   * What recommendations can be made to colleges to improve their graduation rates based on the data analysis?