Proposal: Understanding Trends in Undergraduate Retention and Acceptance Rates

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Introduction:

The landscape of higher education is constantly evolving, shaped by factors ranging from economic shifts to technological advancements. Central to this dynamic environment are the retention and acceptance rates of undergraduates at postsecondary institutions. These metrics serve as vital indicators of institutional effectiveness, student engagement, and the broader educational landscape's health.

My project seeks to delve deeply into the retention and acceptance rates of undergraduates across postsecondary institutions during the academic years spanning from 2007 to 2022. Leveraging publicly available data from the IPEDS Data Explorer on the National Center for Education Statistics (NCES) website, a comprehensive repository of information gathered annually by the U.S. Department of Education, I aim to unravel potential shifts, trends, and patterns within these metrics.

Research Questions:

1. Has there been a discernible shift in the retention rates of undergraduates at post-secondary institutions during the years 2006-2022?

2. Has there been a noticeable change in the acceptance rates of undergraduates at post-secondary institutions during the years 2006-2022?

Exploratory Data Analysis (EDA)

Of all institutions, the retention rate of first-time full-time students has increased from 71.0% (2007) to 75.5%(2022). The highest proportion of retention occurred in 2019 with 76.2% The trend appears similarity in the part-time student population with 41.3% (2007) and 43.4% (2022). But the highest retention occurred in 2017 with a high of 45.5%. This makes me wonder why was there a peak for part-time students in 2017, but a peak for full-time students two years later.

The acceptance data on the NCES site is broken down into proportions but not tracked across the years. In order to match this data to the retention data I will need to merge the data sets from each of the years (2006-2022). The data would still be in proportions for each type of college. I am starting to think that the proportions will not be valuableto my research, but I am not ready to set this data aside. I will think about alternative ways to visualize this data to make it relevant to the retention data.

Early Ideas for Data Visualizations:

My approach to visualizing the retention and acceptance rates encompasses the use of both line graphs and pie charts, each serving a distinct purpose in conveying the data effectively.

* + Line Graphs:
    - The cornerstone of my visual representation will be the utilization of line graphs, offering a comprehensive view of trends over time.
    - These graphs will delineate the trajectory of retention and acceptance rates across different types of postsecondary institutions (e.g., 4-year public, 4-year private non-profit, 4-year private for-profit, etc.).
    - Tailored for policy makers within the state department of education, these line graphs will present concise yet data-rich insights, enabling informed decision-making and strategic planning.
* Pie Charts:
  + - Complementing the line graphs, pie charts will serve as succinct snapshots of the data, offering a more condensed yet visually engaging representation.
    - Each pie chart will encapsulate the acceptance and retention rates for a single academic year, with segments corresponding to various types of institutions.
    - Designed to cater to university administrators, prospective students, and parents, these pie charts will provide quick insights into the educational landscape, influencing decisions regarding higher education choices.

Target Audience and Influence on Design:

* Line Graphs (Policy Makers):
  + Addressing the needs of policy makers within the state department of education, the line graphs will serve as foundational tools for shaping educational policies and strategies.
  + Emphasizing historical trends and shifts, these visualizations will offer insights into long-term patterns, facilitating evidence-based decision-making.
* Pie Charts (University Administrators, Students, and Parents):
  + Tailored for university administrators, prospective students, and parents, the pie charts will provide accessible and engaging insights into acceptance and retention rates.
  + By presenting the data in a visually appealing and straightforward manner, these visualizations will empower stakeholders outside the policy-making realm to make informed decisions regarding higher education.

Conclusion:

In summary, my project endeavors to unravel the intricacies of undergraduate retention and acceptance rates across postsecondary institutions, employing a multi-faceted approach to data visualization. By combining the analytical depth of line graphs with the accessibility of pie charts, we aim to provide comprehensive insights that not only inform policy makers but also empower university administrators, prospective students, and parents in navigating the dynamic landscape of higher education. Through this collaborative effort, we aspire to foster a culture of data-driven decision-making and enhance transparency within the educational ecosystem.