

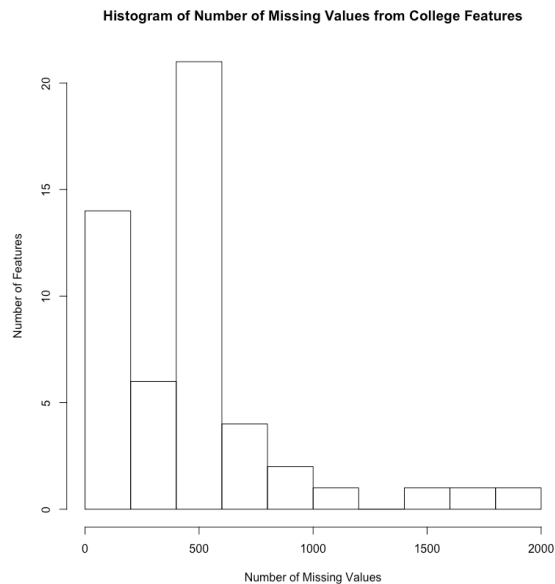
Data Set: College Scorecard 2013 Quinn Cabral

In the 2013 College Scorecard, data on different colleges throughout the United States of America was recorded. Within that data there are 3,312 observations which are the number of college branches and 2,431 colleges. It is important to note that analysis summarized in this report is comparing the college branches which is each different college campus and not just the main campus.

There are 51 college features/variables where data was collected to summarize different characteristics of the 2,431 colleges in the dataset. Of the 51 variables, 24 of them were continuous variables, 15 of them were discrete variables, and 12 of them were categorical. This is important to take note of when visualizing and understanding data comparisons.

Within the data set, there were 23,197 missing values. The average SAT score feature had the most missing values at 1,923 missing values. This may be since not all colleges require applicants to submit their SAT test scores.

From the histogram below, we see that a majority of features have between 0 and 500 missing values. It is important to keep in mind there are quite a few missing values since results could be different if there were no missing values.

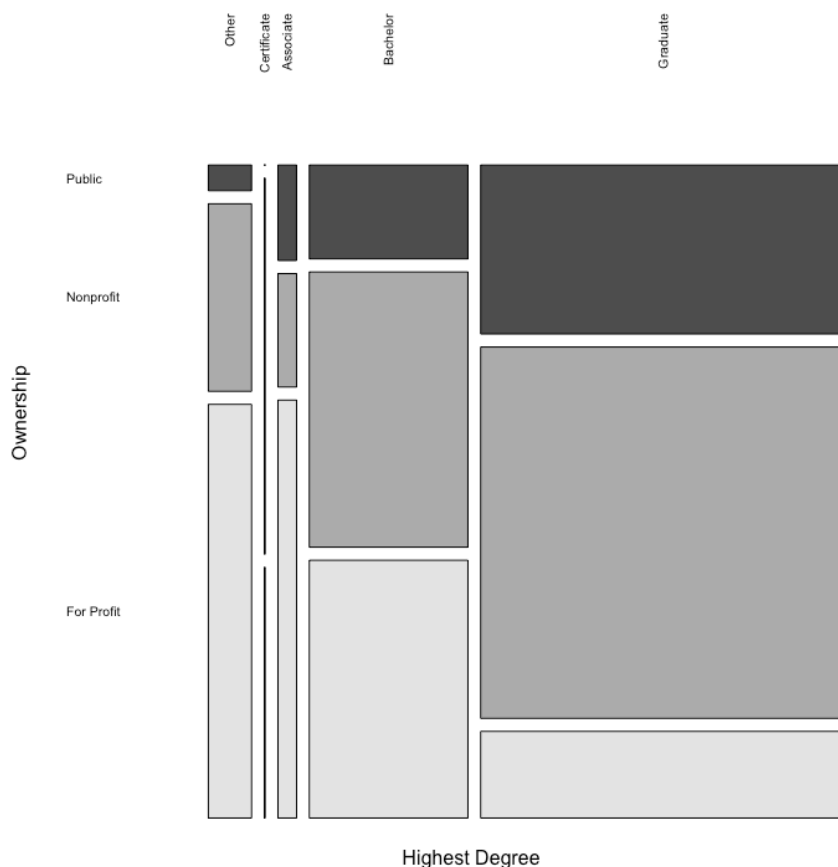


There are 1,880 more private schools than public schools recorded with private schools including both for profit and non-profit. The proportions of college ownership highest degree are displayed in the table and mosaic plot shown on the next page.

Highest Degree	Public	Non-Profit	For Profit
Certificate	0.0000	0.0009	0.0006

Associate	0.0048	0.0057	0.0211
Bachelor	0.0405	0.1187	0.1111
Graduate	0.1279	0.3690	0.0861
Other	0.0030	0.0220	0.0486

Proportions of College Ownerships and Highest Degrees Offered

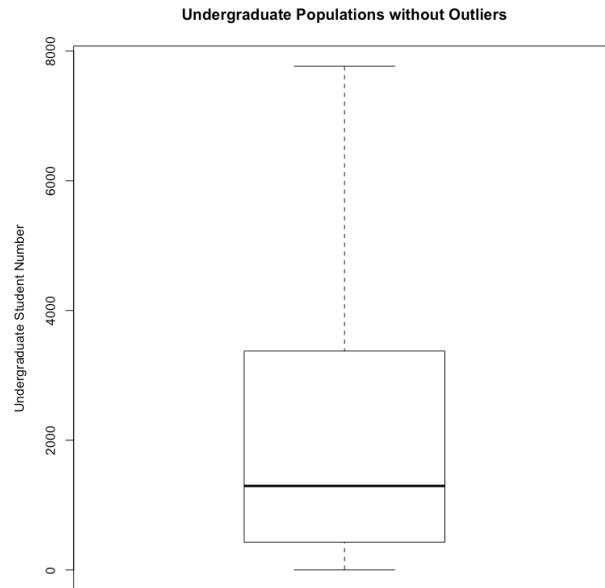


Of the highest degrees earned, graduate degrees have the highest proportion for public schools and non-profit schools and bachelor degrees have the highest proportion for for profit schools. This information is important as it tells prospective students what type of school to look for that will match the degree they hope to earn from there. Based off this information, one may consider non-profit colleges over public or for profit colleges since more non-profit schools offer graduate degrees. Although, these results should not be the only information one looks at when making decisions on which college to attend as it give no extra information on if a college is a better fit for earning a certain degree. Even though more non-profit colleges offer graduate degrees, one will not know if any of those colleges are appropriate for one who wants a bachelor's degree.

The average undergraduate population is about 3,599 undergraduate students and the median of undergraduate populations is 1,295 undergraduates. The deciles of undergraduate populations are as follows:

0	1	2	3	4	5	6	7	8	9	10
0.0	153.0	319.2	536.0	847.6	1,295.0	1,811.8	2,674.5	4,550.8	96,29.8	166,816.0

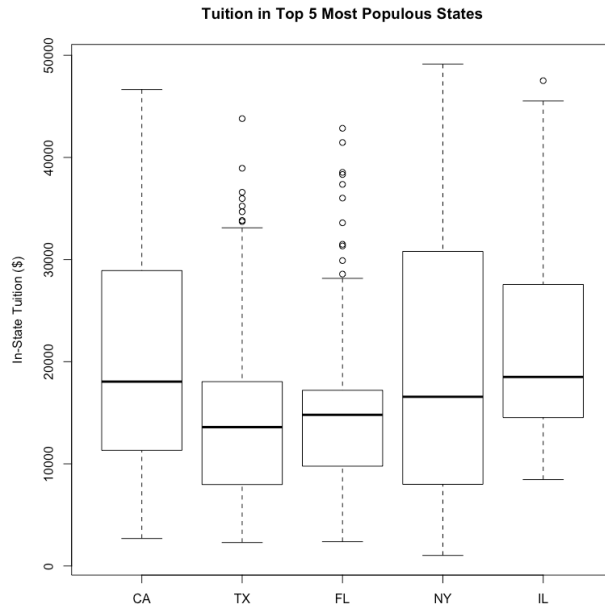
As shown in the boxplot on the next page, the median of undergraduate populations is less than 2,000 students. An important note on this plot is that the outliers of the undergraduate population data was removed due to poor readability when outliers were included. If one were to look deeper into undergraduate populations, the data should be broken down to compare colleges of less than 2,000 undergraduates and colleges of more than 2,000 undergraduates.



Knowing the student population of a school is important as the dynamics and community of a largely populated school can be different compared to one with a smaller population. This characteristic could also play a factor in the percentage of admitted students each year and how much money the school receives each year from students.

According to worldatlas.com California, Texas, Florida, New York, and Illinois are the top 5 most populous states in the nation.

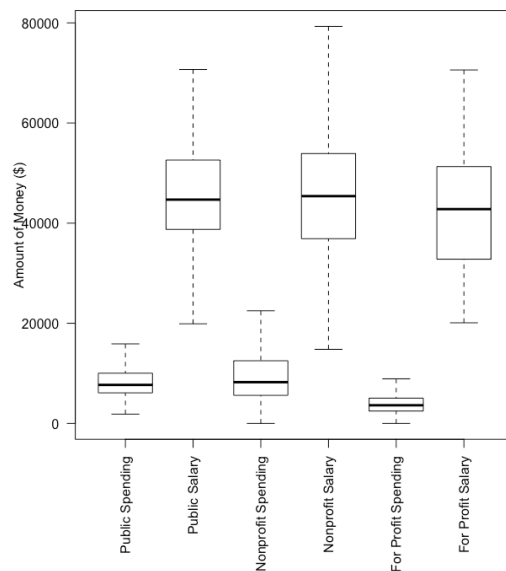
As shown on the next page the top five California, New York, and Illinois have in-state tuitions of over \$20,000 per year while Texas and Florida in-state tuitions are about 25% lower.



The highest tuition of the colleges recorded is \$49,630. While the states may be the most populous, they were not the most expensive colleges in terms of tuition cost. These results indicate that further research should be done in determining which states might be the most or least expensive. One might also consider cities instead of just states.

The boxplot shown below displays the comparison of spending per student by the school and average 10-year salary a student has after graduation between public, nonprofit, and for profit schools. An important note on this plot is that the outliers were removed for easier readability. If one were to compare spending per student and average 10-year salary, it would be recommended to make another plot with just the specific colleges that are of interest.

College Student Spending vs Average 10 Year Salary w/out Outliers



What is shown is that the relationship between student spending and student average 10-year salary is similar throughout the three types of college ownerships. For all three types of ownerships students' average 10-year salaries are greater than the amount of money spent on each student by a college. Both spending per student and student average 10-year salary is not significantly different depending on ownership. This information could be meaningful to schools who are looking for alumni donations or funding. Colleges can keep track of how much they spend per student versus how much the student earns later in life to figure out how large of a donation should be suggested to alumni.

To determine which colleges have the best earnings for the cost the following equation was used on each college:

$$\text{average 10 year salary} - (\text{net cost to attend a college} + \text{median debt of students after graduation})$$

The greater the resulted number is, the better the earnings for the cost.

This definition does not consider the confounds of if students had zero financial aid or debt, how long it took students to pay off debt, or what the starting salaries of graduated students were.

The results of the top five colleges with the best earnings for the cost were:

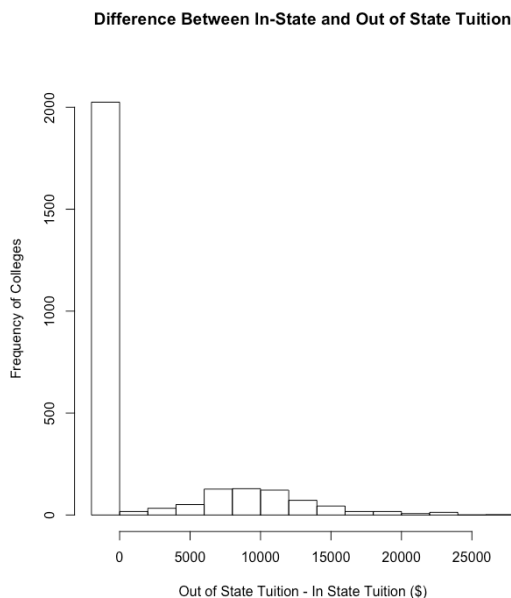
<i>College</i>	<i>Best Earnings for the Cost Result (\$)</i>
<i>Harvard University</i>	116,651
<i>Massachusetts Institute of Technology (MIT)</i>	107,284
<i>Princeton University</i>	96,813
<i>Stanford University</i>	95,687
<i>Yale University</i>	90,171

All top 5 are popularly considered to be some of the most prestigious, well-known colleges in the nation. The best earnings for the cost status may be one of the reasons why the top 5 are highly respected. Knowing the best earnings for the cost can be important since choosing higher education could be an investment. If one is willing to pay thousands of dollars for an education, it may be worthwhile to find out how much they could possibly make after their time at a college.

Excluding 1 school that did not have enough information on their diversity and any school that had missing values, Holy Names University, Pacific Rim Christian University, Golden Gate University-San Francisco, California State University-East Bay, The University of Texas MD Anderson Cancer Center were the top 5 schools for diversity based off Simpson's Diversity Index (ranges 0-1, 0 being the least diverse, 1 being the most diverse) described on www.statisticshowto.com. Of the top five listed, three of the colleges are located in California, and the other two are in larger cities. This is important to note as all three places are known to be more populous and diverse. Using this knowledge, if a prospective student is looking for a college with great cultural diversity, they should look for colleges in cities or states that are known to be more diverse.

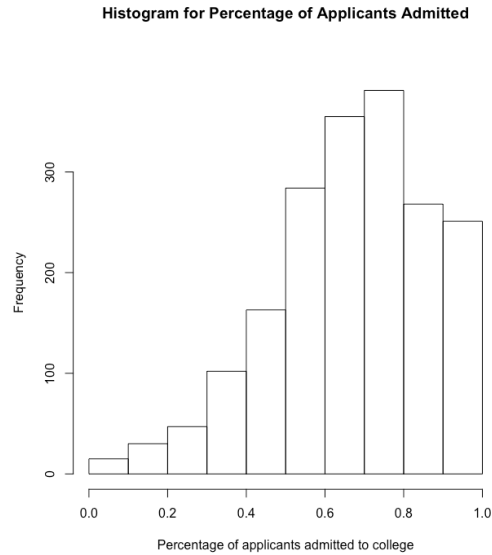
When senior high school students are choosing colleges to apply to, there are many different characteristics that they look for in a school right for them.

One thing to consider is cost of tuition in one's home state versus out of state. As shown in the histogram below, the difference between in-state tuition versus out of state tuition is zero for a majority of colleges.



Of the colleges recorded, only 652 out of 2,676 colleges has a higher tuition for non-state-residents. UC Davis is one of the 652 colleges. For a non-California state resident, tuition to attend UC Davis is \$22,878 more than tuition for an in-state resident. However, the difference between tuitions is low compared to other colleges. If a student considers adding UC Davis to their list of colleges to apply to, they will need to keep in mind tuition cost if they are not a resident of California.

Another college characteristic to consider is the percentage of applicants admitted to a school. If the percentage of admission for a college is high, there is a good chance that a student applicant will get accepted. The percentage of applicants accepted into UC Davis is 45.21%. Comparing this percentage to the histogram on the next page, UC Davis is more selective in the admissions process compared to other colleges.



Prospective students should keep this percentage in mind since a less than 50% chance is not a strong guarantee for admission. Those who want to apply to UC Davis should apply to other schools with higher admission rates just in case the odds are not in their favor.

Thirdly, the retention rate of a college is an important characteristic prospective students should know. The retention rate of a college is the percentage of students who continue to attend the college after their first year. Colleges with high retention rates can be an indicator that students are content with where they are and want to remain at the school to continue their degrees. If a college has a low retention rate, prospective students may want to investigate further why current students are leaving the college after a year. For UC Davis, 92.94% of its first-year students returned for another year. As shown in the histogram below, .9224 is a higher retention rate than what other colleges have. UC Davis from this data, UC Davis seems like a good college to commit to if accepted.

