

## **Introduction:**

What is Education? Education refers to the process of acquiring skills and knowledge through study and instructions. Education begins at home. It brings positive changes in human life. To lead a successful life, education is very important. It enhances the knowledge, skill, and intelligence of an individual. [1] To have a successful career, education is the stepping stone of it. Education also helps in building the character of a person. Primary, Secondary, High-School, College, University etc. as a student moves up the ladder the choice of educational institute becomes more and more important.

To aim high, students travel abroad as International Degree plays an important factor in shaping a successful career. United States, Australia, United Kingdom, Canada have some of the best universities in the world. In that, United States is well renowned for its prestigious universities.

With a high level of academic and up-to-date syllabus and a good reputation of excellency in every field, students wish to go there. As, it boosts top removed universities from the world, competition is immense. To select the correct university, as per their degree and their chose, students find it confusing. Add to that, admission process is lengthy, many factors come into consideration like; university rank, SAT, High-School GPA score, tuition fees, business-reputation score, student's enrolment percentage etc.

As more and more students opting for International Degree because of its high value thus competition has increased across the globe for the ever-increasing number of enrolments. To contain such need, new degrees, new buildings have become regular. For all the above reasons, visualization on Education dataset would be motivating and interesting.

## **Dataset:**

The dataset is taken from Kaggle. It provides the University Statistics like: Ranking, Acceptance-Rate, Act-Avg, Sat-Avg, Business Reputation Score, Enrollment Size, Region, Tied Ranking, Percent Receiving Aid etc of 311 United States Universities. It will help the students to gather information about universities.

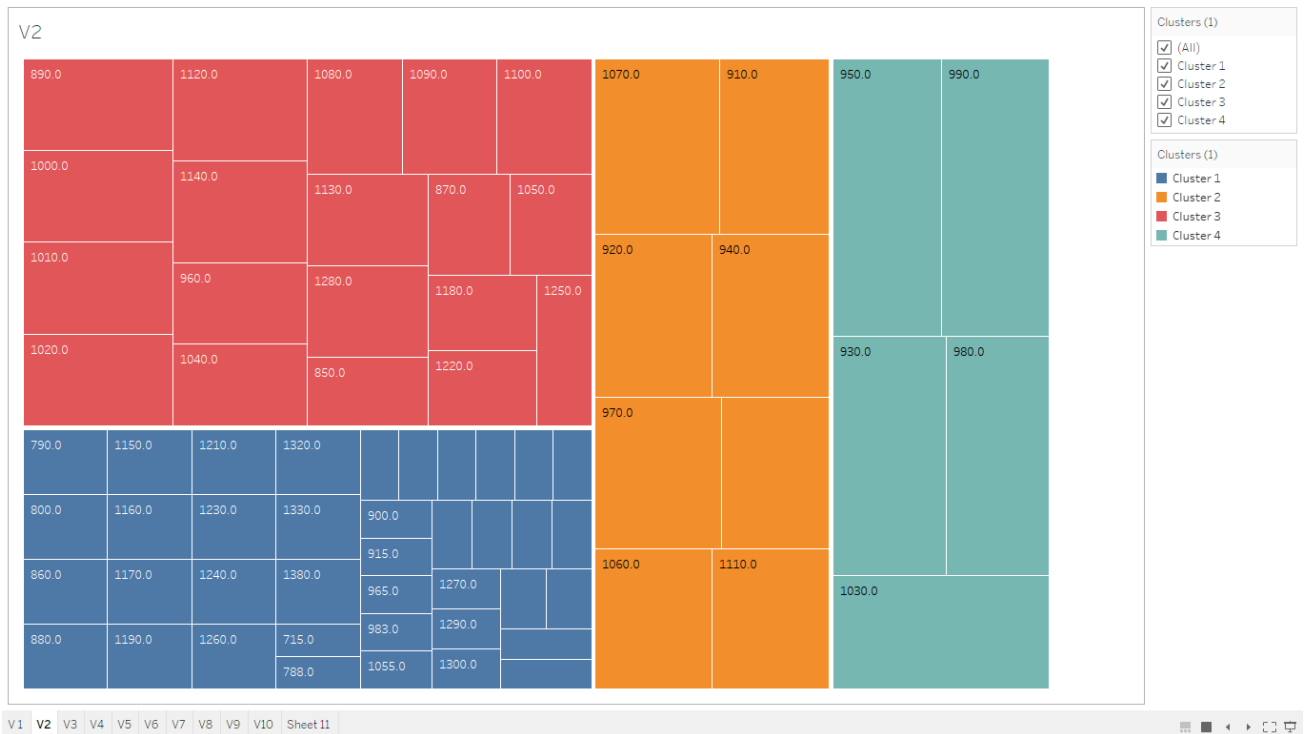
## **Link:**

<https://www.kaggle.com/theriley106/university-statistics>

## **Visualization:**

Visual Analysis of the dataset was done in Tableau Desktop Professional version 2018. Tableau is a killer software for creating visual dashboards like charts, graphs, maps for easy and fast analysis. With the help of geographical locations, visualization, Business Intelligence queries and simple statistics it becomes a powerful tool for visual analysis.

## **Visual Analysis:**



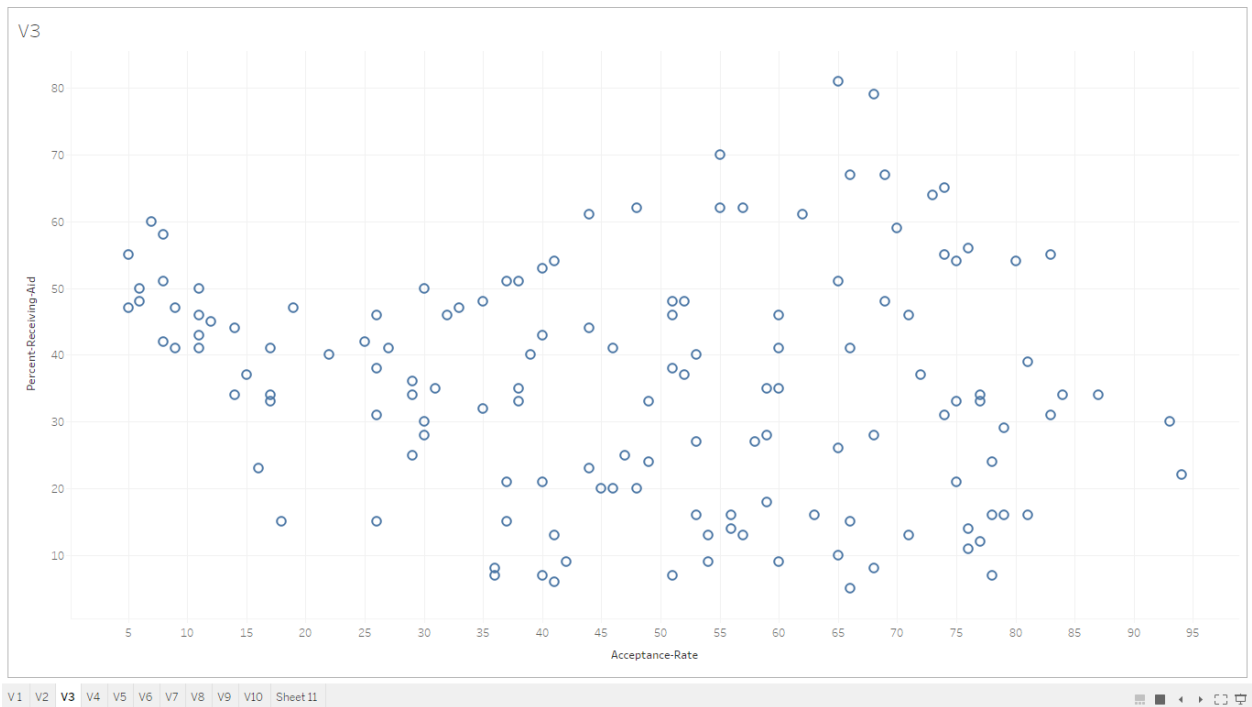
*Figure 1: SAT scores vs Business-Reputation score*

SAT is a standardized test widely used for college admissions in the United States, although its name and scoring have changed several times, but its core objective is still the same. Business reputation score have a negative co-relation with SAT. With the help of Tree Maps and cluster tool in analytics, we can see that, some of the universities with have high SAT average but low business

reputation score, while some universities have low SAT average score but high business reputation score.

But, SAT score in the range of 910.0 to 1070.0 have a strong relation between them.

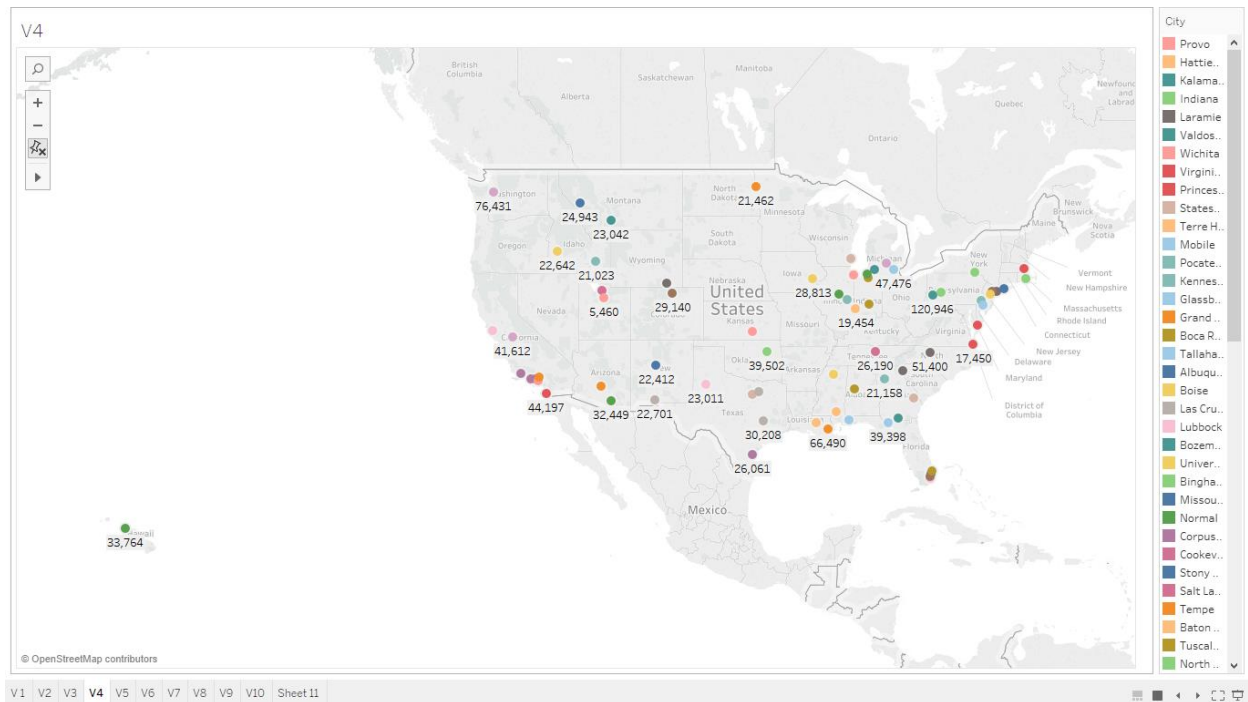
For example, SAT score of 950.0 and 990.0 has the highest business reputation score.



*Figure 2: Acceptance-Rate vs Percent-Receiving Aid*

Acceptance-Rate and Percent-Receiving-Aid play a major role in becoming a successful university. As, the competition is extreme in all fields to become top of the most university not only in United States but in the world. With the help of Circle Views, taking City as an attribute, Rochester City has the highest Acceptance-Rate and Percent-Receiving Aid of 65.00 and 81.00 respectively.

While La Jolla City has the least Acceptance-Rate of 36.00 and Percentage-Receiving-Aid of 7.00. But, an important aspect is that major universities like Princeton, Stanford, Cambridge, Philadelphia have high Percent-Receiving-Aid but very low Acceptance-Rate. That's is the most interesting thing visualized from this visualization.



*Figure 3: Tuition Fees City-wise*

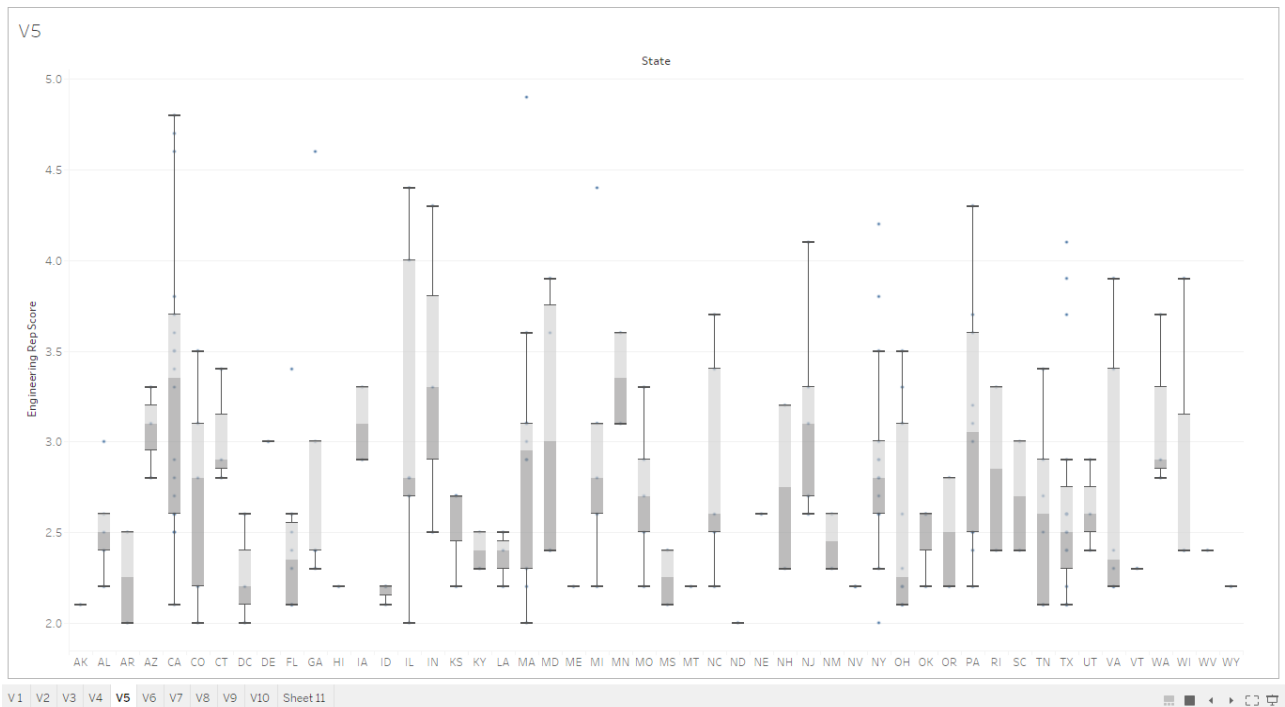
Tuition Fees play a massive role in selecting the university for student. For International Students, with the ever-increasing exchange rates, Tuition Fees increases.

In United States, to get in good college, you must shell out loads of money.

Tableau have a very interesting feature by the name Symbol Maps. With the help of Latitude and

Longitude and Tuition Fees, we found that, major cities like New York, Chicago, Los Angeles have very high tuition fees while smaller towns like Provo, Hattiesburg, Kalamazoo have very low tuition fees.

This shows that, location is an important factor for students in choosing the universities.

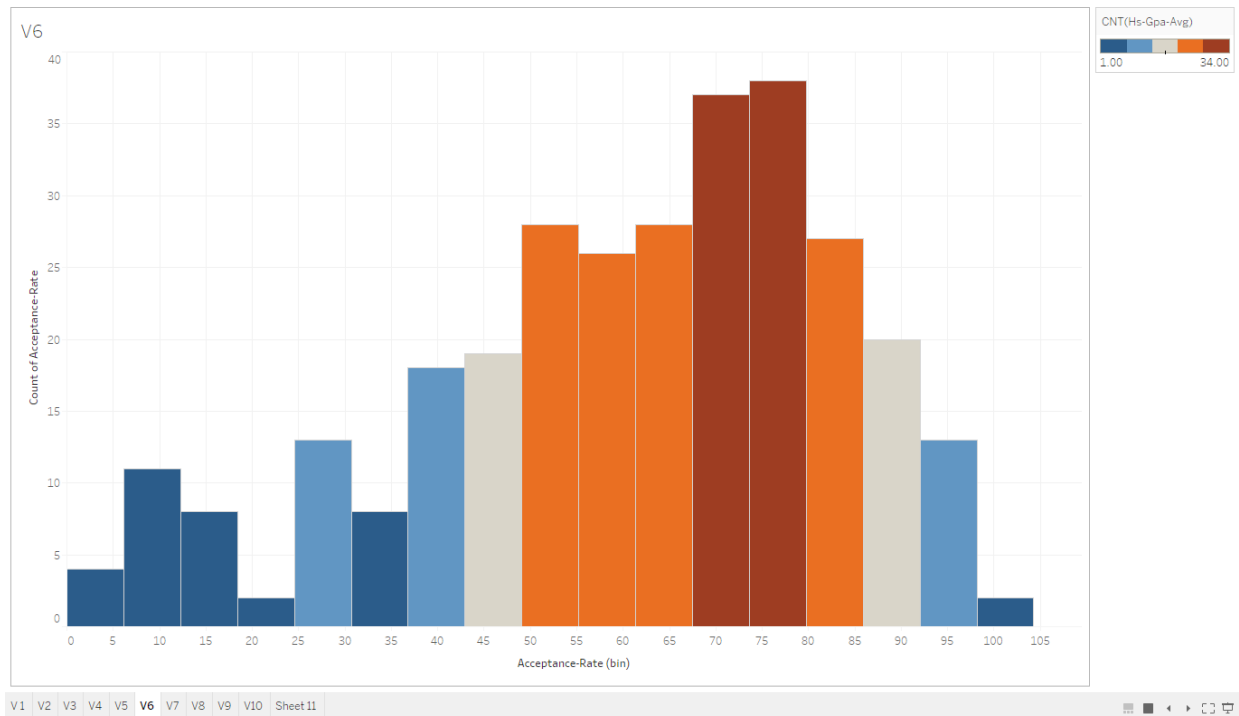


**Figure 4: Engineering-Reputation-Score plotted against box-and-whisker**

Engineering-Reputation-Score is another interesting aspect in the dataset.

In this, we have used box-and-whisker plot, it shows Whisker and Hinge at the min and max data points with a median between them.

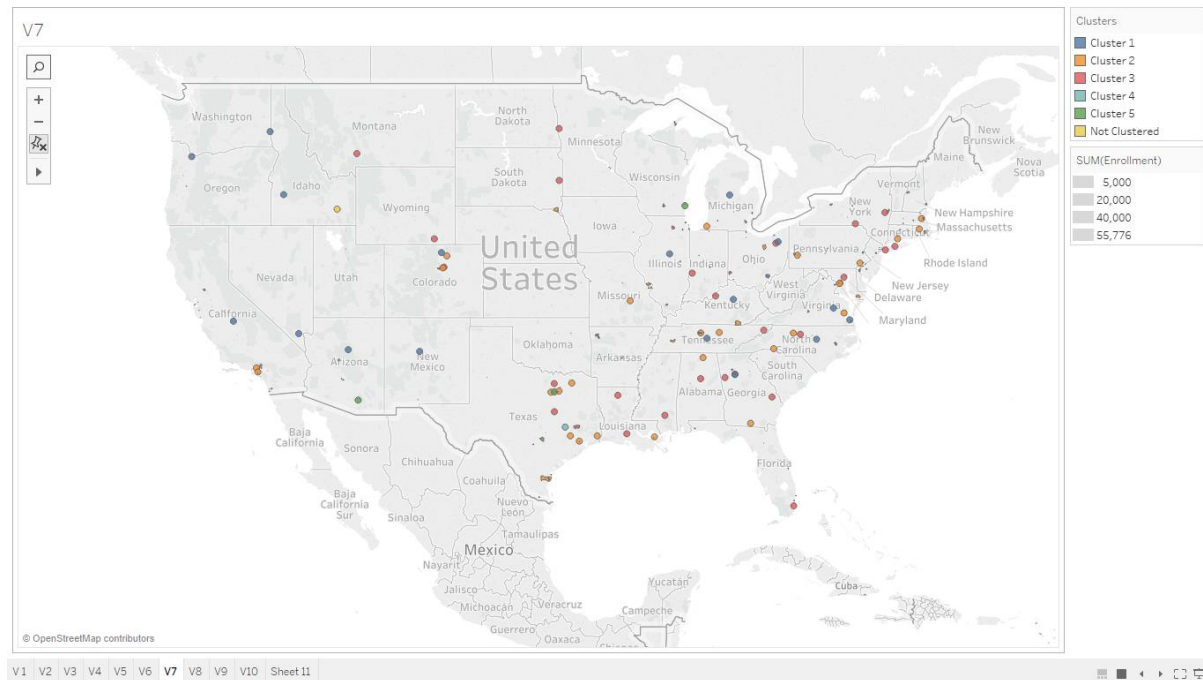
California State which has prestigious universities' have a high Business-Reputation-Score of 4.800 because it includes top universities of the world. While, North Dakota City has the lowest Business-Reputation-Score of 2.000 only.



*Figure5: High Score-GPA vs Acceptance-Rate*

The process of getting in most universities in world, especially in United States is very lengthy. They not only check about SAT, GRE scores but also High School GPA scores too. With the help of Vertical Bar chart, we compared, low High Score-GPA has a lowest Acceptance-Rate in

Universities. while, high HighSchool-Gpa score has high Acceptance-Rate in many universities. For example, with a HighSchool-Gpa score of 29-38 have a good count of Acceptance-Rate in the range of 35-40.



**Figure 6: Enrolment student's vs Zip code of various United States area**

In this visualization, we are using, Symbol Maps tool. With the columns and rows denoted by Longitude, Latitude, and Cluster model using Analytics tool. By adding, Sum of Enrolment students using the zip code of various United

States town, we visualized the intake is in every area of United States. Some of the prime areas, have a high enrolment of students while remote areas have low. 55,576 being the highest number of enrolment in the state of California.



*Figure 7: Ranking is Tied vs Ranking and Acceptance-Rate*

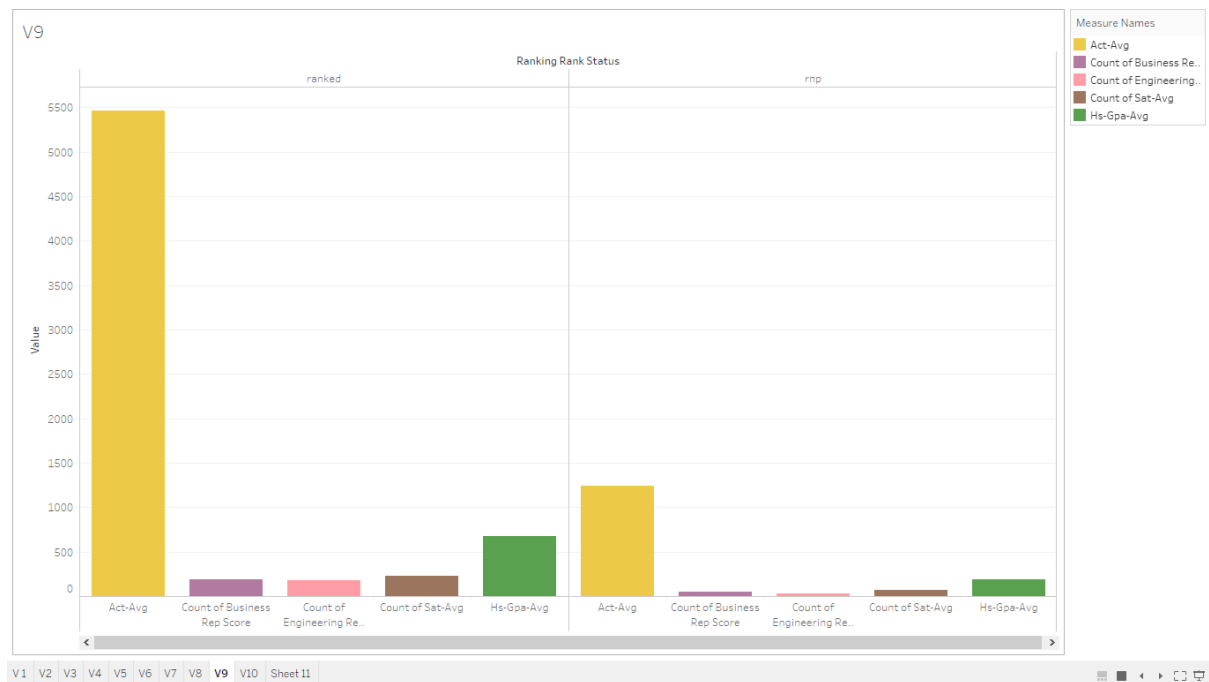
Ranking plays a major role in everything. It shows whether you're on the track or not. By Statistical techniques and analytics, everything is tracked.

Universities that achieve the same score on the ranking model are published with the same rank. Ranking is Tied has two categories: True and False. With a very high co-

relation between Ranking and Acceptance-Rate, visualization shows, false or negative ranking has low acceptance while true or positive ranking has a higher percentage of acceptance.

This shows, word of mouth, ranking plays a decisive role in student's enrolment which in turns affects the Acceptance-Rate.





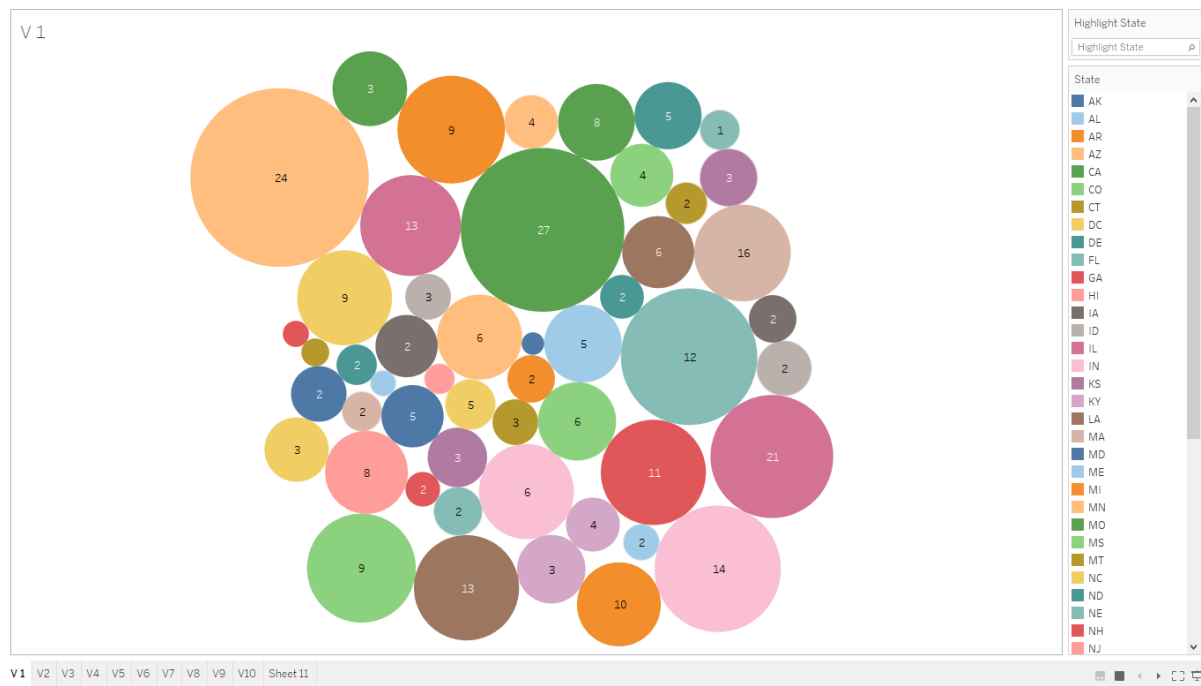
*Figure 8: Universities Ranked and Ranked Not Published*

As said earlier, ranking status plays a major role in selection of universities by the students.

Ranking is classified into two types: Ranked and Ranked Not Published. For this, we have used Side-By-Side bar graph, and from that it clear that, ranked universities have a high ACT, high HS-GPA and SAT and a very

good count of Business score, Engineering score.

Similarly, for those universities whose ranking are not published, have a lower value of ACT, HS-GPA, SAT, Business and Engineering scores respectively.



*Figure 9: Percentage of Enrolment State-wise*

As said earlier, location is a major factor in deciding the enrolment of students. Remote areas have low percentage of student's intake while high percentage of students prefer major cities. In this, we used Packed Bubbles feature which is an interesting

aspect of Tableau. It literally covers everything in a single frame. California, Arizona AND Illinois states have almost 25% of total enrolment across United States. While remote areas hardly cover 5-10% of total enrolment for almost 8-10 states.



**Figure 10: Highest Ranked Universities with Tuition fees and Enrolment number**

As, said before, as a university goes higher in the rank, the number of students enrolling increases at a faster rate. For this visualization, Side-by-Side bars is used of a detailed comparison between top 10 universities of United States. Higher the rank of university, tuition fees is

also on the higher side and the number of enrolment too. Private universities are growing at a faster rate. United States have a major share in the topmost universities of the world. For example, university rank 1 has a tuition fees of 47,140 and enrolment of 5,400.

## Conclusion:

Education is pivotal for shaping your career and life. Every aspiring student, has a dream of making it big. With good ACT score, SAT score, students can get in a good reputed college. As, enrolment size is increasing year by year, college should make innovative ideas and degree to make it more competitive as well as challenging. Ranking plays a decisive role in Business-Reputation score, Receiving Aid as well as good location and word of mouth also holds an edge in student preference.

## References:

[1] <http://examplanning.com/essay-education/>

## **Appendix:**

Figure 1: SAT scores vs Business-Reputation score

Business-Reputation score have a negative co-relation with SAT score

Tool: Tableau

Figure 2: Acceptance-Rate vs Percent-Receiving Aid

This visualization, shows, both play a major role in becoming a successful university.

Tool: Tableau

Figure 3: Tuition Fees City-wise

This visualization, shows, tuition fees increases by location.

Tool: Tableau

Figure 4: Engineering-Reputation-Score plotted against box-and-whisker

It shows Whisker and Hinge at the min and max data points with a median between them.

Tool: Tableau

Figure 5: HighScore-GPA vs Acceptance-Rate

It shows, HighScore-GPA and Acceptance-Rate are directly proportional.

Tool: Tableau

Figure 6: Enrolment student's vs Zip code of various United States area

Some of the prime areas, have a high enrolment of students while remote areas have low.

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This visualization shows, false or negative ranking has low acceptance while true or positive ranking has a higher percentage of acceptance.

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Ranking plays a massive massive role in everything.

Tool: Tableau

Figure 9: Percentage of enrolment State-wise

Visualization shows location is important for aspirants before selecting the course.

Tool: Tableau

Figure 10: Highest Ranked Universities with Tuition fees and Enrolment number

Highest ranking universities have higher tuition fees with highest enrolment number while United States boost the top universities in the world.

Tool: Tableau