

# Project1:

Analysis of SAT & ACT datasets for 2019  
&  
A peek into the test-optional admissions criteria

Shruthi Sarode

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# Problem Statement

High school students often know which colleges they would like to consider, but rarely know what SAT or ACT score they should aim for when applying to these colleges. This project aims to explore:

- ❑ Relation between SAT score and College Majors
- ❑ Trends in SAT and ACT participation for the year 2019

What we would also like to see here is:

- ❑ Is there a relation between the number of applicants and the acceptance rates.
- ❑ How does the college prestige and acceptance rate relate.

# Some Background

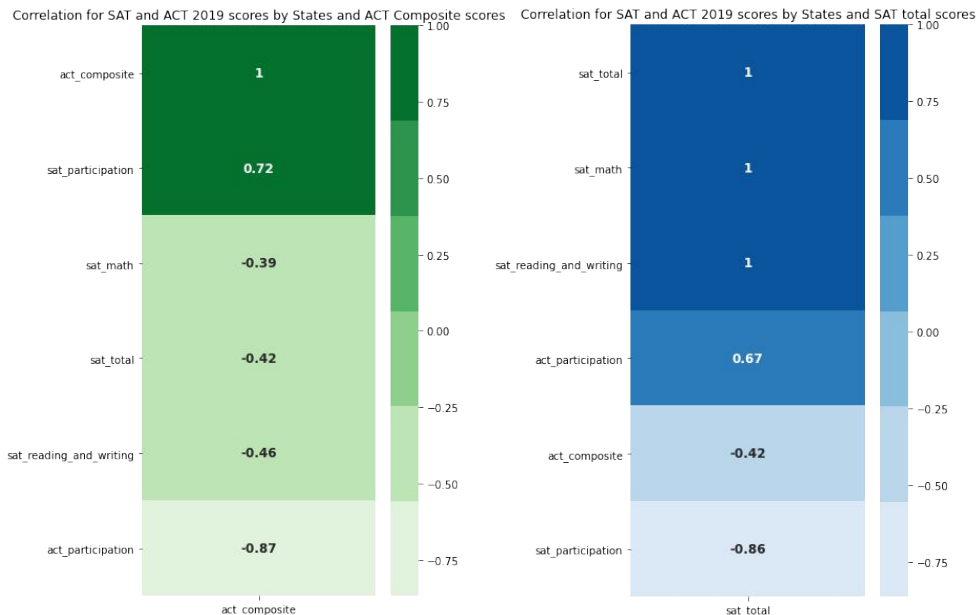
- Colleges are using scores from students' performances on tests like the SAT and the ACT as a measure for college readiness and aptitude.
- Supporters of these tests argue that these scores can be used as an objective measure to determine college admittance.
- Opponents say these tests are not accurate measures of students potential or ability
- Increasing number of universities are dropping SAT and ACT requirement for fall of 2021 admissions in response to the coronavirus pandemic
- Some of them announced it's going test-optional.
- This decision could benefit both students and schools:
  - Students who no longer have access to test prep/other resources
  - Students will have the opportunity to be evaluated by more than just a score
  - Schools can get more applicants and a more diverse pool of applicants

# Datasets used in this Project

- 2019 ACT Scores by State & 2019 SAT Scores by State
- 2019 SAT Scores by Intended College Major
- Ranges of Accepted ACT & SAT Student Scores by Colleges

# Data Visualizations:

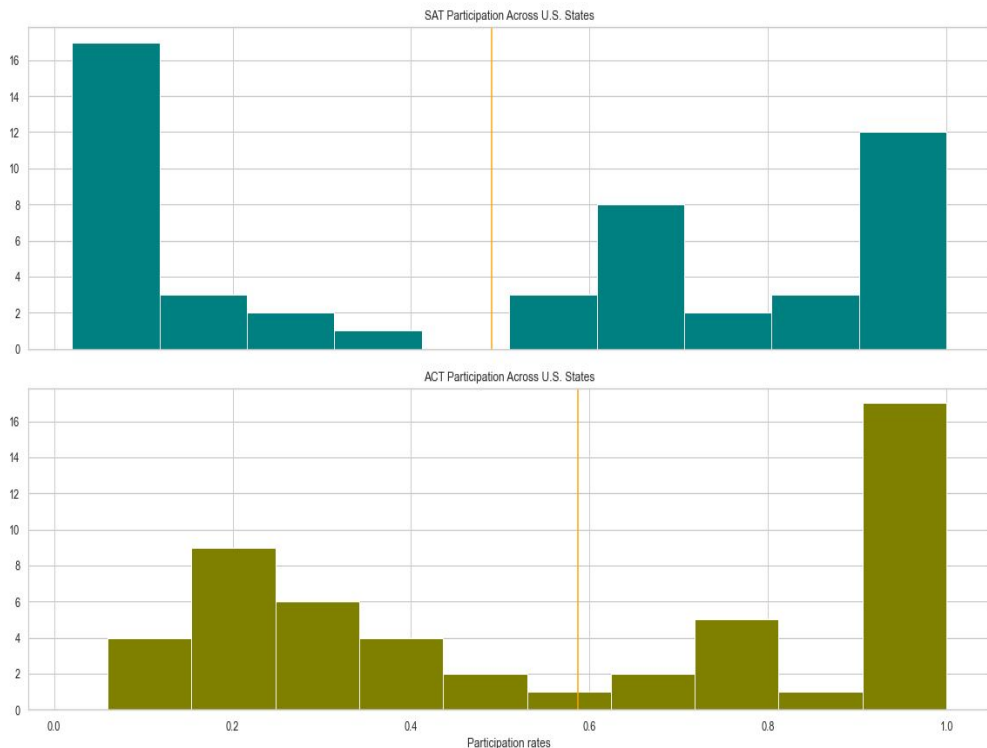
## Correlation between SAT ACT 2019 scores by state



- SAT total score is most positively correlated to the ACT Participation about 0.67.
- As SAT/ACT participation increases, the total test score decreases.

# Data Visualizations:

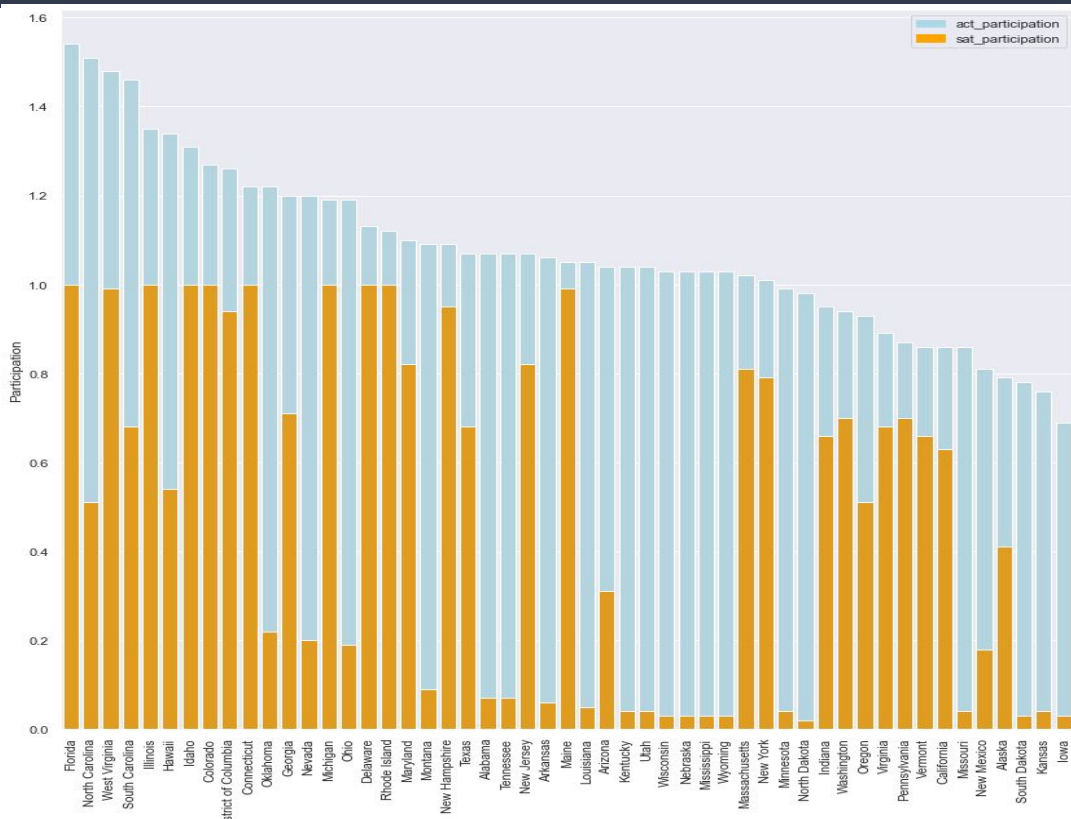
## Histogram for the Participation rates for SAT and ACT across the US states



- The 2 distributions are shown in the histogram, and look almost like a mirror image
- ACT participation prevails across the US states with more 100% participations than SAT

# Data Visualizations:

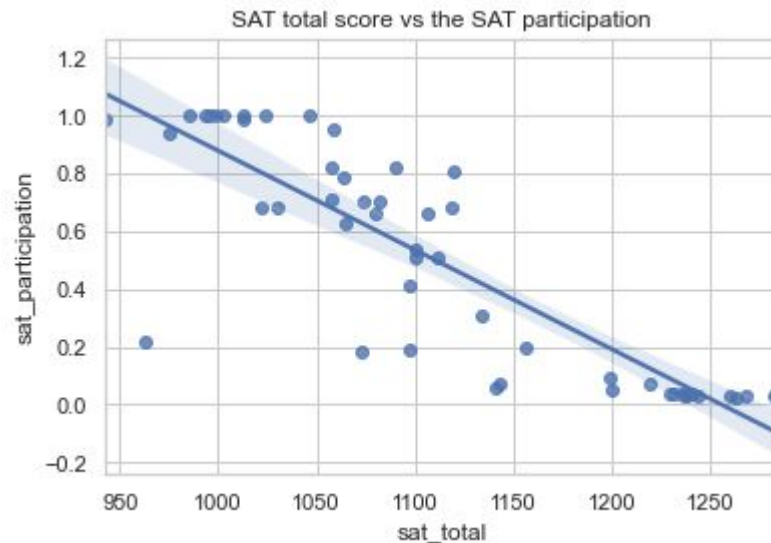
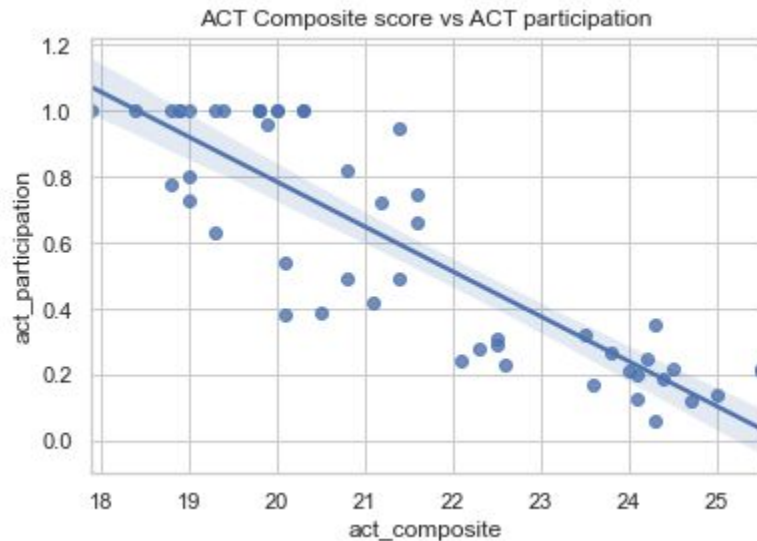
Stacked bar graph for participation rates across States sorted by total participation.



- A state with high participation in one test tends toward lower participation in the other. It is evident that any one test is more popular in a state at a time

# Data Visualizations:

## Scatterplot of Total scores Vs the Participation

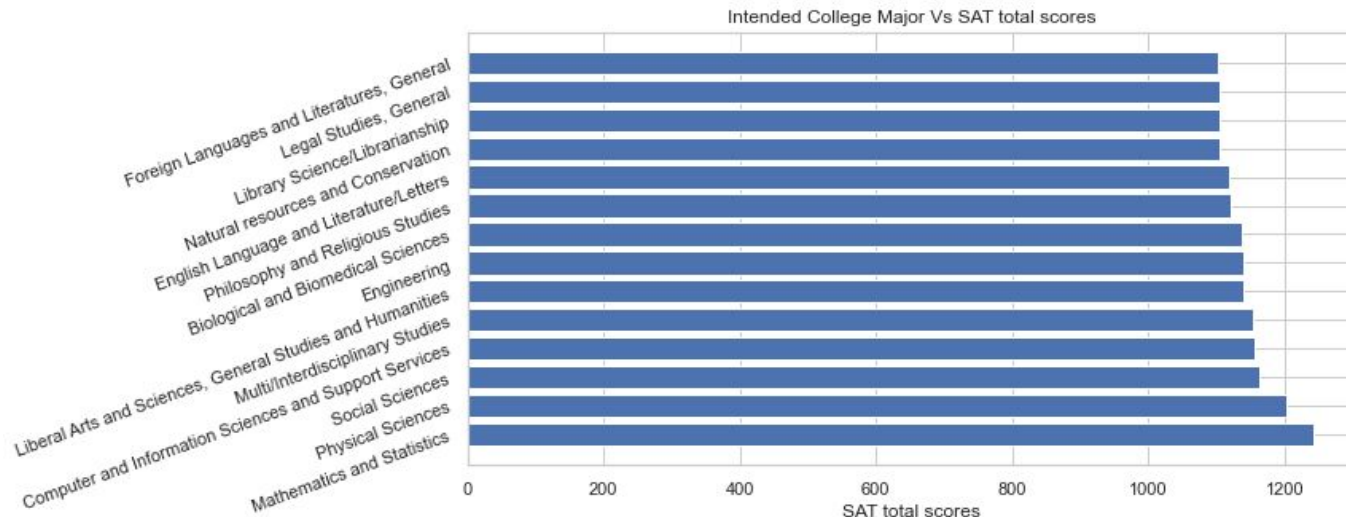


- Test Averages and Participation Correlate Negatively- the scores represent average for the entire student body(mix of both high and low performers), thus pulling the state average down
- And states that have lower participation rates may have average score reflective of only the most high-performing students of the state.



# Data Visualizations:

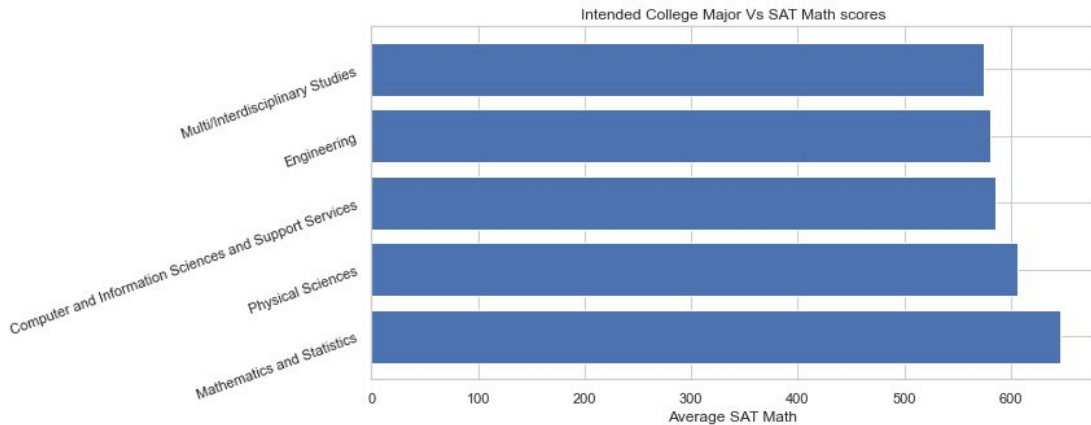
SAT scores and Intended majors sorted by Scores higher than 1100



- Students who desire to major in Science and Math statistics related majors, Engineering and technology related majors or Multi/Interdisciplinary Studies should have a score higher than 1100.

# Data Visualizations:

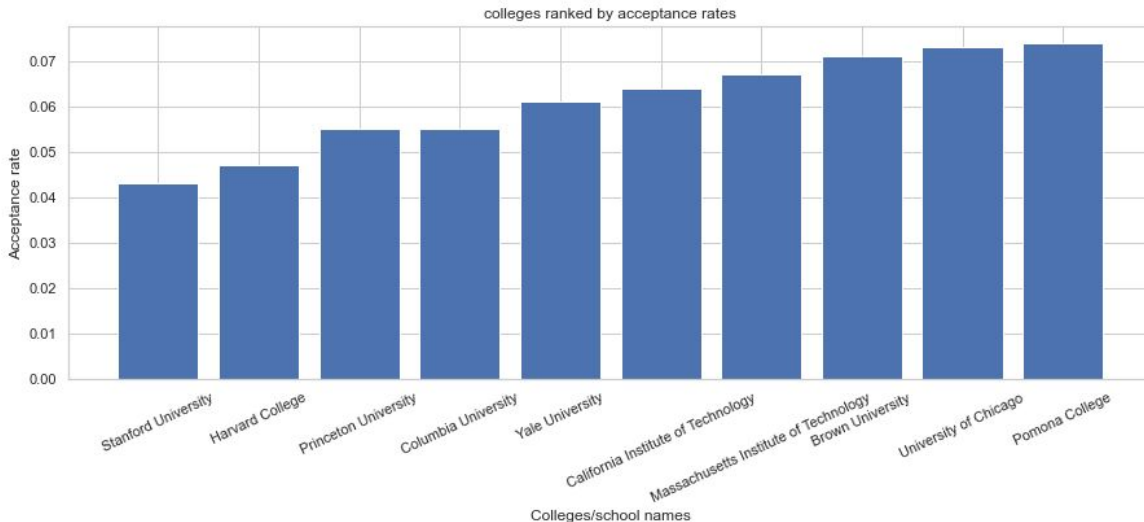
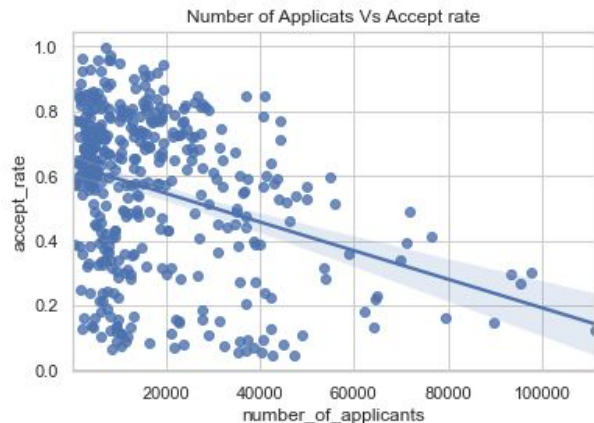
## Highest SAT Math scores Vs Intended Majors



- Students with highest average SAT math scores see themselves as future Mathematicians and statistics Majors

# Data Visualizations:

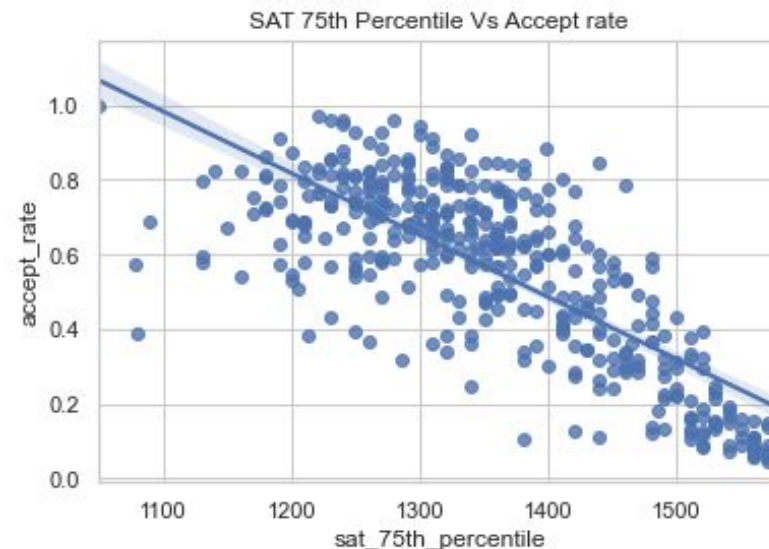
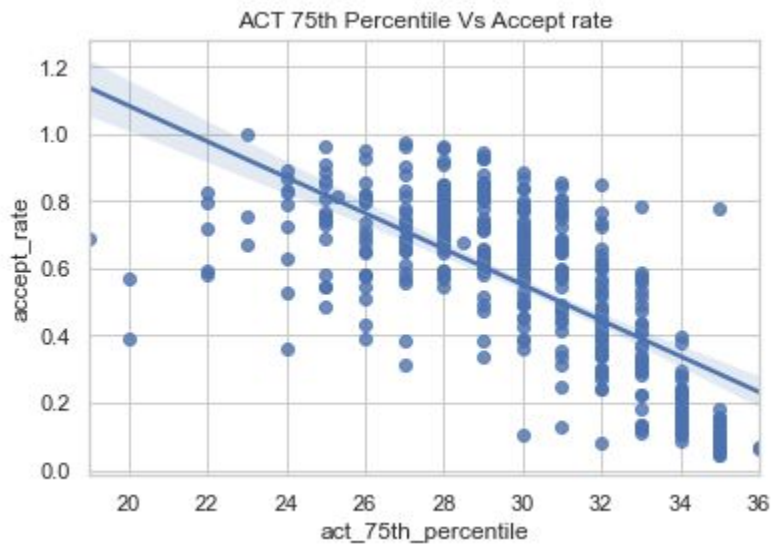
## Number of Applicants Vs Acceptance rates By Colleges



- The top 10 colleges with a very high number of applicants have very low acceptance rates.
- The most selective colleges that admit only a fraction of their applicants.
- 47000 students applied to Stanford only 4.3% received an admission letter, same as Harvard College with an acceptance rate of 4.7%

# Data Visualizations:

Plot of Acceptance rates for the 75th percentile ranges



- Shows acceptance rates are lower for the colleges where students have high scores.

# Conclusions

- As SAT/ACT participation increases, the Average test score decreases.
- State with high Participation in one standardized test, has lower participation in the other.
- Intended college major indicates that the higher SAT scorers choose majors in STEM related fields.
- Higher the scores, lower the Acceptance rates- this is true for the prestigious colleges where the admissions process is very selective, admitting only a fraction of their applicants.
- Colleges with low acceptance rates rank among the nation's most elite institutions.
- Test-option will open up opportunities to many students.
- Students will be evaluated based on other aspects than just a test score.
- Colleges will have to weigh the benefits of both the options before reconsidering the value of the tests- based on the prior data and the current.

# Thank You!

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