# University Admissions Guide

# Background

The university application process is a challenging and time consuming one with many components to consider:

- Admission tests
- Referral/Cover Letters
- Interviews

Admission tests are arguable the biggest hurdle for most prospective students, with an entire industry of educators specializing in such tests.

There are many such admissions tests for universities in different regions. For this analysis, we will be looking at SAT and ACT scores.

# Problem Statement

**How can we optimize for the best chance of gaining admission to a university?**
For this, we will address two questions

- Which state to start pre-tertiary education in?
- Which admission test to focus on?

**Methodology**

- Exploratory Data Analysis
- Datasets: SAT/ACT scores, SAT/ACT scores by college

**Assumptions**

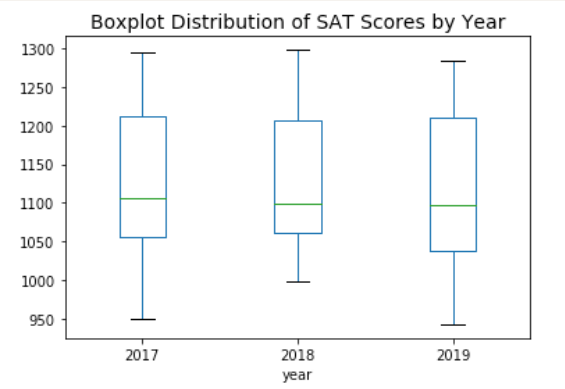
- State test scores as a proxy for the quality of education
- Consider only the average student

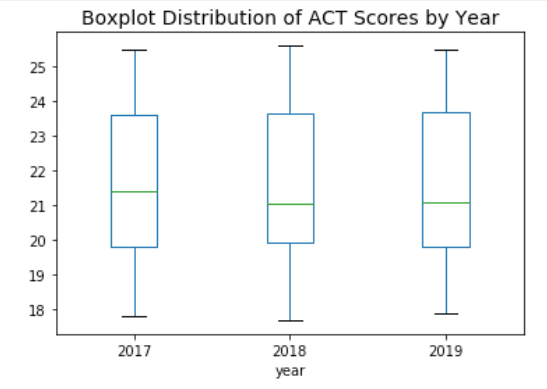
# Analysis

## Average test scores have fallen between 2017-19

Making it all the more important to optimize for admissions tests

| year | sat_total | sat_participation | act_composite | act_participation |
|---|---|---|---|---|
| **2017** | 1126.098039 | 0.398039 | 21.546000 | 0.652549 |
| **2018** | 1120.725490 | 0.458824 | 21.503922 | 0.612353 |
| **2019** | 1113.078431 | 0.490588 | 21.464706 | 0.586667 |

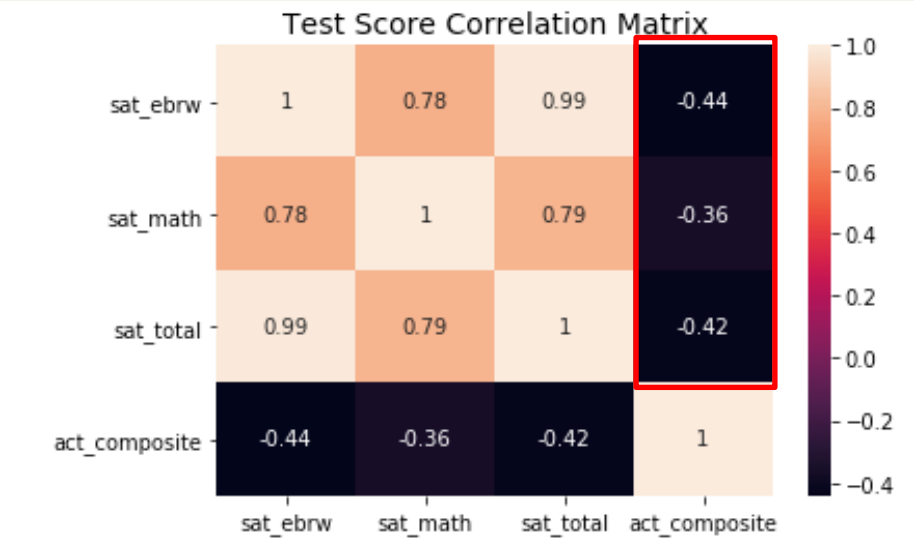


# Analysis

## Negative correlation between SAT and ACT scores

Given limited time and resource, important to focus on a single admissions test



# Findings

**Average test scores have been falling across the board**

- Students should enroll to pre-tertiary institutions in states that are most likely to produce high test scores to outperform

**Negative correlation between test scores**

- Taking both SAT and ACT will result in one underperforming test score
- Which admissions test to focus on?

# Explaining Test Scores

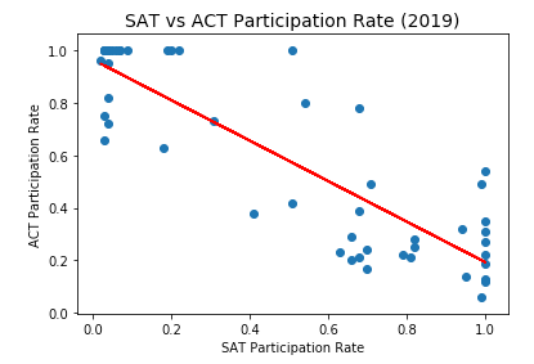
Negative correlation between SAT and ACT participation rates

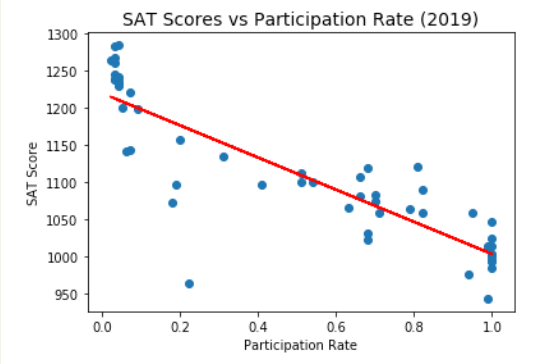
- Students are likely to take either SAT or ACT

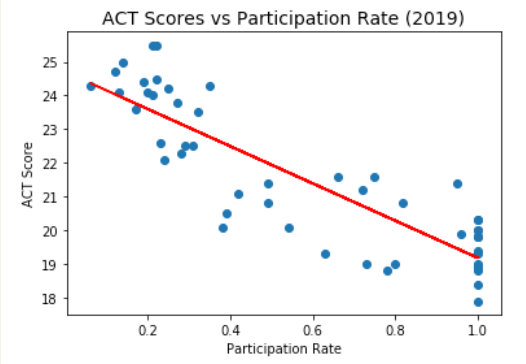
Negative correlation between test scores and participation rates

- For tests with high participation rates, students are underperforming

*Are students simply optimizing for the incorrect admissions test?*
*Likely that high participation rates dilute the quality of test scores...may not be a useful explanatory variable for test scores*



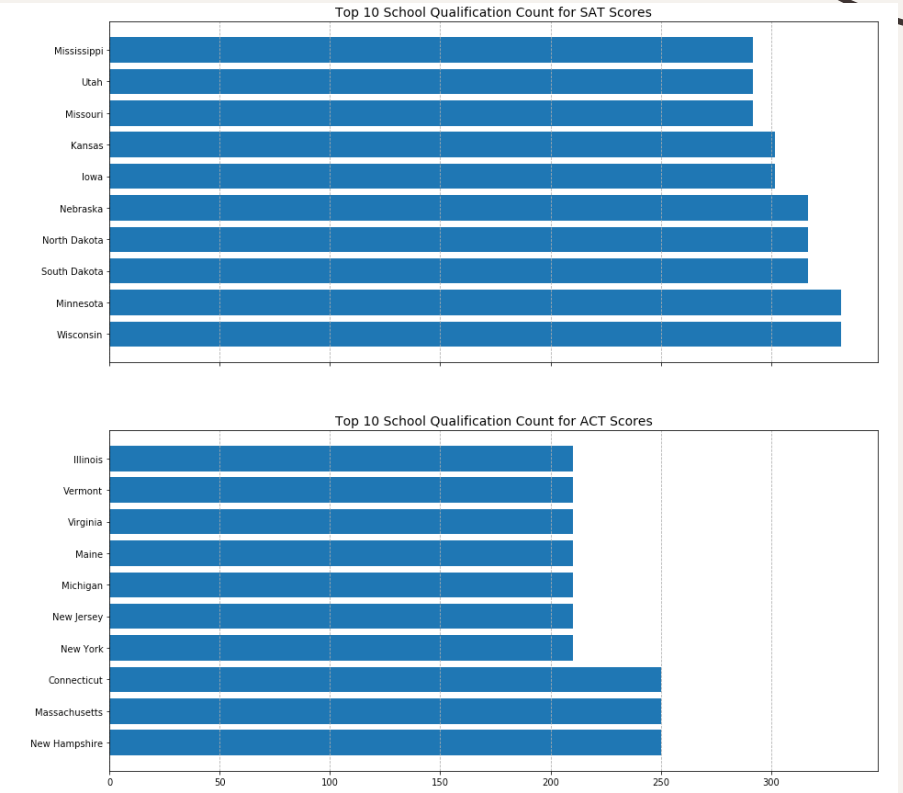
# Recommendations

**Based on findings, we should optimize for state and admissions test**

School Qualification Count measures the number of schools where the average student meets the 25th percentile threshold
(qualification criteria based on 2019 scores)

**The average student should:**

- Focus on the SATs
- Enroll in pre-tertiary education in one of the top 10 states (top graph)
- Assumes no mobility restrictions



# Further Exploration

**Extend the model to include more variables that explain the variability in test scores**

- Use more insightful data – state crime rates, state education budget, state income per capita, etc.
- Allows us to create a more robust model based on state factors

End