

SAT & ACT Participation Rate Analysis

Alex Nemoto

Problem Statement

Using the test score data from 2017 and 2018 to determine how to increase participation rates for the SAT and the ACT.

Data Features

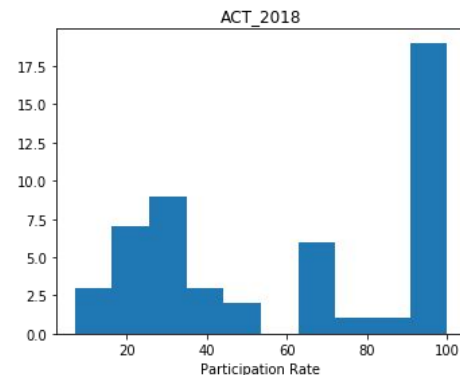
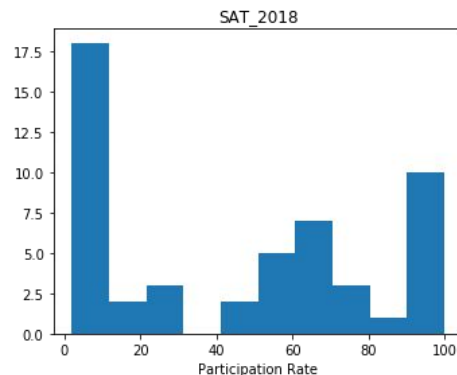
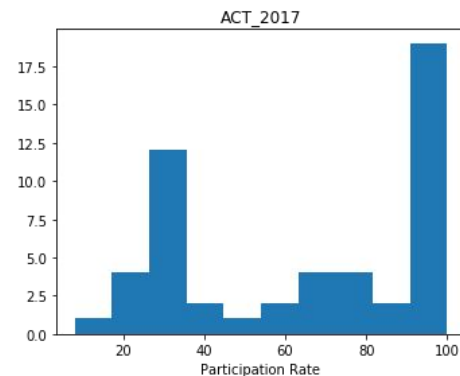
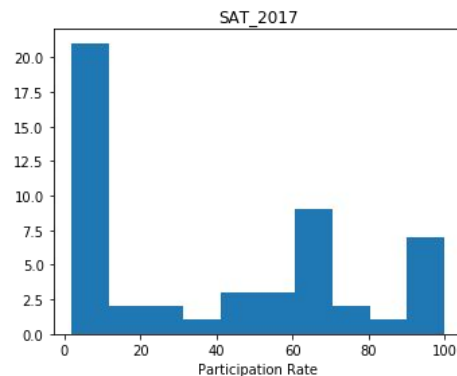
- The 2017 and 2018 SAT data has 5 features
- The 2017 ACT data has 7 features, whereas the 2018 ACT only has 3 features (State Participation, and Composite)

	State	Participation	Evidence-Based Reading and Writing	Math	Total
0	Alabama	5%	593	572	1165
1	Alaska	38%	547	533	1080
2	Arizona	30%	563	553	1116
3	Arkansas	3%	614	594	1208
4	California	53%	531	524	1055

	state	participation_act_17	english_act_17	math_act_17	reading_act_17	science_act_17	composite_act_17
1	Alabama	100	18.9	18.4	19.7	19.4	19.2
2	Alaska	65	18.7	19.8	20.4	19.9	19.8
3	Arizona	62	18.6	19.8	20.1	19.8	19.7
4	Arkansas	100	18.9	19.0	19.7	19.5	19.4
5	California	31	22.5	22.7	23.1	22.2	22.8

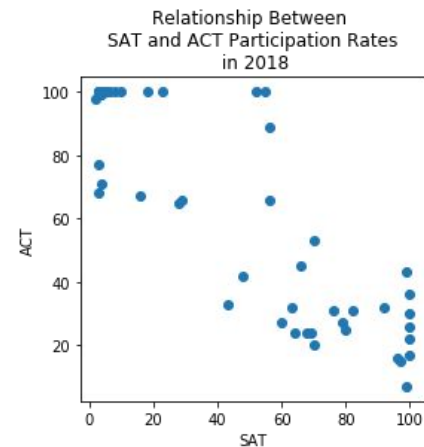
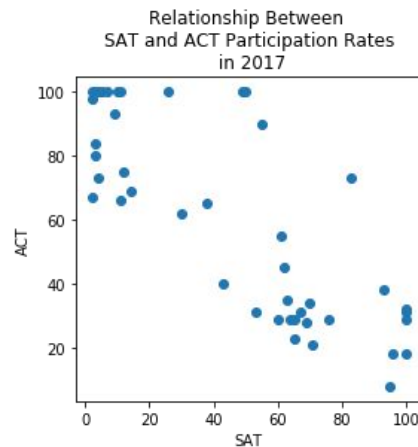
Participation Rate

- The SAT Participation rates look distorted to the left meaning that not many students take the SAT
- The ACT Participation rates look distorted to the right meaning that many students take the ACT
- It looks as if the more the one of the two tests' (SAT or ACT) participation rate increases, the more the other decreases.



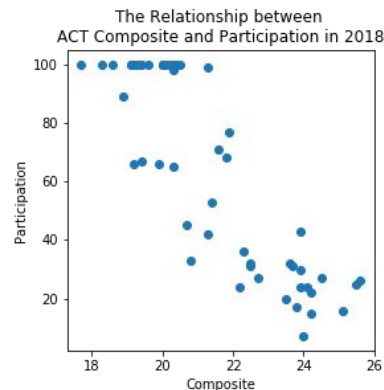
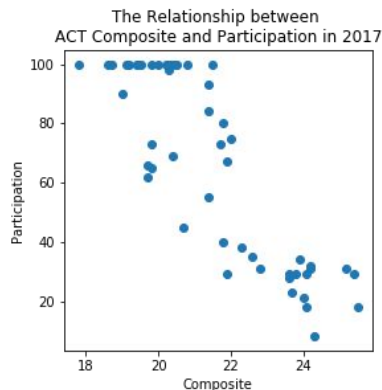
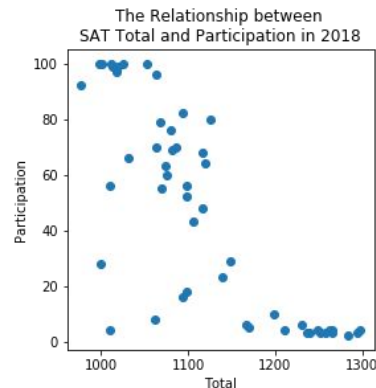
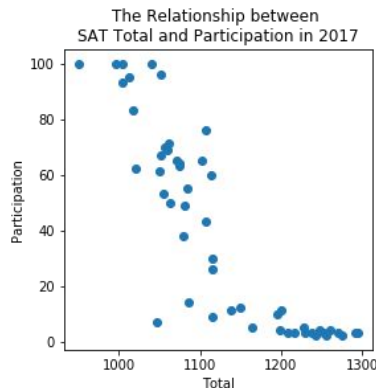
Participation Rate

- The SAT Participation rates look distorted to the left meaning that not many students take the SAT
- The ACT Participation rates look distorted to the right meaning that many students take the ACT
- It looks as if the more the one of the two tests' (SAT or ACT) participation rate increases, the more the other decreases.



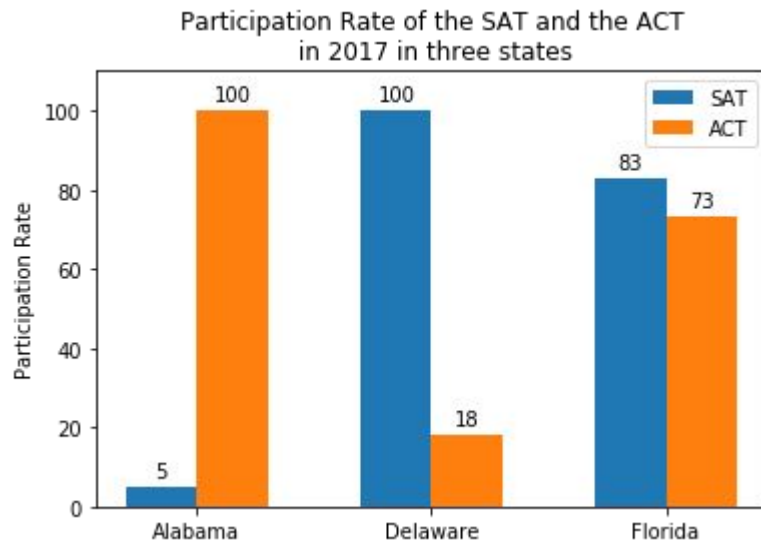
Correlation between Test Scores and Participation

- The SAT and the ACT has a negative correlation between scores and participation rates meaning that the higher either the participation rate or score increases, the lower the other becomes
- There might be a tendency that the more the participation rates go up, the more the scores go down



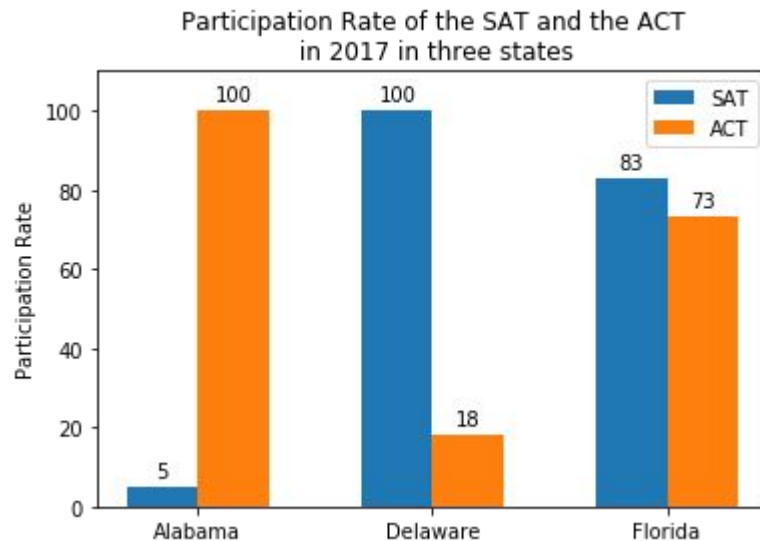
Regarding Alabama

- Alabama has a 100% participation rate for the ACT in 2017.
- The state has a 5% participation rate for the SAT in 2017.
- According to Halle Edwards (<https://blog.prepscholar.com/act-scores-by-state-averages-highs-and-lows>), Alabama has made the ACT mandatory for students preparing for college.



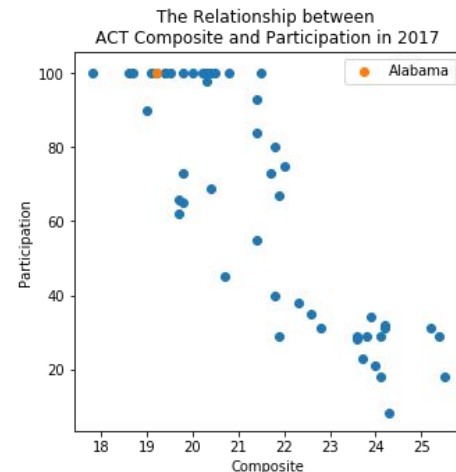
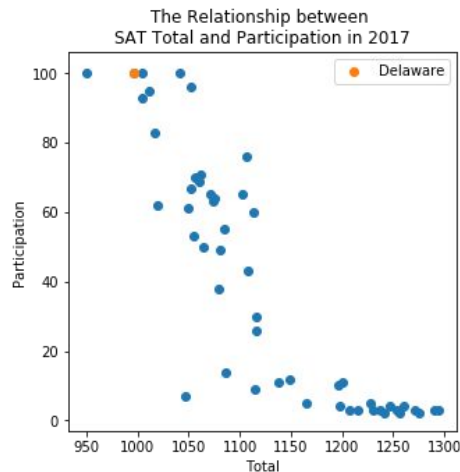
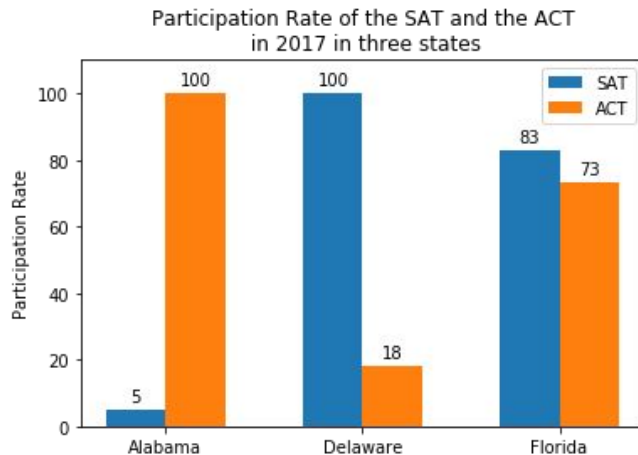
Regarding Delaware

- Delaware has a 100% participation rate for the SAT in 2017.
- The state has a 18% participation rate for the ACT in 2017.
- Delaware made the SAT compulsory for students in 2016
(<https://whyy.org/articles/sat-to-the-rescue-why-delaware-and-other-states-are-embracing-a-new-role-for-an-old-test/>).



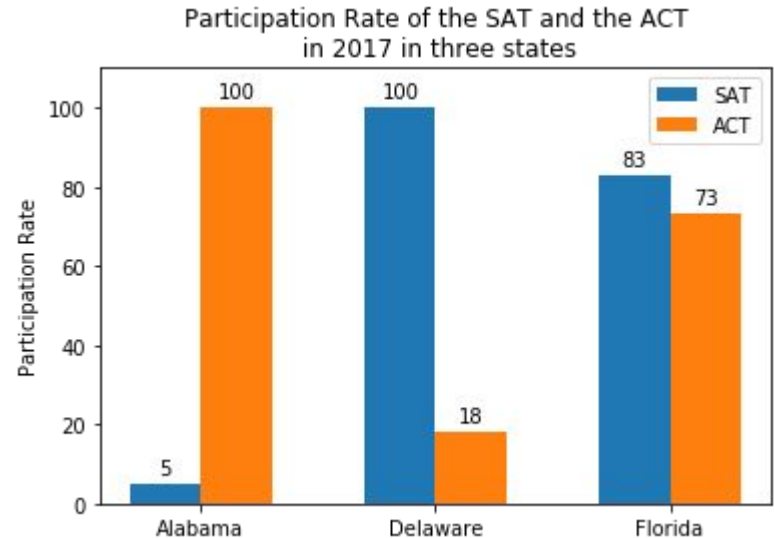
Mandatory Tests and Low Scores

- The ACT is mandatory in Alabama, whereas the SAT is mandatory in Delaware and both have low average test scores.
- There might be a reason that if the test is mandatory, many students who do not want to take the test end up taking the test which might decrease the average total scores.



Regarding Florida

- Florida has an 83% participation rate for the SAT in 2017.
- The state has a 73% participation for the ACT in 2017.
- Florida might not have a mandatory requirement for students to take a standardized test but have policies in place to encourage them to take it.



Conclusions and Recommendation

- There are some states that have made the tests mandatory.
- If other states were to make the tests mandatory, they could see an increase in the participation rate of the tests.
- However, there could be a potential trade-off as states with high participation rates have low composite/total scores.
- A potential reason could be that students that normally have no interest in taking the tests are forced to take them.
- Instead of making the tests mandatory, it might be better to set up initiatives to foster interests to take the tests.

Future Research

The household income of the students' parents would help to determine whether income has an effect on participation rates. If so, states can set policies to help low income students.