



Project 1

Standardize Test Analysis

By Kant Charoensedtasin (Gun)

Problem Statement

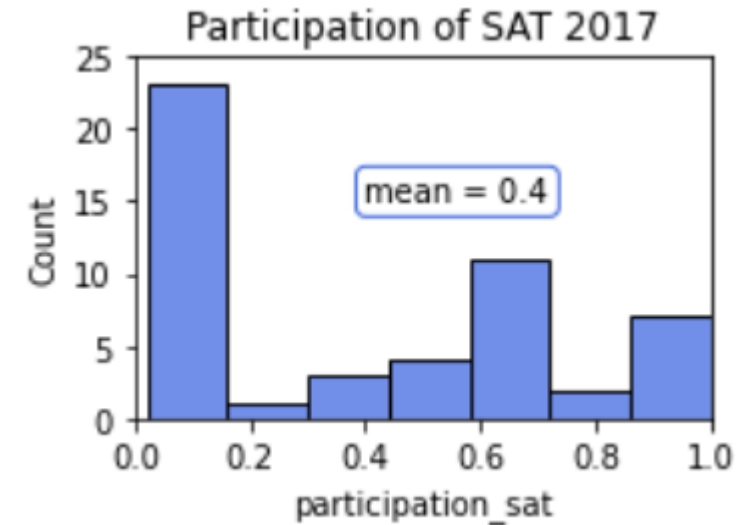
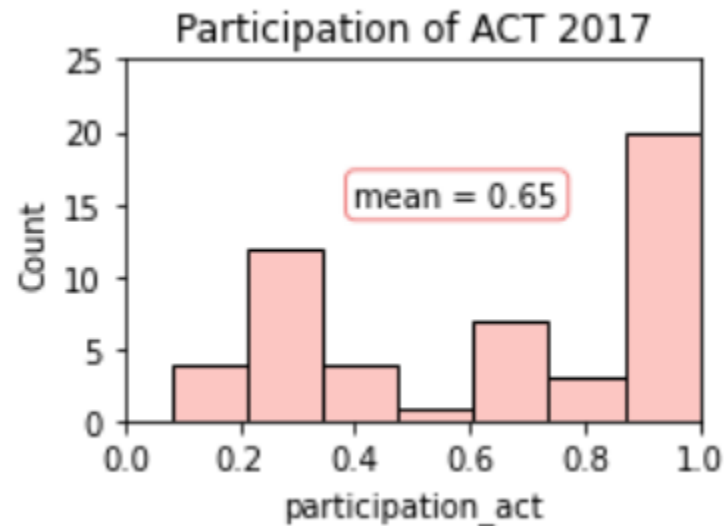


“Tutor school is planning to open new school after the covid-19 pandemic”



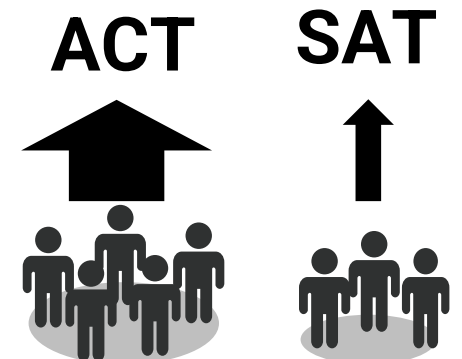
Information about “State” “Student” “SAT and ACT”

1 High participation rate of ACT and SAT in US



All 3 year have the same trend

- Usually select only SAT or ACT
- Student prefer ACT > SAT
- 100% participation ACT : 19 State
- 100% participation SAT : 9 State



1 High participation rate of ACT and SAT in US

Negative correlation (Opposite direction)

- Correlation between participation rate and total/composite is **high negative correlation** (0.8 – 1).
- **High** student participation → **Lower** total score
- **Low** student participation → **High** total score

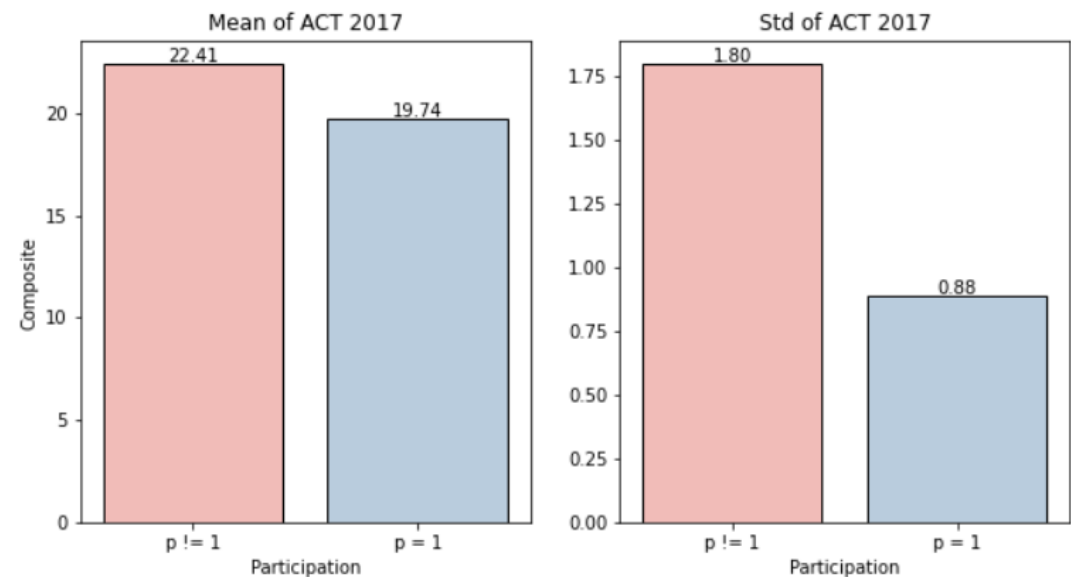


Low score



High score

2 Compare score between high participation rate and the other state



Compare ACT/SAT between year

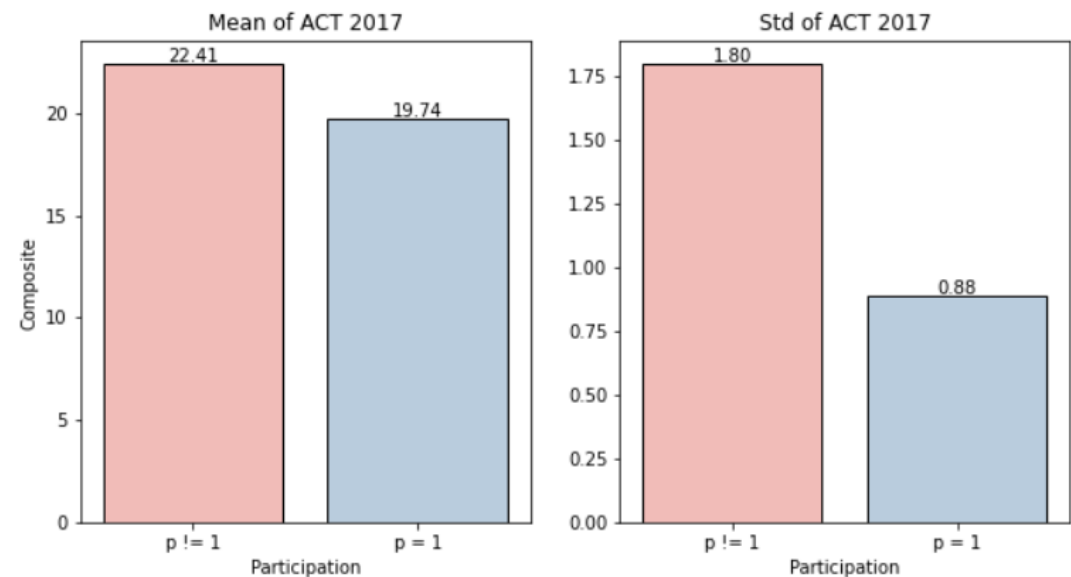


- $\text{Mean}(p \neq 1) > \text{Mean}(p = 1)$
- $\text{Std}(p \neq 1) > \text{Std}(p = 1)$

💡 My idea



2 Compare score between high participation rate and the other state

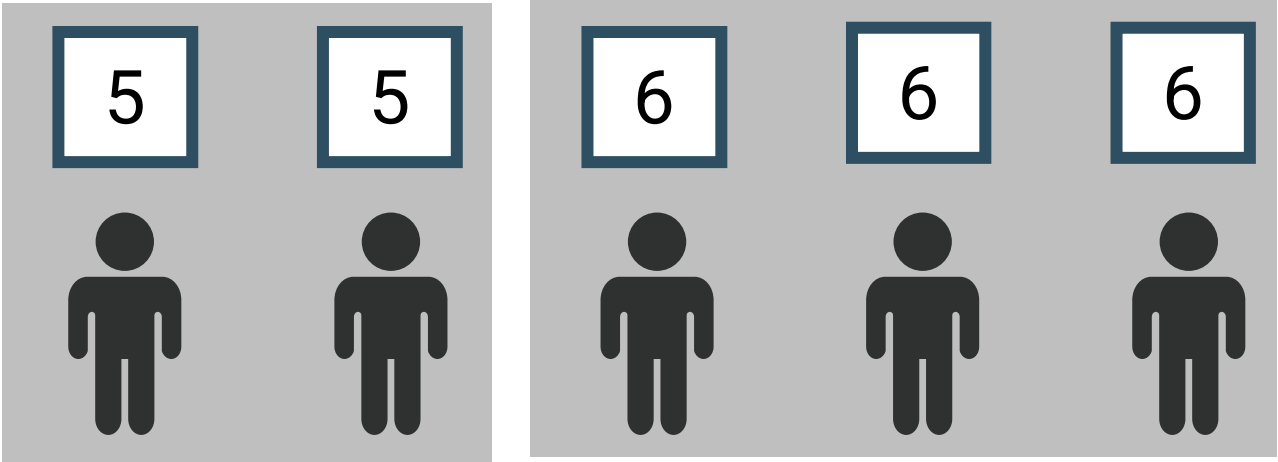


Compare ACT/SAT between year



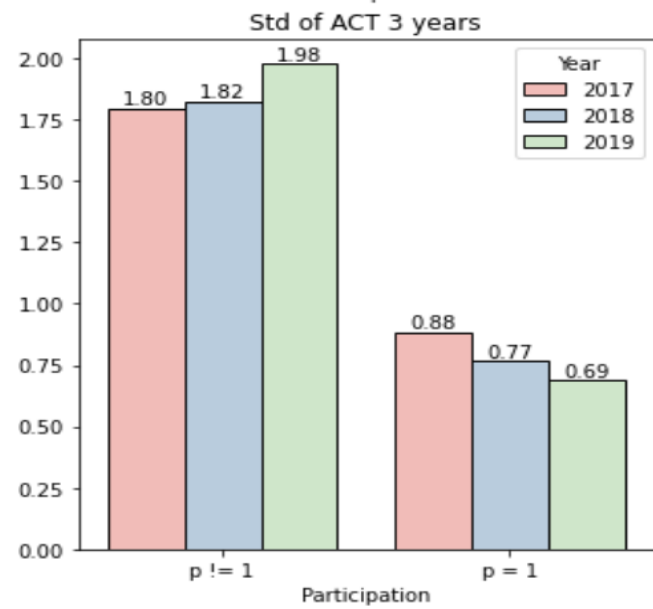
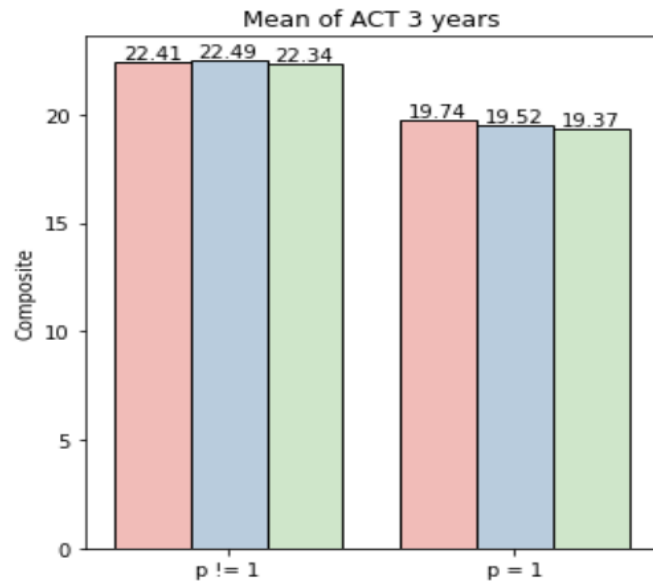
- $\text{Mean}(p \neq 1) > \text{Mean}(p = 1)$
- $\text{Std}(p \neq 1) > \text{Std}(p = 1)$

💡 My idea



- Worse grouping student
- Student can do it equally
 - Test can't classify this group of student

2 Compare score between high participation rate state and the other state



Compare ACT/SAT 3 years



Mean ($p \neq 1$) ■

Std ($p \neq 1$) ↗



Mean ($p = 1$) ■

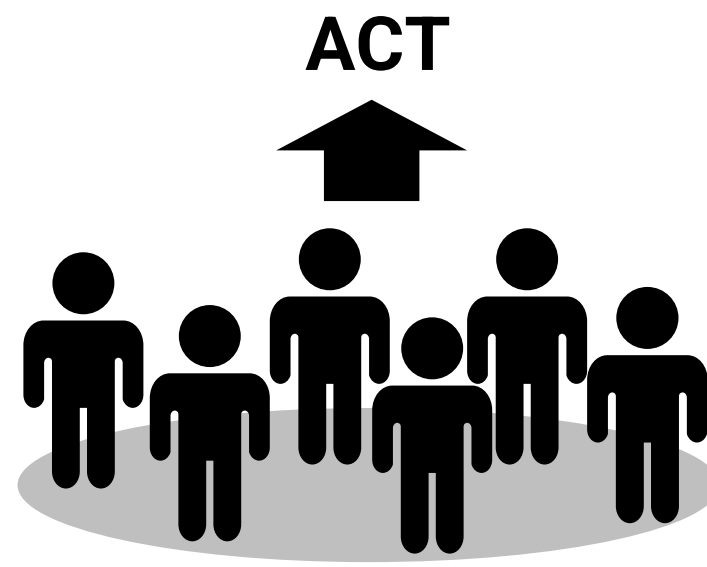
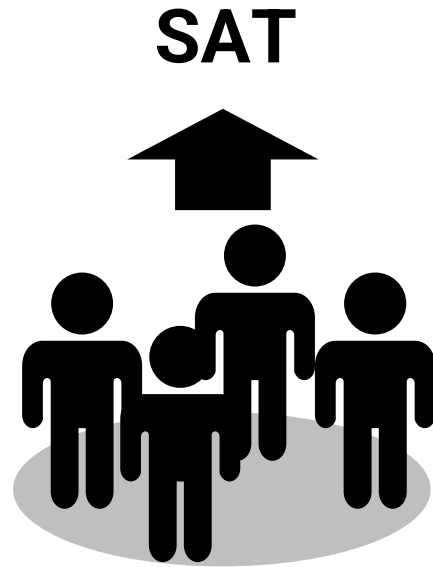
Std ($p = 1$) ↘



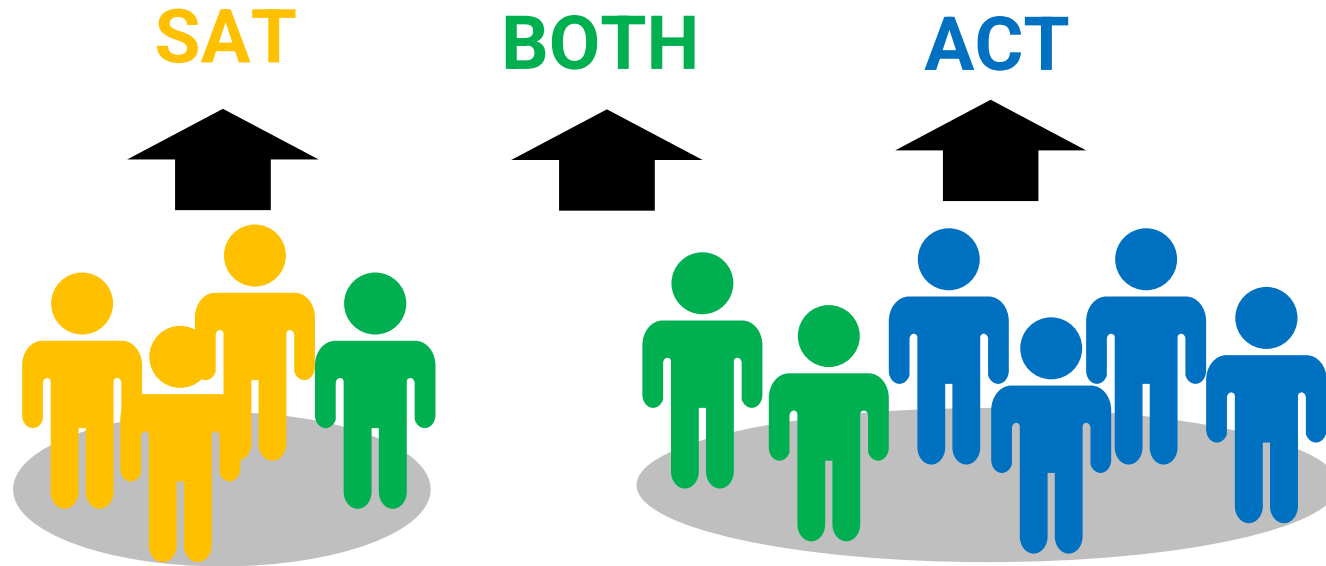
ACT and SAT have the same trend!!!



3 High participation rate for both ACT and SAT



3 High participation rate for both ACT and SAT

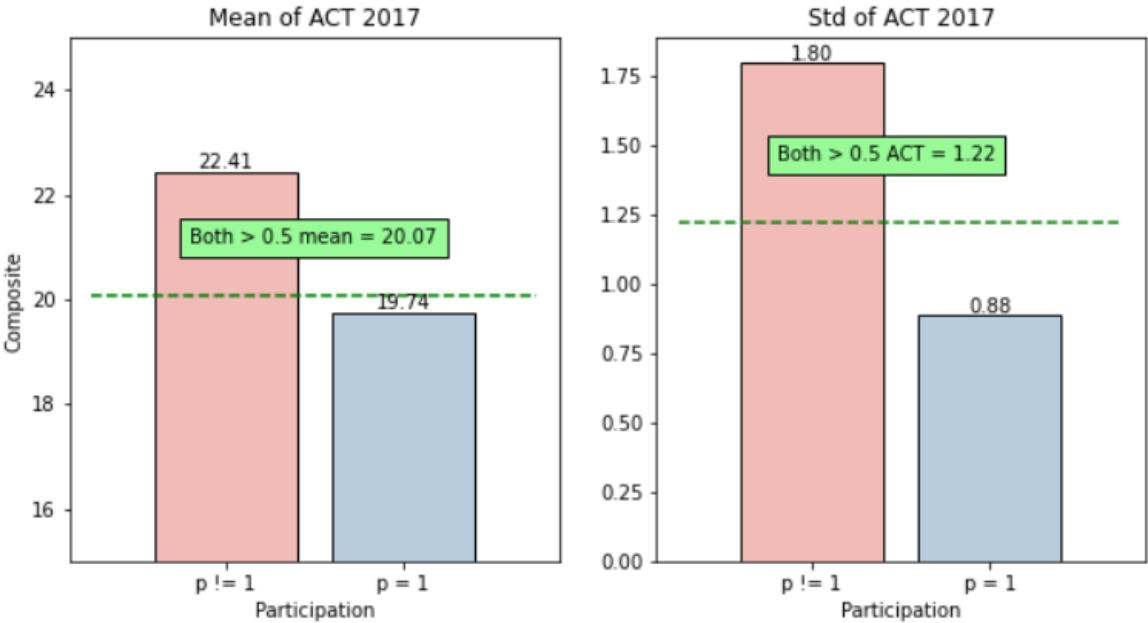


Some student take both ACT/SAT !!

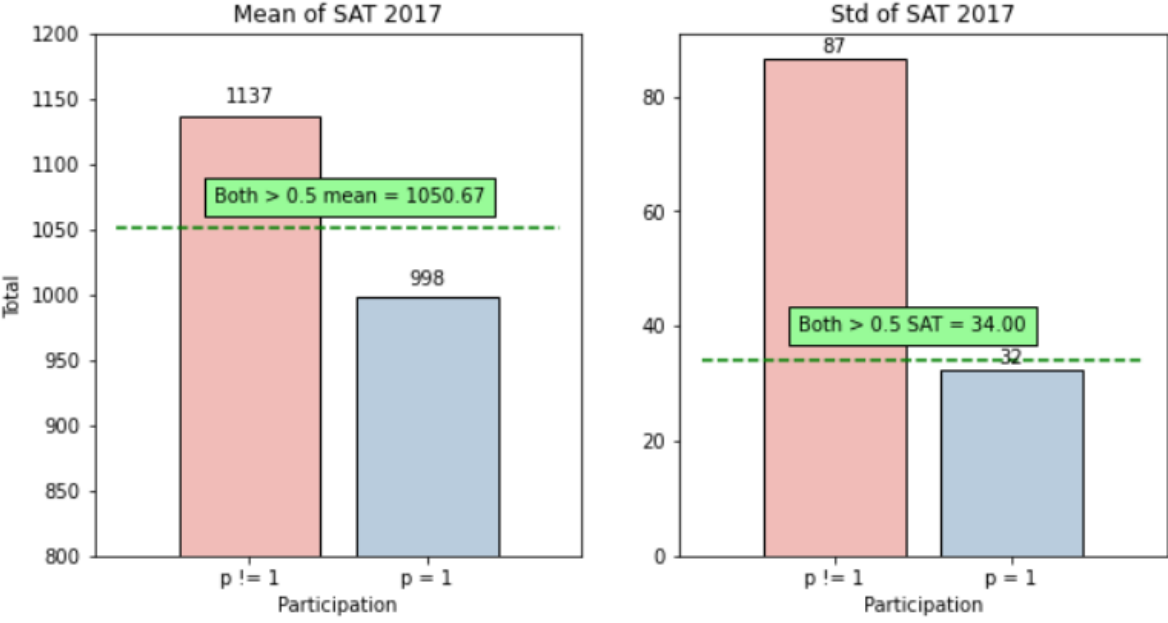
Filter : State with both participation rate > 50%

3 High participation rate for both ACT and SAT

Mean/Std of ACT



Mean/Std of SAT



Both participate rate of ACT and SAT greater than 50% : slightly above 100% participation rate for all 3 year



Useful information for tutor teaching in this state

4 Relation between score for each subject in ACT/SAT



Positive correlation (Same direction)

- Correlation between composite and all subject is **high positive correlation** (0.8 – 1).
- **High** total/composite score → **High** score for each subject
- Correlation between each subject is **high positive correlation**.
- **Low** score in 1 subject → **Low** score in another subject

The same trend in both ACT/SAT for all year







Conclusion

- 1** Participation rate of SAT and ACT is inverse to each other
- 2** The state with 100% participation trend to have lower score than other state with lower participation rate
- 3** The student (participation both SAT/ACT >50) is slightly above student in state that have 100% participation rate
- 4** Mean of ACT and SAT is still the same for 2017 -2019
- 5** Std ACT/SAT score of the student in state, have 100% participation rate, is lower over year.
- 6** Total score have high positive correlation to each subject in the test

Recommendation

Tutor school location

- ACT : 19 States
-  Ohio, South Carolina, ... (more in notebook) 
- SAT : 9 States
-  Michigan, Florida ...
- Both participation rate of ACT and SAT > 50% : 5 States
-  Hawaii, Florida ...

Next phase of the project

- Collecting data in the specific state
- Analysis about the state that require ACT/SAT and find more opportunity for locate the tutor school location.

