

# **SAT/ACT**

## **DSI - 13 Project\_1**

**Julian Broche - EC cohort**

**I've been hired by a popular college  
blogging website to  
analyze if laws, grants and or  
political motivations that vary state  
to state may be affecting SAT/ACT  
participation rates**

# Problem Statement

**Does wide dispersion  
exist between state's SAT/  
ACT participation rates?**

**Short answer: Yes, based on EDA in the following slides**

# Qualitative Findings

- 16 States ex D.C currently require ACT vs 6 that require SAT
- Only 3 states ex D.C require both; Idaho, Ohio, Tennessee
- If you're not satisfied with your score on the mandatory test, you can retake after high-school but will cost \$\$\$
- Decisions between SAT/ACT state by state is influenced by political decisions that come from top-down, Fed > State > Local.
- They differ slightly in terms of what's tested/formatted but students typically perform the same
- Schools seem to be agnostic towards SAT/ACT

# Quantitative Findings

**Does data support initial qualitative research?**

# SAT vs ACT 2019

## Does vary state by state

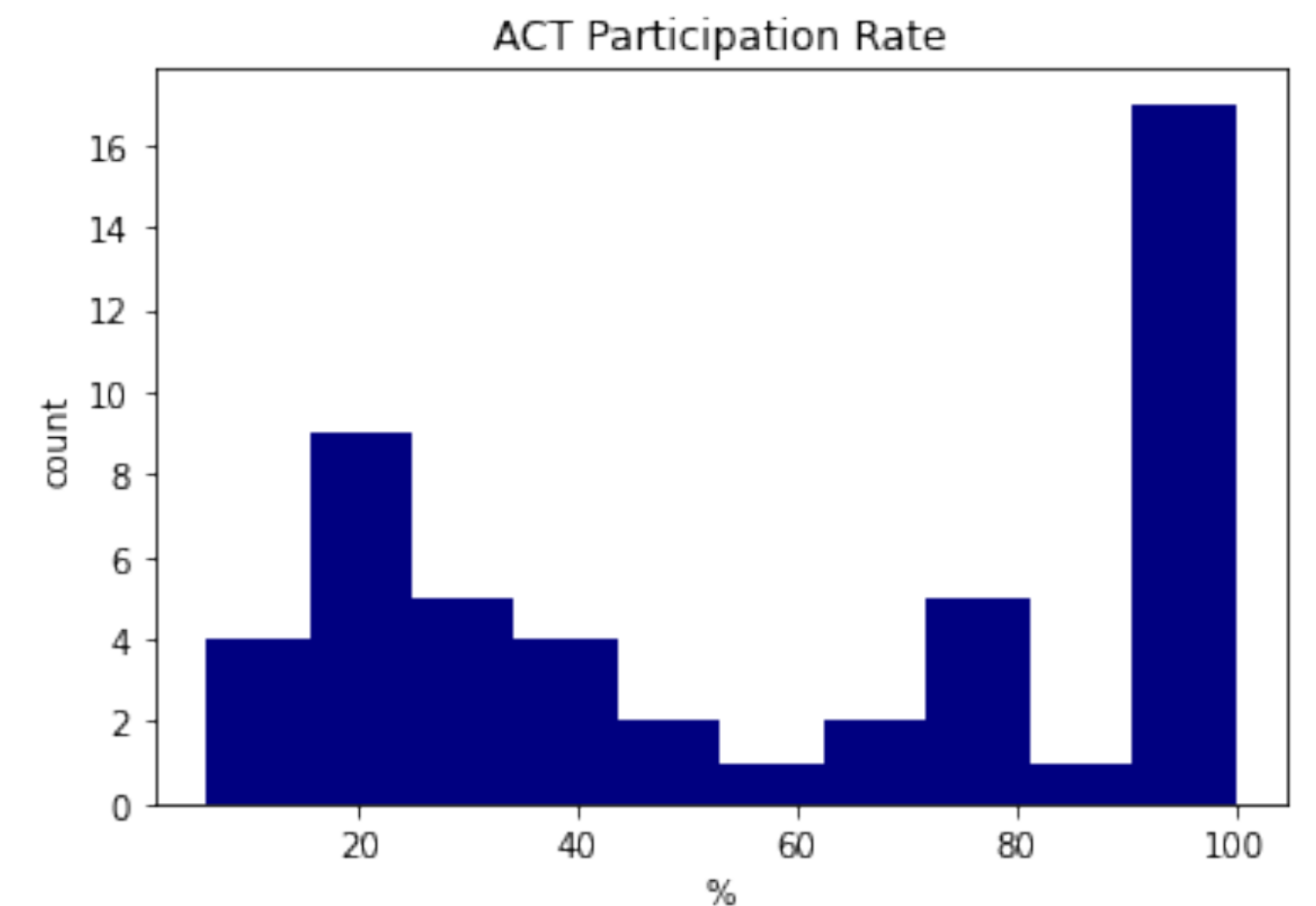
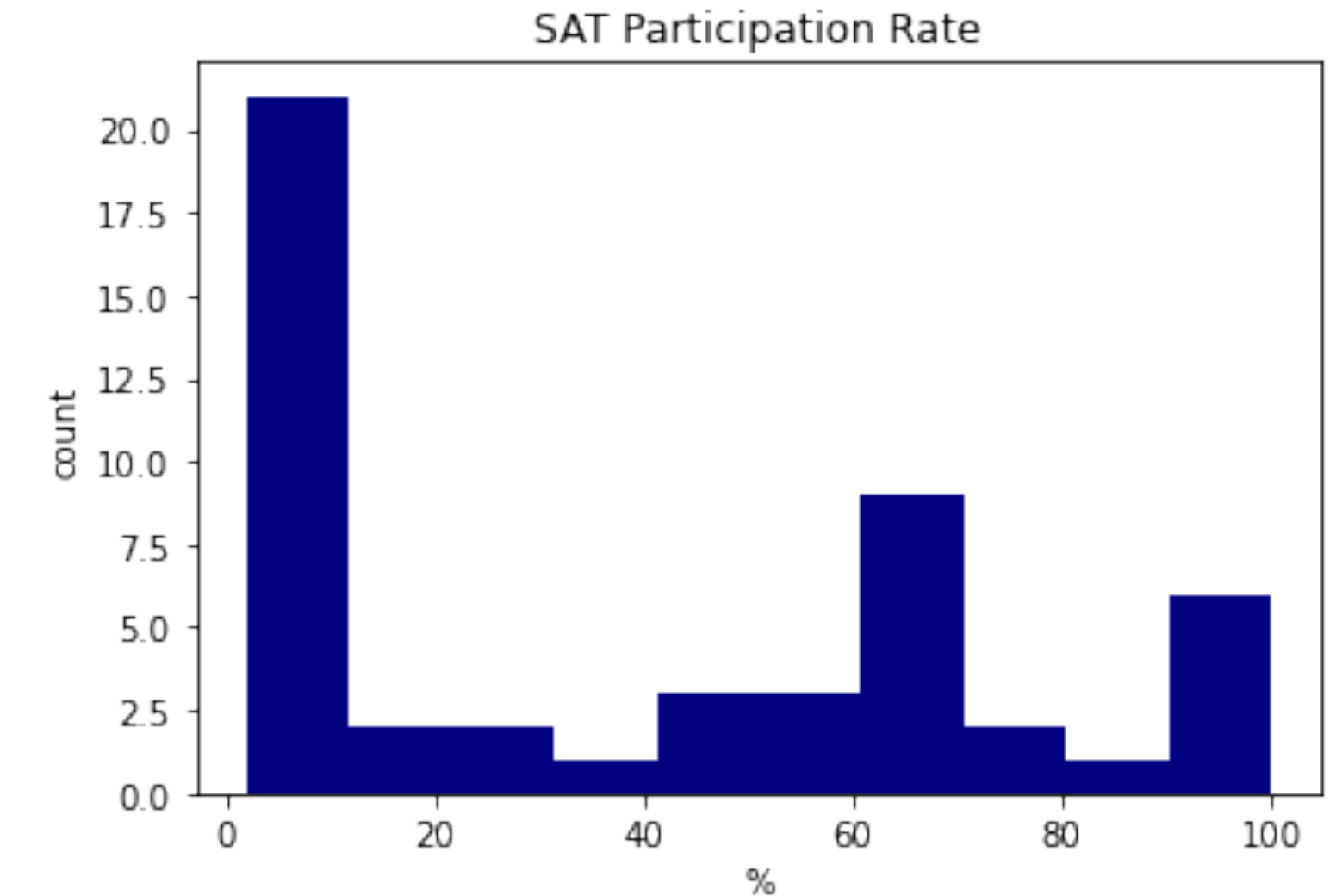
- The scale tilts towards the ACT with 34% states having  $\geq 95\%$  participation vs 10% for SAT

- SAT:

mean 38.6% > median 34.0% > mode 3.0%  
positive skew

- ACT:

mode 100% > mean 59.2% > median 58.5%  
negative skew

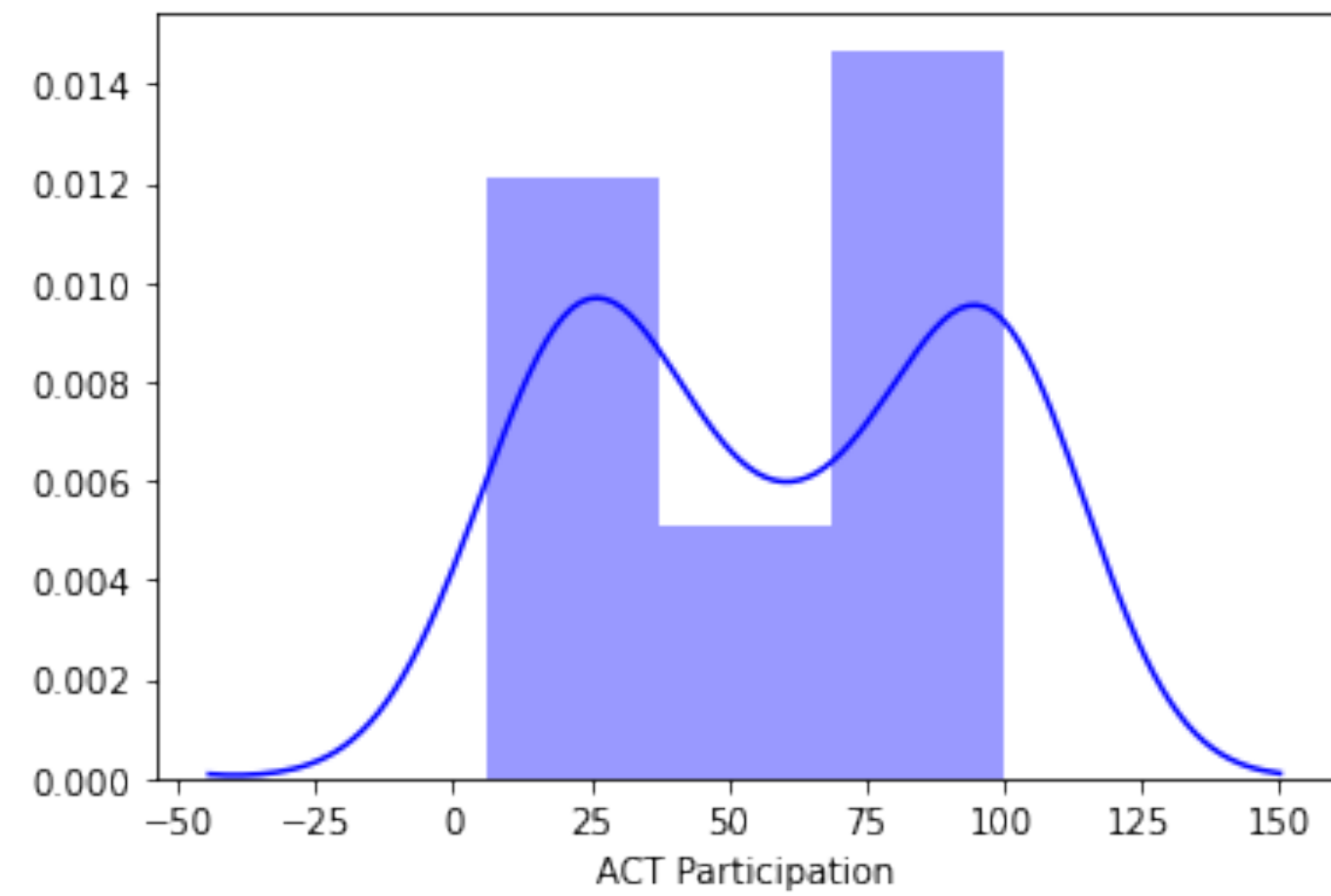
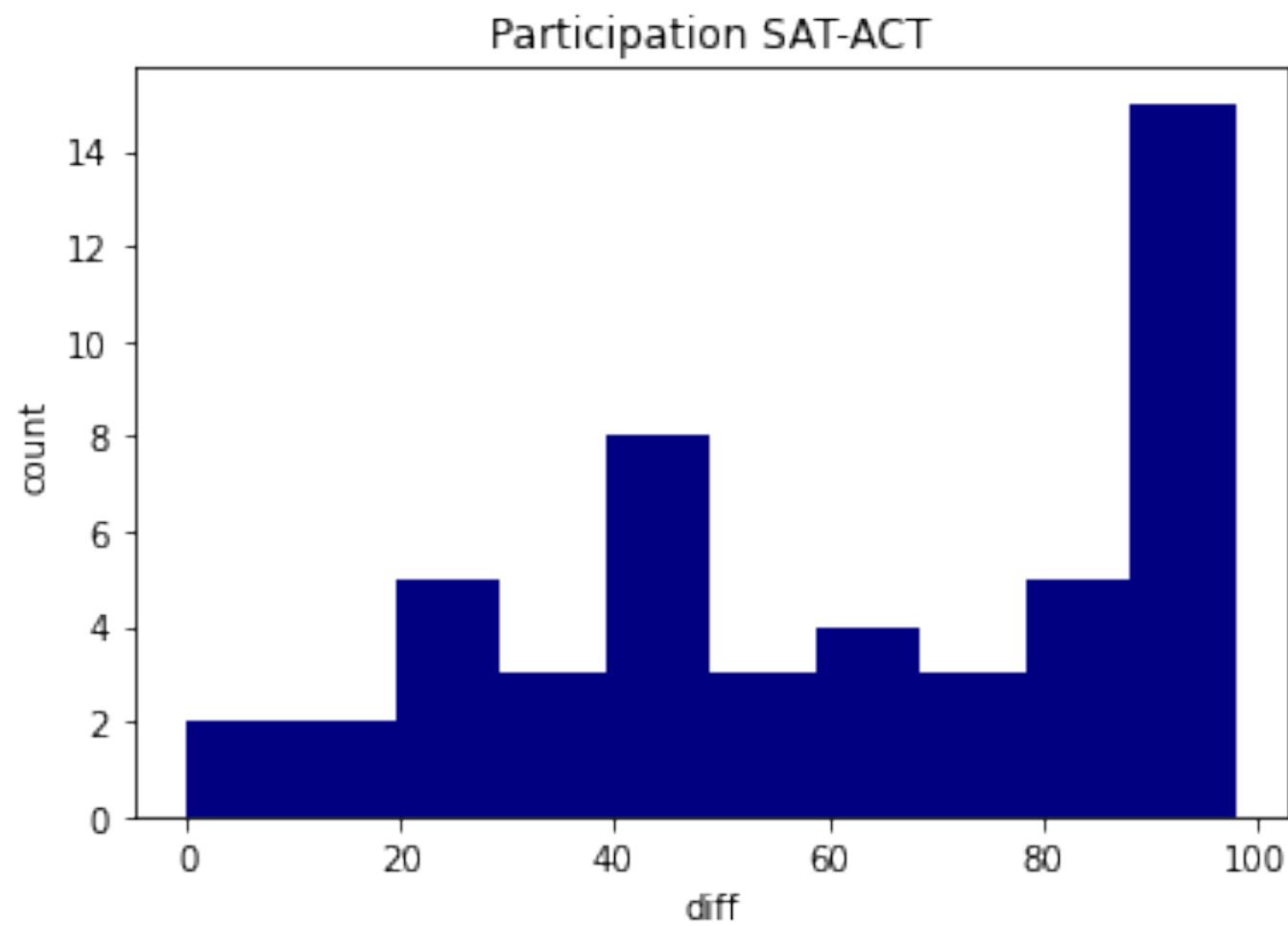
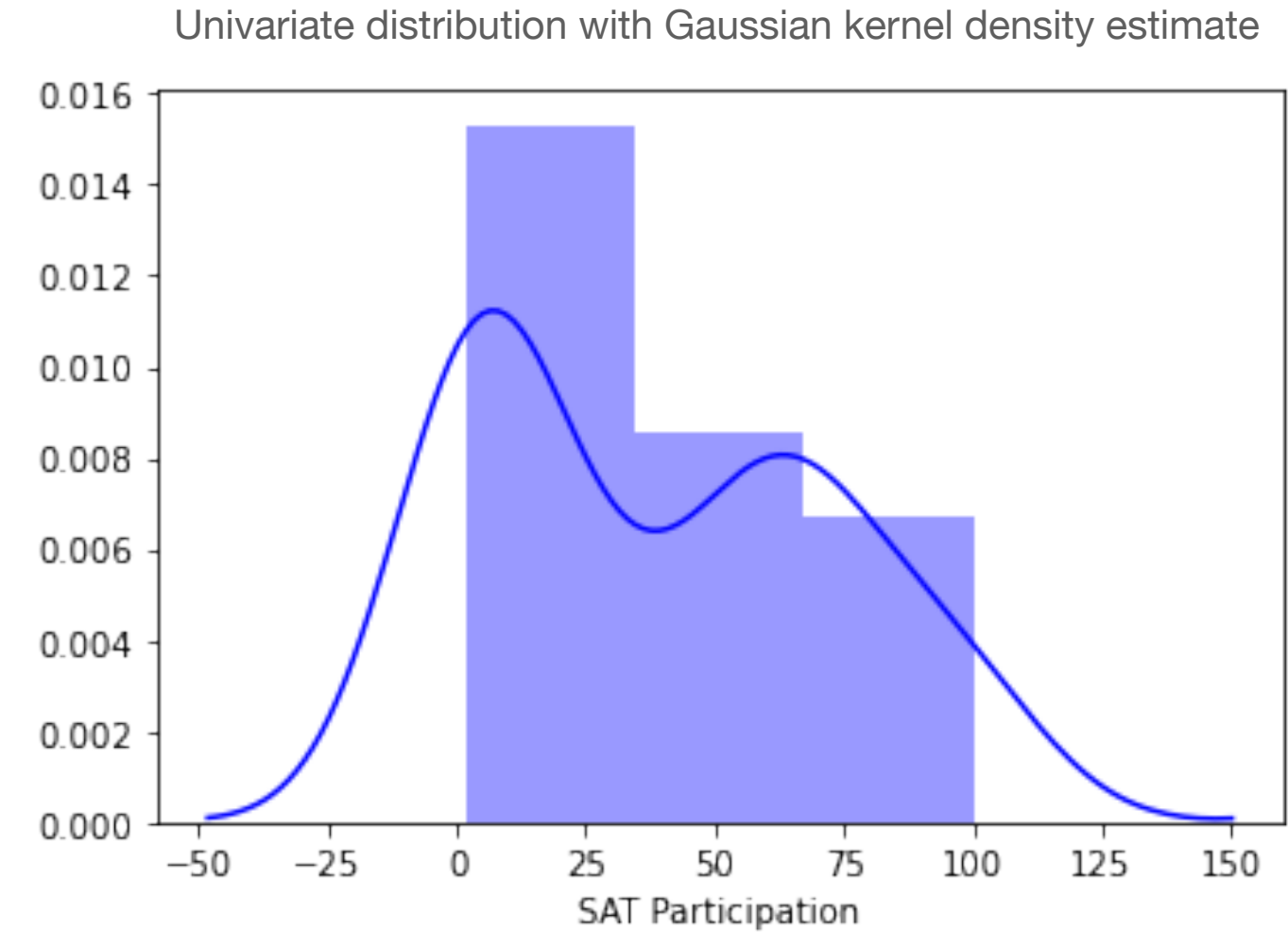
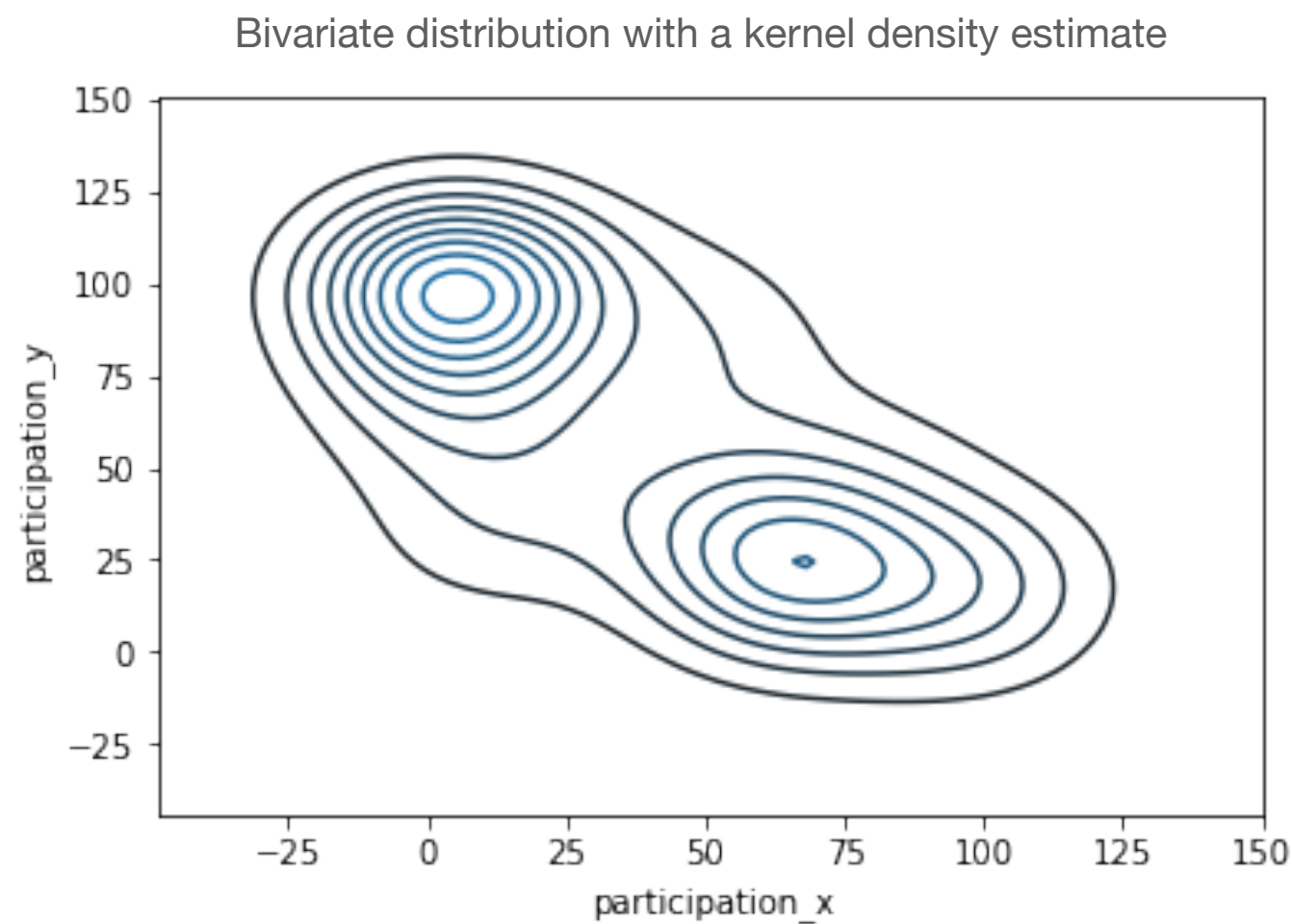


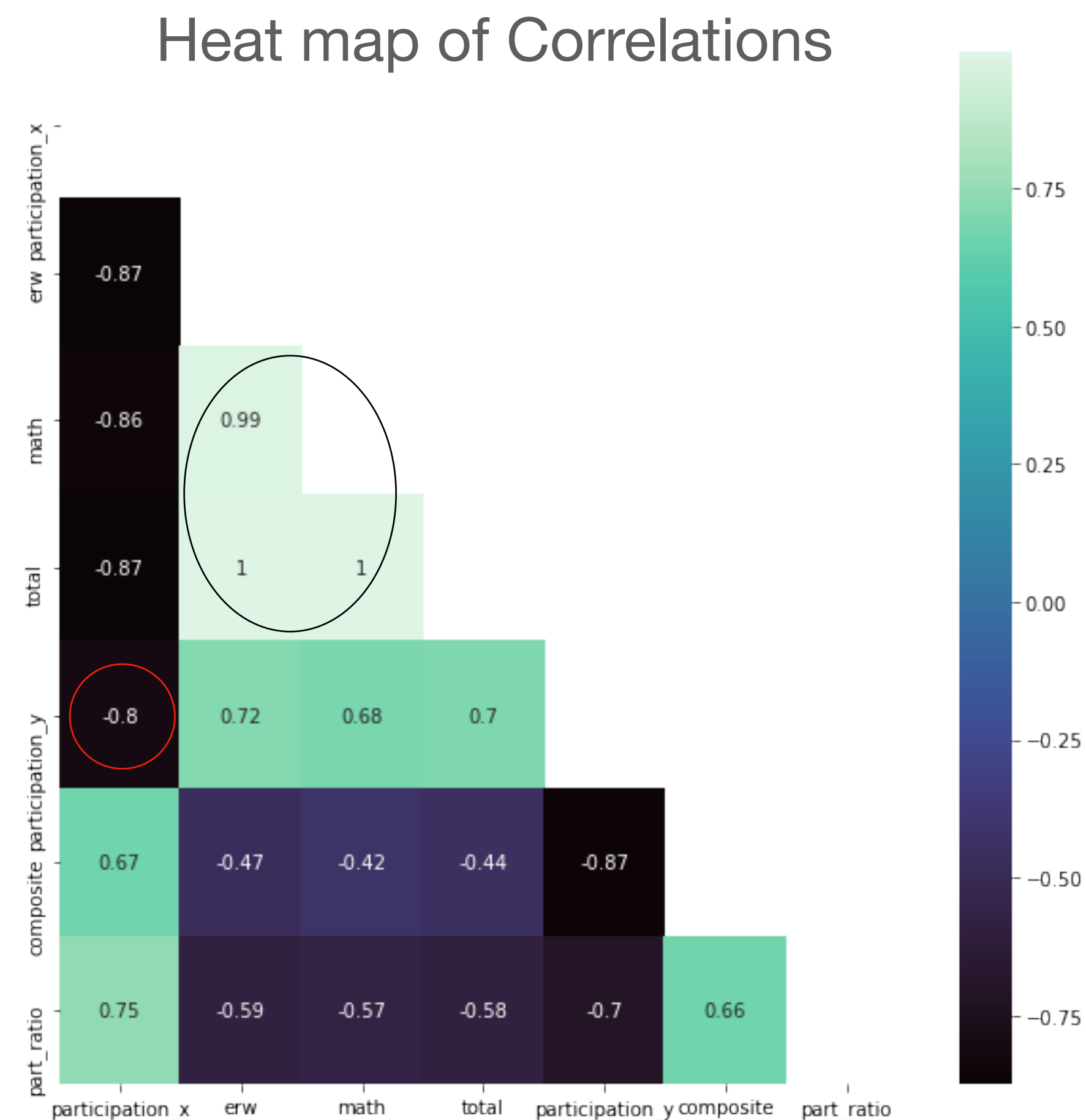
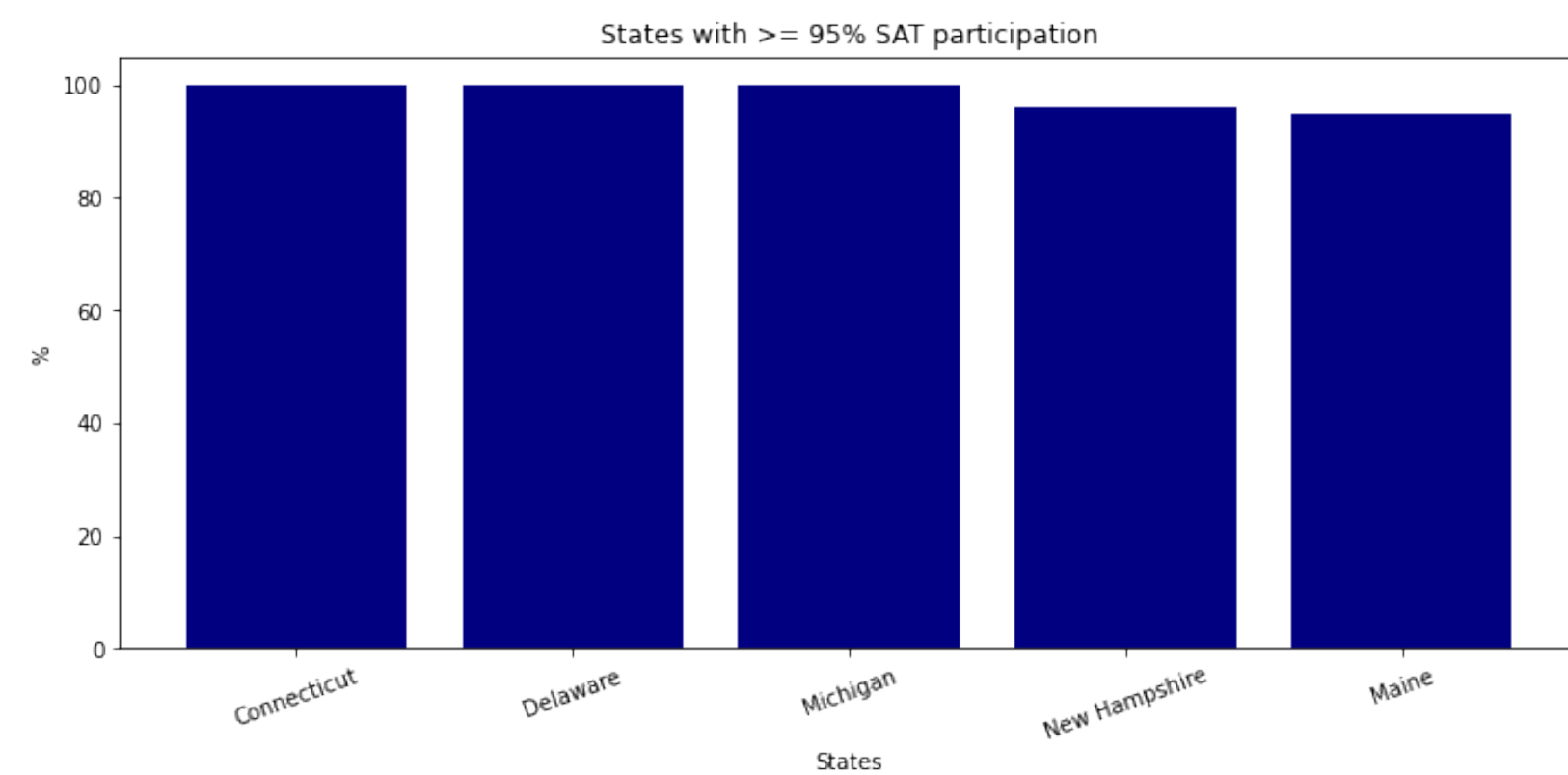
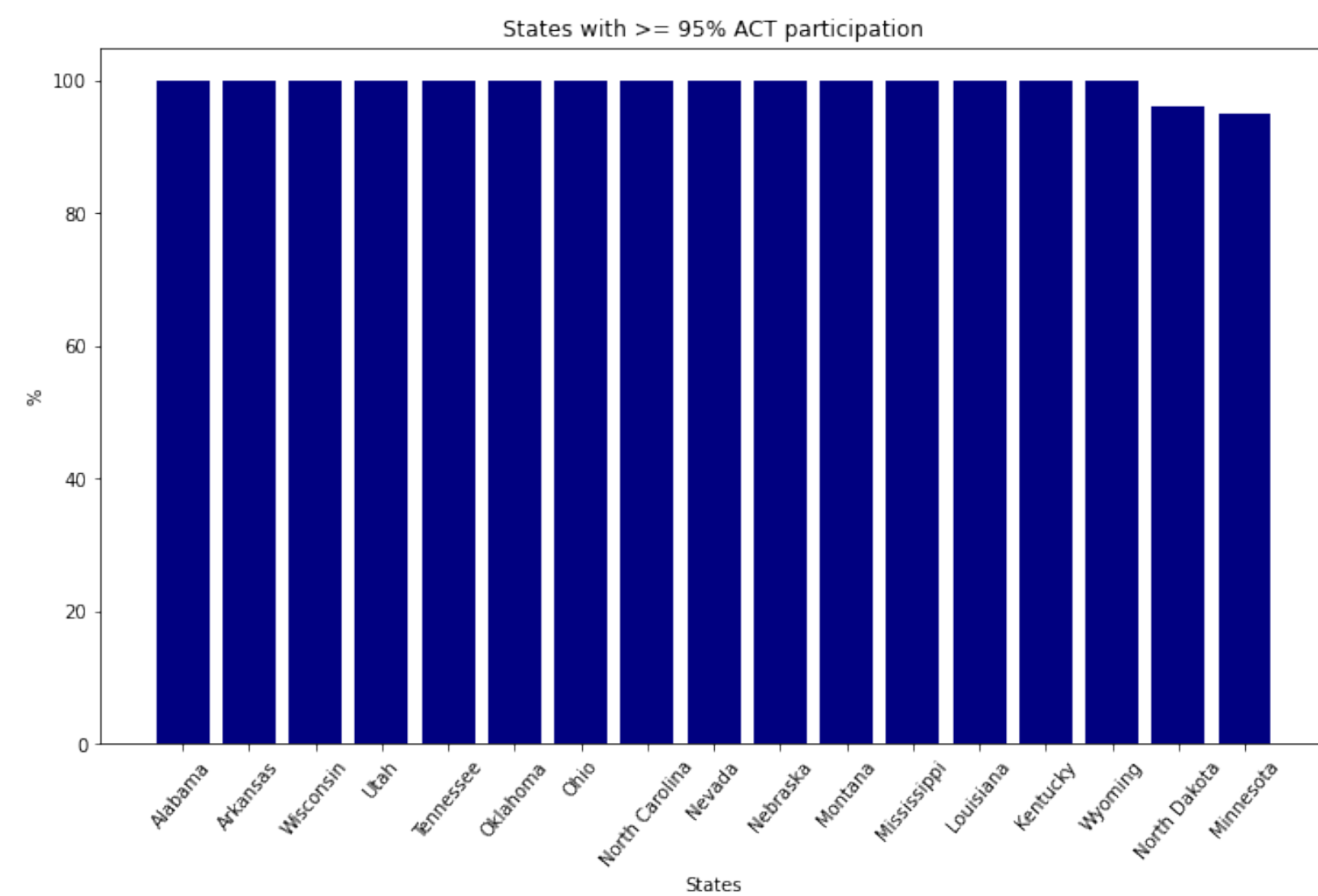


# Distributions

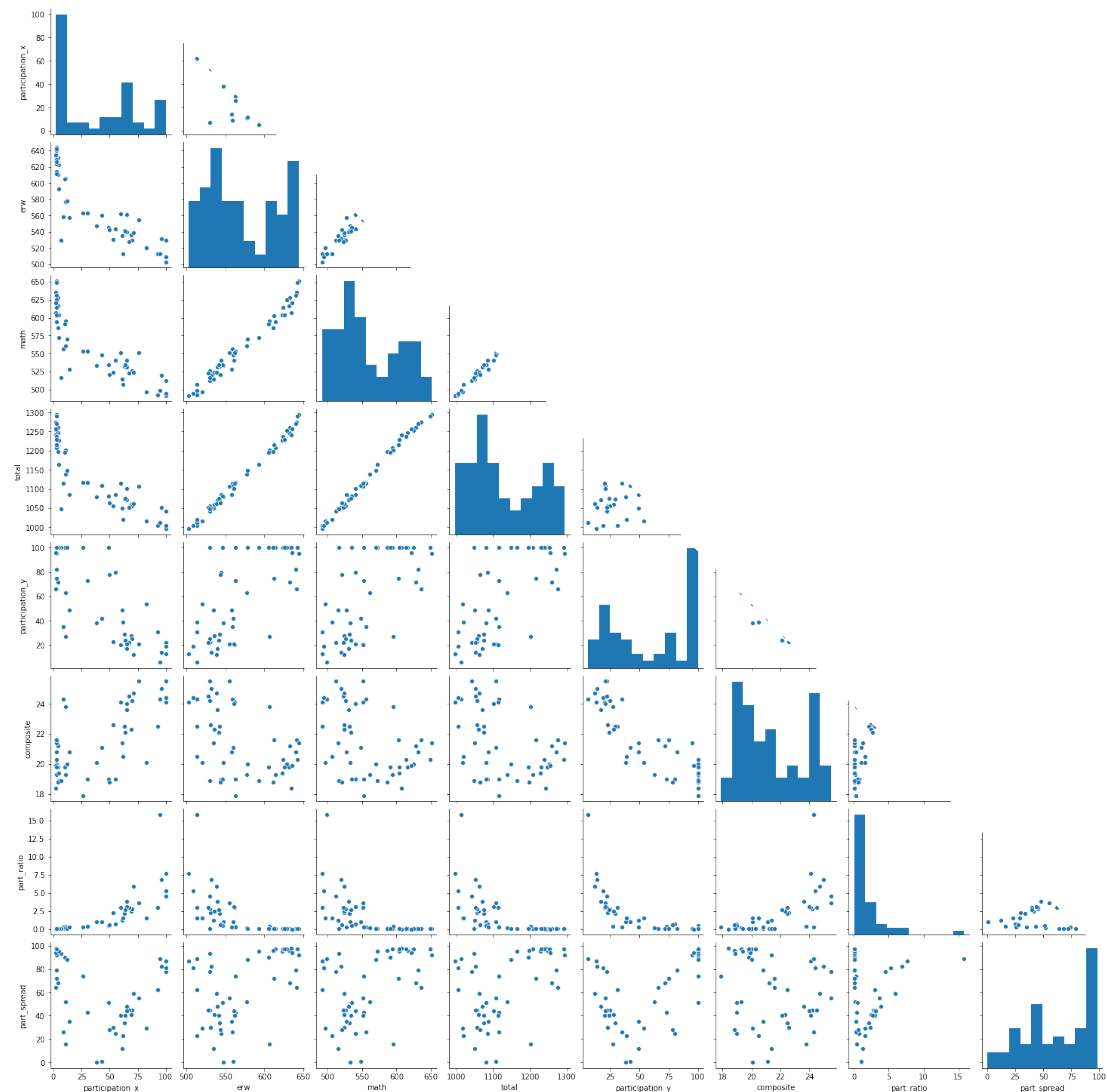
	count	mean	std	min	25%	50%	75%	max
participation_x	50.0	38.600000	34.560211	2.00	4.0000	34.000000	65.000000	100.000000
erw	50.0	570.860000	44.385146	503.00	535.2500	559.500000	613.500000	644.000000
math	50.0	558.660000	45.839832	492.00	524.0000	549.500000	601.000000	651.000000
total	50.0	1129.620000	89.913085	996.00	1057.0000	1107.500000	1214.000000	1295.000000
participation_y	50.0	59.200000	34.653386	6.00	24.2500	58.500000	100.000000	100.000000
composite	50.0	21.424000	2.197267	17.90	19.8000	20.950000	23.750000	25.500000
part_ratio	50.0	1.779275	2.813353	0.02	0.0425	0.450479	2.766667	15.833333

Although there is clear skew to SAT/ACT, Standard Devs are almost equal



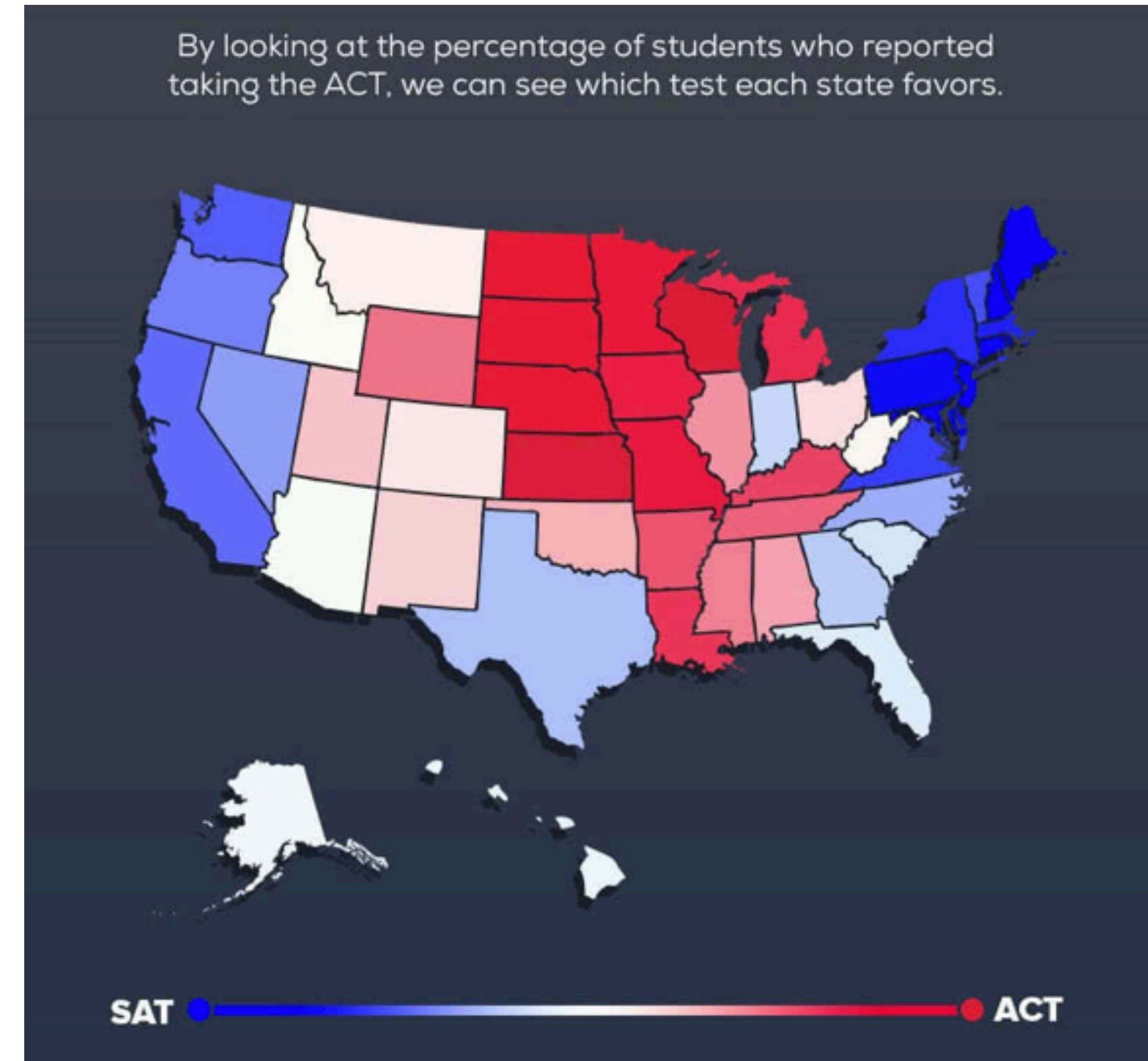


# Pairplot



# Sea vs Farmland

- Just because a student reported an ACT score, doesn't mean that they did not also take the SAT
- States that require the ACT are mostly mid-west, south-east + Hawaii



Author: [Allison Wignall www.collegeraptor.com](http://www.collegeraptor.com)

# **Data Analysis prompts more questions than answers**

**Recommend to dig more into the political associations between parties and SAT/ACT**

**Data from the Federal Election Commission show that College Board executives have an overwhelming preference for Democratic candidates. The College Board also spends hundreds of thousands of dollars on lobbying, according to the Center for Responsive Politics.**

**Maybe it's just a coincidence that states that tend to sway liberal prefer SAT?**

# That's about it

**#basic**



# Sources

[https://seaborn.pydata.org/examples/scatterplot\\_matrix.html](https://seaborn.pydata.org/examples/scatterplot_matrix.html)

<https://git.generalassemb.ly/DSI-US-13/2.03-lesson-eda/blob/master/solution-code/solution-code.ipynb>

<https://www.fairtest.org/sites/default/files/optrept.pdf>

<https://www.collegeraptor.com/getting-in/articles/act-sat/preference-act-sat-state-infographic/>

<https://towardsdatascience.com/exploratory-data-analysis-tutorial-in-python-15602b417445>

<https://www.testive.com/state-sat-act/>