

Effect of SAT and ACT participation on college admissions rates by state

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Problem statement

Many colleges require applicants to submit ACT and SAT scores as criteria for admission.

States have different participation rates in each of the exams, i.e. most states have a majority of its 11th and 12th graders to take one or the other exam. Most states tend to favor one exam over the other.

A minority of states either use both tests approximately equally or have only a small number of its 11th and 12th grades students take one of the exams.



Problem statement continued.

The Department of Education has hired me as a consultant to look into whether states that opt for one exam over the other have different rates of college acceptance.



Datasets

sat_act_by_college.csv

Ranges of Accepted ACT & SAT Student Scores by Colleges

sat_2019.csv

2019 SAT Scores and Participation rate by State

act_2019.csv

2019 SAT Scores and Participation rate by State

us-colleges-and-universities.csv

source: <https://public.opendatasoft.com/>



Data cleaning

Usual data cleaning: lowercasing, getting dummy values, merging DataFrames etc.

Associating schools to states took the longest of the data cleaning process.



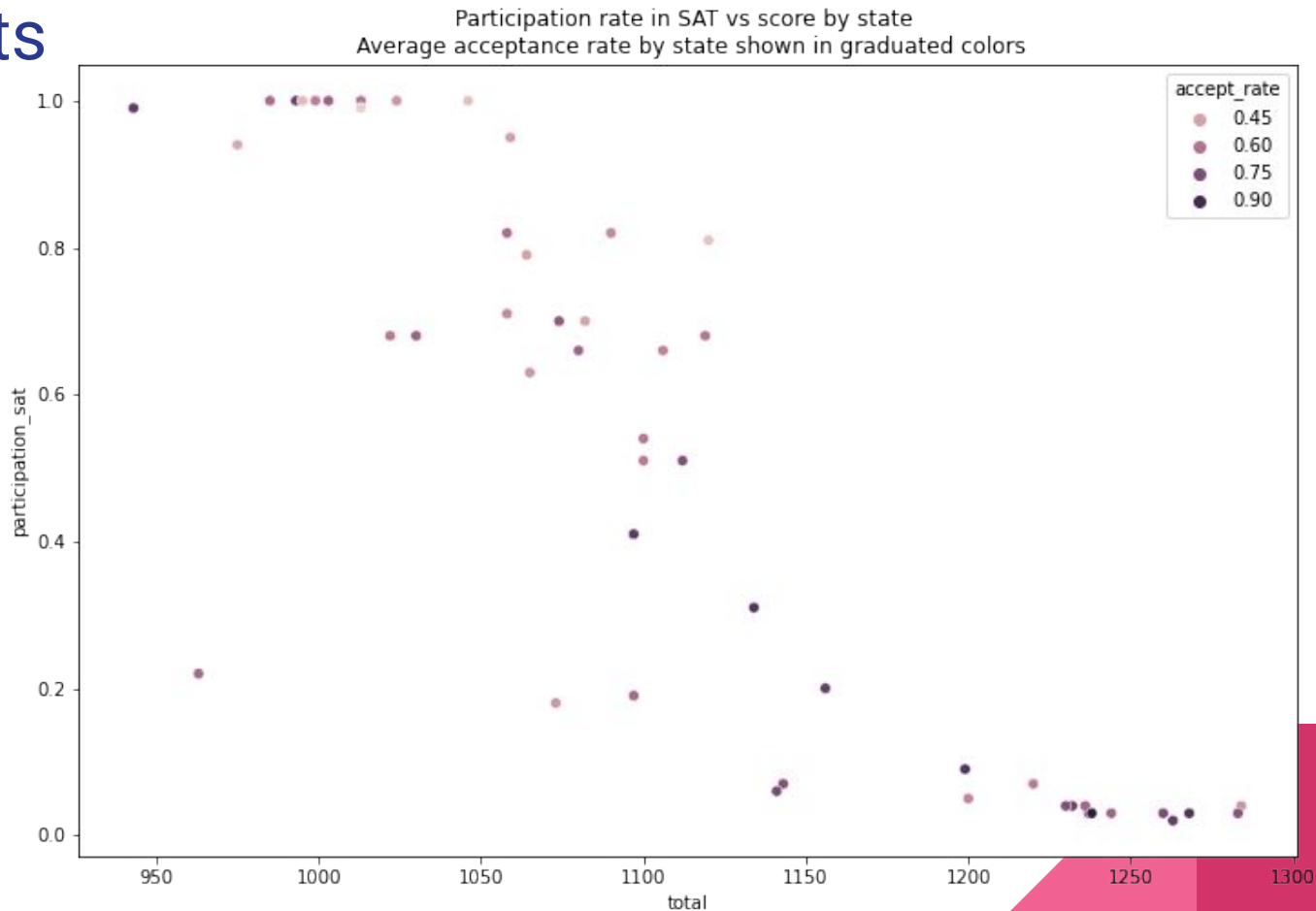
Exploratory Data Analysis

Carried out using predominantly the seaborn library for data visualization

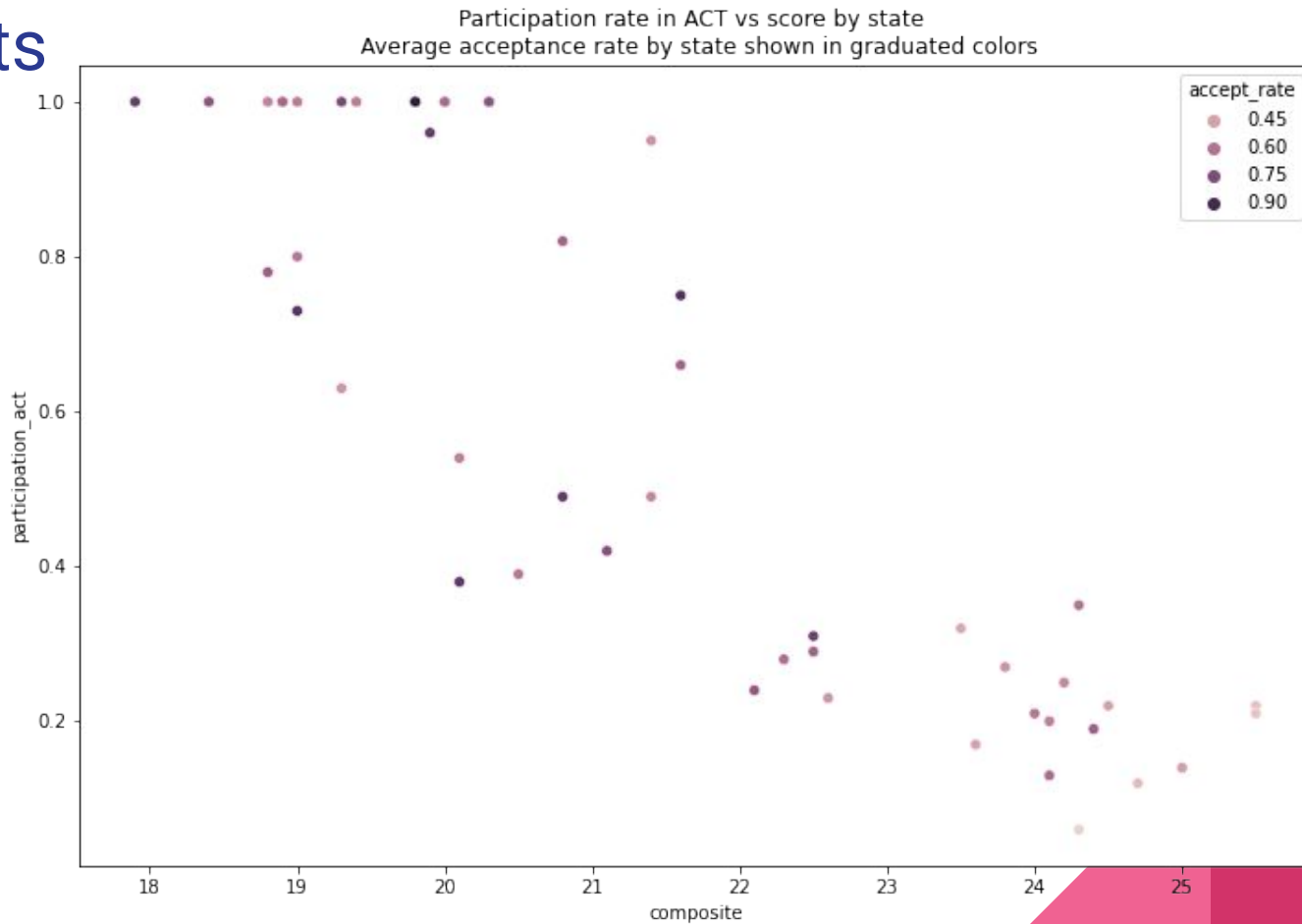
Created dozens of plots including attribute correlation heatmaps, boxplots, histograms, and scatterplots.



Results



Results



Results

SAT participation rate by state has a -0.54 correlation with college acceptance.

ACT participation rate by state has a 0.56 correlation with college acceptance.



Recommendations

Look into factors that might be causing the tendency that states with a low participation rate in the SAT have higher college acceptance rate.

Are there socioeconomic or cultural factors at work?

Are the educational policies in each state that might be causing this tendency?

Resources should be allocated to carry out research into these questions and to identify and explore other datasets that might shed more light on the matter.

