# Data Science Immersive Project 1

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#### **ACT and SAT Examinations**

#### Context for Problem Statement

You have been hired as a consultant to advise students and parents on the scores of ACT and SAT they should be aiming for, and advise locations for them to achieve their desired ACT/SAT results and get into college.

#### **Problem Statement:**

What recommendations do we give students to maximise their chances of getting into college?

### Sources

- 1. ACT 2019 Scores by States
- 2. SAT 2019 Scores by States
- 3. ACT and SAT scores by college

#### **Data Sources**

#### **ACT 2019 Scores by States**

- 1. State: State where the exams were held
- 2. Participation Rate: Number of Eligible Students in the State who took the exam
- 3. Composite Score: The Mean Composite Score of all students in the respective state

#### **SAT 2019 Scores by States**

- 1. State: State where the exams were held
- 2. Participation Rate: Number of Eligible Students in the State who took the exam
- 3. EBRW (Evidence-Based Reading and Writing) mean scores by state
- 4. Math mean scores by state
- 5. Total mean scores by state

#### ACT and SAT scores by college

- 1. School: Name of the School
- 2. Test Optional
- 3. SAT 25th to 75th Percentile
- 4. ACT 25th to 75th Percentile
- 5. Acceptance Rate
- 6. Number of Applicants

#### **ACT 2019 Findings**

Connecticut, Massachusett, New Hampshire, Rhode Island and New York are the 5 highest scoring states for ACT 2019

Nevada, Mississippi, Louisiana, South Carolina and Oklahoma are the 5 lowest scoring states in ACT 2019

Average Composite Score for ACT 2019 is 21.45

Average ACT Composite Score by States **ACT Composite** Average ACT Composite Score California Maryland Texas Alaska Nebraska Arizona Maine Illinois Virginia Indiana Idaho Georgia Oregon Missouri National Utah Florida Ohio Montana Hawaii New Hampshire Rhode Island New York Vermont Washington South Dakota owa Kansas West Virginia North Dakota Wyoming North Carolina Alabama Connecticut Massachusetts Michigan New Jersey Delaware Colorado Pennsylvania District of Columbia Minnesota Wisconsin Tennessee Arkansas New Mexico Oklahoma South Carolina Kentucky Louisiana Mississippi State

# SAT 2019 Findings

Minnesota, Wisconsin, South Dakota, North Dakota and Nebraska are the 5 highest scoring states for SAT 2019

West Virginia, Oklahoma, District of Columbia, Delaware and Idaho are the 5 lowest scoring states for SAT 2019

Average total score for SAT 2019 is 1107

Average SAT Total Score by States SAT Total Score 1200 Average SAT Composite Score 200 Alaska New York Texas Wyoming Missouri Alabama Arizona Virginia Oregon Hawaii Ohio Indiana Georgia Illinois Maine Florida Idaho South Dakota North Dakota owa Utah Montana Nevada Arkansas North Carolina Washington New Mexico South Carolina Rhode Island West Virginia Wisconsin Nebraska Mississippi Tennessee Vermont New Jersey Pennsylvania California New Hampshire Colorado Michigan Delaware District of Columbia Oklahoma National Minnesota Kansas Kentucky Louisiana Massachusetts Maryland Connecticut State

### **Weighted Scores**

Is a derived score from the maximum possible score of each exams

Combined both ACT and SAT scores as a percentage of their respective score

Get a clearer picture of the overall performance of each state regardless of which exam students took.

# Findings from Weighted Scores

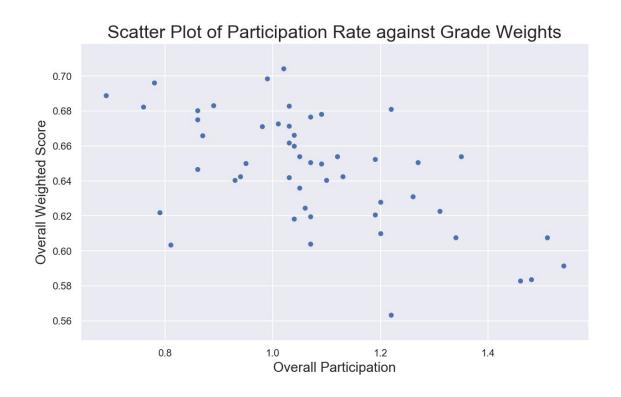
Massachusetts, Minnesota, South Dakota, Iowa and Virginia are the 5 highest overall weighted scores.

Oklahoma, South Carolina, West Virginia, Florida and New Mexico are the 5 lowest overall weighted scores.

Overall Average Weighted Score by States Overall Grade Weight 0.7 0.5 Weighted Score Virginia Wyoming Washington Mississippi Louisiana Georgia Idaho Alaska Alabama Arizona lowa Missouri Utah Maine Indiana Montana Oregon Ohio Nevada Hawaii Texas South Dakota Wisconsin Vermont New Hampshire New York North Dakota Illinois District of Columbia Arkansas North Carolina New Mexico Florida South Carolina National Massachusetts Minnesota Kansas Connecticut New Jersey Nebraska Pennsylvania Kentucky Rhode Island Michigan Tennessee Colorado California Delaware West Virginia Oklahoma Maryland State

# Interesting Trends between data

#### Higher Participation between states yielded lower overall weighted scores



# Participation Rates in some states exceeds 1

Some students may be taking both ACT and SAT tests

Taking **both** test is **not** recommended

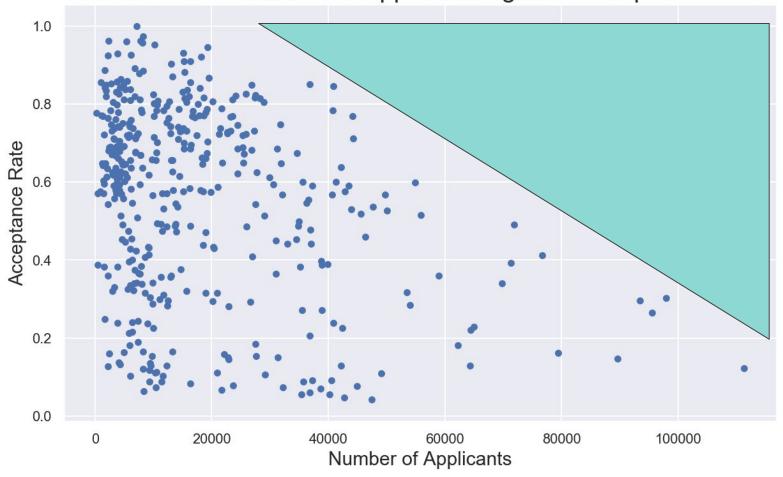
### Findings from College Admission data

24.7 to 30.6 for ACT and 1167 to 1359 for SAT is the average percentile from 25th to 75th which a college accept students.

About 55% of all applicants are accepted into college annually

# **Another Interesting Trend**

#### Scatter Plot of Number of Applicants against Acceptance Rate



The higher the number of applicants to a certain college, the lower the chances of acceptance.

Advisable to apply for a college with less applicants to maximise your chances of acceptance.

#### Recommendation

Score a ACT Composite Score of at least 24.7

Score a SAT Total Score of at least 1167

Moving to nearer to Ivy League Colleges may help increase your ACT/SAT scores

Aim for one exam instead of taking both

Universities may not be considering ACT/SAT results as a requirement

# Thank You!