

The College Application Process Through Data Science

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Today's Goals

- Compare SATs and ACTs:

 - Do I have to take both??

 - Is one easier than the other?

 - Which one should I take?

- After I take the test and get a score, then what? What colleges can I get into?

Do We Have To Take Both?

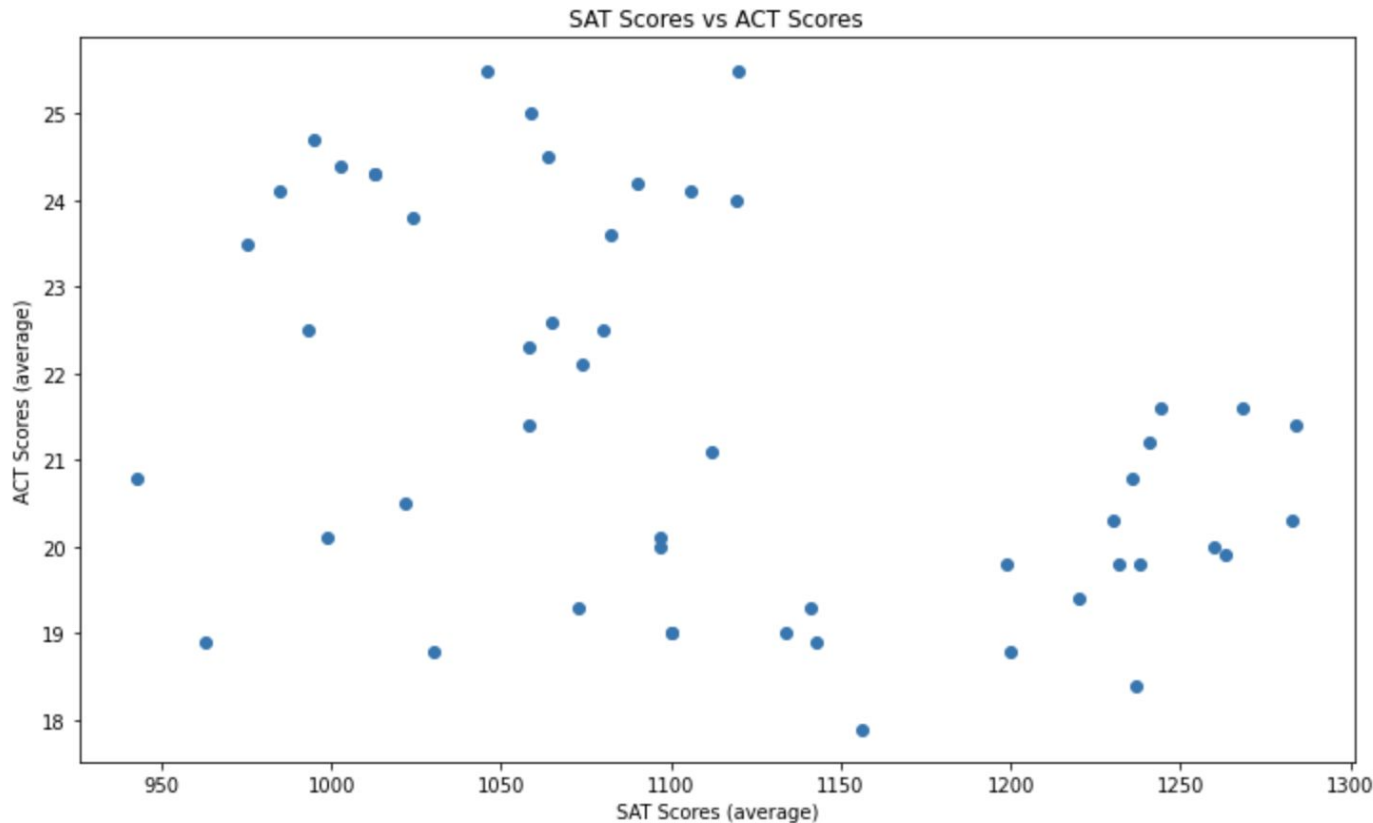
-Absolutely not. In fact, let’s take a look and compare participation rates for both exams by state:

	State	SAT Participation	EBRW	Math	Average SAT Total	ACT Participation	Average ACT Score
39	Rhode Island	100.0	503	492	995	12.0	24.7
13	Illinois	100.0	509	504	1013	35.0	24.3
22	Michigan	100.0	507	496	1003	19.0	24.4
5	Colorado	100.0	518	506	1024	27.0	23.8
6	Connecticut	100.0	529	516	1046	22.0	25.5
7	Delaware	100.0	499	486	985	13.0	24.1
9	Florida	100.0	516	483	999	54.0	20.1
12	Idaho	100.0	505	488	993	31.0	22.5
19	Maine	99.0	512	502	1013	6.0	24.3
48	West Virginia	99.0	483	460	943	49.0	20.8
29	New Hampshire	95.0	533	526	1059	14.0	25.0
8	District of Columbia	94.0	495	480	975	32.0	23.5
30	New Jersey	82.0	544	545	1090	25.0	24.2
20	Maryland	82.0	535	523	1058	28.0	22.3
21	Massachusetts	81.0	559	561	1120	21.0	25.5

	State	SAT Participation	EBRW	Math	Average SAT Total	ACT Participation	Average ACT Score
0	Alabama	7.0	583	560	1143	100.0	18.9
17	Kentucky	4.0	620	612	1232	100.0	19.8
49	Wisconsin	3.0	635	648	1283	100.0	20.3
44	Utah	4.0	614	615	1230	100.0	20.3
42	Tennessee	7.0	618	602	1220	100.0	19.4
36	Oklahoma	22.0	490	472	963	100.0	18.9
35	Ohio	19.0	550	548	1097	100.0	20.0
33	North Carolina	51.0	554	546	1100	100.0	19.0
28	Nevada	20.0	580	576	1156	100.0	17.9
27	Nebraska	3.0	628	631	1260	100.0	20.0
26	Montana	9.0	603	596	1199	100.0	19.8
24	Mississippi	3.0	628	608	1237	100.0	18.4
18	Louisiana	5.0	610	591	1200	100.0	18.8
50	Wyoming	3.0	623	615	1238	100.0	19.8
3	Arkansas	6.0	582	559	1141	100.0	19.3

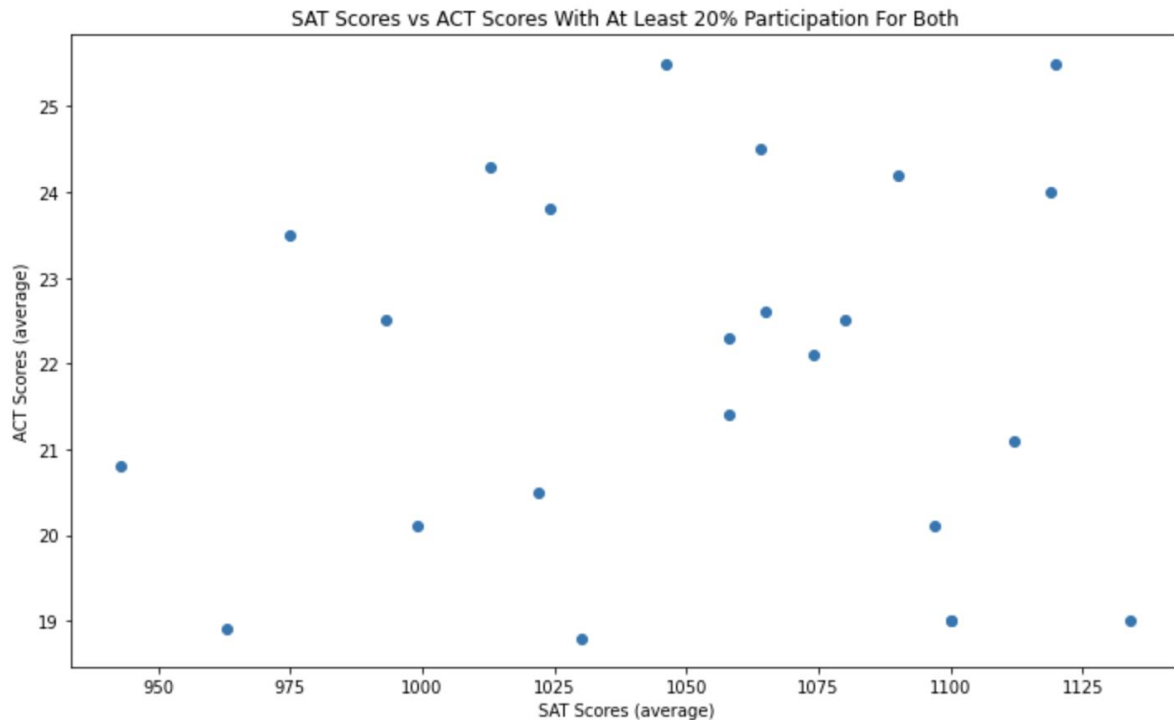
What's Easier? I'll Take The Easier Test

-Let's compare the average scores by state, maybe one show's a trend of being "easier"!



...well that was “scattered” (I’m sorry)

- Same test but with at least 20% participation for both tests:



So What Does That Mean?

- According to the Princeton Review: “The SAT and ACT generally cover the same topics. Both ACT and SAT scores are used for college admissions decisions and awarding merit-based scholarships. Most colleges do not prefer one test over the other. Neither the SAT or ACT is harder than the other. Different students tend to do better on one test over the other.”

I Took The SATs, Got My Score, Now What?

-After hiding the score from your parents, you'll want to see how it relates to the scores that colleges report for their previously accepted students

-Let's take a look at the data of expected scores by state:

	School	Test Optional?	Applies to Class Year(s)	Policy Details	Number of Applicants	Accept Rate	SAT Total 25th-75th Percentile	ACT Total 25th-75th Percentile
0	Stanford University	Yes	2021	Stanford has adopted a one-year test optional ...	47452	4.3%	[1440.0, 1570.0]	32-35
1	Harvard College	Yes	2021	Harvard has adopted a one-year test optional p...	42749	4.7%	[1460.0, 1580.0]	33-35
2	Princeton University	Yes	2021	Princeton has adopted a one-year test optional...	35370	5.5%	[1440.0, 1570.0]	32-35
3	Columbia University	Yes	2021	Columbia has adopted a one-year test optional ...	40203	5.5%	[1450.0, 1560.0]	33-35
4	Yale University	Yes	2021	Yale has adopted a one-year test optional poli...	36844	6.1%	[1460.0, 1570.0]	33-35

I Looked At The List, Applied to Harvard, They Laughed, What Gives?

-Well it's important to pay closer attention to the '**SAT Total 25th-75th Percentile**'

-25th Percentile: 25% of data to the left of the mark (below)

-75th Percentile: 75% to the left (with only 25% higher)

-With this knowledge it would be smart to assume that if our scores falls closer to the 25th percentile, it's more of a "reach" school, whereas if we fall closer to the 75th percentile it may not qualify as a "safety school" but let's call it a "safer school" (more likely to be accepted)

So Now I Sift Through ALL These School Scores?

-Nope. I'll do it for you. I've created two widget functions that will let you input your scores and return a list of colleges where your score is either equal or higher than.

-Don't worry if your score is closer to the 25th percentile, I compared my own score to my alma mater, and was smack dab on the 25th percentile.

Mass. Avg Score Example: 1120 Potential Reaches

-Not always a reach, if score is way higher than the 25th percentile

-The closer your score is the number, the more likely it might be a “reach”

-This list is intuitively much lengthier than the safer list (and extends quite a bit more than picture

```
[ 'San Diego State University',  
  1110.0,  
  'Hampton University',  
  1040.0,  
  'CUNY--Hunter',  
  1090.0,  
  'Berea College',  
  1030.0,  
  'Pratt Institute',  
  1100.0,  
  'California State University--Los Angeles',  
  890.0,  
  'California State University--Long Beach',  
  1040.0,  
  'Spelman College',  
  1080.0,  
  'University of New Mexico',  
  1040.0,  
  'University of La Verne',  
  1000.0
```

Mass. Avg Score Example: 1120 Potential Safer

-Here we see a much smaller list? Does that make sense?

-Yes, because it's a higher percentile/threshold, so will require a higher score to qualify for the list

```
['California State University--Los Angeles',  
 1080.0,  
 'California State University--San Bernardino',  
 1090.0,  
 'Gallaudet University',  
 1078.0,  
 'University of Texas El Paso',  
 1050.0]
```

Widget Time!

-Let's Test it out with our own scores!

What Did We Learn?

-We were able to apply our data science methods to determine that neither the SAT or ACT is easier or harder comparatively, as supported by the Princeton Review comments.

-Then we were able to apply our recorded SAT score and apply it to our By College dataset and see where our scores fall in comparison to other previously accepted students. Giving us insight on what schools are might be more worthwhile when applying