

Exploring NYC Public School Test Result Scores

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Photo by [Jannis Lucas](#) on [Unsplash](#).

Every year, American high school students take SATs, which are standardized tests intended to measure literacy, numeracy, and writing skills. There are three sections - reading, math, and writing, each with a **maximum score of 800 points**. These tests are extremely important for students and colleges, as they play a pivotal role in the admissions process.

Analyzing the performance of schools is important for a variety of stakeholders, including policy and education professionals, researchers, government, and even parents considering which school their children should attend.

You have been provided with a dataset called `schools.csv`, which is previewed below.

You have been tasked with answering three key questions about New York City (NYC) public school SAT performance.

```
[65]: # Re-run this cell
import pandas as pd

# Read in the data
schools = pd.read_csv("schools.csv")

# Preview the data
schools.head()
```

```
[65]:
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	school_name	percent_tested
0	New Explorations into Science, Technology and ...	NaN
1	Essex Street Academy	78.9
2	Lower Manhattan Arts Academy	65.1
3	High School for Dual Language and Asian Studies	95.9
4	Henry Street School for International Studies	59.7

[5 rows x 7 columns]

```
[67]: # Which schools are best for math?
best_math_schools = schools[schools["average_math"] >= 640][["school_name",
↪ "average_math"]].sort_values("average_math", ascending=False)
```

```
[68]: best_math_schools
```

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[68]:
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	school_name	average_math
88	Stuyvesant High School	754
170	Bronx High School of Science	714
93	Staten Island Technical High School	711
365	Queens High School for the Sciences at York Co...	701
68	High School for Mathematics, Science, and Engi...	683
280	Brooklyn Technical High School	682
333	Townsend Harris High School	680
174	High School of American Studies at Lehman College	669
0	New Explorations into Science, Technology and ...	657
45	Eleanor Roosevelt High School	641

```
[69]: # Calculate total_SAT per school
schools["total_SAT"] = schools["average_math"] + schools["average_reading"] +
↪ schools["average_writing"]
# Who are the top 10 performing schools?
top_10_schools = schools.sort_values("total_SAT",
↪ ascending=False)[["school_name", "total_SAT"]].head(10)
top_10_schools
```

```
[69]:
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	school_name	total_SAT
88	Stuyvesant High School	2144
170	Bronx High School of Science	2041

93	Staten Island Technical High School	2041
174	High School of American Studies at Lehman College	2013
333	Townsend Harris High School	1981
365	Queens High School for the Sciences at York Co...	1947
5	Bard High School Early College	1914
280	Brooklyn Technical High School	1896
45	Eleanor Roosevelt High School	1889
68	High School for Mathematics, Science, and Engi...	1889

```
[70]: # Which NYC borough has the highest standard deviation for total_SAT?
boroughs = schools.groupby("borough")["total_SAT"].agg(["count", "mean", "std"])
boroughs
```

```
[70]:
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	count	mean	std
borough			
Bronx	98	1202.72	150.39
Brooklyn	109	1230.26	154.87
Manhattan	89	1340.13	230.29
Queens	69	1345.48	195.25
Staten Island	10	1439.00	222.30

```
[71]: # Filter for max std and make borough a column
largest_std_dev = boroughs[boroughs['std']==boroughs['std'].max()]
largest_std_dev
```

```
[71]:
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	count	mean	std
borough			
Manhattan	89	1340.13	230.29

```
[72]: # Rename the columns for clarity
largest_std_dev = largest_std_dev.rename(columns={"count": "num_schools", "mean": "average_SAT", "std": "std_SAT"})
largest_std_dev
```

```
[72]:
```

	num_schools	average_SAT	std_SAT
borough			
Manhattan	89	1340.13	230.29