

EXECUTIVE REPORT: NYC PUBLIC SCHOOLS SAT PERFORMANCE ANALYSIS

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Project Category: Educational Data Analytics / Statistical Analysis

1. Project Overview

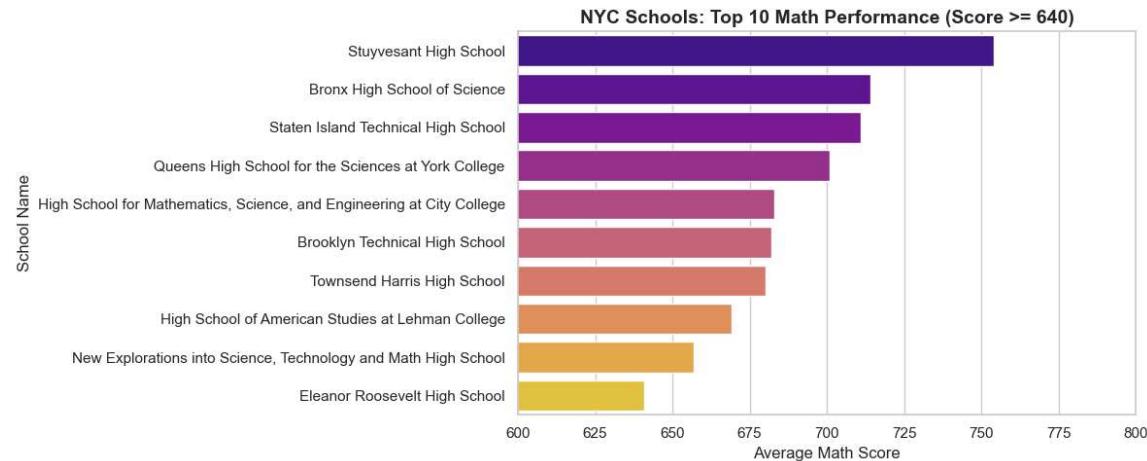
This analysis investigates the academic performance of New York City public high schools using SAT (Scholastic Assessment Test) results. The study focuses on identifying top-tier institutions in Mathematics and overall performance, while quantifying educational disparity across the five boroughs through variability analysis.

2. Key Objectives

- Math Excellence Identification:** Filter and rank schools with an average math score of at least 640.
- Total Performance Ranking:** Calculate an integrated "Total SAT" metric to identify the top 10 schools in the city.
- Geographic Variability Analysis:** Determine which borough exhibits the highest standard deviation in SAT scores.

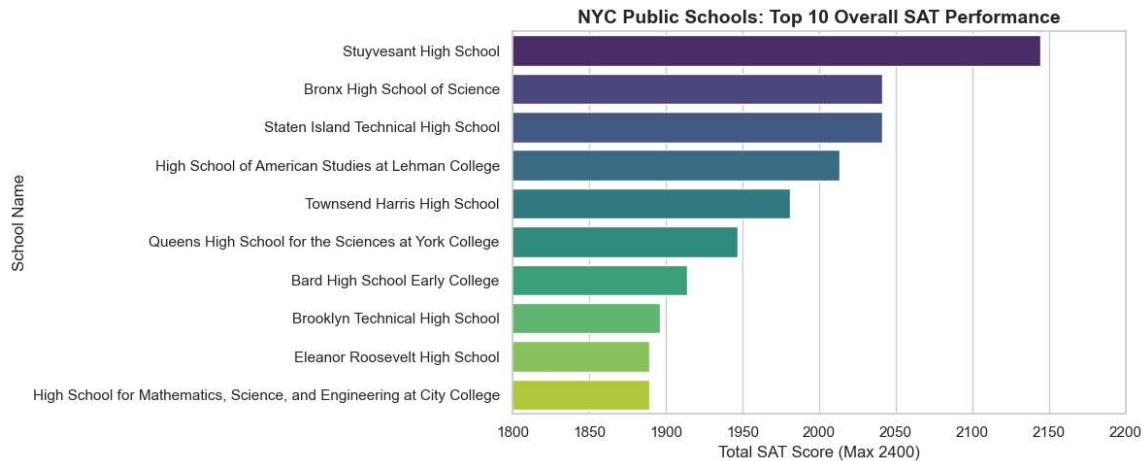
3. Visual Analysis & Interpretation

A. Elite Math Performance



- Interpretation:** The visualization confirms a elite group of schools that significantly exceed the 640-point threshold.
- Insight:** Schools like Stuyvesant High School show a specialization in STEM, serving as a benchmark for academic excellence in the district.

B. Top 10 Overall SAT Ranking



- Interpretation:** This chart ranks the schools by their combined score across all three sections (Math, Reading, and Writing).
- Insight:** The top-performing schools are relatively close in total score, suggesting a high level of competition and standardized excellence among the city's specialized high schools.

4. Principal Findings: The Inequality Gap

The analysis revealed that **Manhattan** is the borough with the highest academic disparity.

| Metric | Value |
|-------------------------------|-------------------------|
| Number of Schools (Manhattan) | 89 schools |
| Average SAT Score | 1340.13 points |
| Standard Deviation (std_SAT) | 230.29 (Highest in NYC) |

- Technical Conclusion:** A high standard deviation in Manhattan indicates that while the borough contains the highest-scoring schools, it also harbors institutions with significantly lower scores. This "academic polarization" is a critical insight for resource allocation.