NAT-LYTICS: A PREDICTIVE ANALYTICS MODEL FOR ESTIMATING GRADE 6 LEARNERS' NATIONAL ACHIEVEMENT TEST (NAT) PROFICIENCY

(ANALYTIC DASHBOARD)

by

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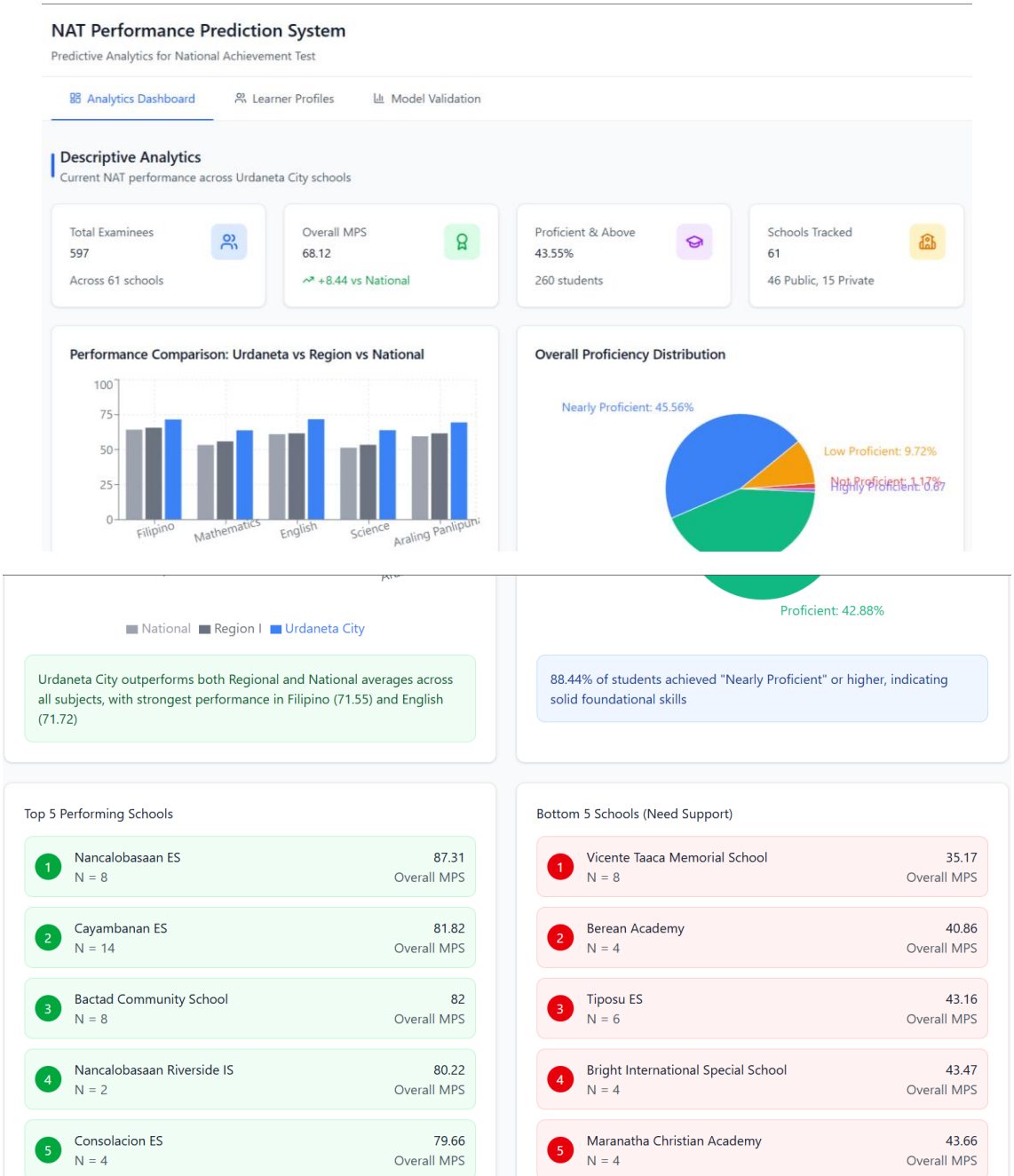
Part I: Descriptive Analytics

Part I of the NAT-LYTICS dashboard presents a comprehensive descriptive analytics overview of the National Achievement Test performance across 61 schools in Urdaneta City. It utilizes key performance indicators (KPIs), subject-specific comparisons, and a proficiency distribution pie chart to visualize the district's current academic standing against regional and national benchmarks. This section serves as the foundational baseline for the study by identifying existing performance gaps and prioritizing schools that require immediate intervention.



PART II: Diagnostic Analysis

Part II focuses on **Diagnostic Analytics** by breaking down NAT performance into subject-wise proficiency levels and institutional categories. It highlights critical weaknesses, such as a high non-proficiency rate in **Mathematics** and a significant performance gap between **public and private schools**. These insights allow stakeholders to move from observing general trends to addressing the specific academic and demographic root causes of lower test scores.

Diagnostic Analytics

Understanding factors affecting NAT performance

⚠ Public vs Private
Public schools outperform private by 17.5 points

⚠ Math Performance
Mathematics lags behind Filipino by 7.74 points

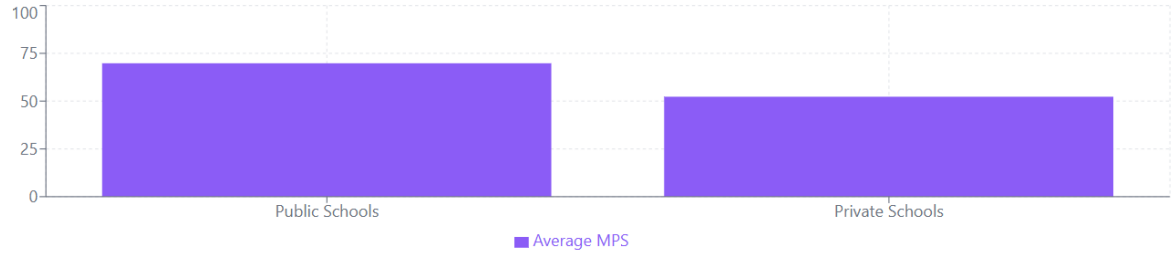
⚠ Science Mastery
Only 27.47% reached proficient level in Science

Subject-wise Proficiency Levels (% of Students)

Subject	Not Proficient	Low Proficient	Nearly Proficient	Proficient	Highly Proficient
Filipino	0.84%	8.71%	41.54%	45.23%	3.69%
Mathematics	4.86%	19.26%	39.53%	30.49%	5.86%
English	2.01%	8.71%	40.54%	42.04%	6.70%
Science	2.85%	16.08%	53.60%	27.47%	0.00%
Araling Panlipunan	2.68%	12.56%	38.36%	38.53%	7.87%

Mathematics shows highest "Not Proficient" rate (4.86%), indicating need for focused intervention. Science shows 0% "Highly Proficient" - critical concern for advanced learning.

Public vs Private School Performance

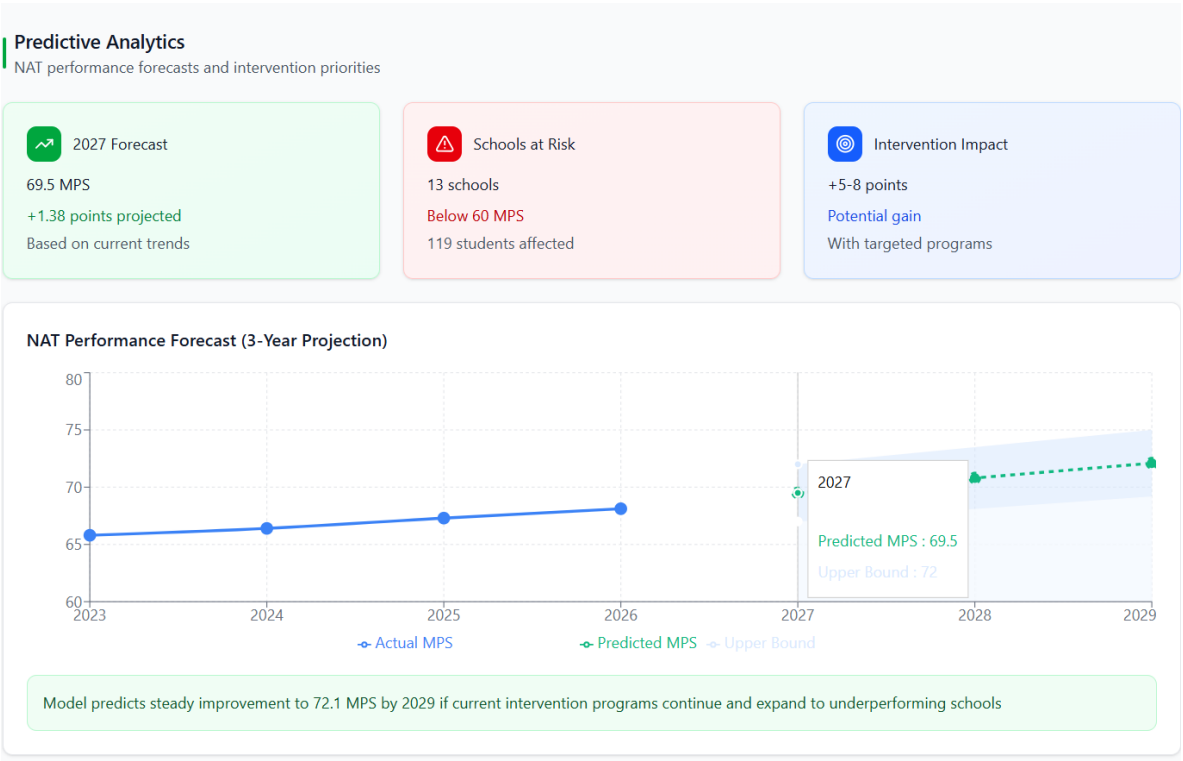


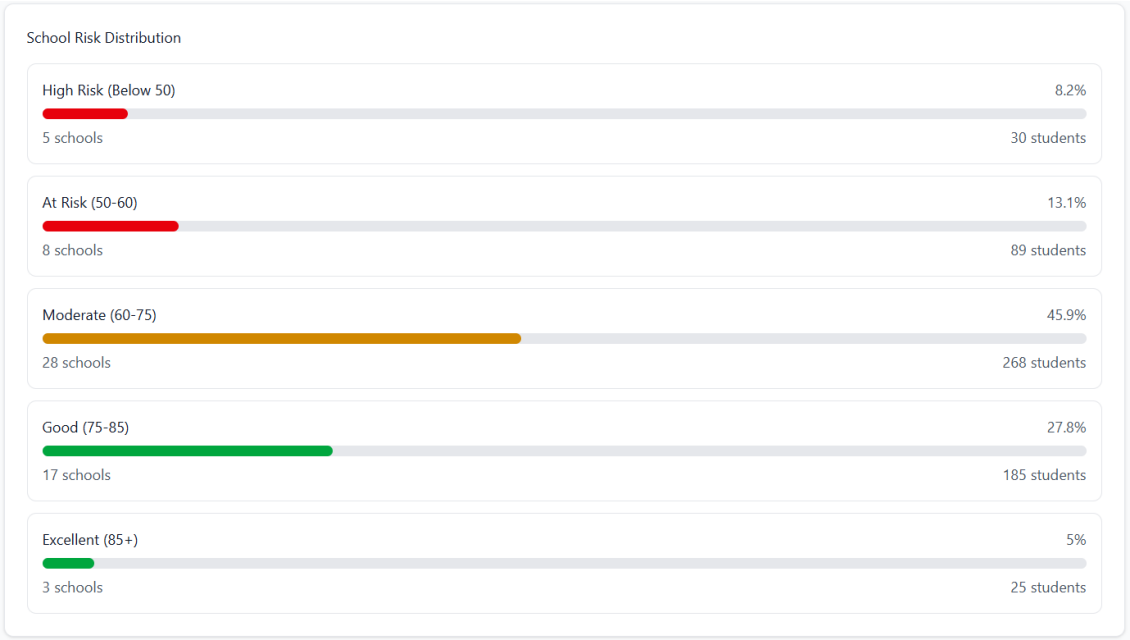
Public Schools
46 schools with average MPS of 69.8 - significantly outperforming private institutions

Private Schools
15 schools with average MPS of 52.3 - requires investigation into quality and resource allocation

Part III: Predictive Analytics

Part III focuses on Predictive and Prescriptive Analytics by forecasting a steady improvement in NAT scores to 72.1 MPS by 2029 based on current trends. It identifies 13 schools at risk and provides AI-powered recommendations, such as a Mathematics Intensive Program, to strategically boost performance. This section transforms data into a forward-looking roadmap for targeted educational interventions.





AI-Powered Intervention Recommendations

Mathematics Intensive Program

Focus on 13 schools below 60 MPS. Mathematics shows weakest performance (63.81 avg)

Potential impact: +8-12 points MPS

Private School Quality Improvement

15 private schools averaging 52.3 MPS need curriculum review and teacher training

Potential impact: +10-15 points MPS

Science Excellence Program

0% students reached "Highly Proficient" in Science - develop advanced learning tracks

Potential impact: +5-7 points MPS

Best Practice Sharing

Replicate strategies from top 5 schools (87+ MPS) to underperforming institutions

Potential impact: +6-10 points MPS