# Batch-wise Performance Analysis Report

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## 1 Executive Summary of Performance

| Batch | Mean Score | Median Score | Std. Deviation | Total Students | Min Score | Max Score |
|---|---|---|---|---|---|---|
| AI_ELITE_4 | 3.79 | 4.0 | 1.44 | 48 | 0 | 7 |
| AI_ELITE_6 | 4.23 | 4.0 | 1.64 | 48 | 0 | 7 |
| AI_ELITE_7 | 5.06 | 5.0 | 1.45 | 53 | 2 | 7 |

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## 2 Key Insights

### A. Batch AI_ELITE_7 — The Top Performers

- **Performance:**
  This batch leads with the highest average score of **5.06 / 7**.
- **High Scorers:**
  Approximately **43.4%** of students scored **6 or 7**, more than double the high-scorer rate of AI_ELITE_6.
- **Consistency:**
  The minimum score is **2**, indicating that even the lowest-performing students outperform the weakest students in other batches (min = 0).

*Overall, AI_ELITE_7 demonstrates both high achievement and consistency.*

### B. Batch AI_ELITE_6 — High Variance Group

- **Performance:**
  Mid-range performance with an average score of **4.23**.
- **Diversity in Learning Levels:**
  Highest standard deviation (**1.64**), suggesting a wide gap between strong and weak performers.
- **Score Spread:**
  - **18.8%** scored very high
  - **12.5%** scored **2 or below**

- **Potential:**
  While top students perform well, a sizable portion may require additional academic support.

*This batch needs targeted intervention rather than uniform teaching.*


## C. Batch AI_ELITE_4 — The Struggling Batch

- **Performance:**
  Lowest average score at **3.79**.
- **Low Scorers:**
  Nearly **19%** of students scored **2 or less**, the highest low-score rate among all batches.
- **High Achievers:**
  Only **8.3%** managed to score **6 or 7**.
- **Challenge Identified:**
  The pace or difficulty of the material may be overwhelming for this group.

*AI_ELITE_4 shows clear signs of foundational gaps.*


# 3 Comparative Visualization Insights

## Average Scores

- The bar chart `avg_score_per_batch.png` shows a **steady upward trend** from AI_ELITE_4 → AI_ELITE_7.

## Score Distribution

- The boxplot `score_distribution_boxplot.png` highlights:
  - Median score of **5.0** for AI_ELITE_7
  - Median score of **4.0** for AI_ELITE_4 and AI_ELITE_6
- The entire distribution of AI_ELITE_7 is shifted higher.

## Score Frequency

- The frequency plot `score_frequency_by_batch.png` shows:
  - AI_ELITE_7 peaks at score **7**
  - AI_ELITE_4 peaks around **3**
  - AI_ELITE_6 peaks around **4**

# 4 Recommendations

## For AI_ELITE_4

- Conduct **review sessions** or **foundational workshops**
- Nearly **1 in 5 students** are scoring very low and need immediate academic support

## For AI_ELITE_6

- Apply **targeted intervention** for the lower-performing half
- Aim to reduce performance variance while supporting high achievers

## For AI_ELITE_7

- Introduce **advanced or accelerated material**
- This batch is well-prepared for higher-level challenges

# Conclusion

- **AI_ELITE_7** is excelling and ready for advancement
- **AI_ELITE_6** has strong potential but needs focused support
- **AI_ELITE_4** requires immediate academic reinforcement

*Strategic, batch-specific interventions will significantly improve overall learning outcomes.*



Average Score per Batch

Score Distribution per Batch

Frequency of Scores by Batch