Boyer–Moore Majority Vote Algorithm - Analysis Report

Overview: The Boyer–Moore Majority Vote algorithm identifies the majority element in a sequence (if it exists) in linear time and constant space. It works by maintaining a candidate and a counter, updating both in a single pass.

Complexity Analysis:

- Time Complexity: Θ(n) for all cases (best, average, worst)
- Space Complexity: Θ(1)

Empirical Validation: Benchmark results confirm linear scaling with input size.

Conclusion: The algorithm is optimal for majority element detection in a single pass.