



- **Algorithm Critique and Comparison:** Present two LLM-generated solutions for the same problem (one $O(n^2)$ and one $O(n \log n)$) and require students to determine which is better, explain why, and justify the algorithmic choice.

Conclusion: The New Algorithms Skillset

The job market will favor graduates who possess **algorithmic intuition, critical analysis, and high-level design capability**.

Instead of: *"Can you write a Quick Sort?"* (which an LLM can do), the new questions will be:

1. *"Given this performance requirement and massive dataset, how will you modify Quick Sort to leverage external memory efficiently, and what's the complexity analysis of your modification?"*
2. *"Design a system that tracks the top 10 trending topics in real-time. Which data structure would you use, and justify your choice with a detailed complexity analysis for insertion and retrieval operations."*
3. *"Here is a solution generated by an LLM. It's $O(n^3)$. Explain the algorithmic flaw and propose an $O(n^2)$ Dynamic Programming solution."*

The course must fundamentally teach students to be **architects of logic**—the ones who know *what* algorithm to use and *why*—leaving the *how* (the syntax) to their AI assistant.



Ask Gemini

