

Learning gist

****Generate a short, concise synthesis of the learning (~300 words) from the class session that the student will share with classmates and submit via the form to the instructor.****

In today's class, we compared deterministic and randomized quicksort. Doing such a comparison provided an insight why randomized quicksort would yield a better practical result, even though it takes additional $O(n)$ to randomize the input. This is because in randomized quicksort, even if the input was intentionally put as a sorted array (for deterministic quicksort, this would be $O(n^2)$), we would still have the expected running time $O(n \log n)$ when we do the probabilistic analysis. Instead of randomizing, we could also use the median-of-3 approach to deal with the sorted array case, in which we would more likely select a pivot that will provide a more even split.