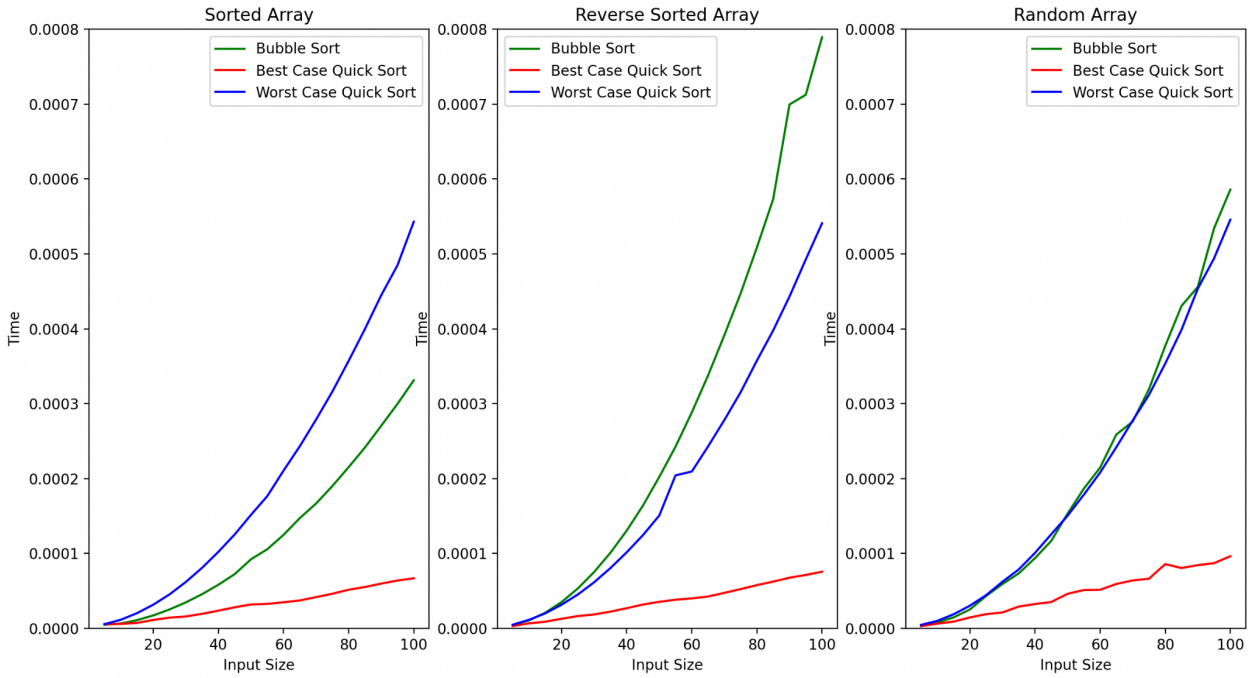
Exercise 2



Threshold: Input size 20

Sorted Array:
Bubble Sort (Green): Performs better on already sorted inputs, but its quadratic nature starts becoming evident beyond 20 elements.
Best-Case QuickSort (Red): Very efficient, remaining the fastest method throughout.
Worst-Case QuickSort (Blue): Shows quadratic growth, overtaking Bubble Sort beyond 20 elements.

Reverse Sorted Array:
Bubble Sort (Green): Always performs the worst in this case.
Best-Case QuickSort (Red): Still the fastest.
Worst-Case QuickSort (Blue): Performs better than Bubble Sort but follows a similar growth trend.

Random Array:
Bubble Sort (Green) & Worst-Case QuickSort (Blue): Almost identical performance, both showing quadratic behavior.
Best-Case QuickSort (Red): Still significantly better.

Across all graphs, 20 elements mark the transition point where execution times for Bubble Sort and Worst-Case QuickSort begin to grow significantly, and QuickSort maintains efficiency. Thus, for small inputs (≤ 20), Bubble Sort is acceptable, but for larger inputs, QuickSort should be preferred.