

Week 02

Exercise -01

As the input sizes double, the runtimes of algorithm 1 roughly quadruple (with a slight exception between rows 3 and 4 where it's around fivefold), suggesting a quadratic growth rate, $O(n^2)$, since 4 equals 2^2 . Conversely, for algorithm 2, the runtimes consistently increase by a fixed amount (around 3-4), indicating stable differences rather than ratios. This pattern suggests logarithmic growth, $O(\log n)$.

Exercise-02

The function contains two nested loops, both iterating up to 'n' times, where 'n' represents the size of the input. This results in a complexity of $O(n^2)$