

-Algorithm analysis - Analysis of complexity of algorithms & finding most efficient algorithm to solve a problem

-Big-O Notation - Statistical measure, used to describe the algorithm complexity.

-- Measured in BEST case, AVERAGE case, & WORST case

-- **Always Pick WORST CASE**

FROM FASTEST TO SLOWEST

$O(1)$ constant (or $O(k)$ for constant k)

$O(\log n)$ logarithmic

$O(n)$ linear

$O(n \log n)$ "n log n"

$O(n^2)$ quadratic

$O(n^3)$ cubic

$O(n^k)$ polynomial (where k is constant)

$O(k^n)$ exponential (where constant $k > 1$)

$O(n!)$ factorial

TO FIND BIG O NOTATION

1 Find Fastest Growing Term

EX.) $T = an + b$ $an =$ Fastest Growing Term

2 Take out the Coefficient

EX.) $an = n \rightarrow O(n)$

EX.2) $T = cn^2 + dn + e$

-- $cn^2 =$ Fastest Growing Term

-- $n^2 =$ No Coefficient

-- $O(n^2)$