Big O

Adrien Tremblay

Big-O notation

Big-O gives an upper bound on the complexity in the **worst** case to quantify performance as input size becomes arbitrarily large.

- Constant Time: **O(1)**
- Logarithmic Time: **O(log(n))**
- Linear Time: **O(n)**
- Linearithmic Time: **O(nlog(n))**
- Quadric Time: **O(n^2)**
- Cubic Time: **O(n^3)**
- Exponential Time: **O(b^n)**, $b > 1$
- Factorial Time: **O(n!)**

Big-O properties

- O(n+c) = O(n)
- O(cn)A = O(n), $c > 0$
- A function f(n) will be simplified to only the worst factor.