تاريخ: / /

Types of Big - O(f(n))

1. O(1) - Constant time

* Time doesn't grow with input size
* Example.
  Accessing an element by index in an array.

2. O(log n) - Logarithmic time

* Increases slowly as n grows
* Example:
  - Binary Search

3. O(n) - Linear Time.

* Time grows directly with n.
* Example
  - Loop through an array.

4. O(n log n) - Linearithmic Time

* Slightly worse than linear, but better than quadratic.
* Example: Merge Sort, Heap Sort, Tim Sort.

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5. $O(n^2)$ - Quadratic Time

* Time grows with the square of n.
* Example
  - Nested loops over the data (like bubble sort).

6. $O(2^n)$, $O(n!)$ - Exponential & Factorial time

* Time explodes as n increases
* Example:
  - Solving traveling salesman by brute force ($O(n!)$).