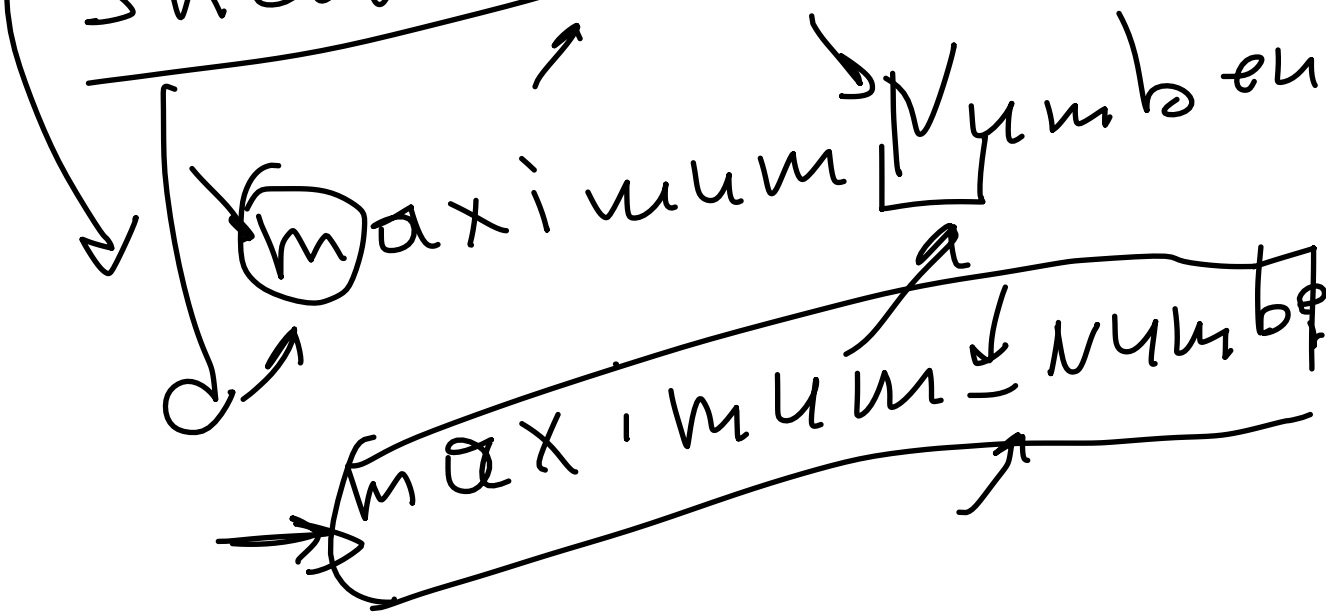
Coole style

1. more unolenstolnolable for me / others
2. easy to find bugs
3. easy to prevent bugs

CamelCase vs Snake_case



$O(n)$ - upper bound

$\Omega(n)$ - lower bound

$\Theta(n)$ - upper bound and lower bound are the same.

Asymptotic Hints →

- $\log(n^{100}) = 100 \cdot \log(n) =$

$= O(\log n)$

- $\log_{\log(5)}(n) = \frac{1 \cdot \log n}{\log 5} =$

$= O(\log n)$

- $n^{\log(5)}$

$2 < \log_2(5) < 3$

$n^2 < n^{\log 5} < n^3$

$O(n^3)$

$\Omega(n^2)$

Exercises | Find asymptotic & f,

- $10^{80} - O(10^{81}) = O(1) = c$
- $(5n)^7 = O(n^7) = 5^7 \cdot n^7 =$

$= O(n^7)$

- $5^{\log(3)} \cdot n^3 + 10^{100} \cdot n^2 +$

$+ \log 8 \cdot n^{3.1} + 2021 = O(n^{3.1})$

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$$T(n) = T\left(\frac{n}{2}\right) + O(1)$$

$$T(1) = O(1)$$

$$T(n) = T\left(\frac{n}{2}\right) + c$$

$$T(n) = T\left(\frac{n}{4}\right) + c + c$$

$$T(n) = T\left(\frac{n}{8}\right) + c + c + c$$

$$T(n) = T\left(\frac{n}{16}\right) + c + c + c + c$$

$$\vdots$$

$$T(n) = T\left(\frac{n}{2^i}\right) + i \times c$$

$$T(n) = \log n \cdot c = O(\log n)$$

$f = 3 \cdot \log n = \Theta(\log n)$

g

$\| g$

$2 \cdot \log n < 3 \cdot \log n < 4 \cdot \log n$

$f = \Omega(g)$ $\quad$ $f = O(g)$