Complexity

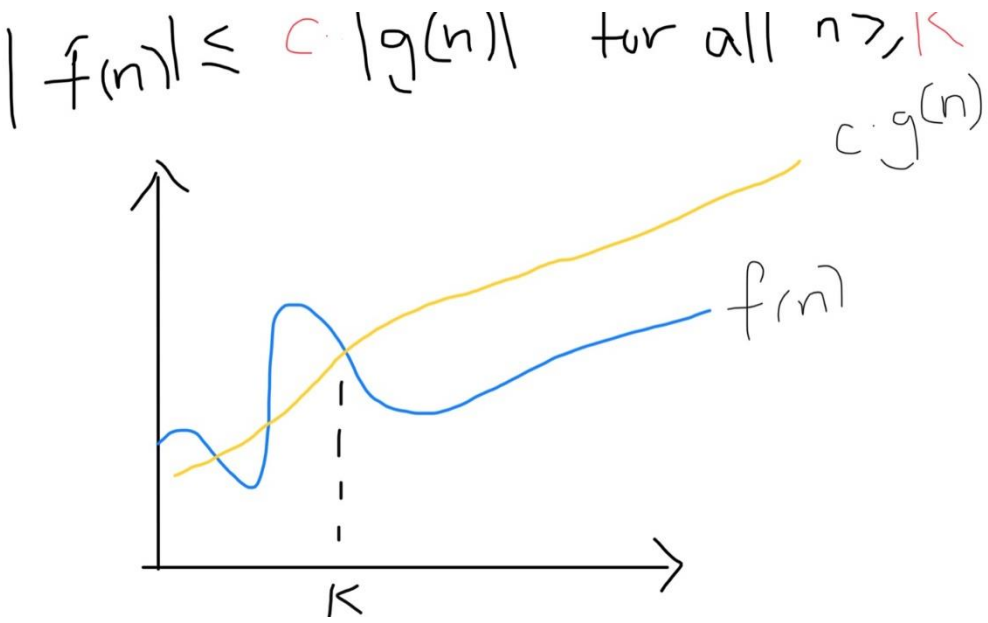
Time complexity: It is used to measure the amount of time to execute the code.

Space Complexity: It is used to measure the amount of space required to execute the functionalities of the code.

What is Asymptotic Notation?

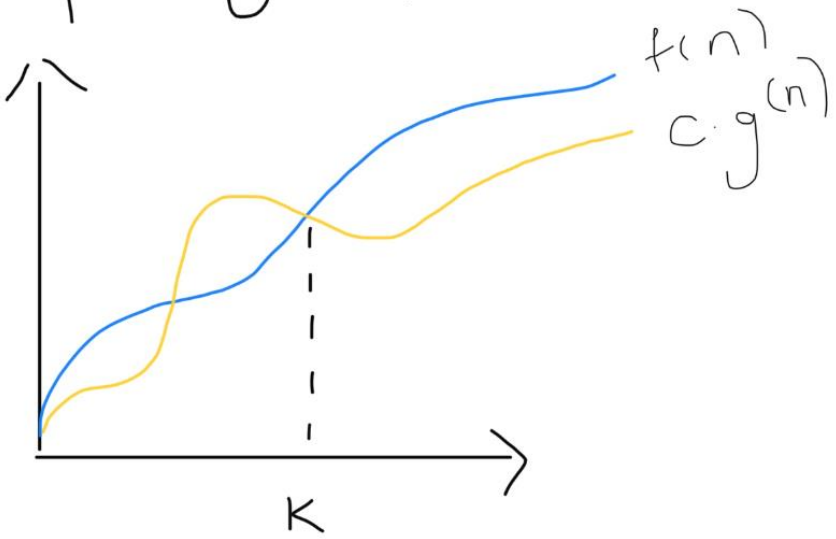
Asymptotic notations are mathematical tools that allow us to analyse an algorithm's running time by identifying its behaviour as the input size for the algorithm increases.

Big-O Notation (O)
Big O generally describes the worst-case scenario.
Consider the function f(n) and g(n) , f(n) is O(g(n)) if and only if there exists positive constants c and k such that



Omega notation
Omega notation describes the best-case scenario
Consider the function f(n) and g(n) , f(n) is omega(g(n)) if and only if there exists positive constants c and k such that

$$|f(n)| \geq c\,|g(n)| \quad \forall\ n \geq k$$



Theta Notation

Theta notation represents the average complexity of an algorithm .
Consider the function f(n) and g(n) , f(n) is omega(g(n)) if and only if there exists positive constants c1 ,c2 and k such that

$$c_1 \cdot g(n) \leq f(n) \leq c_2 \cdot g(n)$$

$$\forall\ n \geq k$$