به نام خدا

hello_world.py

Python Programming with Algorithmic Approach Course

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Teacher

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Code is poetry written for machines!

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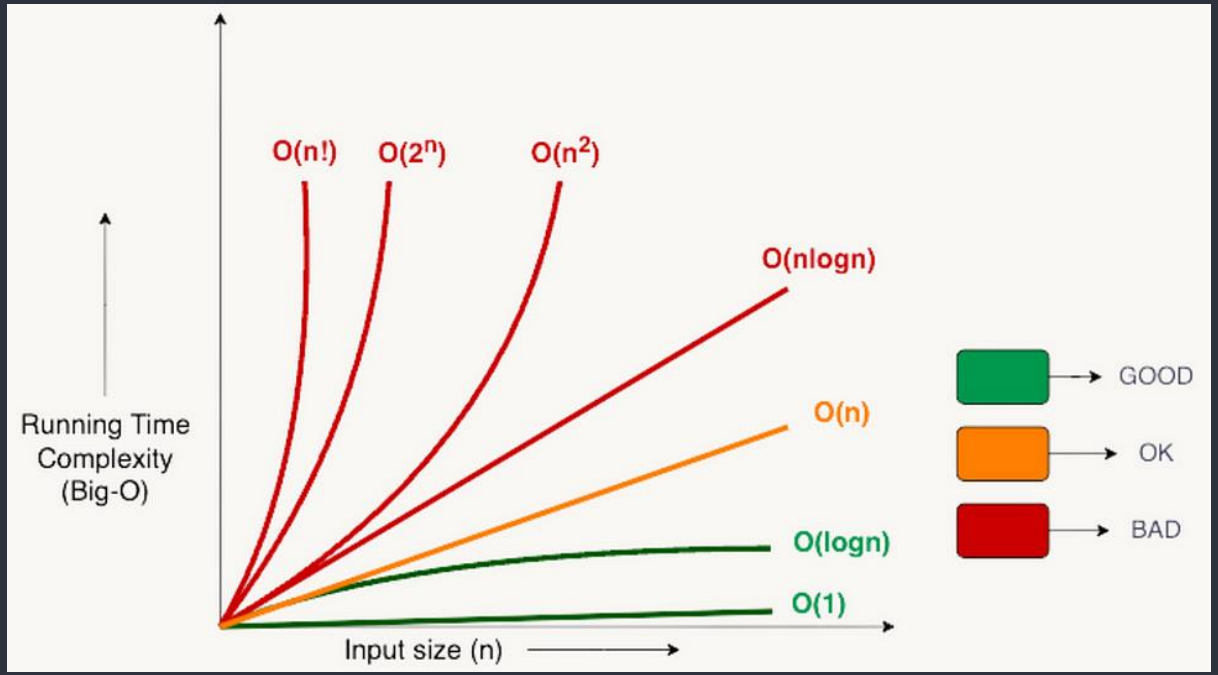
Big O

Big O notation is a way to describe the performance or complexity of an algorithm in terms of how it scales with the size of the input. It provides an upper bound on the growth rate of an algorithm's running time in the worst-case scenario. In other words, it describes the upper limit of the function that represents the running time of an algorithm in terms of the size of its input.



O(1) , O(n) , O(n^2)

O(1) - Constant Time
The algorithm's running time does not depend on the size of the input.
Example: Accessing an element in an array by index.

O(n) - Linear Time
The running time is directly proportional to the size of the input.
Example: Finding the maximum element in an unsorted list.

O(n^2) - Quadratic Time
The running time is proportional to the square of the size of the input.
Example: Bubble sort, finding all pairs of elements in an array that sum to a specific target value.

Libraries

In Python, libraries (also referred to as modules or packages) are collections of pre-written code that provide functionalities for specific tasks. They help you save time and effort by allowing you to reuse code that others have already written. Importing and using libraries in Python is a fundamental skill for developers.

- Syntax

```
import library_name
import library_name as alias
from library_name import function_name, class_name
```

- Example

```
import math
import math as m
from math import sqrt, pow
```

References

https://medium.com/@clebertonfgc/big-o-notation-in-practice-ac192e23c16

https://www.geeksforgeeks.org/analysis-algorithms-big-o-analysis/

https://en.wikipedia.org/wiki/Big_O_notation

https://www.w3schools.com/python/python_modules.asp

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THANKS!

Do you have any questions?

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