Introduction to Data Structures and Algorithms

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A clear, compact guide covering essential data structures and algorithms,

designed for easy understanding and quick learning.

In computer science, **data structures** are specialized formats used to organize, manage, and store data in a way that enables efficient access, modification, and processing. They are the building blocks of algorithms and are critical for solving computational problems.

In this resource, we will explore the basic types of data structures and some fundamental concepts of algorithms. We hope you find it helpful & enjoy the journey!

Covered Topics:

1. **Linear Data Structures:**
    - Arrays
    - Linked Lists
    - Stacks
    - Queues

2. **Non-Linear Data Structures:**
    - Graphs
    - Trees (Binary Trees, AVL Trees, B-Trees, Red-Black Trees)
    - Heaps (+ Priority Queues)

3. **Hash-Based Data Structures:**
    - Dictionaries
    - Hash Sets
    - Disjoint Sets

4. **Fundamental Concepts of Algorithms:**
    - Time Complexities
    - Sorts