Data Structures

Introduction

Design and Analysis
of Algorithms I

Data Structures

Point : organize data so that it can be accessed quickly and usefully.

Examples : lists, stacks, queues, heaps, search trees, hashtables, bloom filters, union-find, etc.

Why so Many ? : different data structures support different sets of operations => suitable for different types of tasks.

Rule of Thumb : choose the “minimal” data structure that supports all the operations that you need. the more a DS supports, the more complex and slow it becomes

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Taking It To The Next Level

Level 0 - “what’s a data structure ?”

Level 1 - cocktail party-level literacy

Level 2 - “this problem calls out for a heap”

Level 3 - “I only use data structures that I create myself”

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