Control Abstraction

- Loop

- Recursion

----

Data Abstraction Components

- Structure of Data

- Operation of Data (search, insert, delete)

Linear Data Abstractions:

- array

  - vector (array)

  - stack

  - queue

- list

  - sentinel (用于头尾的特殊操作简化）

我们总被告知，DFS用stack，BFS用queue。可是直到我做了PDP的pitcher那一提之后我才知道，其实并有什么固定的模式可以遵循，有的只是我们如何处理数据——把新得到数据先处理还是后处理的方式不同而已。

所以本质上，stack和queue都可以用array来实现。再加上vector本身就是用array实现的，所以以上归为一大类。

Tabular Data Abstractions

- Hashing

Recursive Data Abstractions (Tree)

- Binary Search Tree

- Red Black Tree

- AVL Tree

- Heap

???

- Fibonacci Heap

- B Tree/ B+ Tree

Graph Abstraction

- Model: Objects with binary relation defined on pairs

——

Algorithm

- Time complexity

- Space complexity

- Amortized Analysis

— Aggregate analysis

— Accounting method

— potential method

Algorithm Paradigms

- Dynamic Programming

- Greedy

- Divide & Conquer

- Backtracking / Branch & Bound

——

Linear Programming

P, NP, NPC

Randomized Algorithm & Approximation Algorithm