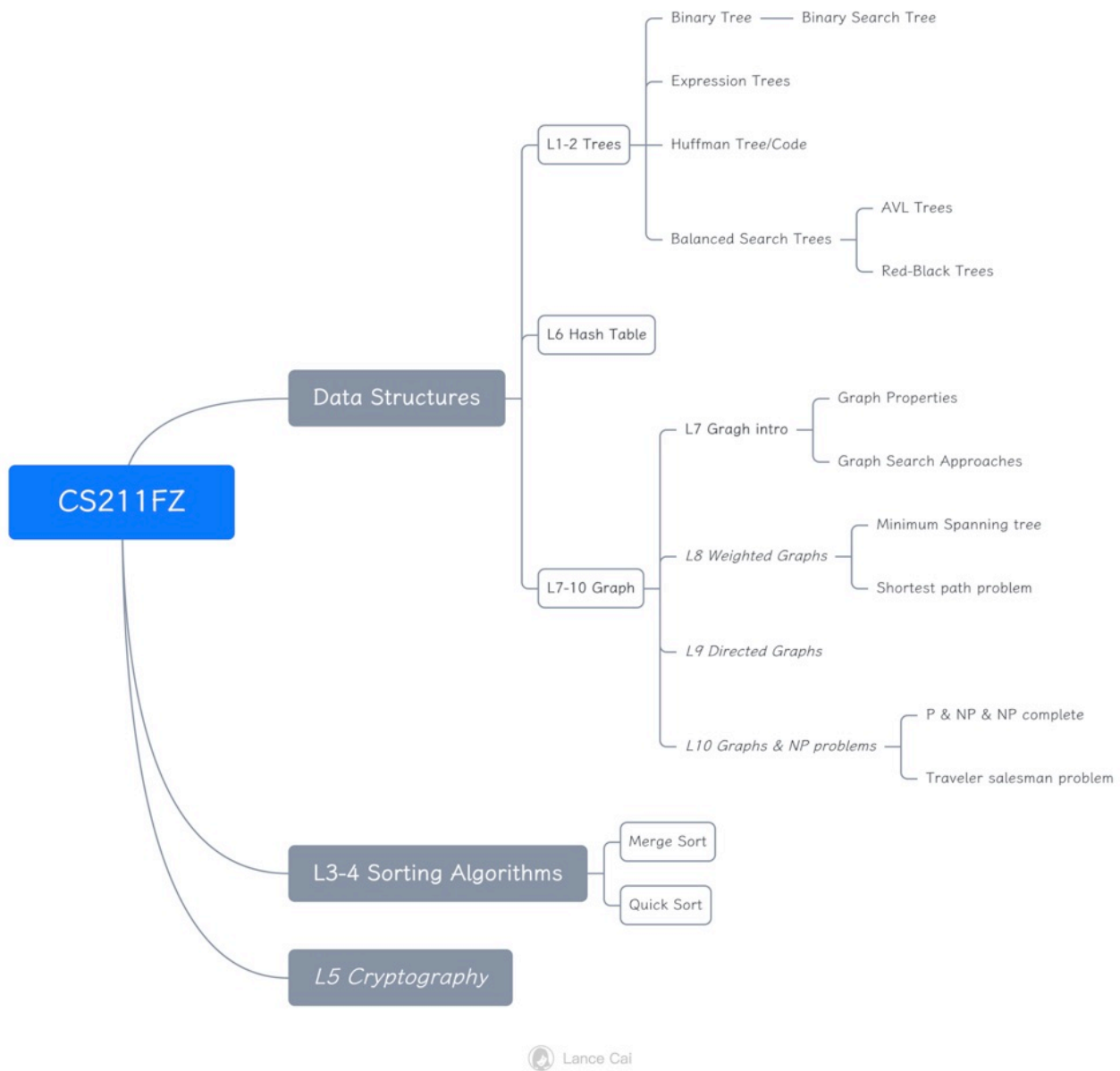


# 总览 CS211FZ | Algorithms & Data Structures | DSA2

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## CS211FZ

- Data Structures
  - L1–2 Trees

- Binary Tree
  - Binary Search Tree
- Expression Trees
- Huffman Tree/Code
- Balanced Search Trees
  - AVL Trees
  - Red-Black Trees
- L6 Hash Table
- L7-10 Graph
  - L7 Graph intro
    - Graph Properties
    - Graph Search Approaches
  - *L8 Weighted Graphs*
    - Minimum Spanning tree
    - Shortest path problem
  - *L9 Directed Graphs*
  - *L10 Graphs & NP problems*
    - P & NP & NP complete
    - Traveler salesman problem
- L3-4 Sorting Algorithms
  - Merge Sort
  - Quick Sort
- *L5 Cryptography*

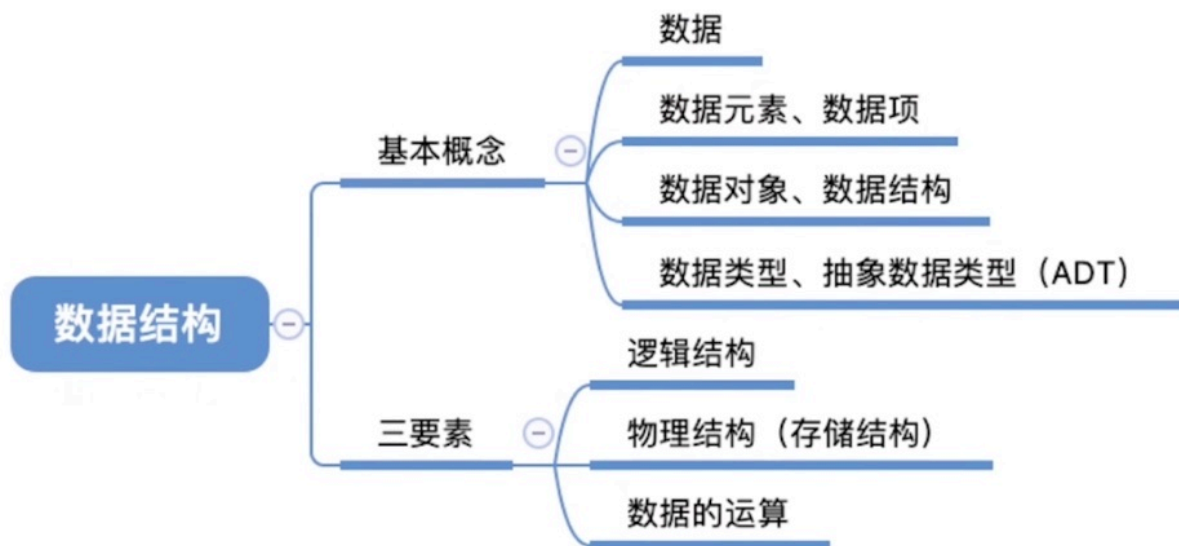
# Module Overview

1. Fundamentals and implementation of Binary Search Trees, Balanced Search Trees, Tree traversals, various sorting algorithms, graphs and Hash tables
2. Algorithm analysis: upper and average complexity bounds, best, average and worst-case algorithm behaviour
3. Algorithm strategies: brute force, greedy, divide and conquer and backtracking algorithms
4. Selected advanced topics in Algorithms and Data Structures

## Learning Outcomes

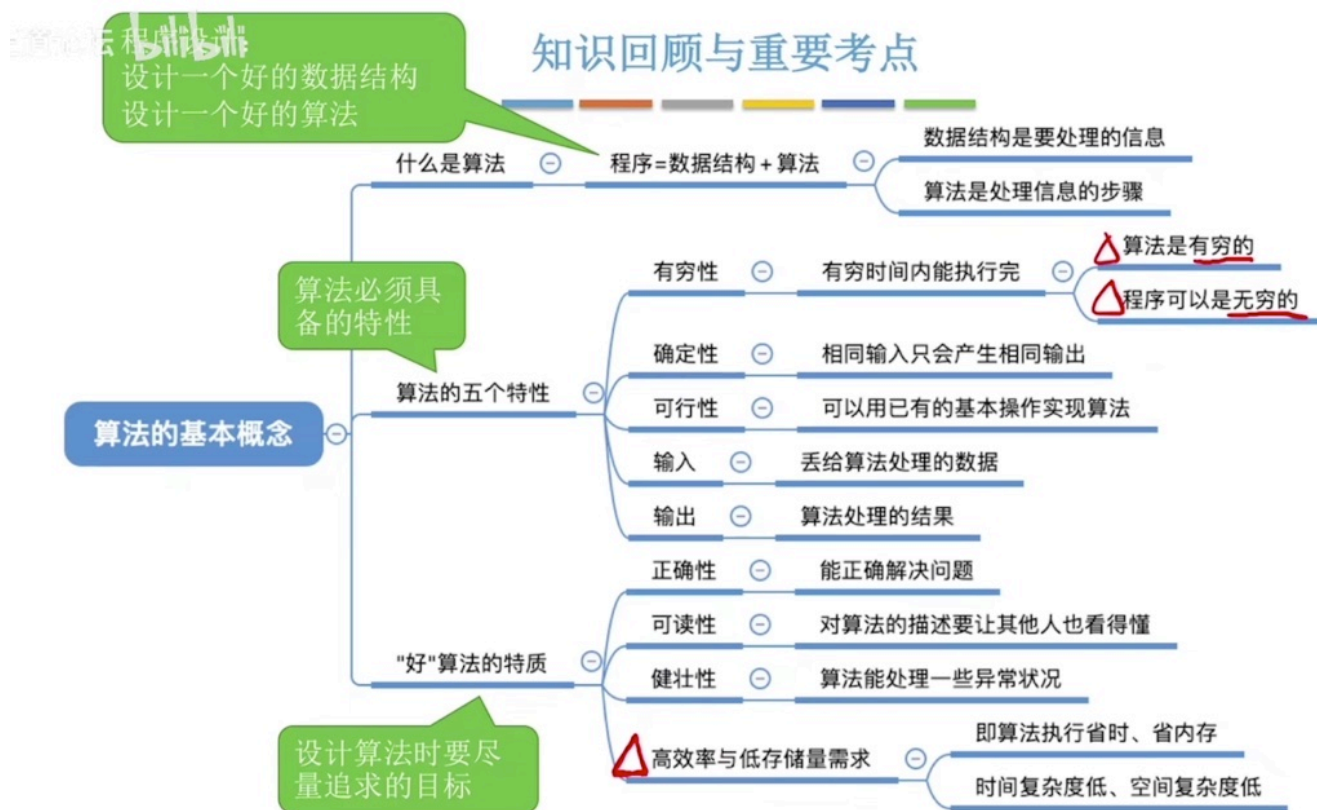
On successful completion of the module, students should be able to:

- describe a variety of structures for storing data such as binary search trees, balanced trees and hash tables
- understand various searching algorithms and be able to analyse their performance
- outline a range of algorithms in the areas of data compression, cryptography and graph theory
- apply knowledge of algorithm complexity and data structuring techniques to problem solving



学习建议:

1. 概念多, 比较无聊。抓大放小, 重要的是形成框架, 不必纠结于细节概念
2. 视频结尾会把最重要的概念串一遍, 勿慌



CS211FZ Note

by Lance Cai

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