Algorithms

# 1 Fundamentals

## 1.1Basic Programming Model

## 1.2 Data Abstraction

## 1.3 Bags ,Queues and Stacks

## 1.4 Analysis of Algorithms

## 1.5 Case study :Union-Find

# 2 Sorting

## 2.1 Elementary Sorts

## 2.2 Mergsort

## 2.3 Quicksort

## 2.4 Priority Queues

## 2.5 Applications

# 3 Searching

## 3.1 Symbol tables

## 3.2 Binary Search Trees

## 3.3 Balanced Search Trees

## 3.4 Hash Tables

## 3.5 Applications

# 4 Graphs

## 4.1 Undirected Graphs

## 4.2 Directed Graphs

## 4.3 Minimum Spanning Trees

## 4.4 Shortest Paths

# 5 Strings

## 5.1 String Sorts

## 5.2 Tries

## 5.3 Substring Search

## 5.4 Regular Expressions

## 5.5 Data Compression