



CHAPTER 7

LECTURE OUTLINE

Computer Science Illuminated, Seventh Edition

Nell Dale, PhD; John Lewis, PhD

Problem Solving and Algorithms

7.1 How to Solve Problems

Ask Questions

Look for Familiar Things

Divide and Conquer

Algorithms

Computer Problem-Solving Process

Summary of Methodology

Testing the Algorithm

7.2 Algorithms with Simple Variables

An Algorithm with Selection

Algorithms with Repetition

7.3 Composite Variables

Arrays

Records

7.4 Searching Algorithms

Sequential Search

Sequential Search in a Sorted Array

Binary Search

7.5 Sorting

Selection Sort

Bubble Sort

Insertion Sort

7.6 Recursive Algorithms

Subprogram Statements

Recursive Factorial

Recursive Binary Search

Quicksort

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7.7 Important Threads

Information Hiding

Abstraction

Naming Things

Testing

Summary

Ethical Issues: Open-Source Software

Key Terms

Exercises

Thought Questions