Algorithms Analysis

Section 3.3 of Rosen

Fall 2008

CSCE 235 Introduction to Discrete Structures

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Outline

- Introduction
- Input Size
- Order of Growth
- Intractability
- Worst, Best, and Average Cases
- Mathematical Analysis of Algorithms
  - 3 Examples
- Summation tools

Introduction

- How can we say that one algorithm performs better than another one?
- Quantify the resources needed to run it:
  - Time
  - Memory
  - I/O, disk access
  - Circuit, power, etc.
- Time is not merely CPU clock cycle
  - We want to study algorithms independent of implementations, platforms, and hardware.
  - We need an objective point of reference
  - For that we measure time by the number of operations as a function of the size of the input to the algorithm