Introduction

Why Study Algorithms?

Design and Analysis of Algorithms I

Why Study Algorithms?

- important for all other branches of computer science

Why Study Algorithms?

- important for all other branches of computer science
- plays a key role in modern technological innovation

Why Study Algorithms?

- important for all other branches of computer science
- plays a key role in modern technological innovation
  - "Everyone knows Moore's Law – a prediction made in 1965 by Intel co-founder Gordon Moore that the density of transistors in integrated circuits would continue to double every 1 to 2 years….in many areas, performance gains due to improvements in algorithms have vastly exceeded even the dramatic performance gains due to increased processor speed."
    - Excerpt from *Report to the President and Congress: Designing a Digital Future,* December 2010 (page 71).

Why Study Algorithms?

- important for all other branches of computer science
- plays a key role in modern technological innovation
- provides novel “lens” on processes outside of computer science and technology
  - quantum mechanics, economic markets, evolution

Why Study Algorithms?

- important for all other branches of computer science
- plays a key role in modern technological innovation
- provides novel “lens” on processes outside of computer science and technology
- challenging (i.e., good for the brain!)

Why Study Algorithms?

- important for all other branches of computer science
- plays a key role in modern technological innovation
- provides novel “lens” on processes outside of computer science and technology
- challenging (i.e., good for the brain!)
- fun