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Course Info

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Week 2

Algorithmic Toolbox

Week 2

Discuss and ask questions about Week 2.

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Algorithmic Warm-up



In this module you will learn that programs based on efficient algorithms can solve the same problem billions of times faster than programs based on naive algorithms. You will learn how to estimate the running time and memory of an algorithm without even implementing it. Armed with this knowledge, you will be able to compare various algorithms, select the most efficient ones, and finally implement them as our programming challenges!

Less

Learning Objectives

- Estimate the running time of an algorithm
- Practice implementing efficient solutions
- Practice solving programming challenges
- Implement programs that are several orders of magnitude faster than straightforward programs

Less

Why Study Algorithms?

Video: Why Study Algorithms? 7 min

Resume

Video: Coming Up 3 min

Fibonacci Numbers

Video: Problem Overview 3 min

Video: Naive Algorithm 5 min

Video: Efficient Algorithm 3 min

Reading: Resources 2 min

Greatest Common Divisor

Video: Problem Overview and Naive Algorithm 4 min

Video: Efficient Algorithm 5 min

Reading: Resources 2 min

Big-O Notation

Video: Computing Runtimes 10 min

Video: Asymptotic Notation 6 min

Video: Big-O Notation 6 min

Video: Using Big-O 10 min

Lab: Big-O Notation: Plots 1h


Reading: Resources 2 min

Practice Quiz: Logarithms 6 questions


Practice Quiz: Big-O 7 questions

Practice Quiz: Growth rate 2 questions

Course Overview

 **Video:** Course Overview 10 min

Programming Assignment 2

 **Programming Assignment:** Programming Assignment 2: Algorithmic Warm-up 2h 30m Due Aug 2, 1:59 AM CDT

