CSC 212: Data Structures and Abstractions

Introduction

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Fall 2020

Welcome !

- Lectures
  - TR 3:30 - 4:45p @ Coastal Institute AUD room 100
- Labs
  - W 10 - 11:45p @ Library 166
  - F 12 - 1:45a @ Library 166
- Team
  - Christian Esteves, **Instructor**
  - Maryam Kafi Kang, Nick Goltsos, David Perrone, Nick Mendes, Tommy Buston, **TAs**
- Course Website
  - https://edstem.org/us/courses/17741/discussion/989799

CSC 212?

- Review of basic principles of analysis of algorithms
- Introduction to fundamental data structures and their algorithms
  - arrays, lists, stacks, queues, trees, hash tables, graphs
- Survey of classic algorithms for sorting and searching

Prerequisites: CSC 211 (at least C-) and MTH 180

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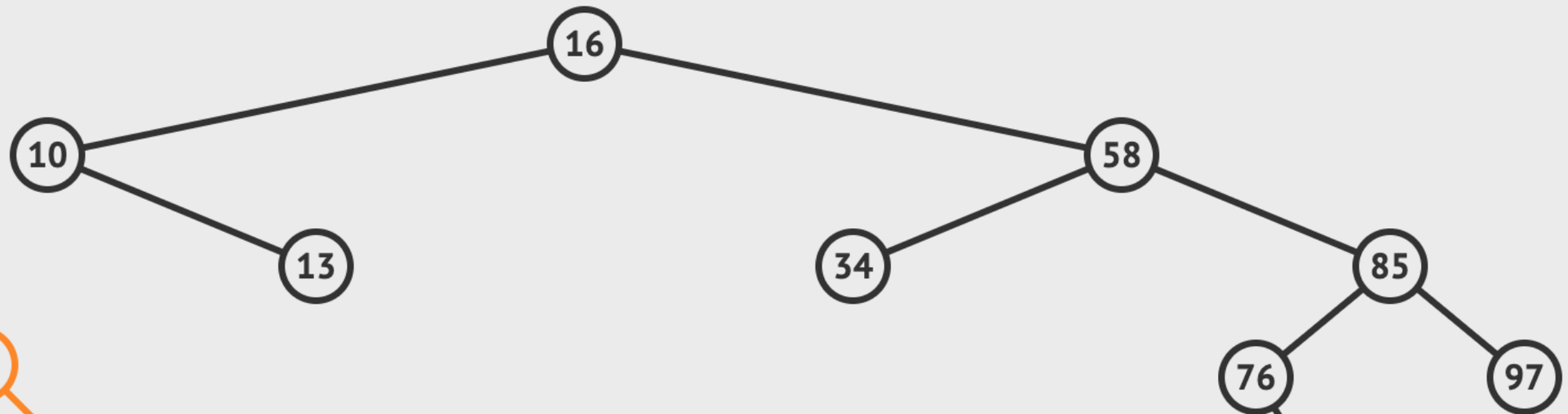
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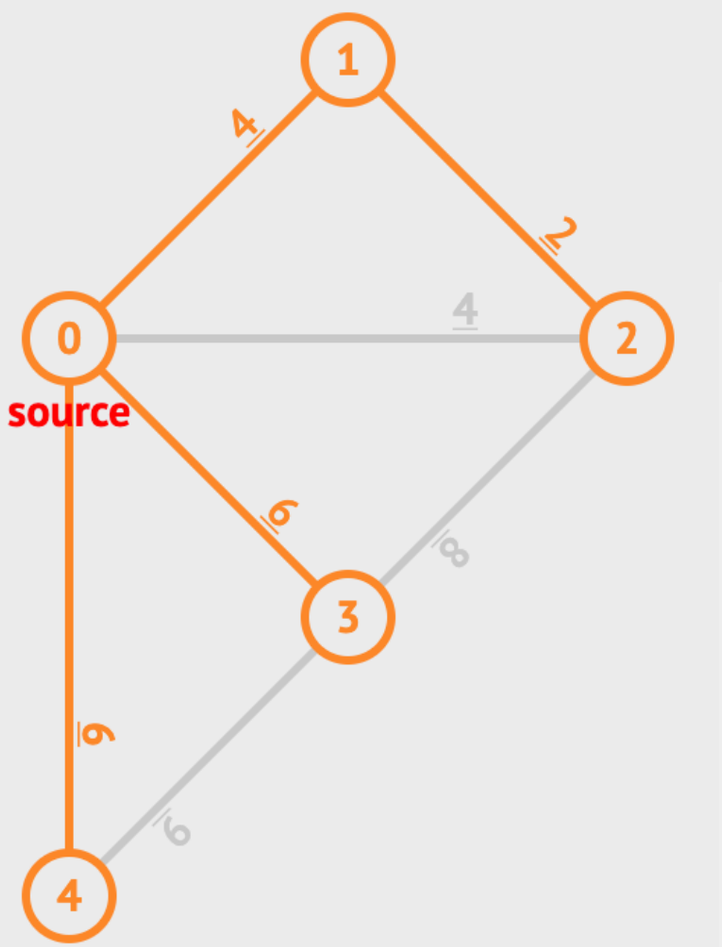
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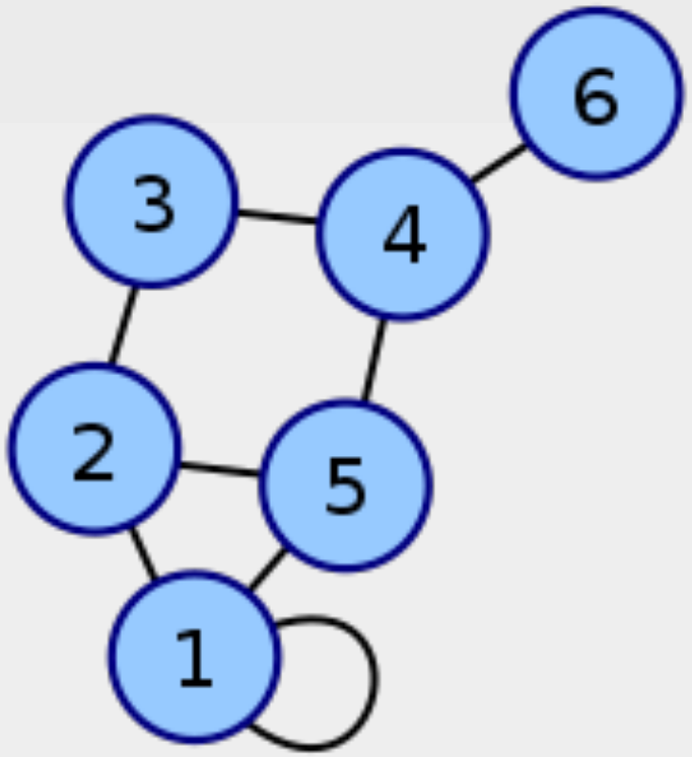
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CSC 418
Information and Network Security

CSC 492
Special Topics in Computer Science

CSC 499
Project in Computer Science

CSC 491
Directed Study in Computer Science

CSC 415
Introduction to Parallel Computing

CSC 406
Computer Graphics

CSC 450
Scientific Computing

CSC 412
Operating Systems and Networks

CSC 402
Programming Language Implementation

CSC 481
Artificial Intelligence

CSC 411
Computer Organization

MTH 243

MTH 362

CSC 436
Database Management Systems

CSC 445
Models of Computation

CSC 461
Machine Learning

MTH 215

CSC 301
Fundamentals of Programming Languages

CSC 305
Software Engineering

CSC 440
Design and Analysis of Algorithms

CSC 392
Intermediate Topics in Computing

CSC 372
Dynamic Web Design and Programming

CSC 417
Computer Communications

CSC 320
Social Issues in Computing

CSC 310
Programming for Data Science

MTH 451

CSC 212
Data Structures and Abstractions

CSC 340
Applied Combinatorics

CSC 447
Discrete Mathematical Structures

CSC 271
Web Design and Programming

CSC 292
Topics in Computing

CSC 200
Computer Problem Solving for S&E

CSC 201
Introduction to Computer Programming

CSC 211
Object Oriented Programming

MTH 180

MTH 141

MTH 131

CSC 110
Survey of Computer Science

CSC 106
The Joy of Programming

CSC 104
Puzzles and Games

CSC 101
Computing Concepts

CSC 192
Introductory Topics in Computing

- - - taken concurrently

Google "data structures" for technical interviews

All Videos News Images Shopping More Settings Tools

About 21,100,000 results (0.57 seconds)

Commonly used Data Structures

- Arrays.
- Stacks.
- Queues.
- Linked List.
- Trees.
- Graphs.
- Tries (They are effectively trees but it's still good to call them out separately).
- Hash Tables.

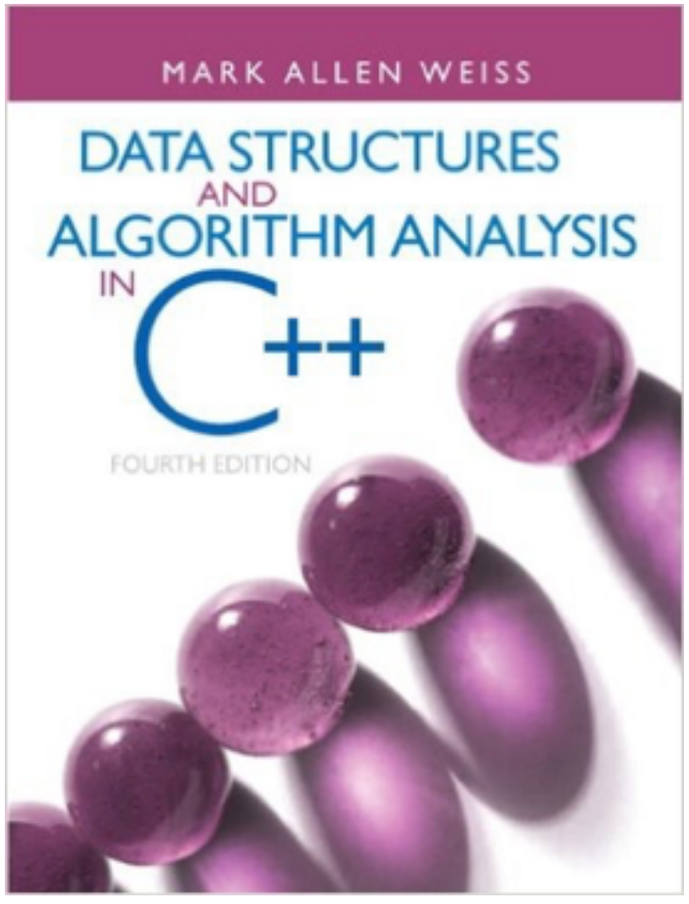
Jul 12, 2018

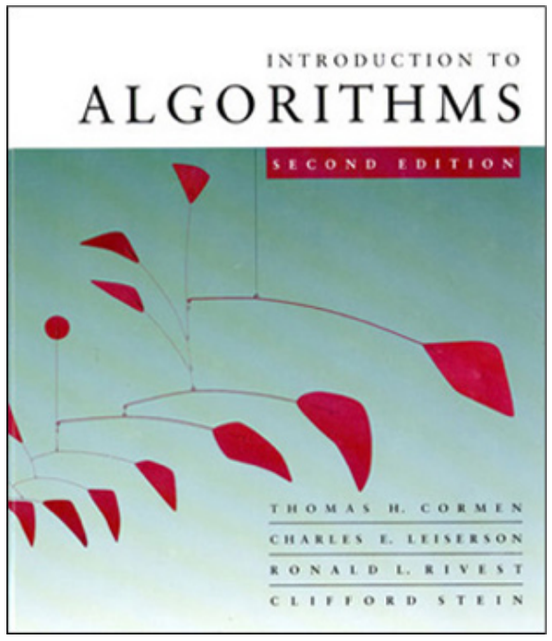
dev.to › fahimulhaq › top-8-data-structures-for-coding-in...

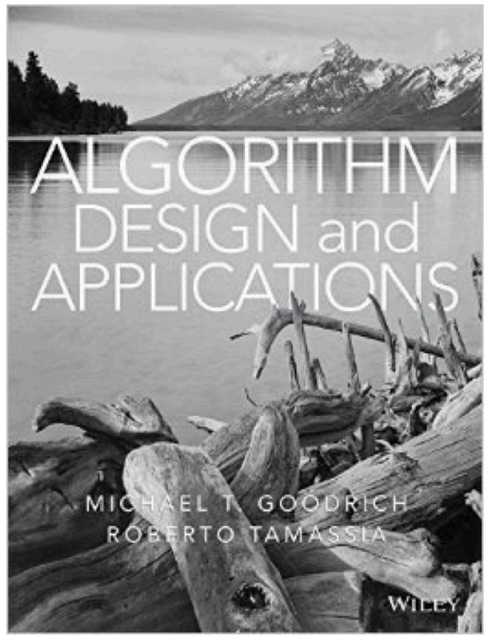
Top 8 Data Structures for Coding Interviews and practice ...

About Featured Snippets Feedback

Recommended Textbooks







Need a refresher on C++ programming?

- Read a book
- Enroll in a MOOC (massive open online course)

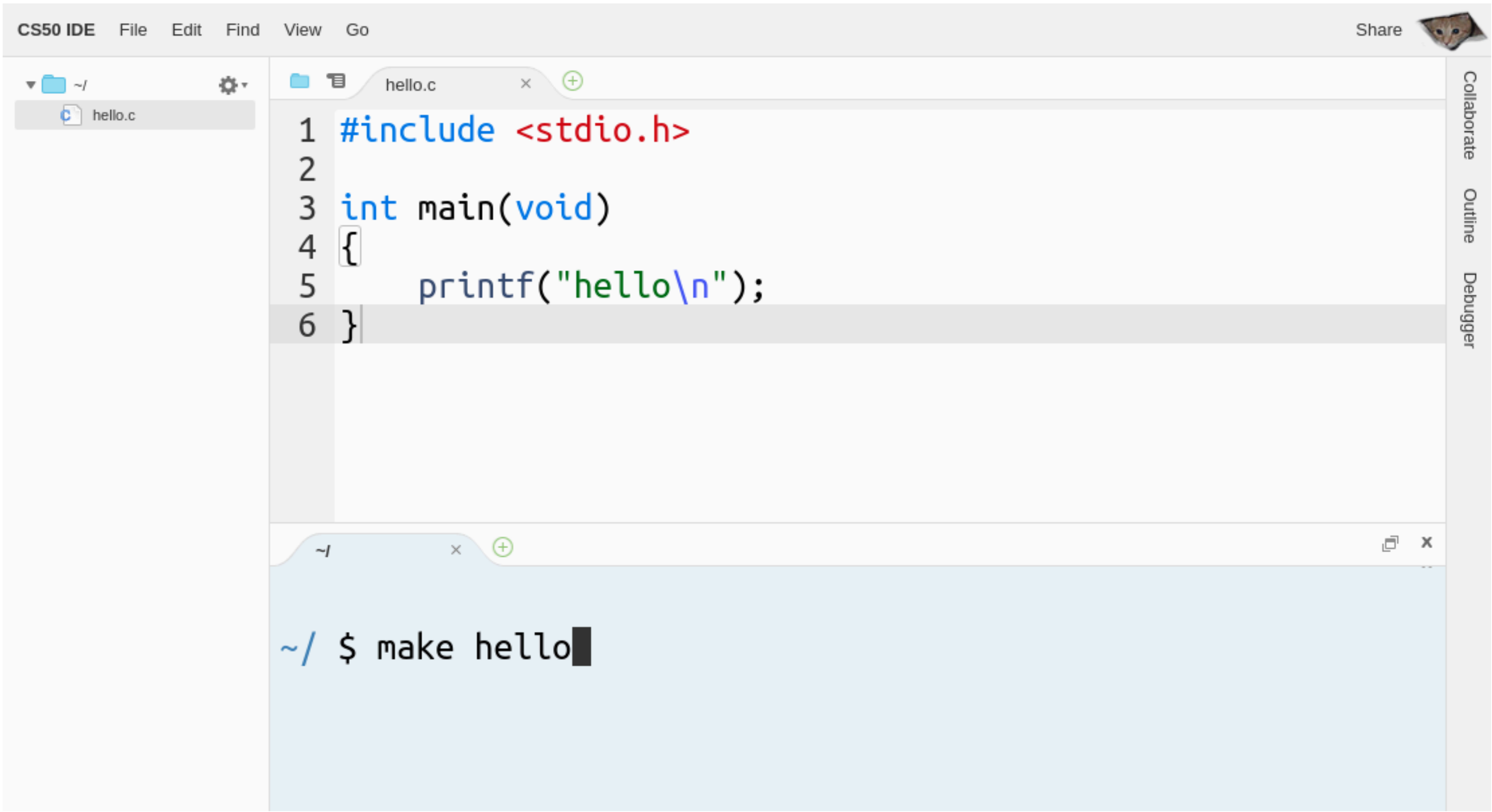
coursera edX

- Solve Challenges

Kattis

HackerRank™
Revolutionizing Tech Recruiting

CS50 IDE



https://ide.cs50.io

Grading (subject to change)

- Lab attendance
  - synchronous labs (5%)
- Assignments
  - 5 assignments (3 prog. 2 PS) (30%)
  - 1 final project (35%)
- Exams
  - 1 midterm exam (15%)
  - 1 final exam (15%)

All exams are based on lecture materials and assignments

Homework Assignments

- Discussions and collaboration are allowed, however you **must** write your own code and solutions

- All assignments are to be turned in on **Gradescope** by the due date
  - late submissions are **NOT** accepted 

`Plagiarism?`

- just **don't do it**
- if you get caught (chances are very high), your name(s) will be immediately reported for further sanctions

What is expected from you?

- **Attend synchronous** lectures/labs
  - I do not spend time taking attendance … but … students skipping lectures will (**very**) likely **fail** this class
- **Organize** your time
  - lectures, labs, homework assignments, project, exams
- **Participate** and think critically
  - ask questions (lectures, labs, office hours, Piazza, …)
- **Start** working on assignments **early**
  - avoid copying/pasting or google'ing answers

Need help?

- Post questions on **EdStem**
  - answer questions, share information

- Contact your TAs
- Come to **Office Hours**

Seriously, seek help!

- Last Semester's Stats
  - 66/105 passed (64%)
  - 39/105 failed (36%)
- Main reason for failing
  - No submissions!
  - No project!
- Here's some data

Programming Assignment 1

Warming up

- Adjacent elements sum
  - find the **maximum sum** of any pair of adjacent elements in an array of integers