Spring 2023 Syllabus

Subject to change

Section: Friday, 12-2:30pm
Instructor: Zack DeSario
- Office Hours: Thursday 3:30 - 5:30
  - Just DM me on slack and I will send you a private meeting link.

TA: Seth Marcus
- Office Hours: Mondays 3:00 - 5:00
  - DM on slack and he will send you a private meeting link.

Zoom:
https://us02web.zoom.us/j/86920092260?pwd=WTkvSkVkWk9tTWxwc1FxVUt4RXdtQT09

NOTE: links to slides, materials, and solutions will be posted week to week

Week 1 (Feb 3): Interview Prep Workshop 1

Pair programming Data Structures and Algorithms problems

- Semester Overview: [Link](#)
- Pre-semester Quiz
    - https://forms.gle/D83erPwY4nw4vvdv8
- HackerRank Interface and Evaluation Overview
- HackerRank Problem Set 1A
    - https://hr.gs/ctp-s22-1a
    - Password: **ctp2022prep**
    - Review solution
- HackerRank Problem Set 1B (Homework)
    - https://hr.gs/ctp-s22-1b
    - Password: **ctp2022prep**
        - Looping Lists for other languages**:**
          https://leetcode.com/problems/linked-list-cycle/
- End of class survey
    - https://forms.gle/TVn5L8fUn76qder6A
- Class Recording
    - https://drive.google.com/file/d/1OJ8GRYIbi3OWUzYKnArywtJ2cZPPrdNa/view?usp=sharing
- [Solutions](#)

Week 2 (Feb 10): System Design Problems 1

- Review last weeks hacker-ranks
- Intro and discussion on System Design Interviews
    - Slides: 🟨 System Design Interview
- Breakout rooms: Group solve a system design problem
    - Object Oriented Design for the BlackJack card games
    - [Jamboard](#): ← do work in here. Find slide that has your zoom breakout room number on it
- Share and review designs
- [Solution](#)
- Article on OOD for Class Recording
- Need to come to next class with a project idea
    - You can prepare a presentation if you like, it is not required tho.

- You can do ANYTHING you want.
- Totally new project, alone with a group.
- Build upon falls project, alone or with group (even if there are new group members that want to work on it with you).
- School capstone project (must be alone).

Week 3 (Feb 17): Interview Prep Workshop 2

Pair programming Data Structures and Algorithms problems

- HackerRank Problem Set 1: [coding friends, equal levels, max streak]
  - https://hr.gs/wed-fri-spring2022
  - Password: **ctp2022prep**
- HackerRank Problem Set 2: [fun with anagrams, first unique char]
  - https://hr.gs/spring-week-5
  - Password: **ctp2022prep**
- Class Recording
- Remember, if you want to retry the hacker rank, just input a new email. Keep the same name so i know its you.
- Project Descriptions ⊞ Friday Noon Project Ideas

- HOMEWORK (Two Parts)
  - HW PART 1:
    - Get a project and optional partner/s
    - Fill out Project Input Form
      - https://forms.gle/AT1zrWFPo5jQR5so7
  - HW PART 2:
    - Finish the problems from class
      - HackerRank Problem Set 2: [fun with anagrams, first unique char]
      - https://hr.gs/spring-week-5
      - Password: **ctp2022prep**

    - Choose and complete *one* of the two HackerRank tests
      - HackerRank Problem Set 2B [medium difficulty]
        - https://hr.gs/ctp-s22-2b
        - Password: **ctp2022prep**

      - HackerRank Problem Set 2A Prefix to Postfix [very difficult]
        - https://hr.gs/ctp-s22-2a
        - Password: **ctp2022prep**

Week 4 (Feb 24): Interview Prep Workshop 3

Pair programming Data Structures and Algorithms problems

- First Problem Set:
    - https://hr.gs/week4-3c
    - Password = ctp2022prep
- Second Problem Set:
    - https://hr.gs/week4-3d
    - Password ctp2022prep
- Additional problem sets:
    - HackerRank Problem Set 3C
        - https://hr.gs/week4-3c
        - Password: ctp2022prep
        - Review solution
    - HackerRank Problem Set 3B
        - https://hr.gs/ctp-s22-3b
        - Password:
        - Review solution
- Class Recording

Week 5 (Mar 3): System Design Problems 2

- Reminder about Data Structures Class Videos
- Build a URL Shortener Service
    - (like https://bitly.com/ but not exactly bitly)
- Breakout rooms: Group solve a system design problem
    - JamBoards: https://jamboard.google.com/d/1QAGU5EWaXWP42clam-LFA7FVKKyddXwdQjWVxGNzT2A/viewer?f=0
- Share and review designs
- Write up to study

    - HOMEWORK: *https://www.interviewcake.com/question/java/url-shortener*
    - OPTIONAL BUT SUGGESTED: http://highscalability.com/blog/2021/12/13/designing-netflix.html
- Class Recording

Week 6 (Mar 10): Offer Negotiation and Career Panel

- Career Panel and Q&A with CTP Alumni
- Career Coach Workshop: Offer Negotiation
- Project Check Ins
- [Class Recording](#)

Week 7 (Mar 17): Data Science Topics: SQL

- What the rest of the semester will look like:
  - Week 09 (Mar 31) - One third of class time dedicated to project time.
  - Week 11 (Apr 28) - In person class
  - Week 12 (May 05) - Students get to teach day!
  - Week 13 (May 12) - PROJECTS DUE - In class presentations
    - If you do not present this week you will not be allowed to come to demo night.
  - Week 14 (TBD) - Demo Night date to be added soon.
- Using SQL and [Google BigQuery](#)
- Backup, you can use the [W3C Schools SQL Playground](#)
  - [Lecture Notes:](#)
    - TBA
  - [Exercise](#):
    - TBA
    - [Online Markdown Editor](#)
- [Class Recording](#)

Week 8 (Mar 24): Data Science Topics: Data Visualization

- [Class Recording](#)
- Remind me to start recording.
- Reminder about in person class day.
- Data Visualization
  - [Slide Deck](#)
  - [Link to exercise data](#) (Tell students to make a copy of this google sheet and do work in their copy).
  - Helpful Links:

- ■ [Color Brewer](#) (tool for creating color palettes)
- ■ [Pivot table youtube video](#)
- ● No HW

Week 9 (Mar 31): Web Security and Project Time

- ● Remind me to start recording
- ● Week 12 (May 05) - Students get to teach day!
- ● Reminder <mark>NO CLASS NEXT TWO WEEKS.</mark>
- ● Next class is April 21
- ● Intro to [OWASP](#) Top 10 [Web Application Security Risks](#)
  - ○ Lecture [Slides](#)
  - ○ OWASP [2017 PDF](#)
- ● Setup and Walkthrough of [Juice Shop](#) (TENTATIVE)
  - ○ Breakrooms of hacking the Juice Shop
  - ○ Share vulnerabilities found
  - ○ Review potential vulnerability causes and remedies

Week XX (April 7) NO CLASS - SPRING BREAK

Week XX (April 14) NO CLASS - SPRING BREAK

Week 10 (Apr 21): APIs

- ● Remind me to start recording.
- ● **Next class is IN PERSON**
  - ○ Location details below under Week 11 and in our class Slack channel.
- ● Reminder Week 12 (May 5th) is students get to teach day.
- ● [Google Slides Lecture](#)
- ● In class exercise
  - ○ https://github.com/CUNYTechPrep/2023-Spring/tree/main/Week-10-APIs
- ● [Class Recording](#)

Week 11 (Apr 28): <mark>IN PERSON CLASS</mark> Web Security Topics

- LOCATION DETAILS
  - Accenture Offices:
    - One Manhattan West, 395 9th Ave, New York, NY 10001
  - Must bring an ID like a drivers license or CUNY Student ID.
  - Entering the Space: students and staff will check in at the front desk in the lobby and an Accenture representative. **Tell them you are here for the CUNY Tech Prep class, and they will tell you where to go.** You can arrive as early as 11:30am.
  - COVID Regulations: there are none in place, but for CTP programming purposes please wear a mask.
  - Professionalism: please review our guide on expectations on how to interact with CTP industry partners!
  - If you cannot make it in person: DM your TA! You can either 1) attend remotely or 2) attend another week's class instead, if needed.

- Career Coach Workshop: Success in Year 1
- Accenture's Design Thinking Workshop
- Project Time

Week 12 (May 5): Data School Info Panel and Student Topics of Interest (*tentative*)

- *<mark>REMINDERS</mark>*
  - *Tell Zack to start recording.*
  - <mark style="background-color:red;color:white">***Presentations are next week!***</mark>
- The Data School Panel
- *Register for Graduation as **Student** ASAP*
  - *https://www.eventbrite.com/e/cuny-tech-prep-graduation-2023-tickets-617910445777*
- End of semester quiz
  - https://forms.gle/htoaE5uLoKvbjx517
  - Quiz is for evaluating spring curriculum and student learnings, won't affect your CTP completion. Just try your best.
- Break
- Students Get to Teach Day 🥳
- Project Time

Week 13 (May 12): Final CTP Class

- Practice Graduation demo presentations.
- End of program survey
  - https://docs.google.com/forms/d/1pRlWhKQUFFHsLMd5MAaEaLMvCLmSY2aKoC-L1HfXSHM/edit
- Break
- Graduation Walkthrough
  - ☐ C8 Graduation, 2023
- Transitioning from school into work and How to be an effective interviewer/alumni
  - ☐ Week 13 CTP Alumni Transition
- Class Recording

Wed May 31, 2023 5:15-8:00pm
IN PERSON Graduation / Demo Night

- This is an IN PERSON event.
- Hosted at CUNY Law School
  - 2 Ct Square W, Queens, NY 11101
  - Orange, Yellow, Purple and Blue Subways go near there.
  - Go to rooms 202 and 203 on the first floor.
- Free Food
  - Pretty sure its pizza
- This is what the room looks like.

○