

Lecture 16

CSE 331

Oct 5, 2022

Quiz 1 this FRIDAY

note @183

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Actions

Quiz 1 on Friday, Oct 7

The first quiz will be from 11:00-11:10am in class on Friday, October 7. We will have a 5 mins break after the quiz and the lecture will start at 10:35am.

We will hand out the quiz paper at 10:55am but you will **NOT** be allowed to open the quiz to see the actual questions till 11:00am. However, you can use those 5 minutes to go over the instructions and get yourself in the zone.

There will be two T/F with justification questions (like those in the sample mid term 1: @182.) Also quiz 1 will cover all topics we cover in class till Friday, Sep 30.

Also like the mid-term y'all can bring in one letter sized cheat-sheet (you can use both sides). But other than cheatsheet and writing implements nothing else is allowed.

quiz1

Edit good note 0

Updated 2 days ago by Atri Rudra

Please do fill in the feedback

note 0221 stop following 1 view

Feedback on CSE 331

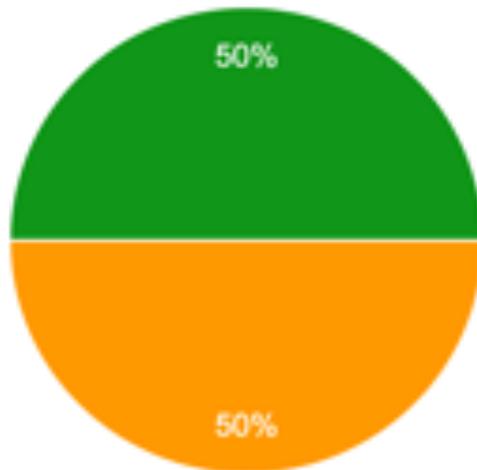
Every year, I ask y'all to give feedback on CSE 331, so here is the feedback form for this year:

https://docs.google.com/forms/d/e/1FAIpQLSdF8lmg08Fw09R17_xCvts7AmjyDMSdFZs-QeJydrvdeV5dVw/viewform?usp=af_link

Actions

Overall your feeling about CSE 331

4 responses



- Very Happy
- Challenged and happy
- Challenged and meh
- Challenged and unhappy
- Challenged and very unhappy
- I'm bored!

HW 3 solutions are out

note @246

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1 view

Actions

HW 3 solutions

are here: <https://buffalo.box.com/s/s8qikvvp9xmrvbvi03zuqw2s3xvoinhb>

As usual, please do not share the link with anyone

homework3

Edit good note

Updated 38 seconds ago by Atri Rudra

Project groups finalized

note @220   stop following 12 views Actions

Random groups formed + remaining 3 groups

Over the next hour or so, I'll be sending email confirmation about the following:

I have sent email confirmation to the following groups:

- Random groups
- Groups of size 3 that registered after 6:30pm on Thursday

Like in [@206](#) the email will of the following format:

- Be on the lookout for an An email with no body and the subject line being the names of your group members and group name (if y'all chose one or with Random group its in case you asked to be signed up for a random group) and nothing else (apologies for the badly formatted email)

I'll post again once I'm done sending out all the information-- so please do not email me BEFORE I post again that I'm done :)

I you submitted the form before the deadline but you have not received any email about a groups, please email me ASAP!

Note that if you already got a confirmation email about your group on Thursday then you will NOT get another confirmation email.

[project](#)

[Edit](#) good note 0 Updated 10 seconds ago by Alin Rudea

Project released

note #245   

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Actions 

331 project released

Alrighty, the 331 project details are now out:

<http://www-student.cse.buffalo.edu/~atv/cse331/fall22/project/index.html>

(You can also access the page from the "Project" dropdown menu on the top navbar. You might need to force refresh/clear your cache to see it in there.)

Autolab will start accepting submissions from 11:45pm tomorrow (there are ten deadlines spread over the rest of the semester).

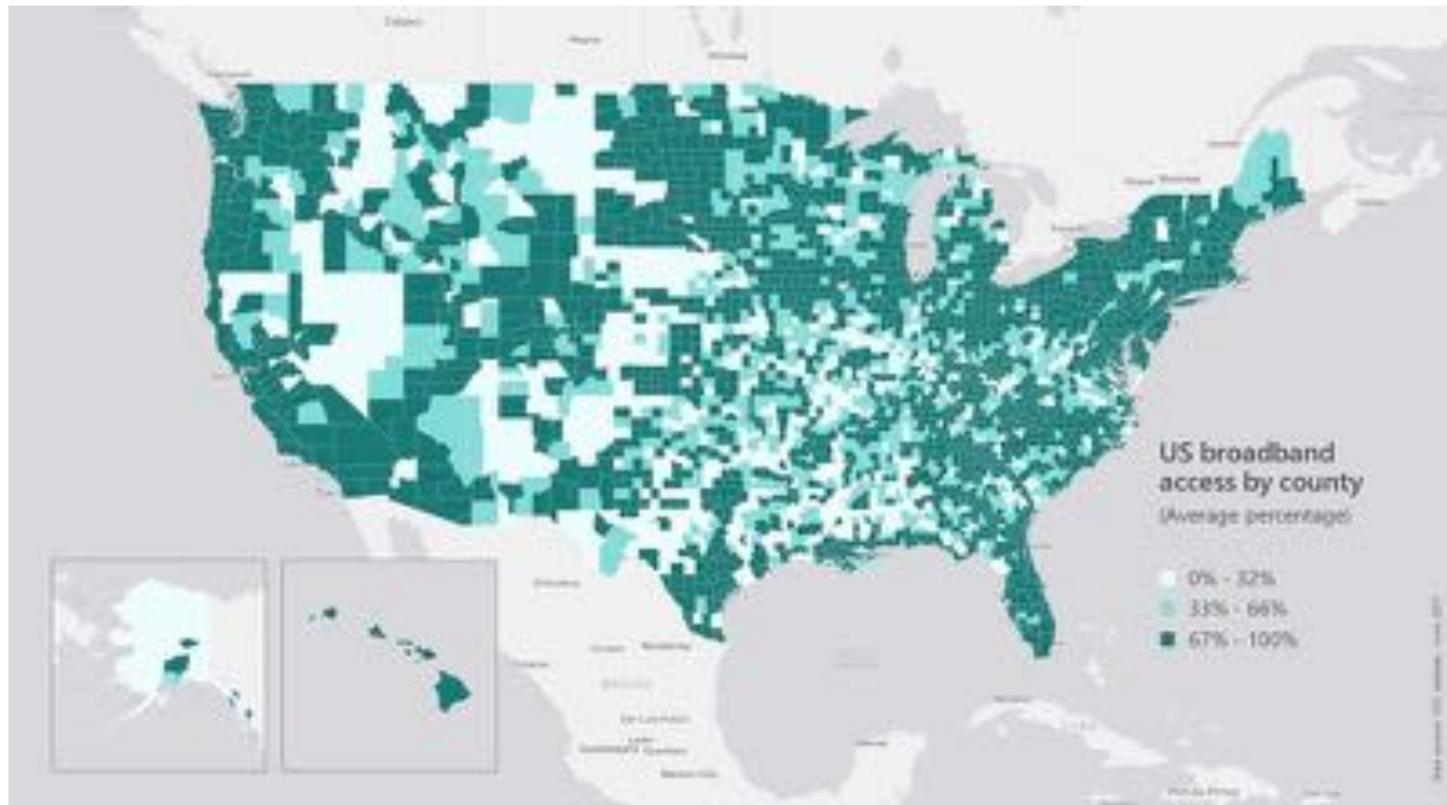
There is a lot of details in the project pages so I would recommend that y'all read through very carefully as a group. I would like to point out something that might not be as intuitive:

YOU NEED TO FORM GROUPS 10(TEN)!!!! TIMES ON AUTOLAB

Your group will have 10 problems to submit on Autolab (five coding problems and five reflection questions). However, you will need to form your group for EACH submission separately.

project

Broadband access



<https://assets.bwbx.io/images/users/iqjWHBFdfxIU/iZSjibxE1KJs/v1/800x-1.jpg>

Lawsuit against Spectrum

FILED: NEW YORK COUNTY CLERK 02/01/2017 12:05 AM

NYSCEF DOC. NO. 1

INDEX NO. 450318/2017

RECEIVED NYSCEF: 02/01/2017

**SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NEW YORK**

-----X
**THE PEOPLE OF THE STATE OF NEW YORK,
by ERIC T. SCHNEIDERMAN, Attorney General of the
State of New York,**

Plaintiff,

SUMMONS

-against-

Index No.: 450318/2017

**Plaintiff designates New
York County as the Place
of Trial**

**CHARTER COMMUNICATIONS, INC. and SPECTRUM
MANAGEMENT HOLDING COMPANY, LLC
(f/k/a TIME WARNER CABLE, INC.),**

Five coding problems

Coding Problems for Project

Problem 1 (*Coding*) due at **11:59pm, Friday, October 28, 2022.**

Problem 2 (*Coding*) due at **11:59pm, Friday, November 4, 2022.**

Problem 3 (*Coding*) due at **11:59pm, Friday, December 2, 2022.**

Problems 4 and 5 (*Coding*) due at **11:59pm, Friday, December 9, 2022.**

All submissions should be done via [Autolab](#).

Acknowledgment

The development of the project was supported by a [Mozilla Responsible Computer Science award](#). The support is gratefully acknowledged.

Some Suggestions and Warnings

While this coding part of the project is somewhat similar to Question 3s on the homework, there are some crucial differences and we wanted to highlight few things for y'all upfront:

Form groups of size **EXACTLY 3**

This is a group project (unlike Q3s on the HWs that had to be done individually) and you can work in groups of size **exactly 3**. The submissions will be on Autolab and *everyone in the group will get the same grade.*

Each like a HW Q3

Java Python C++

You can get full credit
with code length
along the lines of Q3
submissions!

More work to
UNDERSTAND the
problem

You are given ten coding files. Out of these, you can safely ignore `Enums.py` and `LinkedList.py`. The `Enums.py` file is a simple enum. For example, `Enums.py` is used in conjunction with the file I/O code. `LinkedList.py` is an implementation of a linked list. `Driver.py` takes the input file, parses it using `Utility.py` and calls your `Solution.py` class' `main` method. The `main` method of your class (along with, depending on the question, the updated bandwidths and packet priorities) are passed to the `main` method of `Driver.py`. `Driver.py` determines the routing delay faced by each client. Finally, these delays are passed into the revenue calculator, which determines the revenue you gathered based on your routing decisions. You only need to update the `Solution.py` file. You may write your own helper functions. The `Solution` class contains four data structures.

- `problem`, which simply contains the problem number of the current template as a member variable on the `Solution` class. You DO NOT need to worry about this variable.
- `isp` which is the ID of the ISP node. Note that this is the same as content provider or i as mentioned in the problem description.
- `graph` which is the input graph G in the adjacency list representation that you are familiar with. The key is a node ID (not client, there are nodes that may not be clients) and

Five reflection problems

Reflection Problems for Project

Problem 1 (**Reflection**) due at 11:59pm, Monday, October 31, 2022.

Problem 2 (**Reflection**) due at 11:59pm, Monday, November 7, 2022.

Problem 3 (**Reflection**) due at 11:59pm, Monday, December 5, 2022.

Problems 4 and 5 (**Reflection**) due at 11:59pm, Tuesday, December 13, 2022.

All submissions should be done via [Autolab](#).

There is no "right" or "wrong" answer

Perhaps the biggest difference from other CSE 331 questions (both programming and proof based questions) is that pretty much no answer is "right" or "wrong" in any absolute sense. Y'all will notice that for some of the questions, the answer might depend on some of the assumptions you make -- and in many cases the answer would really depend on who is answering the question. While ambiguity might feel a bit disquieting, the **ambiguity is inherent** for these kinds of questions: so embrace the ambiguity!

More specifically, do not waste your time trying to figure out what I am expecting from an answer-- because I do not have any set answer that I'm looking for! What I am interested in is hearing your group's thoughts on the questions. In particular, **even if I disagree with your justification, that does NOT mean you will get penalized**. Again there is no "right" or "wrong" answer!

Some suggestions and warnings

While this coding part of the project is somewhat similar to Question 3s on the homework, there are some crucial differences and we wanted to highlight a few things for y'all upfront:

Form groups of size EXACTLY 3

This is a group project (unlike Q3s on the HWs that had to be done individually) and you can work in groups of size **exactly 3**. The submissions will be on Autolab and everyone in the group will get the same grade.

Reflect on your design choices

Algorithm idea (2 points)

In one paragraph, state the algorithm idea behind the code that you submitted for the second [coding problem](#). This would be similar to a usual algorithm idea submission in a homework.

Whom does your algorithm work best for? (2 points)

What clients does your algorithm try to make their pen_0 value to be 0? I.e. for which clients c does your algorithm try to make sure to try get the $prnt_c$ revenue from them? Show how your answer follows from the algorithm idea above.

Whom doesn't your algorithm work well for? (2 points)

What clients does your algorithm not try (actively) to make their pen_0 value to be 0? I.e. for which clients c does your algorithm not mind to get a revenue of c from them? Show how your answer follows from the algorithm idea above.

How fair is your algorithm? (4 points)

How fair was the decision that your group made in the algorithm design to favor one group of customers (those identified in the second question above) over another (those identified in the third question above)? **Justify** your answer.

If some of your customers are not as well served as others, are there ways for you to address this unfairness that might result in a more ethical distribution of services?

Interval Scheduling Problem

Input: n intervals $[s(i), f(i))$ for $1 \leq i \leq n$

Output: A schedule S of the n intervals

No two intervals in S conflict

$|S|$ is maximized

Analyzing the algorithm

R : set of requests

Set S to be the empty set

While R is not empty

 Choose i in R with the earliest finish time

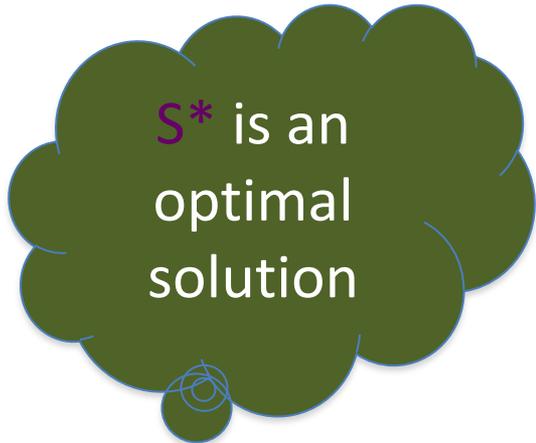
 Add i to S

 Remove all requests that conflict with i from R

Return $S^* = S$



S^* has no conflicts



S^* is an optimal solution

Greedy “stays ahead”



Today's agenda

Prove the correctness

Analyze run-time of the greedy algorithm

Argue correctness on the board...

