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- Paul zoom link (lecture, office hour for wk1-wk2): https://ucsd.zoom.us/my/yic242
- Christine zoom links for weeks 1-2:
    - Classes: https://ucsd.zoom.us/j/92386884896 (you must be logged on to your UCSD Zoom account)
    - Office hours (registration link): https://ucsd.zoom.us/meeting/register/tJctfu2spz4vH9URDk4R8IivO-6CXARj0gM_
- Course schedule (lecture contents, discussion materials, and PAs): link here
- Course calendar (lecture/discussion time and location, tutor hours, office hours): link here
- Coure discussion forum: www.piazza.com
- PA submission / Coding midterm / Coding final: www.gradescope.com
- Tutor help session: autograder.ucsd.edu
- Gradebook: canvas.ucsd.edu

General Information

1. Prerequisites

This course expects that you have successfully completed CSE 8B or CSE 11 at UCSD. We assume comfort and skill with basic Java programming, including using and creating objects, drawing memory models, developing and programming algorithms to manipulate strings, arrays, and numerical data, writing programs that read and write from and to files and building small to moderate size Java programs using the Java API as a reference.

If you have completed a rigorous introductory class in another object-oriented language (e.g. C++), you are probably OK to take this course, but you must learn the basics of Java on your own BEFORE this course begins. If you have taken an introductory course in a different language (Python, C), we recommend you take CSE 11 or CSE 8B before this course.

2. Critical information, at a glance

You should read this entire syllabus. It is important. It may be the most important thing you read for this course. But here are the pieces of information you absolutely do not want to forget. I don't mean for this to sound scary, but so many students fail to read or understand these points, so I want to make them as clear as possible.

- Homework (PAs) is due by 11:59 pm on the due date. No late work will be accepted unless it is due to a documented emergency and the instructor of the course has to approve it before the due time.
- All reading assignments are due before 10 am on Wednesday of that week. For example, week 2 readings are due before 10 am on Wednesday of week 2. Late readings will lose 10% per day after the deadline.
- It is your responsibility to ensure that you have correctly submitted the correct code for your homework assignment. Incorrectly submitted assignments will be graded as is.
- All homework assignments must be done based on the instructions.
- All questions for the class should be posted to the piazza. Emails to the instructor should be about personal and confidential matters only.
- We allow students to resubmit their work up to 1 week after you receive your PA grade and receive up to 50% of their lost points in the auto-graded portion. The last assignment doesn't have this makeup option.
- Programming Assignments (PAs) should be submitted by the deadline, but if something comes up where you cannot submit your PA on time, PAs submitted within 24 hours of the deadline will be accepted with no penalty, provided this is an

occasional event. **If you need a longer extension, or you are regularly struggling to complete assignments by the deadline, please talk to your instructor.**

3. What will I learn in this class?

In this course, you will continue to develop your sophistication as a programmer by learning to write larger-scale programs that use and manage data efficiently and correctly. You will learn several basic ways of storing data (data structures), how to analyze your programs and your data structures, and how to use abstraction appropriately to create efficient, correct, and reusable programs.

This course is more challenging than CSE 8B and CSE 11 in that your projects will be slightly larger, you will be expected to do more of the design (and analysis) on your own, and you will be given more freedom in your implementations. However, we expect that everyone who has succeeded in CSE 8B or CSE 11 can succeed in this course too.

Here are some detailed topics

- Java Collections Library
- The use of generics, interfaces. abstraction, ADTs, invariants
- OO programming idioms: input and output parameters
- Exception design and handling
- Runtime analysis
- Use of dictionary and set
- Use of binary search trees
- Implementation of basic trees using recursion
- Analysis of comparison-based sorting using the following data structures
  - heaps
  - arrays
  - trees (binary search trees)

4. Textbook: zybooks.com for the e-book.

- Go to Canvas **(Do not go to the zyBooks website and create a new account)**
- Click on the Week 1 zyBooks assignment in Canvas (posted by Monday or Tuesday), and click the button to access zyBooks
- Subscribe

We assign reading from the book as well as some in-session exercises. **You must access all zyBooks assignments via Canvas initially so that your score will be recorded in Canvas.**

Staff and Course Information

1. Course Staff

Instructors:

Pronouns: He/him/his

Paul Cao - A00 T/Th 9:30 - 10:50, GH 242 (wk3-wk10), zoom (wk1-wk2)

Contact: EBU 3B 2102, yic242@eng.ucsd.edu
[https://sites.google.com/a/eng.ucsd.edu/paul-yj-cao/]

Office hours: Friday 1pm - 3pm (in person and also on zoom)

Christine Alvarado - B00 MWF 10 - 10:50, MOS 113 (wk3-wk10)

Pronouns: she/her/hers

Preferred form of address: Professor Alvarado

Contact: EBU 3B 2110, cjalvarado@eng.ucsd.edu
[https://sites.google.com/a/eng.ucsd.edu/alvarado/]

Office hours: Tuesdays 9-10am and Wednesdays 2-3:30pm. Register here:
https://ucsd.zoom.us/meeting/register/tJctfu2spz4vH9URDk4R8IivO-6CXARj0gM_

If you cannot make it to the scheduled office hours, email the instructors to set up an appointment. Please only email instructors with personal (confidential) questions. If you need to see us at a time other than office hours, you should email us in advance to set up a time. You should look at their calendar and propose a few time slots of 30 minutes or less.

Tutors

We have many tutors for this class who are available to help you online. If you need tutor help, just submit your ticket on autograder.ucsd.edu. In the first two weeks, all tutoring sessions happen on zoom. In weeks 3 - 10, all tutoring sessions are done in EBU 3B lab B240 (pending campus regulations).

2. Course Components

1. Class Sessions (a.k.a. Lectures)

These are instructor lead sessions that will focus on explanations of complicated and important concepts, and explore strategies on manipulating basic data structures. Instructors will use

in-class polls as well as pre-released worksheets to work out different problems with students. These sessions will be recorded and will be available online. It is strongly encouraged that everyone attends lecture sessions for more effective learning. We understand that sometimes it isn't possible under the current situation affected by Covid-19. For those who can't attend lectures real-time, you should watch the recorded podcast or zoom video

2. Reading Assignments

To prepare you for these interactive class sections, there will be reading assignments for each class section. There are also videos that accompany the reading. Though the due time is Wednesdays at 10 am of each week, it is strongly recommended that you complete the reading assignments before each lecture.

3. Exams and Quizzes

We have one coding midterm (asynchronous), four quizzes (in-person, given in discussion section), and a comprehensive final exam (in-person). We will provide more details about the exams later in the quarter.

4. Problem Solving Assignments (PAs)

Most weeks there will be a problem-solving assignment due by 11:59 pm on the due date. These will consist of reading a problem statement formulating a plan to solve the problem (an algorithm) implementing a solution (writing a program in Java that solves the problem). You should complete some assignments yourself and we will allow students to pair up on some assignments. We will be specific on what assignments are done in pairs and what assignments are done solo.

5. Discussion Sections

Discussion sections in Week 4 and beyond are mostly **required and in-person**. Discussion sections start in Week 2, and there is no discussion section in Week 3 because of the holiday. Starting in Week 4, quizzes will be given in the discussion section. Some quizzes are makeup opportunities for previous quizzes so you will be able to skip those if you are happy with your performance on the original quiz. Details can be found in the course schedule.

Grading Policy

Your final grade will be determined via the following percentages:

- Reading assignments from zybooks: 10%
- Quizzes: 10%
- Programming Midterm: 10%
- PA: 40%
- Written final exam: 20%
- Programming final exam: 10%

We will use a standard scale for assigning letter grades:

- A>=90
- B: 80-89.99999
- C: 70-79.99999
- D: 60-69.99999
- F:<60

The instructor has the discretion to assign + or - for a given letter grade, though in general, we will stick with the normal scales for + or -.

Important Grading Policies:

- You must score at least 55% on the overall PA portion of this course. You must also score at least 55% on the written portion AND the coding portion of the final exam. If you score lower than the 55% cutoff on the aforementioned categories, you will receive an F for the course, regardless of your overall average.
- You have 3 days from the time a PA or in-class quiz is returned to request a regrade. After that, the grade is set in stone. To request a regrade, please contact the person who graded the assignment/quiz originally. You should submit your regrade request through gradescope. Submit the regrade request on the corresponding problem and clearly explain why you think there is a grading error. If you submitted a regrade request without clear justification and were simply abusing the regrade system, your grade will be lowered as a penalty.
- The last PA and the final exam have a regrade period of 1 day after the work is released to you. It will ensure that we submit everyone's final letter grade timely. No regrade requests can be made after the regrade period has ended.

Policy on late work, missed quizzes, making up work, etc:

- PAs should be submitted by the deadline, but if something comes up where you cannot submit your PA on time, PAs submitted within 24 hours of the deadline will be accepted with no penalty, provided this is an occasional event.
- Each quiz will have a corresponding makeup quiz 1-2 weeks later. Anyone can take the makeup quiz, and the score on the makeup quiz will replace the score on the original quiz (whether or not it is higher than the original quiz).
- Late readings will lose 10% per day after the deadline.
- We allow students to resubmit their work up to 1 week after you receive your PA grade and receive up to 50% of their lost points in the auto-graded portion. The last assignment doesn't have this makeup option.
- **If you need accommodations beyond what is listed above, please contact your instructor ASAP. We are happy to make arrangements for further extensions or adjustments for students facing extreme circumstances.**

Academic Integrity and Collaboration

Complete your academic honor pledge in this link before the end of Week 1!

1. Academic Integrity

The goal of CSE 12 will be a turning point for most of you on understanding how different strategies to solve a problem may result in vastly different efficiency. Future instructors, employers, and colleagues will expect that you will attain a certain proficiency in data structures. Using unauthorized aids in doing your work will prevent you from attaining the proficiencies that others will expect. Meeting or not meeting these expectations relate directly to getting internships, retaining employment, and success in your future studies.

The basic rule for CSE 12 is: Work hard. Start early. Make use of the expertise of the CSE 12 staff to learn what you need to know to really do well in the course. Don't cheat.

If you do cheat, we will enforce the UCSD Policy on Integrity of Scholarship (see the General Catalog or the corresponding web page, scroll 2/3 of the way down). This means: You will get a reduced grade in this course (in many cases an F), and the Dean of your college could put you on probation or suspend you or dismiss you from UCSD.

What counts as cheating?

In CSE 12, you can read books, surf the web, talk to your friends and the CSE 12 staff to get help understanding the concepts you need to know to solve your PA problems. However, you must write your program alone for all PAs except where otherwise indicated. Specifically:

On PAs you MAY:

- Consult any resources provided in class or in the textbook.
- Ask tutors, TAs, and instructors for help.
- Help your peers debug, or provide debugging assistance to your peers. Note that this can involve looking at code, but you should not directly copy any code. Keep your own code closed when helping your peers. **You must explicitly acknowledge anyone you received help from (outside of course staff) in your header comment at the top of your file.**
- **When it is explicitly allowed**, work with one other student using Pair Programming (where you are both working on the same code *together, at the same time.*)
- Search/consult the web for general documentation, for example, how to use Java APIs.

On PAs you may **NOT**:

- Search/consult the web for solutions to the PAs, including algorithms or code.

- Copy code from **anywhere** (except the textbook and class materials like slides--*with attribution*).
- Have anyone else completed your assignment (or any part of it).

On quizzes and programming exams you may not consult with anyone or get help from any source except what is explicitly stated as allowed on the exam/quiz. When the time is called, you must stop writing. **You may not discuss the contents of any quiz or exam with ANYONE ELSE until the instructors explicitly state that it is OK to do so.**

We do electronically check every program that is turned in. In recent quarters, we also found out that people unintentionally post their codes on public GitHub repos and it is a violation of the AI policy! We report all these cases to the academic integrity office. If you want to share your work with future employers or simply want to save a copy of your work, you can post them privately on your GitHub account!

Receiving a grade on a PA doesn't mean that you have passed the plagiarism checking. We can report cheating cases any time during the quarter, even after we submit your final letter grade. So the safest bet is don't cheat!

To reinforce these points, every student in CSE 12 must read, understand, and sign the Integrity of Scholarship Agreement. You must sign an integrity statement before completing any of the assignments or labs.

2. Collaboration Policy

The main goal of the programming assignments is for you to become a better programmer. You must experience writing your own code for this to really happen.

Pair programming on PAs is strongly encouraged when it is permitted. Students who pair program must work together over zoom or in-person during all development of the program. If you choose to pair program, you may not work on the assignment without your partner participating, with the exception of doing small amounts of debugging or getting help from the TAs or tutors.

You may discuss your assignment with other students who are not your partner, and you may help them debug, but all code that you submit must be written by you (and your partner) alone.

2. Getting Help

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We expect that ALL STUDENTS WILL NEED HELP at some point in this course. If you find yourself needing help, this is not a cause for embarrassment. It is completely expected. Please seek help early and often through any (or all) of the following resources.

Open lab hours:

There are many, many hours in which tutors are willing and available to help you with any questions you might have. The course tutor calendar can be found on the first page of the syllabus.

Online help - piazza

Use the piazza site for any questions related to the PA, material in the course, quizzes, exams, or course logistics. Piazza allows you to post questions anonymously (to other students) if you don't feel comfortable revealing your name. In general, all questions should be addressed to piazza EXCEPT:

- Confidential questions that you wish to address to your instructor only. Please email your instructor directly.
- Questions about your grade. Please contact the person who graded your assignment directly.
- Posts that include portions of your PA solution. Please see a tutor during our tutoring session or post these questions privately.

Office hours:

Your instructor and TAs are always willing to help you during their office hours. If you cannot make it to your instructor's or TA's office hours but wish to meet with your instructor or TA, please send them an email to set up an appointment.

Other Important Policies

1. Diversity and Inclusion

We are committed to fostering a learning environment for this course that supports a diversity of thoughts, perspectives, and experiences, and respects your identities (including race, ethnicity, heritage, gender, sex, class, sexuality, religion, ability, age, educational background, etc.). Our goal is to create a diverse and inclusive learning environment where all students feel comfortable and can thrive.

Our instructional staff will make a concerted effort to be welcoming and inclusive to the wide diversity of students in this course. If there is a way we can make you feel more included please let one of the course staff know, either in person, via email/discussion board, or even in a note under the door. Our learning about diverse perspectives and identities is an ongoing process, and we welcome your perspectives and input.

We also expect that you, as a student in this course, will honor and respect your classmates, abiding by the UCSD Principles of Community (https://ucsd.edu/about/principles.html). Please understand that others' backgrounds, perspectives, and experiences may be different than your own, and help us to build an environment where everyone is respected and feels comfortable.

If you experience any sort of harassment or discrimination, please contact the instructor as soon as possible. If you prefer to speak with someone outside of the course, please contact the Office of Prevention of Harassment and Discrimination: https://ophd.ucsd.edu/.

2. Students with Disabilities

We aim to create an environment in which all students can succeed in this course. If you have a disability, please contact the Office for Students with Disability (OSD), which is located in Pepper Canyon Hall Suite 300, to discuss appropriate accommodations right away. We will work to provide you with the accommodations you need, but you must first provide a current Authorization for Accommodation (AFA) letter issued by the OSD. You are required to present their AFA letters to the Faculty (please make arrangements to contact me privately) and to the OSD Liaison in the department in advance so that accommodations may be arranged.

3. Basic Needs/Food Insecurities

If you are experiencing any basic needs insecurities (food, housing, financial resources), there are resources available on campus to help, including The Hub and the Triton Food Pantry. Please visit http://thehub.ucsd.edu/. for more information.