CSE 8A: Intro to Programming in Python

Fall 2021

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UC San Diego

Adopted and modified from materials shared by Gerald, Sorin, and Joe

CSE 8A Protocol for Live Lectures

- All lectures will be conducted on Zoom
- Lectures will be recorded!
- If you have questions during live lectures:
  - You may type your question in Zoom chat
    - TAs and tutors will answer them directly OR
    - They will forward it to the instructor to answer it
  - Or you can wait until the end of a slide when Paul prompt for questions.

Paul Cao

- Started at UCSD in Fall 2015
  - Taught at liberal arts colleges before moving to SD
  - Research area in CS Education
- Teaching Background:
  - Nearly all lower division courses
  - 8A/8B/11/12/30/100/95
- When I’m not working:
  - Be a good grocery shopper for the family
  - DIY stuff

Who are you?

Pre-Class Survey: https://forms.gle/AUK2K9Hb6RCFuXqQ8

- Please fill out this form so that we can know more about you!
- Do this after the lecture. Deadline: Friday, April 2nd
- This survey is REQUIRED since it will collect your Stepik ID (more details about this in a bit!)

slido

How excited are you about the class?

ⓘ Start presenting to display the poll results on this slide.

slido

How nervous are you about the class?

ⓘ Start presenting to display the poll results on this slide.

Course components

- Lectures
- Discussions
- Labs
- Reading activities (stepik)
- Programming Assignments (PAs)
- Exams

Live Lectures

- Explain concepts that are tricky to understand
- Solve programming problems
  - Individually
  - polling
- Lecture participation NOT mandatory but highly recommended!
- Go to the lecture you are enrolled in MWF 12-12:50 or 2 - 2:50)!
  - Lecture recordings on podcast.ucsd.edu

Labs

- There will a lab for 50 mins every week
- Labs are mandatory!
- You will work in a pair
  - The group will be assigned by instructors and will be the same throughout!

- Labs will be graded on two parts
  - 70% of the credit goes to simply showing up and try/complete the activities on the lab
  - 30% of the credit goes to a lab quiz (15 minute timed)
- Labs are meant to be precursors of the PAs

Textbook

Readings will be assigned from the following free online textbooks:

- Introduction to Programming in Python (on Stepik)
  - This will be an interactive textbook with readings and exercises (for RQs)
  - You should create a Stepik account to access our free online textbook
  - More details about this toward the end of this lecture
  - Reading activities are due before 8am on the day they are assigned
- Automate the boring stuff: https://automatetheboringstuff.com/
- Think Python (2nd Edition): http://greenteapress.com/thinkpython2/thinkpython2.pdf

Programming Assignments (PAs)

- 7 Programming Assignments in total
- Part of the assignment is coding and part of it is answering questions
- You must score at least 55% on an average on all PAs to pass the course
- Late work policy - 50% makeup policy

Exams

- Exam Schedule
  - 2 midterms
  - 1 final
  - Both are closed book, closed note
- You must score at least 55% on the final exam to pass the final
  - You must pass the final exam to pass the course
- Format of the exam and the type of questions: shared later

Grading Scheme

- Reading activities: 10%
  - drop 6 of them for everyone
- Programming Assignments (PAs) - 35%
  - 8 total
- Labs - 15%
  - 10 total, one lowest dropped
- Midterm Exam - 20%
- Final Exam - 20%

Course Resources

- Programming tools
- Course tools

Programming Tools

- Python Programming Language
  - We will use Python 3
  - Do NOT use Python 2
  - Preferred version: Python 3.8.5
  - Download link: https://www.python.org/downloads/ or you can use edstem's online programming environment
- Programming Environment
  - The edstem environment
  - Or IDLE with python installed on your own computer

NOTE: Attend discussion 1 (Wed of week 1) to learn how to install python or use edstem's terminal

Getting Help

- Course staff: 1 instructor, 5 TAs, and 30 tutors!
- Course staff are available for help
  - See: Course Calendar for tutor hours and TA office hours
  - use autograder.ucsd.edu to seek help
- Instructors will also conduct office hours
  - Personal issues
  - Help with course content and programming
  - How to be successful in this class?

Course communication

All course related questions:

- **Content** based questions
- **Logistics** related questions

Any **personal** issues:

- Accomodations
- Health/family issues

ed

- The most reliable announcements/communication are through Ed for this course
- You should have received an email to sign up
- Link is also available on canvas (commonly used links in the syllabus region)
- If you can't find that email, tell me! (yic242@eng.ucsd.edu)

Emailing The Instructor

- There are 350+ students in CSE 8A
- I can't answer course **content** related questions over email (well... I could but it would consume my whole job 🙃)
- If you ask the question on Ed, one of our course staff (or Paul) will attend to it as soon as possible
- You should email Paul about:
  - Accommodations needed to be successful in this class (e.g., OSD letter)
  - Health/Personal issues

Academic Integrity!

What is OK?

- Asking a private question on Ed for the course staff
- Asking a question to a staff member
- Asking a public question on Ed about an **assignment**

What is NOT OK?

- Collaborating on PAs with anyone inside or outside the class
- Collaborating on **exams or lab quizzes** with anyone (including in the class)
- Asking public questions on Ed about an **exams or lab quizzes**
- Showing/sharing any code from your **PAs** with anyone other than to submit it

Equity, Diversity, and Inclusion

Equity, Diversity, and Inclusion - Pledge!

Whoever you are, wherever you are from, whatever language you may speak, whatever may be your skin color, sexual orientation, religious beliefs, etc., YOU BELONG IN CSE 8A!

Any form of discrimination against any student in our class is totally unacceptable and will be dealt with seriously! If you notice any such discrimination, you should report it to us immediately.

Disabilities and accommodations

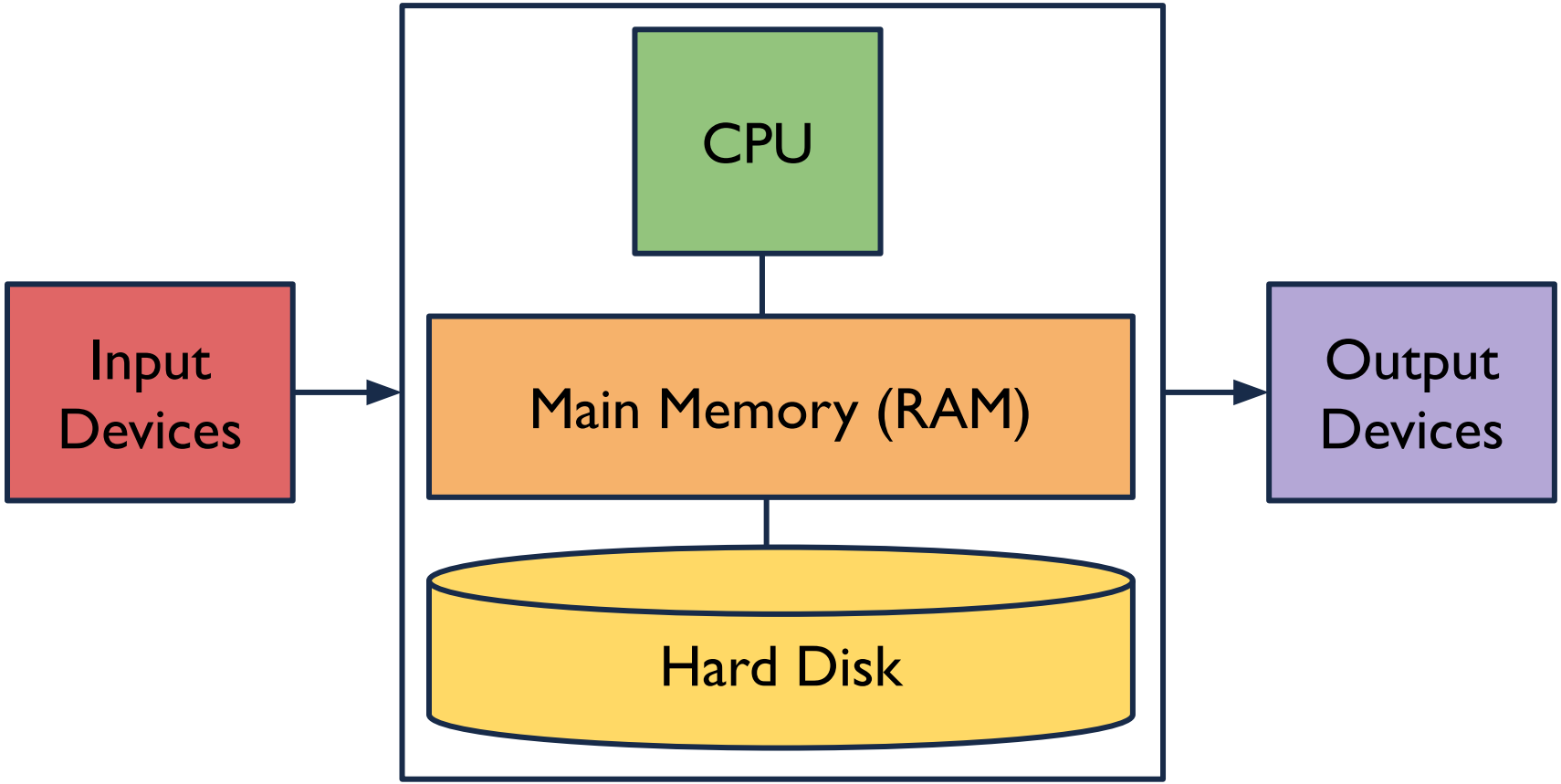
- Contact OSD immediately if you need accommodations due to
  - Any types of disability
    - Visible
    - Invisible
  - Test anxiety
  - Religious obligations
  - Anything that might affect your learning in our course!

- Office of Students with Disabilities (OSD): https://osd.ucsd.edu/

What is CSE 8A?

Introduction to Computer Science and Programming in Python

What is a Computer?



What is a Computer?

Keyboard & mouse

CPU

Memory

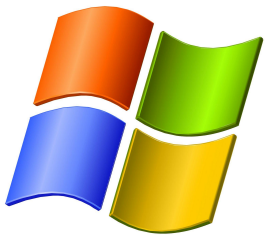
Disk

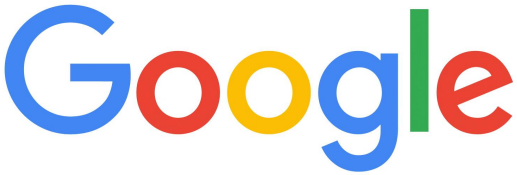
Monitor

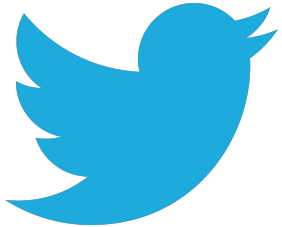
What is a program?

What programs do we use everyday?

Famous computer programs/services

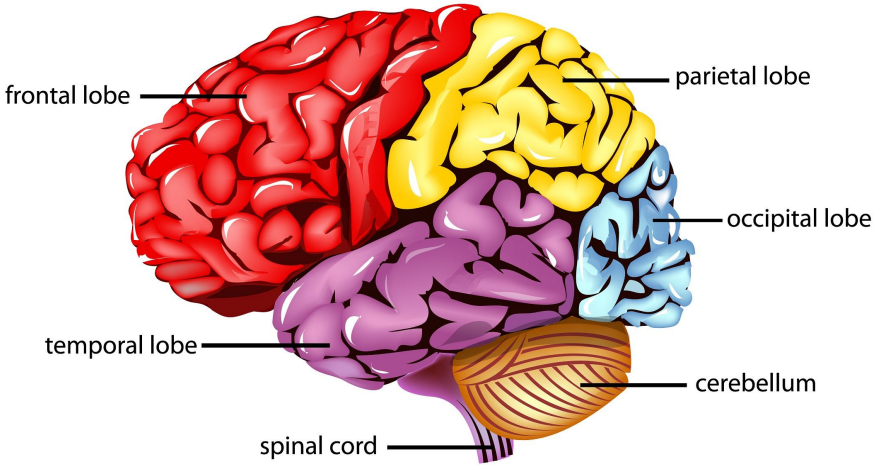






CPU vs Human Brain

Understands **only** 0s and 1s



Understands **some** Natural Languages

Can you read this?

Todo está bien

Can you read this?

Todo está bien

一切都很好

Can you read this?

Todo está bien

一切都很好

எல்லாம் நன்மைக்கே

Can you read this?

Todo está bien

一切都很好

எல்லாம் நன்மைக்கே

All is well

Can you read this?

01010100 01010010 01001001 01010100 01001111 01001110

Can you read this?

01010100 01010010 01001001 01010100 01001111 01001110

T R I T O N

How to make a computer print “Tritons”?

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- Need to communicate in a language that the computer understands

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- Problem
  - Computers understand only binary numbers (0, 1)
  - Humans have trouble understanding binary numbers

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- Problem
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  - Humans have trouble understanding binary numbers
- Solution
  - High-level programming language (e.g., Python)

Our first Python Program: Hello, World!