Lecture 00



# Introduction to Programming Methods

CS 2: Introduction to Programming Methods



# All About Me!



- My pronouns are they/them.
- Call me "Adam" or "Prof. Blank".
- I care about your experience in this course and at Caltech.
- CS 2 is my favorite course to teach!
- I love my dog Hopper.

# Outline

1 Administrivia

2 Introduction to Java

CS is for EVERYONE!!!!!!

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- Centered around labs and projects
- Active Learning
- J Python F Java **(**3 Difficult, time-consuming, but well-supported
- Programming language is an implementation detail

**C**S)

# Just A Taste

Some of the labs/projects you will be implementing are:



scheme to hide text in images





# **Course Structure**

#### Lab

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- Practice that fits between lecture and projects
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#### Office Hours

- Adam holds six office hours a week.
  - Feel free to set up a private appointment if you prefer.
  - TAs hold office hours at all kinds of times! Times posted on the course website.

# **Course Goals**

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- create a foundation for further study in CS
- create a foundation for using CS in other fields
- see lots of applications of CS to various fields
- have fun (???)

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This is the course where you stop thinking like a "programmer" and start thinking like a Computer Scientist!

# **Boring Administrivia**

#### Course Website

#### https://debuggi.ng

### Grading

Two options:

# **Boring Administrivia**

#### Course Website

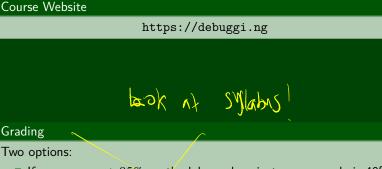
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# **Boring Administrivia**



- If you average ≥ 85% on the labs and projects, your grade is 40% labs and 60% projects (i.e., you are exempt from the final)
- Otherwise, your grade is 30% final exam, 28% labs, and 42% projects

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So, lecture recordings will be made available to students who attend that lecture. In the past, I haven't recorded lectures at all as it makes me deeply uncomfortable.

# From Python to Java

### The Big Picture

```
"Duck" types vs. explicit types
variable = "hello"
```

String variable = "hello";

# From Python to Java

### The Big Picture

- "Duck" types vs. explicit types variable = "hello"
- White-space vs. braces
- 1 **if** condition:
- 2 do\_something()
- 3 else:
- 4 do\_something\_else()

```
String variable = "hello";
```

```
1 if (condition) {
2     do_something();
3 }
4 else {
5     do_something_else();
6 }
```

# From Python to Java

### The Big Picture

| "Duck" types vs. explicit types  |                                       |
|----------------------------------|---------------------------------------|
| variable = "hello"               | <pre>String variable = "hello";</pre> |
| White-space vs. braces           |                                       |
| 1 <b>if</b> condition:           | 1 <b>if</b> (condition) {             |
| <pre>2 do_something()</pre>      | <pre>2 do_something();</pre>          |
| 3 else:                          | 3 }                                   |
| <pre>4 do_something_else()</pre> | 4 <b>else</b> {                       |
|                                  | <pre>5 do_something_else();</pre>     |

- Procedural programming vs. object-oriented programming
  - Python: code does not need to be in a function
  - Java: not only does code need to be in a function, but all functions must be in a class

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