Welcome to CS 333!

ERIN KEITH

Goals

1. About me
2. About us
3. About Python

About Me

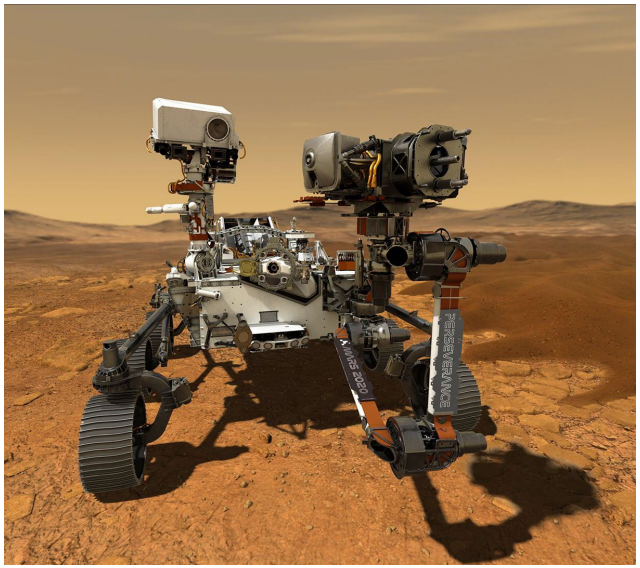
1. Name?
   - Erin
2. How many years have you been in college?
   - 1999 – 2000
   - 2004 – 2006
   - 2009 – 2015
3. How many years have you been coding?
   - January 2006
   - Professional engineer for 6 years
4. A favorite or unusual hobby?
   - I play Magic the Gathering
   - I hate birds but am an excellent birder
   - I crochet clothes.

My Values

Community:

These are likely people you are going to continue to work with. Consider treating them with compassion and respect. Help each other.

My Values



Perseverance:

Life is hard and college is hard, but **perseverance is not giving up**. It is persistence and tenacity, the effort required to do something and keep doing it till the end, even if it's hard.

My Values

Compassion:

If you're having a problem, please contact me ASAP!! This applies to physical, mental, emotional, technological, and emergency problems. You can just shoot me a brief email so we can try to work around your issue, but ***the sooner I know the more I can help***!

About You

In groups, discover the answers to these questions for each member:

1. Name
2. How many years have you been in college?
3. How many years have you been coding?

As a group:

1. Discover the most unusual thing you all have in common.
2. Choose someone who will type these into TopHat.

You'll have 5-10 minutes to chat.

CS 333: Testing and DevOps

Introduction to software testing methods and infrastructure as code.

Technologies

Canvas

- Announcements
- Assignments
  - Pairs

Assignment Submission

- GitHub Classroom

Discord

- invitation link in Syllabus on Canvas
- change your nickname to the full name you'd like us to use in this class

Programming

- Python

Our Adventure

Topics:

- Testing
  - Unit Tests
  - Test Driven Development
  - Integration Tests
- DevOps technologies
  - Source Control Management
  - Continuous Integration
  - Release Tools
  - Configuration Management
- Final project

+AI!

Course Structure

Formats

- In class coding assignments
- In class discussions

Expectations

- Attendance is required
- Unless otherwise stated, in class assignments are expected to completed in pairs. **If you cannot make it to class, please email me ASAP to make arrangements.**
- While there is no late policy for in-class assignments, the lowest grade in this category will be dropped.

Lecture

The format of this class is to "flip" the classroom. This means you will be given resources ahead of the next class.

Please come to class prepared to engage in problem solving, coding, and other exercises or activities.

In Class Assignments

After the lecture at the beginning of each class, there will be an in-class exercise for you to work on **in pairs or small groups**.

- There are 11 in class assignments scheduled this term.
- The directions for each in class assignment will be posted on Canvas and in the GitHub repository.

Homework Assignments

Homework assignments require designing and implementing your solutions to posed problems, **individually**.

- There are 2 homework assignments scheduled this term.
- The directions for each programming assignment will be posted on Canvas.

Final Project

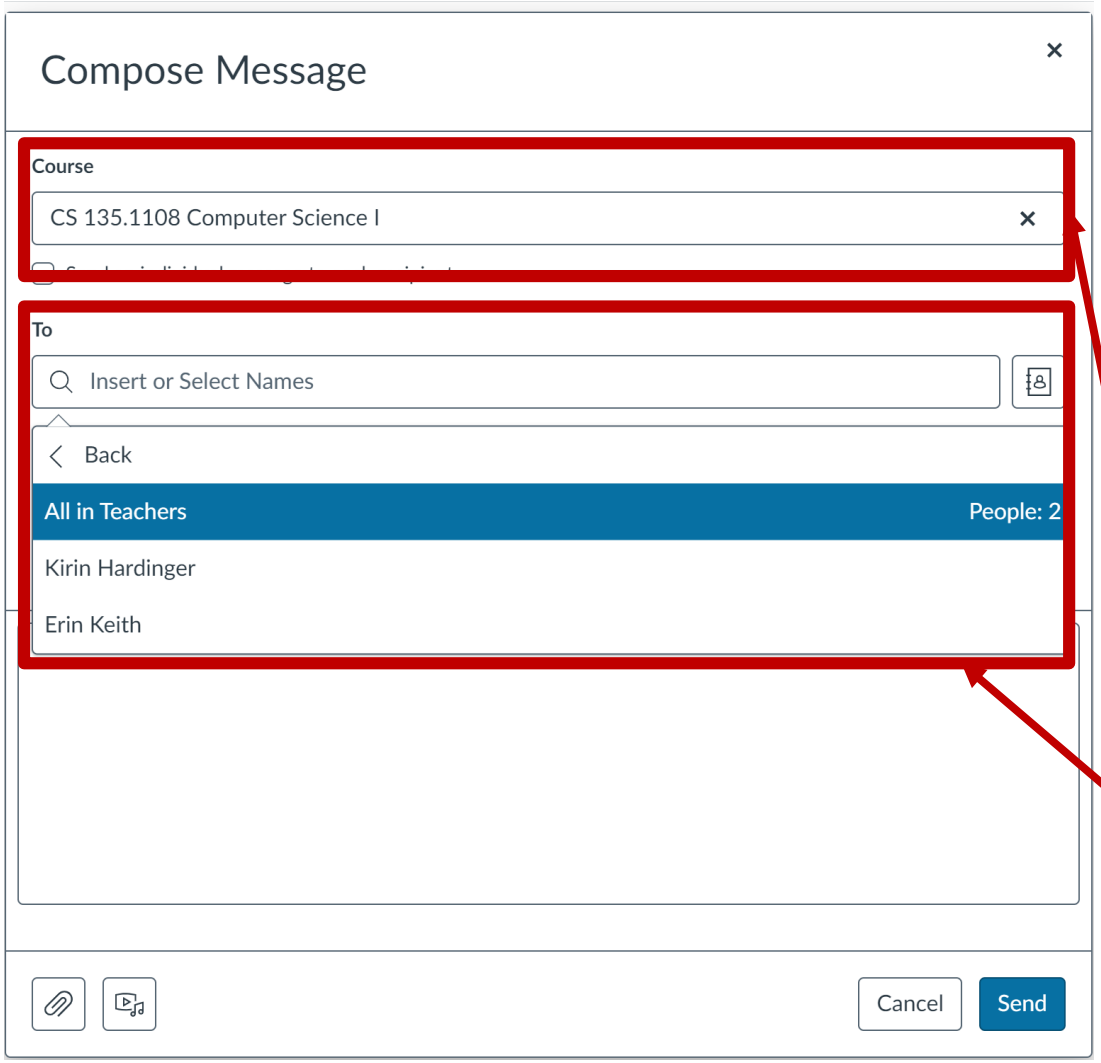
There will be a final project where you put all of the components of the course together into a working project.

- This will include a design document and recorded demo.

Exams

There will be 2 exams.

- Midterm: Tuesday 3/11 during class (2 hours)
- Final Exam: Tuesday, 5/13 3:00pm – 5:00pm. **Please let me know ASAP if you think you cannot make the final exam.**



Email TA for grading ?s

Please contact our TA with questions regarding In-Class Assignments and Homework grades."

- In the Canvas email client, click the button in the upper right-hand corner to "Compose a new message"
- For the recipient, choose the "TA"
- Write your email and send!
- If you haven't received a reply within a business day, CC me on a follow up email.

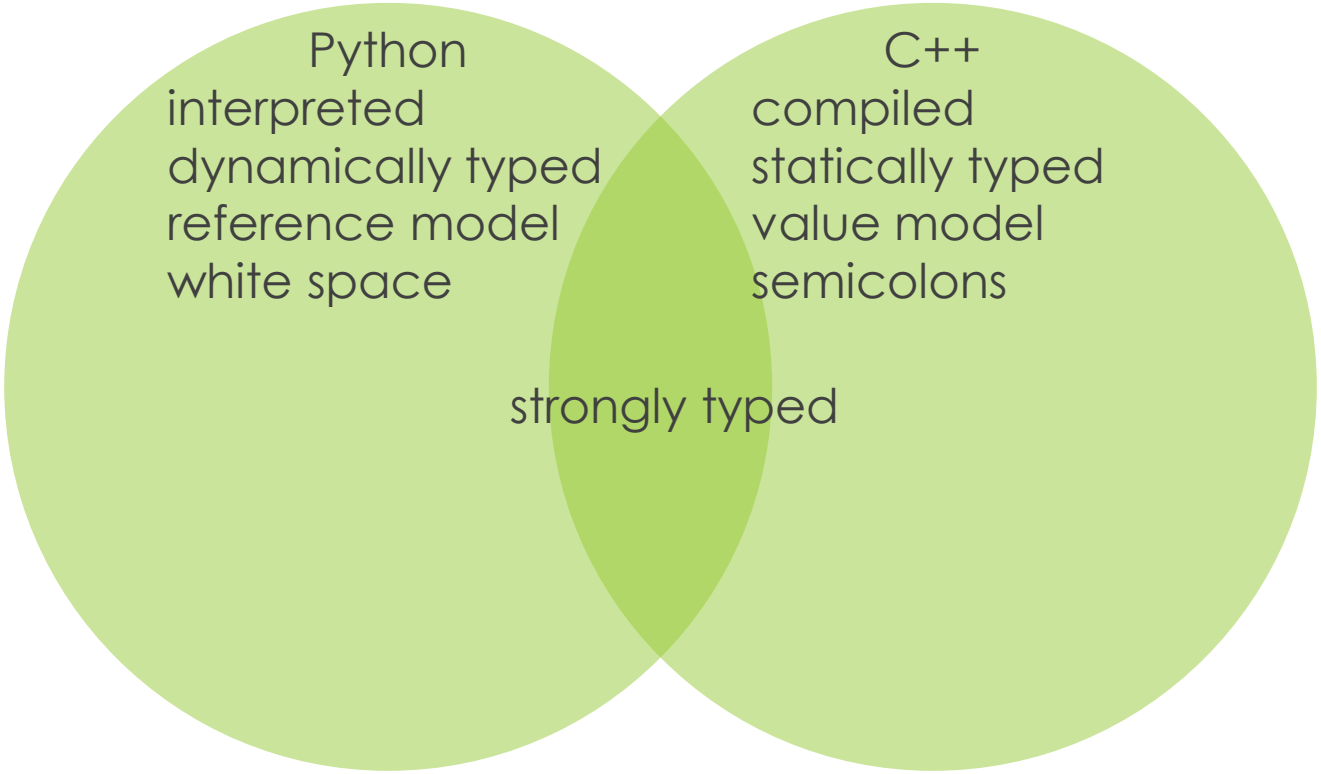
Communication

Please use Canvas to email me

Questions?

Let's goooooo!

Python vs C++

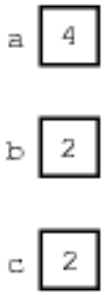

Python
interpreted
dynamically typed
reference model
white space
C++
compiled
statically typed
value model
semicolons
strongly typed

Variable Models

VALUE MODEL

A named container for a value

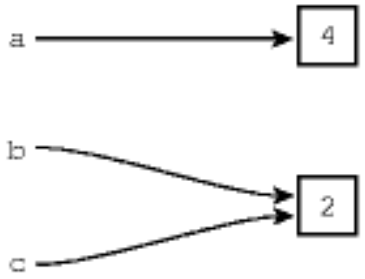
- C



REFERENCE MODEL

A named reference for to value

- (pointers)
- Python, Scheme



Scripting Languages

under the **imperative** umbrella

- originally design to "glue" existing programs together to build a larger system
  - **Python**, Perl, bash
- server-side scripting
  - PHP, Ruby
- client-side scripting
  - JavaScript

Scripting Languages

originally design to “glue” existing programs together to build a larger system

- frequently interacting or manipulating files at an operating system level
- batch use
  - execute commands without intervention
- interactive use
  - command line

Python

All of ‘em!

- Scripting
- Von Neumann
- Object Oriented

Python Scripting

- can start with **`#!/bin/bash`**
  - tells the terminal to execute the script using Bash
  - PowerShell is the MS alternative
- no **`main`** necessary
- libraries and modules such as
  - **`pathlib`**
  - **`os`**
  - **`shutil`**
  - **`sys`**

Don't do this!

Python Von Neumann

- can use a **`main`**, although the syntax seems a little extra

```
def main():
  print("Hello, World!")

if __name__ == "__main__":
  main()
```

Do this!

Python Object Oriented

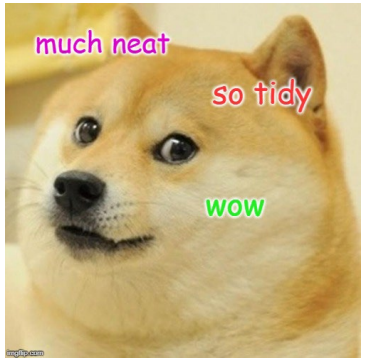
- can create classes

```
class MyClass:
    """A simple example class"""
    i = 12345

    def f(self):
        return 'hello world'

x = MyClass()
```

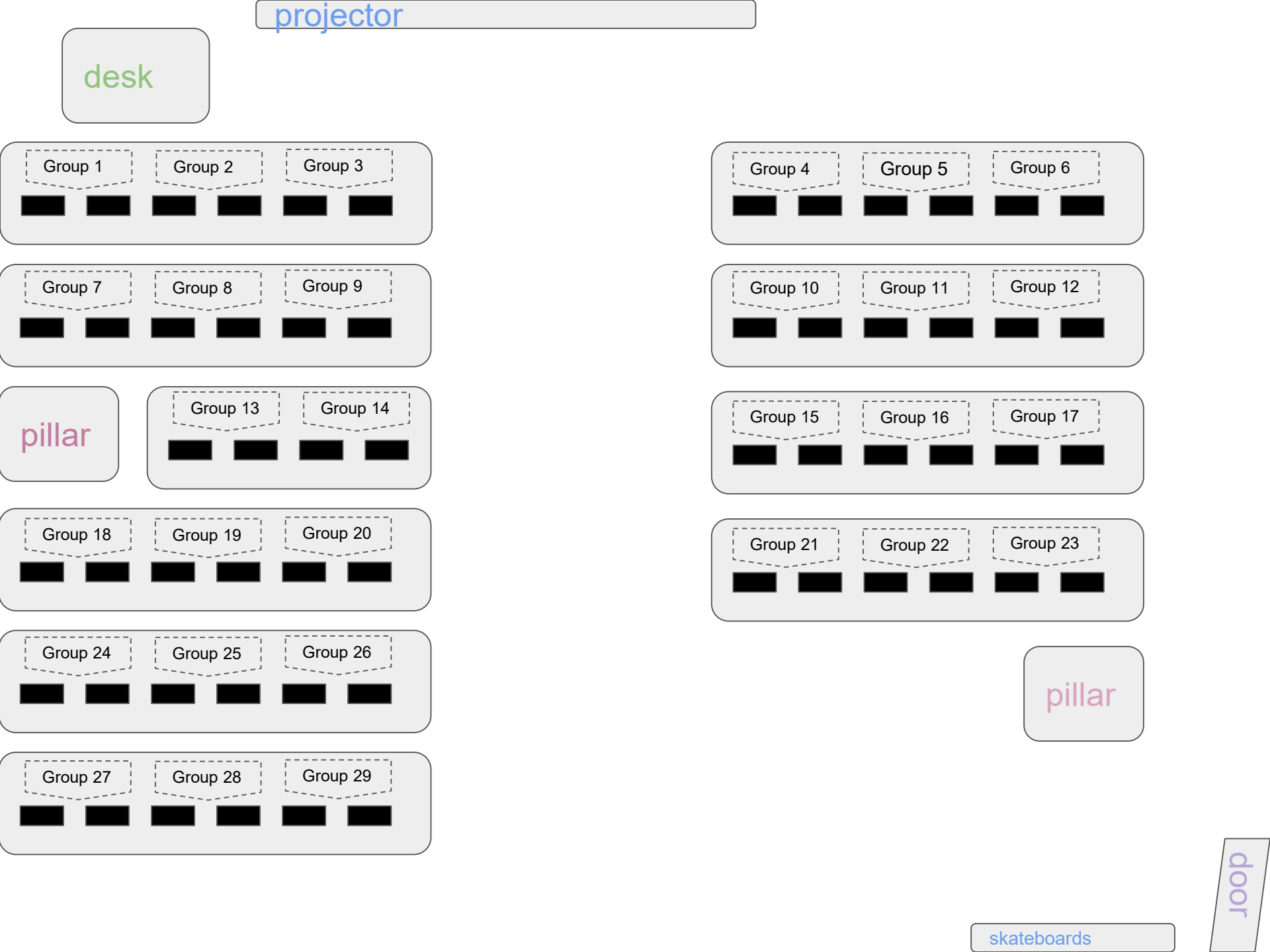
Do this!

Python 3

Open source
- Lots of libraries
  - Beeeeee careful



Lots of resources!!
- Tutorial: https://docs.python.org/3/tutorial/index.html
- Documentation: https://docs.python.org/3/


projector
desk
Group 1
Group 2
Group 3
Group 4
Group 5
Group 6
Group 7
Group 8
Group 9
Group 10
Group 11
Group 12
pillar
Group 13
Group 14
Group 15
Group 16
Group 17
Group 18
Group 19
Group 20
Group 21
Group 22
Group 23
Group 24
Group 25
Group 26
pillar
Group 27
Group 28
Group 29
door
skateboards