Musical Warm Up

- We'll start around 10:53am. As you wait, listen to the music
    - Write down 3-5 words to describe the song
    - When you have yours, use the chat function to introduce yourself to someone. Compare your words
    - Pick 1 word that you together want to share

Musical Warm Up

- What recommendations do you have for **me** — as the instructor — to make the classroom feel like this song?

- What recommendations do you have for **each other** — as students — to make the classroom feel like this song?

CSC 294: Computational Machine Learning

Katherine M. Kinnaird
Spring 2022

Free Write

- Think about the strengths that you carry with you. Think about:
  - Things that you are good at either in or out of school
  - Things that you like about yourself
  - Things that make you feel confident

- Write down at least 5 strengths. For each strength, describe a bit about it and why you consider it to be a strength.

Free Write

- Save your free-write notes somewhere safe and memorable!

- You will need these for a few assignments throughout the term

Today!

- Today we seek to accomplish the following:
  - Outline the goals for the course
  - Discuss how the course will work on a daily and weekly basis
  - Begin setting up our tools for the course

Motivating questions for CSC 294

- What is Machine Learning?
- What roles does computer science play in machine learning?
- What habits of mind do we need to develop to become machine learning practitioners?

Learning Goals

By the end of the course, students will be able to...

1. Detail differences between supervised and unsupervised learning tasks and methods, as well as discuss the issues when dealing with large scale data
2. Implement a variety of machine learning algorithms in python and assess their efficacy
3. Compare models, and assess the efficacy of machine learning algorithms and results using evaluation metrics and in terms of the context of the data's domain
4. Develop an appreciation for ethical implications of machine learning algorithms
5. Work iteratively and reflectively to apply machine learning techniques to a data set of interest with informative documentation, written for a variety of audiences

Course Map

Weeks 1-2: Welcome! + Introduction to tools & data

Weeks 3-5: Unsupervised Learning

Week 4: Dimension Reduction

Weeks 6-8: Intro to Supervised Learning

Weeks 9-10: SVM, Decision Trees, and Ensemble Methods

Weeks 11: Machine Learning Design & Scale

Weeks 12-13: Deep Learning

Finals Period: Final Portfolio

Weekly Routine

Monday	***Wednesday***	*Friday*
Previous Thursday Lab best by date Lab in class	Tuesday Lab best by date Lab in class	HW, Project, etc best by date

Daily Routine

Before Class

- Wrap up the previous lab
- Post questions to Slack (and offer ideas to others!)
- Read the assigned reading in pieces
- Make notes in your Machine Learning notebook and your engagement journal
- Push & pull on GitHub

After Class

- Re-read notes from class prep work
  - Did your questions get answered?
- Chip away at homework assignments, projects and reading
- Make notes in your Machine Learning notebook and your engagement journal
- Push and pull on GitHub

See a pattern?

Two of the most important things that we will do all semester is:

- Make notes in our Machine Learning notebooks and our engagement journals
- Push and pull on GitHub as needed

Machine Learning Notebook

- Bound notebook
- Goal: Support and facilitate your learning:
  - Reading notes
  - Class notes
  - Notes from Labs & Discussions
  - Homework notes and ideas

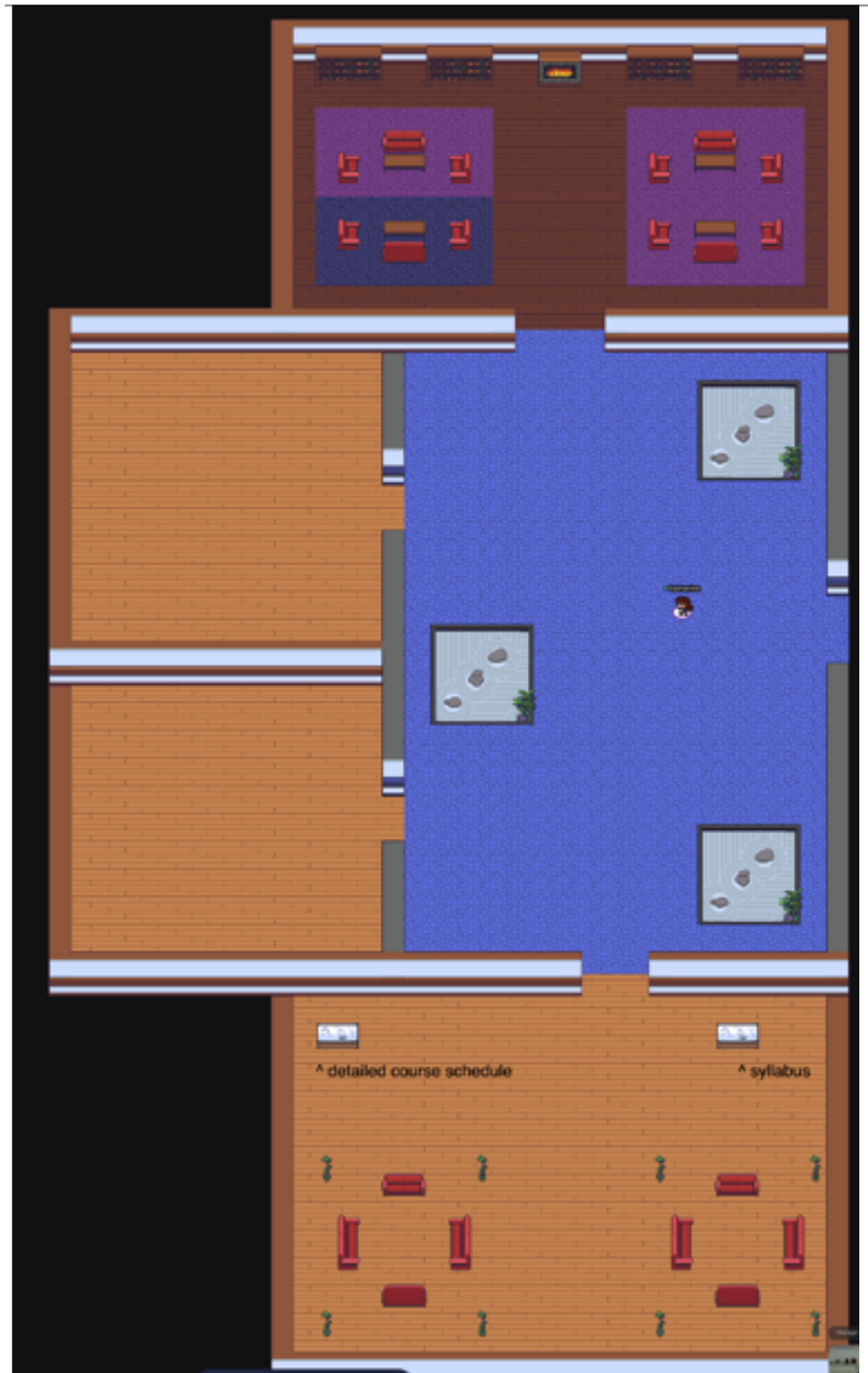
Git, GitHub, & GitHubClassroom

- Most of the course will be managed through git, GitHub, and GitHubClassroom.

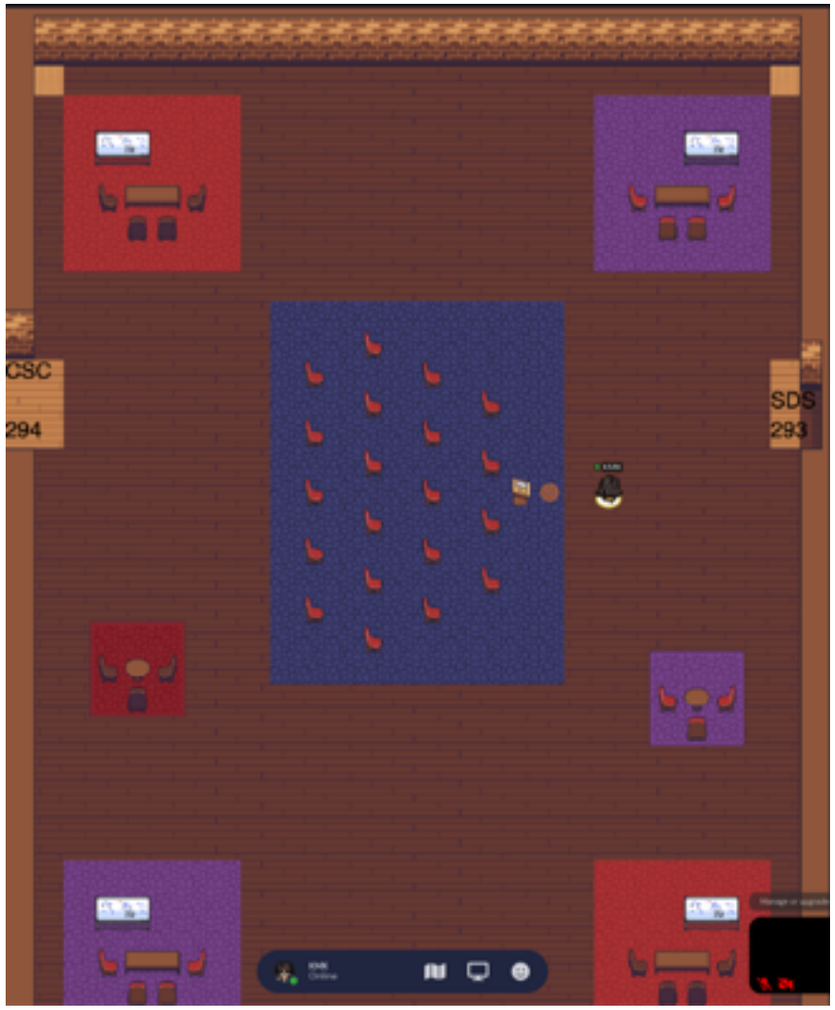
- You will be **pull**ing and **push**ing nearly every day. Thinking of **pull** and **push** as part of your daily routine, like brushing your teeth.

- In Lab 0, you will set up everything that you need for the course.

gather



Video conferencing with proximity



Resources Supporting CSC 294

- Class
- Each other, slack, gather
- Instructor (gather, slack, appointments)
- Pedagogical Partner
- Spinelli Center

Inclusion

- Student Accommodations
  - Let me know as early as possible!
- Office of Disability Services
- Pedagogical Partner
- Spinelli, Jacobson Centers
- Class Deans

Academic Integrity

- Why do we care?
- Why does Smith College care?
- Why does the academy care?

Honor Board vs. "Real Life"

I am not training you to fear or dodge the honor board.

I am training you to be ***excellent*** in all areas of being a colleague. I want you to have skills in:

- Coding and commenting (and git)
- Working together
- Leveraging resources and celebrating others' work that helps you
- Being trustworthy

Grades

- All the details are in the syllabus
- We will have about 5 minutes at the beginning of next class to talk about grades, grading, and policies around submitting assignments.
- Moral: Post your questions to slack on the #syllabus channel

For next time

- Add CSC 294 google drive to yours
  - Find the detailed course schedule
  - **Read the syllabus**
- Complete Lab 0
- Wander gather
- Acquire a machine learning notebook and start your engagement journal