Introduction!

Welcome to CS 222!

TODAY'S AGENDA

01 **INTRODUCTIONS**
Who are we?

02 **ABOUT THIS CLASS**
What we'll cover in future lectures!

03 **ADMINISTRIVIA**
The good ol' syllabus!

04 **CHOOSING A PROJECT**
Things to keep in mind

WHY CS 222?

To build a project, while learning about industry standards.

To understand how an industry-level system is designed, implemented, and tested.

INITIAL LECTURES

GIT INTERNALS

What's Git, and how does it really work?

IDEATION

How can we come up with a good idea for a project, and draft it up?

ARCHITECTURE

What softwares already exist to make our project a lot easier?

LATER LECTURES

DESIGN

What should we consider when we need to make a user-facing application?

DATABASES

When should I use which database? How do I get set up?

DEBUGGING

How do we debug and test software? What if our users find bugs we don’t?

SYSTEM DESIGN

How do we put all these pieces together to make a concrete app that scales with a lot of users?

ROBUSTNESS

What problems can we run into when we make this app? How do we fix them?

PRESENTATION

How do we effectively pitch an idea and showcase the usefulness of a technical project?

GRADING

60	Weekly Mentor Check-Ins
15	Final Presentation
10	Project Proposals
10	Checkpoint Quizzes
5	Group Assignments

CHECKPOINT QUIZZES

Students are **REQUIRED** to complete at least 10 of the following (1% each, caps at 10%):

Submit a (short) Canvas assignment that opens for a brief window during lecture.

ATTEND LECTURE

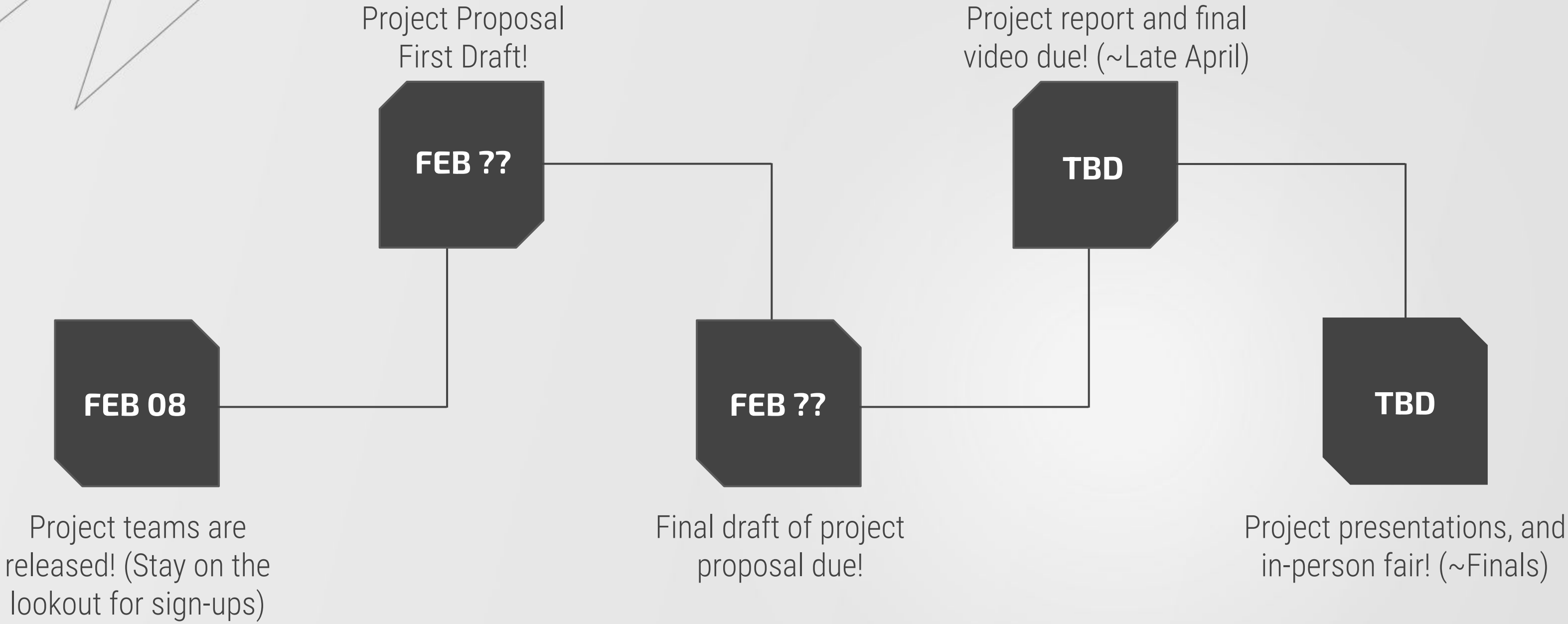
Complete a post-lecture assignment that requires lectures (or equivalent knowledge).

SHOW KNOWLEDGE

CLASS PROJECT

- **Initial Project Proposal:** A basic problem statement, detailing the problem you’ll be solving.
- **Revised Project Proposal:** An updated problem statement, incorporating feedback from your mentor.
- **Weekly Check-Ins:** Meetings with mentor to ensure that your project is flowing smoothly.
- **Final Report:** Description of what your
- **Final Presentation:**

PROJECT TIMELINE



FEB 08

Project teams are released! (Stay on the lookout for sign-ups)

FEB ??

Project Proposal First Draft!

FEB ??

Final draft of project proposal due!

TBD

Project report and final video due! (~Late April)

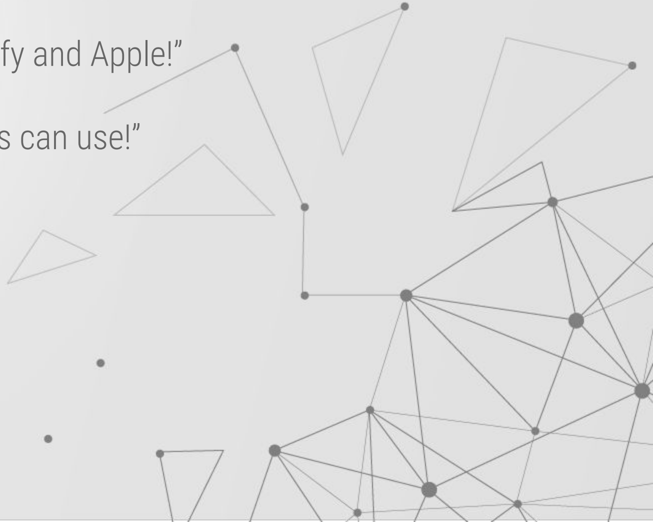
TBD

Project presentations, and in-person fair! (~Finals)

Please note that these dates ARE subject to change, as we see fit.

HOW *NOT* TO CHOOSE A PROJECT

- “This hasn’t **ever** been done before and nobody has tried to do it, let’s do it!”
- “Let’s make a game!”
- “Let’s fix this real-world problem!”
- “We made this in [insert CS class] - let’s “make” it again!”
- “Let’s make a combination of Facebook and Google and Netflix and Spotify and Apple!”
- “Let’s make an app that students and teachers and engineers and doctors can use!”
- *“We all know C++, so let’s look for projects we can make in C++!”*



Note: These are just guidelines. Exceptions exist (talk to your mentor or one of us if you have questions).

HOW TO CHOOSE A PROJECT

- “This looks like a cool technology, let’s make something that uses it!”
- “I want to learn [insert language], so we can make something along those lines!”
- “Let’s make an app that [insert audience] can use to do [insert purpose]”
- “I’m interested in [insert field], so I’m going to make a project that’ll help me learn more about it!”

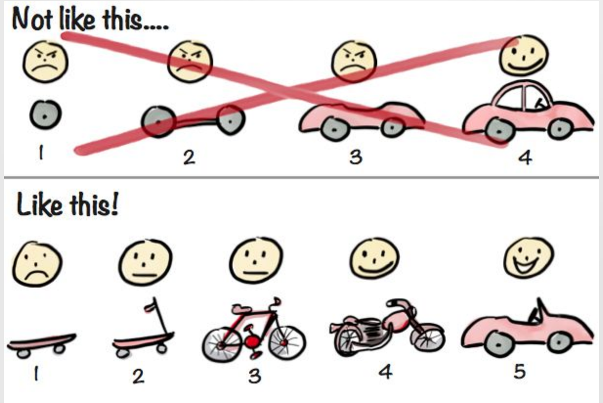
EXAMPLE PROJECTS

- An app that allows U of I students to manage their schedules better by putting all their assignments in one place
- A programming language for enhanced computation, and build a website that enables users to run it locally
- A Spotify tool that allows users to generate emotion analyses and find friends/new music!
- A Discord bot that allows users to communicate across servers, while maintaining anonymity!

Note that all of these have a niche purpose and a very specific problem they try to solve!

HOW TO BUILD A PROJECT

- Proof of Concept
- Prototype
- **Minimum Viable Product (MVP)**
- Iterative Development



(We'll come back to this cartoon in later lectures, don't forget it!)

THANKS!

Any questions?

Feel free to hang around after class or email us at cs222sp2023leads-group@office365.illinois.edu!