Design Documents and Paired Programming

What you will be able to do:

- Explain what a "backend", "frontend", and "fullstack" developer is

- Create a project plan that addresses both usefulness to a user and technical considerations

- Describe how paired programming works

- Practice paired programming

- Commit so that both students get credit using git-mob

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Put in chat any definitions you know already

- Back end

- Front end

- Full stack

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Definitions

- **Back end** – builds "under the hood" piece such as APIs, databases, and logic that make the program work

- **Front end**– handles the pretty interface the user interacts with

    (we cover frontend skills in Week 3)

- **Full stack** – someone who can do both backend and frontend work

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Design Documents

Design Considerations

There are two important ways to think about what you are building:

- **Usefulness**

  - What problem is you project solving?

  - Who would use your finished product?

  - What is the smallest piece you can build that would be useful?

  - What are other features you can build that add value?

- **Technically**

  - What data of inputs do you need?

  - What will be outputted for the user?

  - How do the inputs become outputs?

  - What pieces of technology will your project use (e.g. API, database, libraries)?

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Week 2 Project Overview

- The project you will build in Week 2 will be built in **pairs**

  - You have been assigned a partner within your TA group

- **Your Week 2 project should use all the skills you learned in Week 1:**

  - API integration

  - Creation, Querying, and Updating of Databases

  - Adherence to PEP8 style

  - A clear testing plan and appropriate unit tests

  - GitHub Automation for Style Checkers and Unit Tests

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Design Document - Pitch

- In practice, the first step of a project is creating buy in – often by using a "pitch deck" which is a short set of slides that include:

  - Name of Project

  - What problem are you solving? (in about 2 sentences)

  - Who / What does the project interface with? (e.g. people, systems, hardware)

  - What are the inputs?

  - What are the outputs?

  - List 5 steps to go from input -> output

  - What's the biggest risk?

  - How will you know you're successful?

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Design Document - Specification

- After a successful pitch, someone like a Product Manager or PM will write a specification/requirements document

- Contains the same elements as the pitch but with more explanation

- Might additionally include a testing plan or other analytics such as expected number of customers to use the feature

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Paired Programming
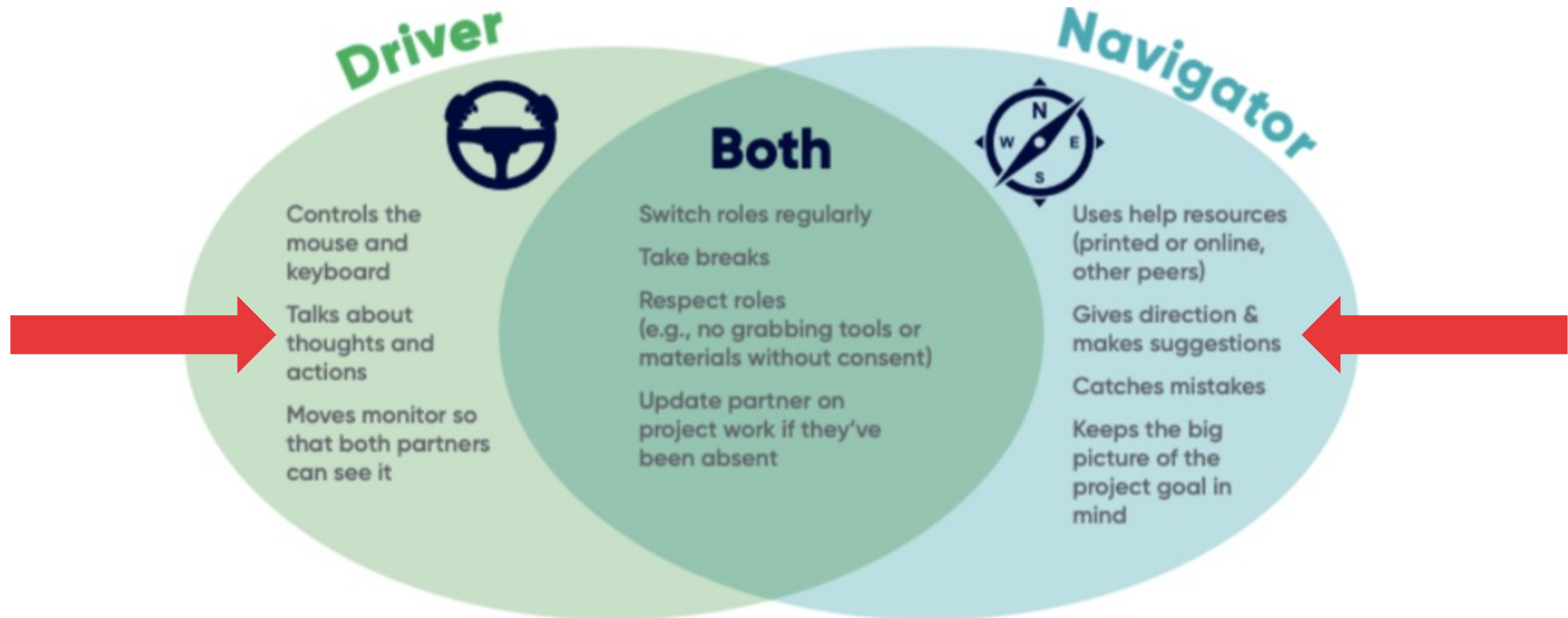
Put in chat any definitions you know already

- Paired Programming

- Driver

- Navigator

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Definitions

- **Pair Programming** – when two developers work on the same piece of code at the same time switching who is driver and navigator

- **Driver**– the developer who is typing

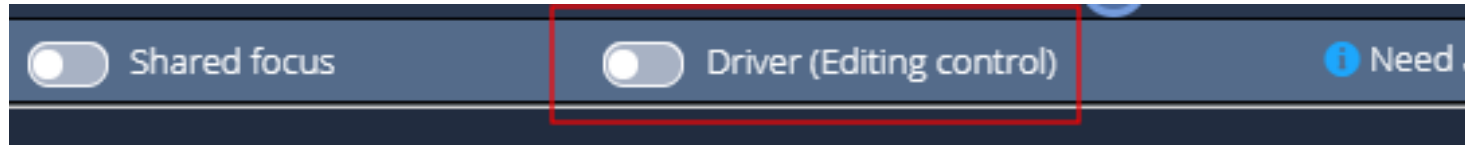- **Navigator** – the developer who is checking for mistakes, looking up documentation, and guiding the driving

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Pair programming is
NOT
taking turns typing

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What is Pair Programming?

Pair Programming in Codio

- TAs will configure groups in "Pair Programming Workspace" so you will be dropped in with your partner
    - The driver can just start typing
        - If the navigator has taken control, ask for the Driver role in the top toolbar

    - If the navigator can't see the driver's cursor, they are in a different file.
        - You can either click on the driver's username in the top toolbar or flip on shared focus to "follow" the driver's view automatically

    - You should be TALKING to your partner
        - You can click the phone icon in Codio's top toolbar to start a video/audio call or use another tool like Slack Huddles

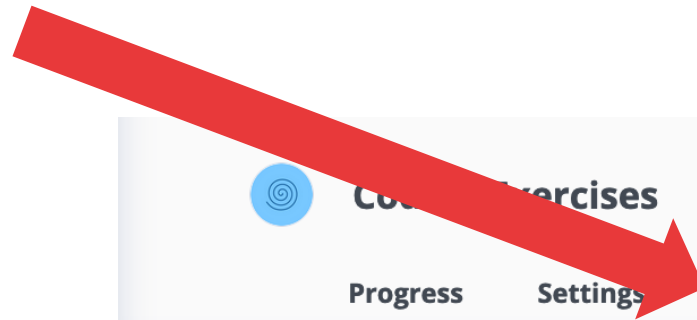**SEO** Tech Developer

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Git Mob

Pair programming and GitHub

- GitHub is not great at handling 2 or more authors natively.
  - Luckily, there are tools that help with this!

- git-mob: https://github.com/rkotze/git-mob
  - Follow setup instructions on their README:
    https://github.com/rkotze/git-mob/tree/master/packages/git-mob#install

- In order for GitHub to find your co-author, you need to specify the email associated with their GitHub profile.

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What questions do you have about…

- Explain what a "backend", "frontend", and "fullstack" developer is

- Create a project plan that addresses both usefulness to a user and technical considerations

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Before we go…

- TAs have setup the paired programming workspace:

  - As teacher, click on the "Pair Programming Workspace" assignment

  - Under the "Groups" tab, move your students into the correct pairs:

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Thank you!