Intro to Coding with Python– Intro to Python

Dr. Ab Mosca (they/them)

Slides based off slides courtesy of Jordan Crouser (https://jcrouser.github.io/)

Plan for Today

- Intro to Python programming language
- Intro to pair programming
- Intro to Spyder

multi-paradigm
interpreted language
with dynamic typing
and automatic memory management

Core Concepts to Get Us Started

Programming

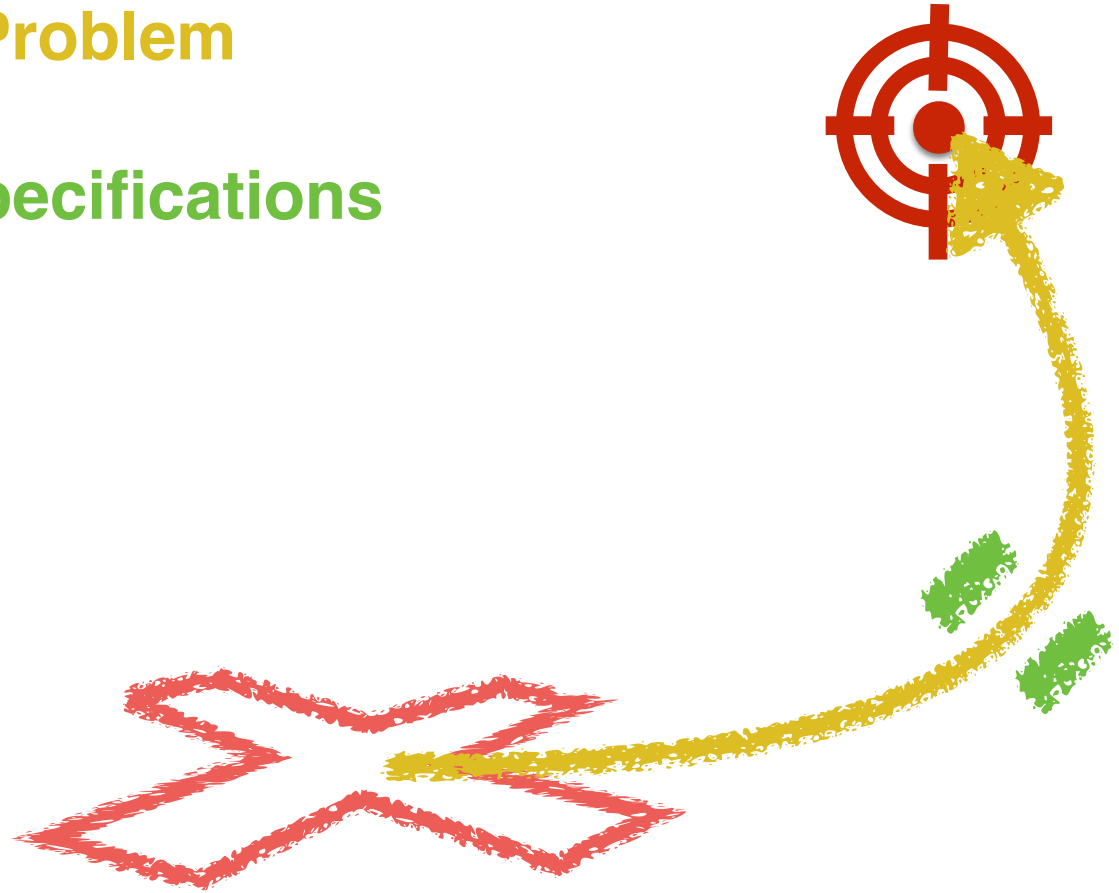
The programming process

The programming process (idealized)

- Analyze the **Problem**

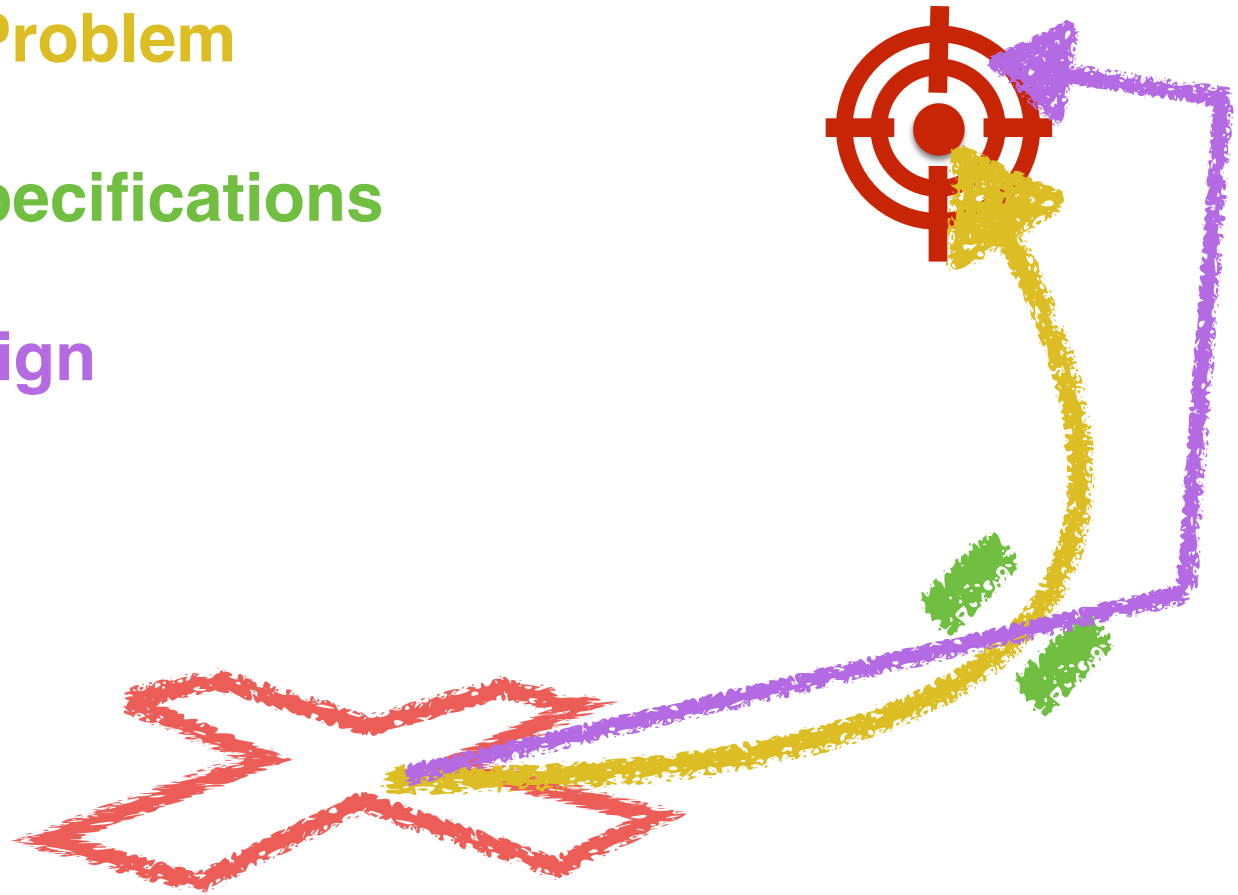
The programming process (idealized)

- Analyze the **Problem**
- Determine **Specifications**



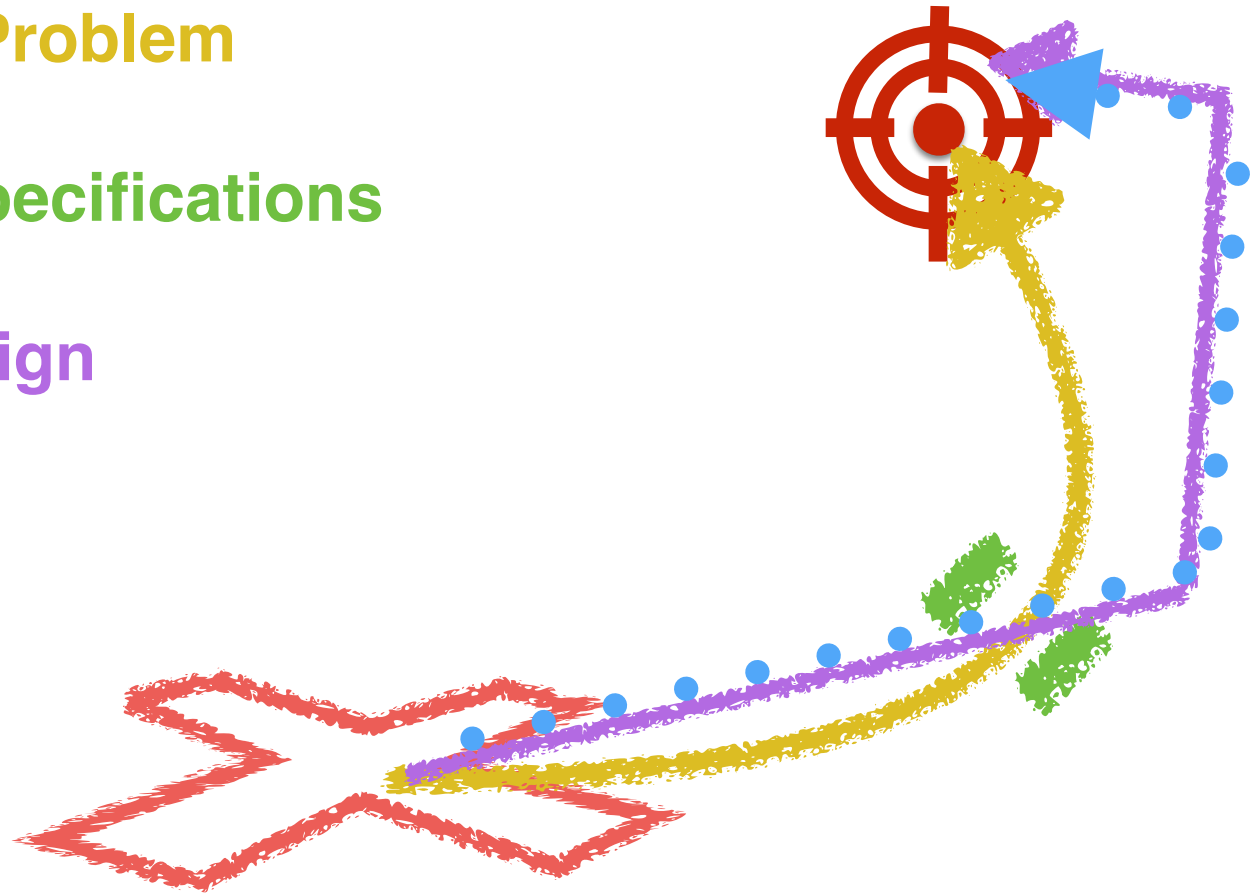
The programming process (idealized)

- Analyze the **Problem**
- Determine **Specifications**
- Create a **Design**



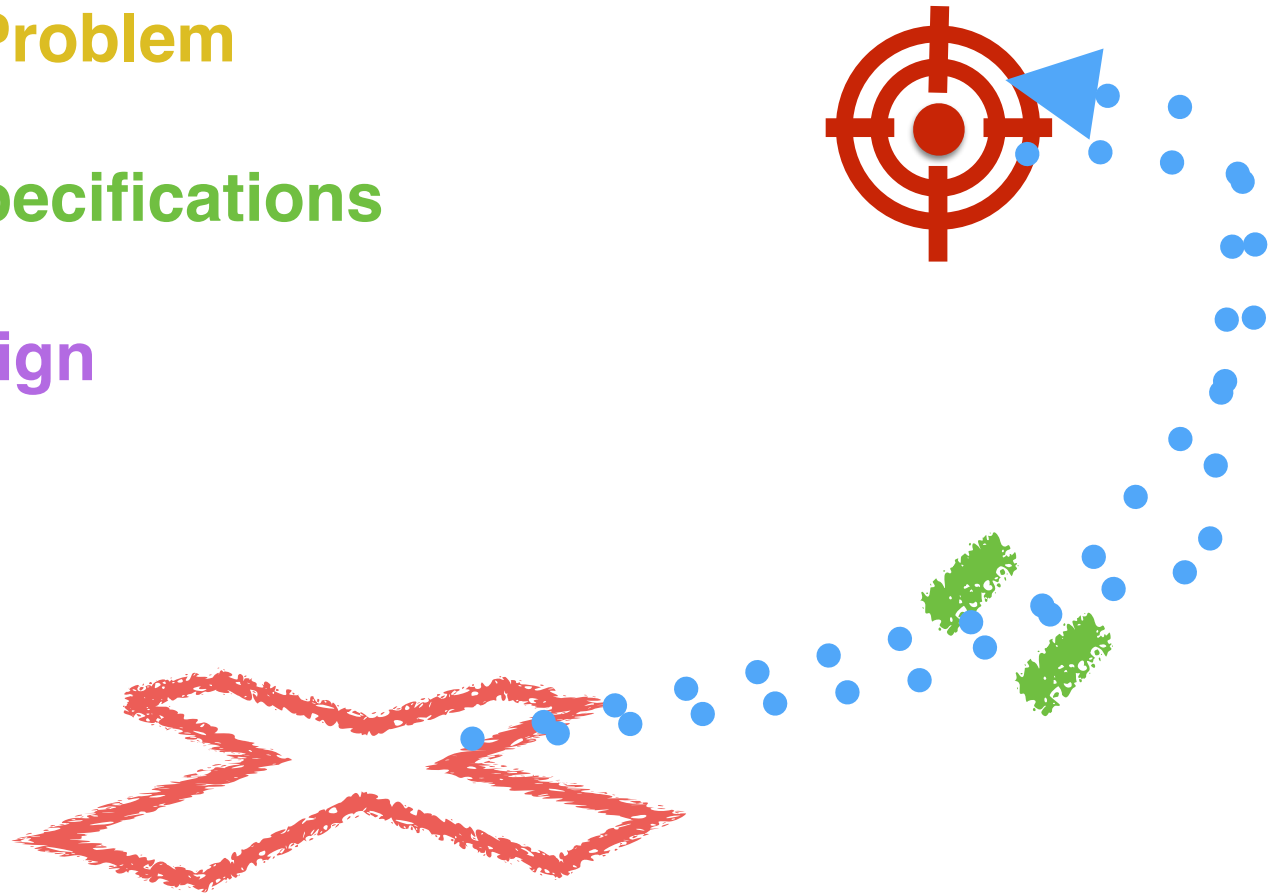
The programming process (idealized)

- Analyze the **Problem**
- Determine **Specifications**
- Create a **Design**
- **Implement**



The programming process (idealized)

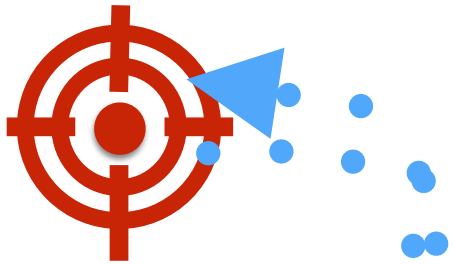
- Analyze the **Problem**
- Determine **Specifications**
- Create a **Design**
- **Implement**
- Test & Debug

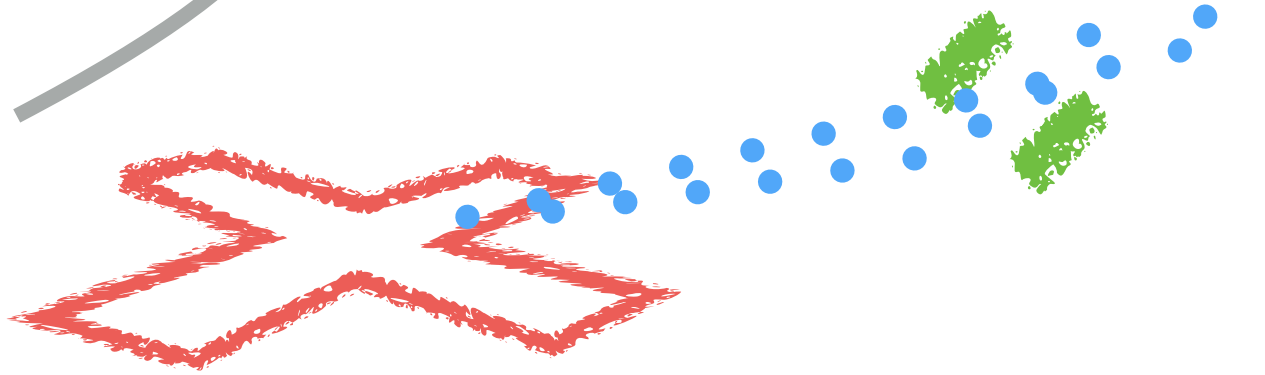


The programming process (more realistic)

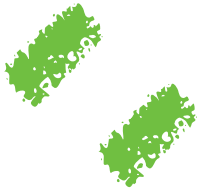
- Analyze the **Problem**
- Determine **Specifications**
- *Refine the* ~~Create a~~ **Design**
- **Implement**
- Test & Debug

iterate many times



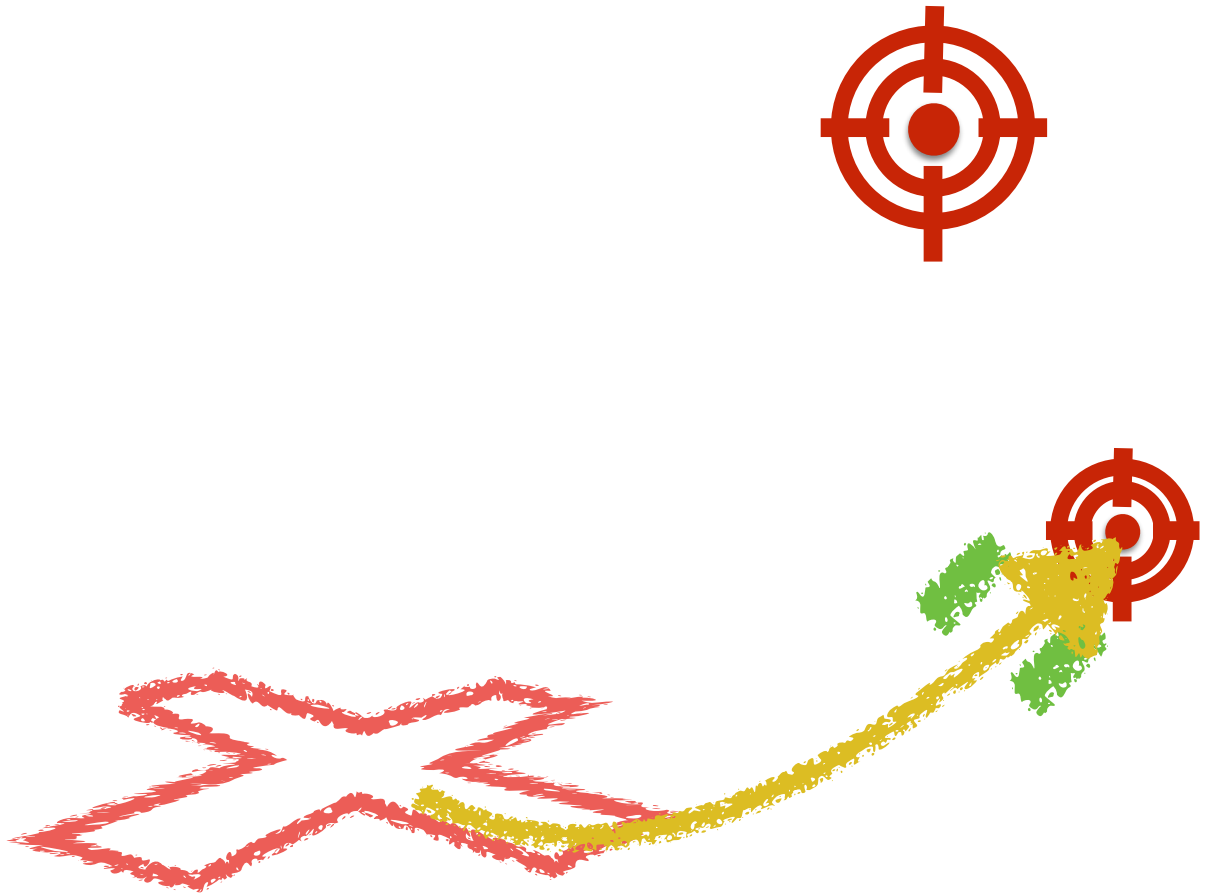


Getting started

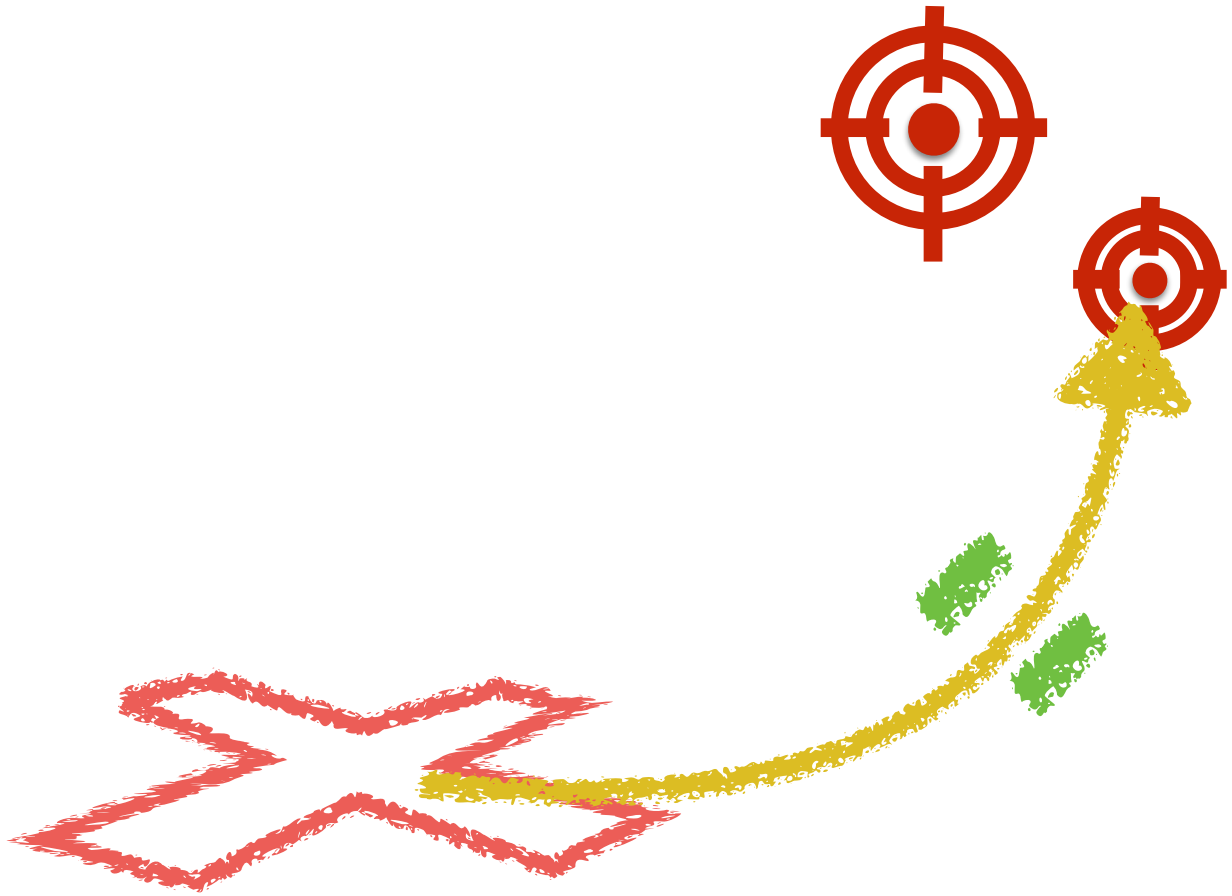


"S4": start small | slow | simple

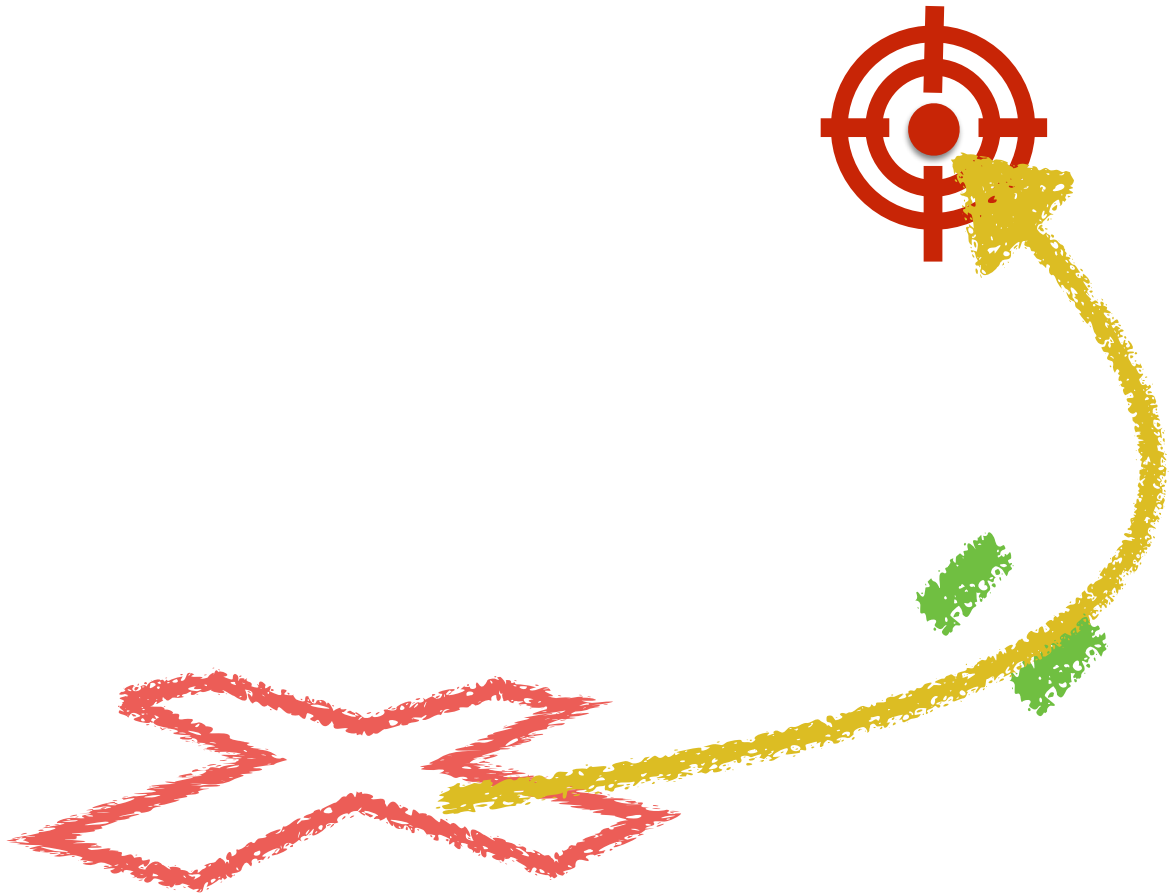
Next: address the constraints



Add additional features



Finally: hit target



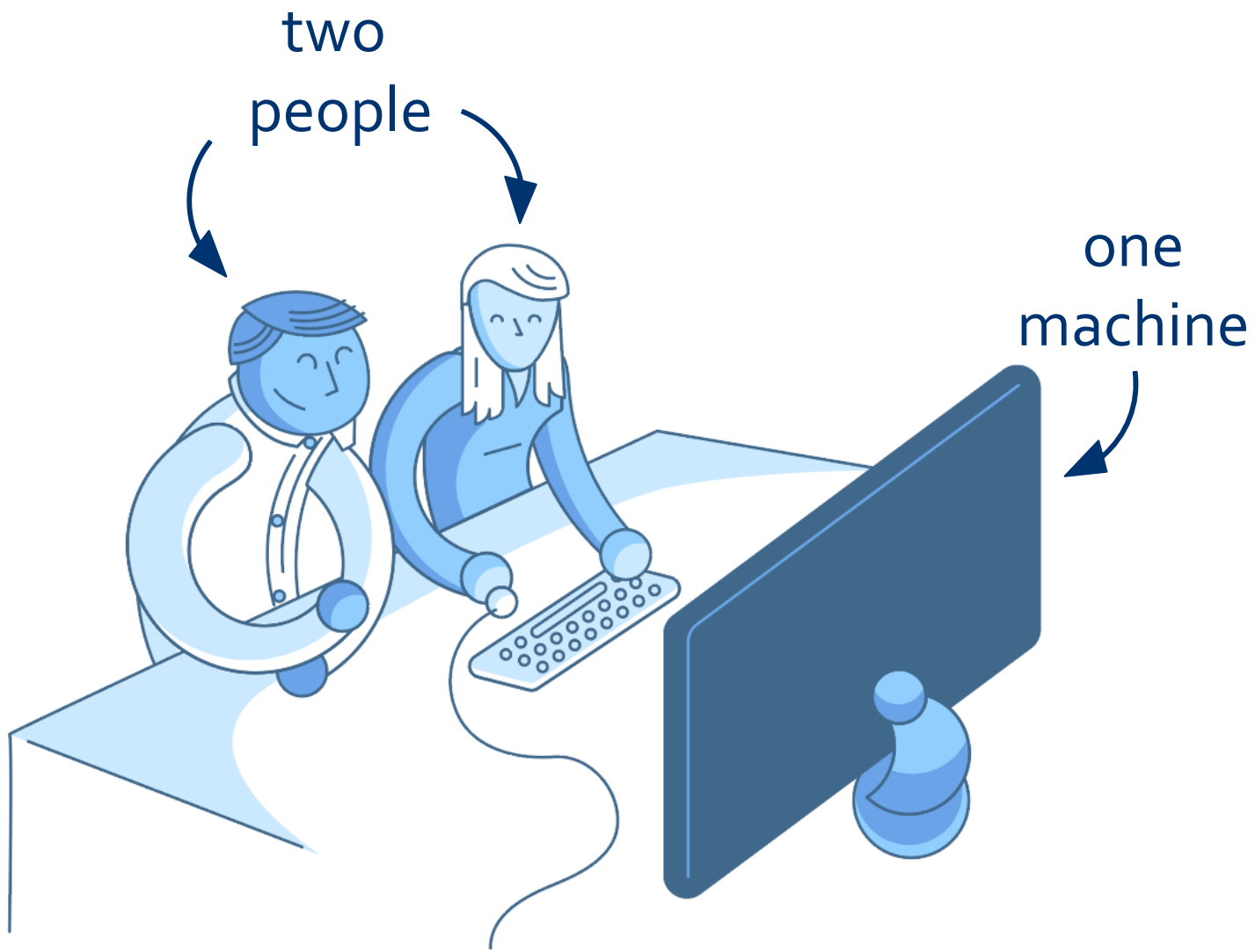
Example

- Think about an ATM – how can you break the entire programming project of a ATM into smaller chunks?

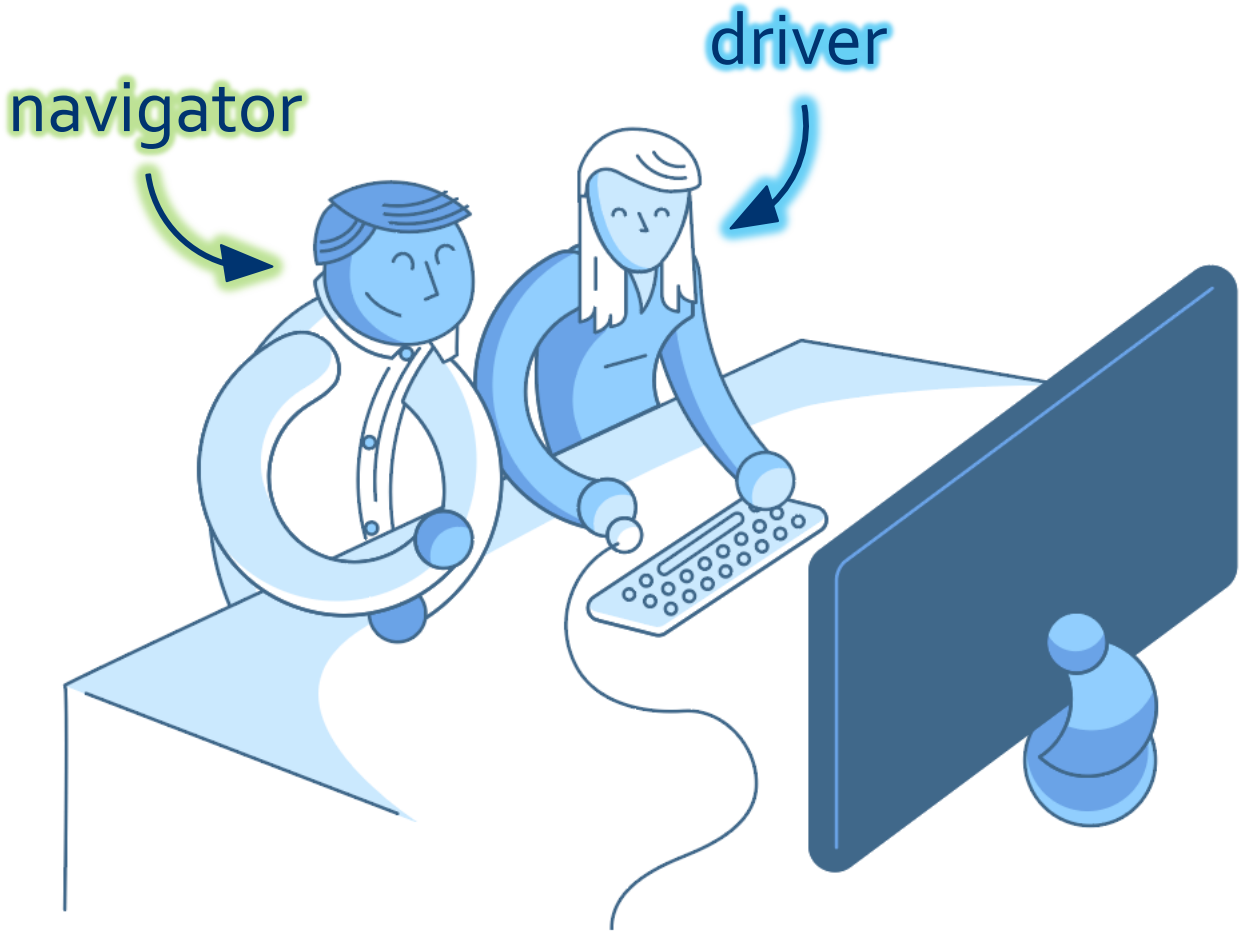
Pair Programming

A problematic (but common) model

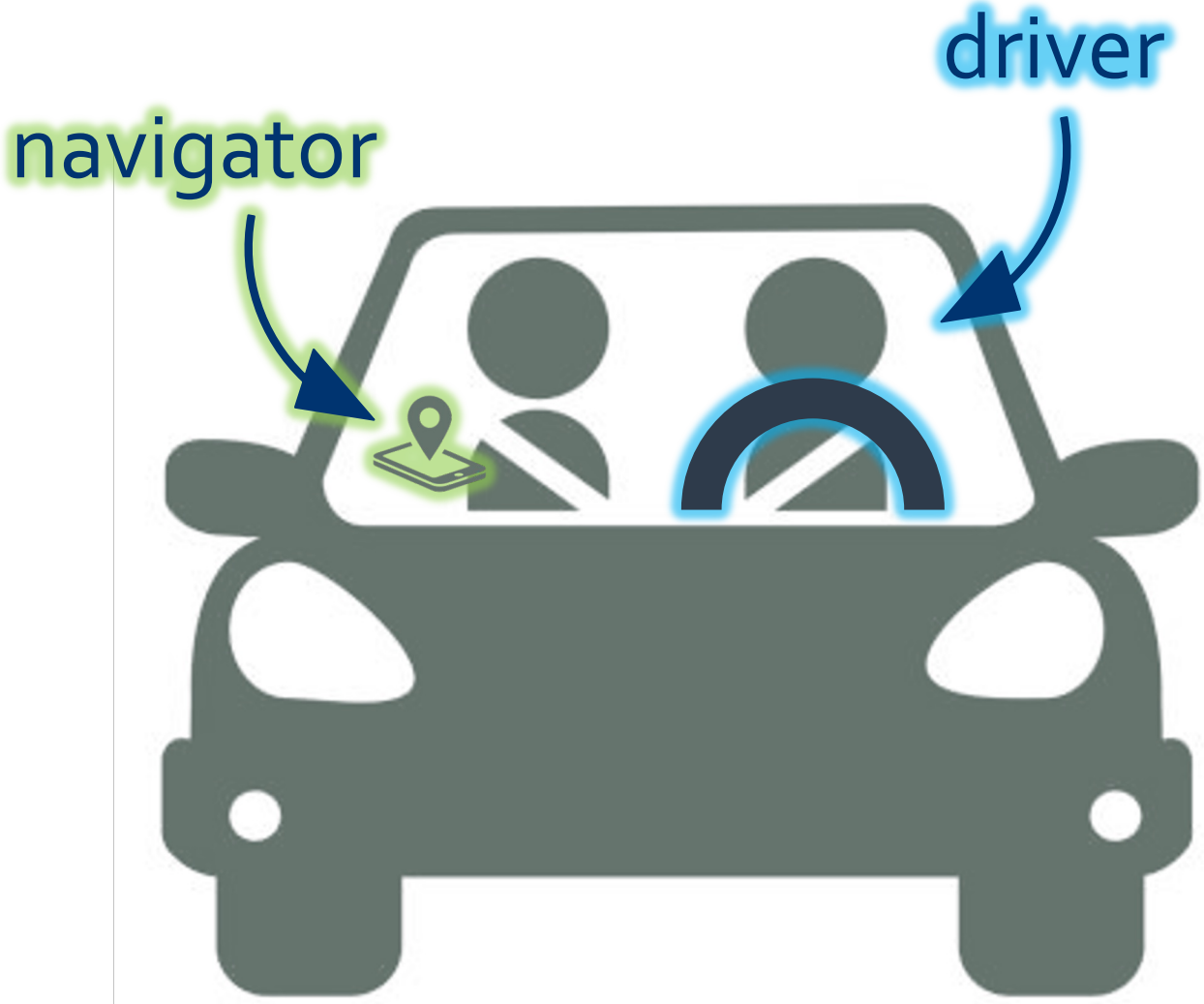
A better model: “pair programming”



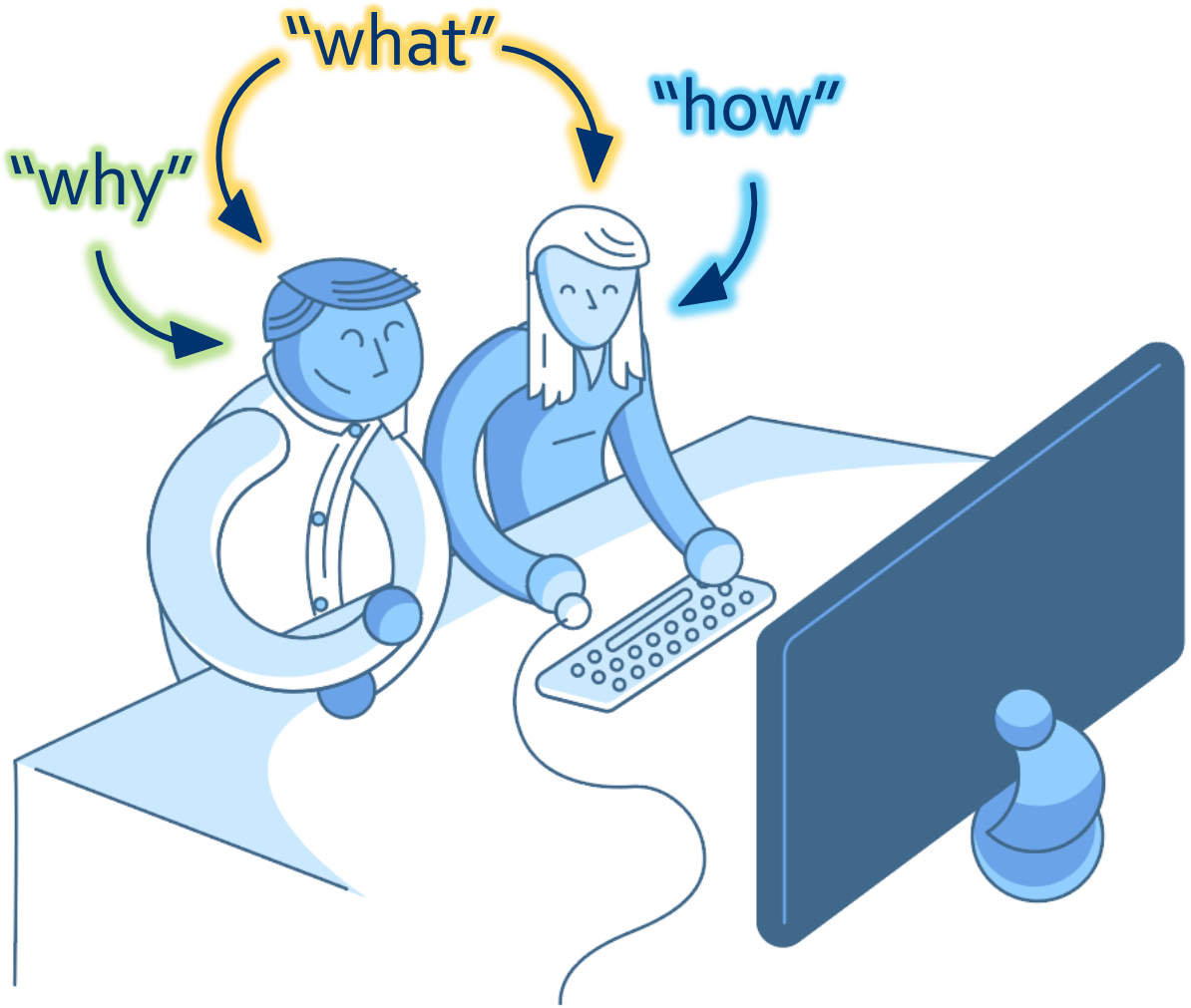
Two complimentary roles



A common analogy



Navigator vs. driver: different focus



Coding Environment

Spyder

- We will code in Spyder, an Integrated Development Environment (IDE) for Python

Demo!

Spyder

- We will code in Spyder, an Integrated Development Environment (IDE) for Python
- You can download Spyder here: https://www.spyder-ide.org/

Code Distribution

GitHub

- We will use GitHub to distribute code, collect finished code, and facilitate pair programming

1. Create a GitHub account (https://github.com/)
2. Download GitHub Desktop

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- Practice accepting the in-class activity for today, modifying it, and updating your repository