Introduction to the Course

01219116 / 01219117
Programming 2
Spring Semester 2018

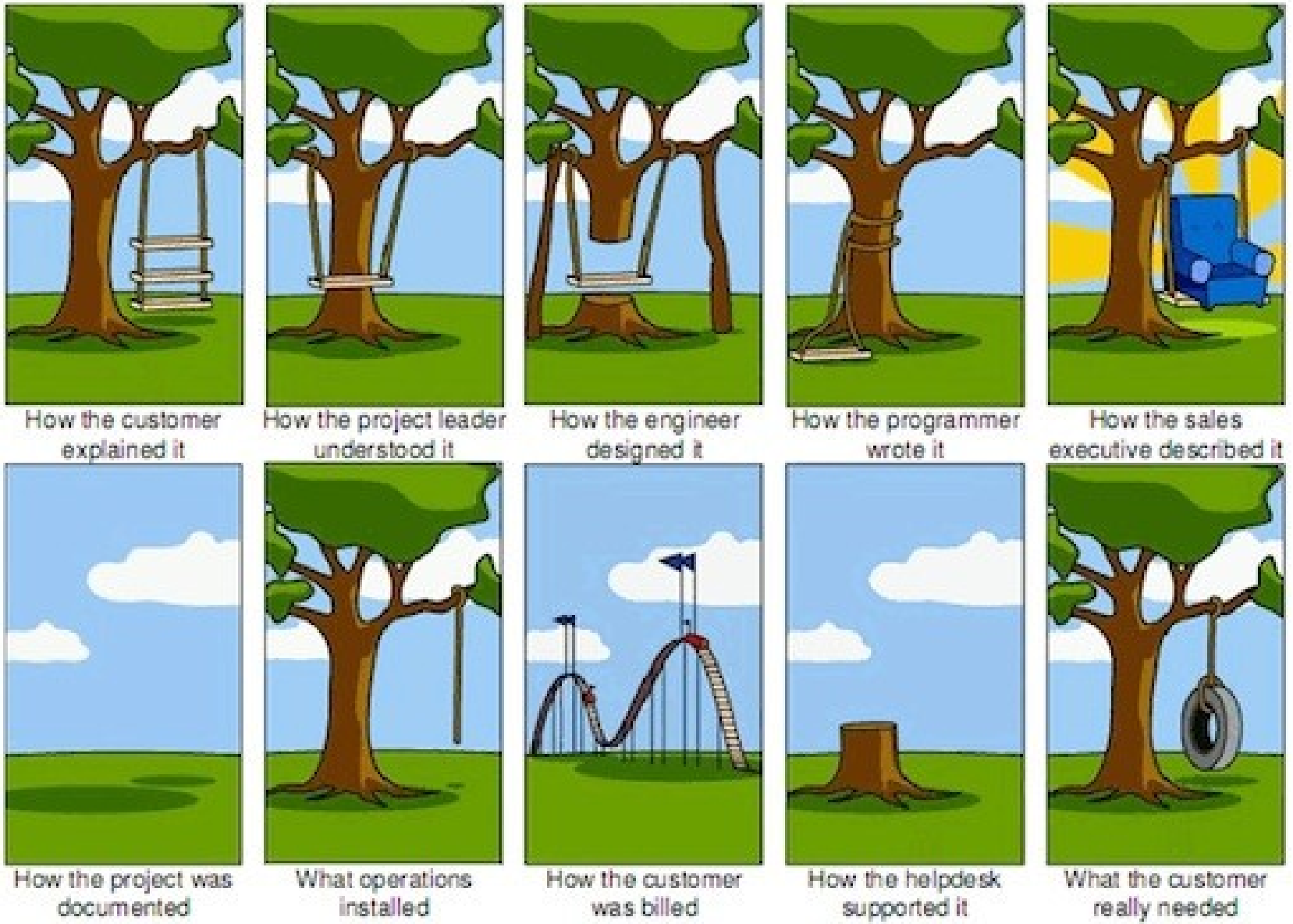
Our goal

- To have some fun

Our goal

- To have some fun…
- OK. I'm kidding.
- To have some fun, while learning how to write programs.
  - to learn new concepts,
  - to acquire important skills,
  - and finally, to gain confidence.

Why software development is hard



from: http://www.projectcartoon.com/

Communication

- One of the biggest problems in software development is communication problems.
- But that’s not all...

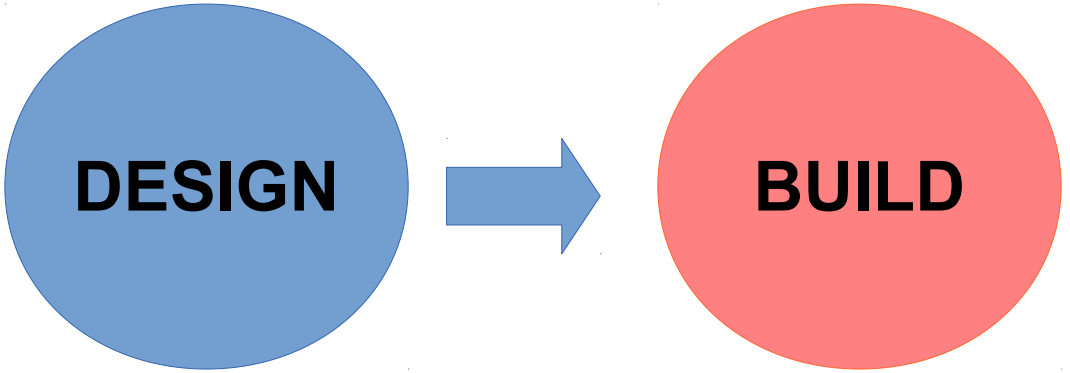
Compare these

- I want to build a house
- I want to build a website for house builders

Which one is harder to imagine how the product looks like, and how it should work?

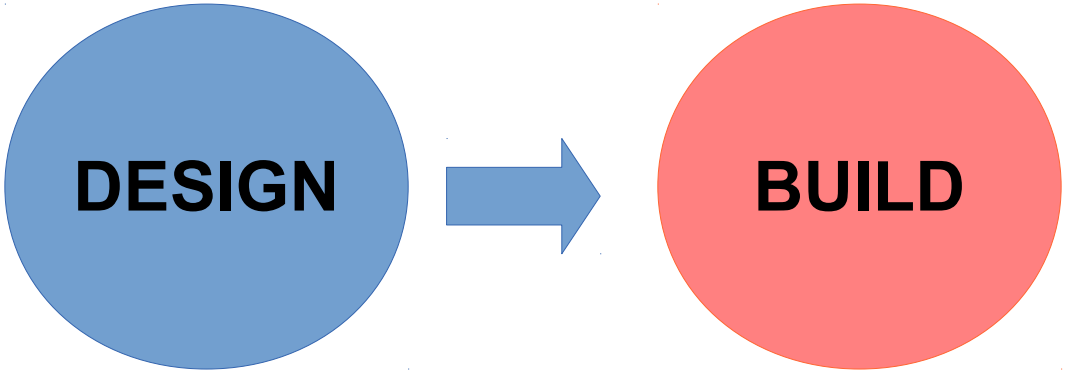
Building a house

- You can design and model a new house.
- When the model is ready, you can start building the actual house.



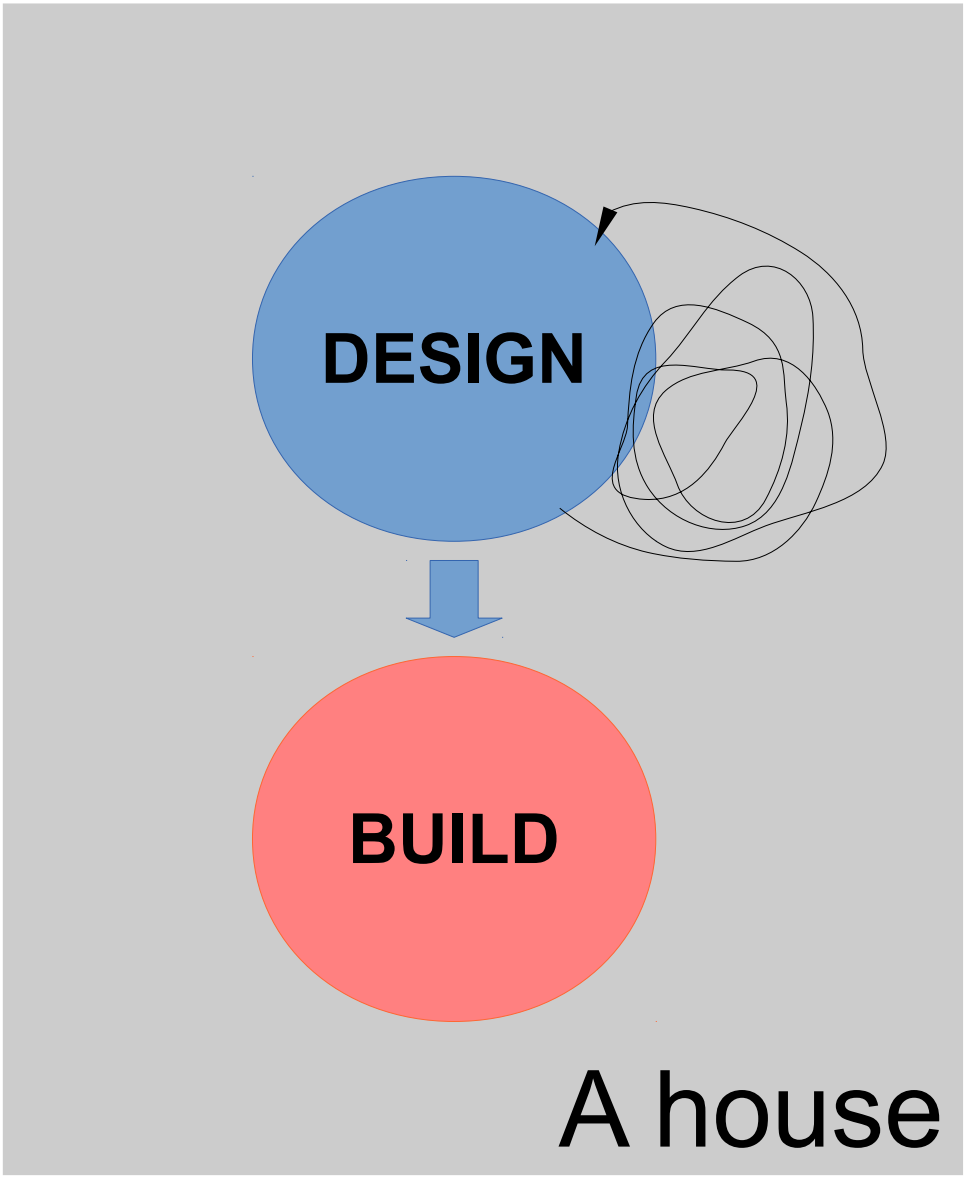
Building a software

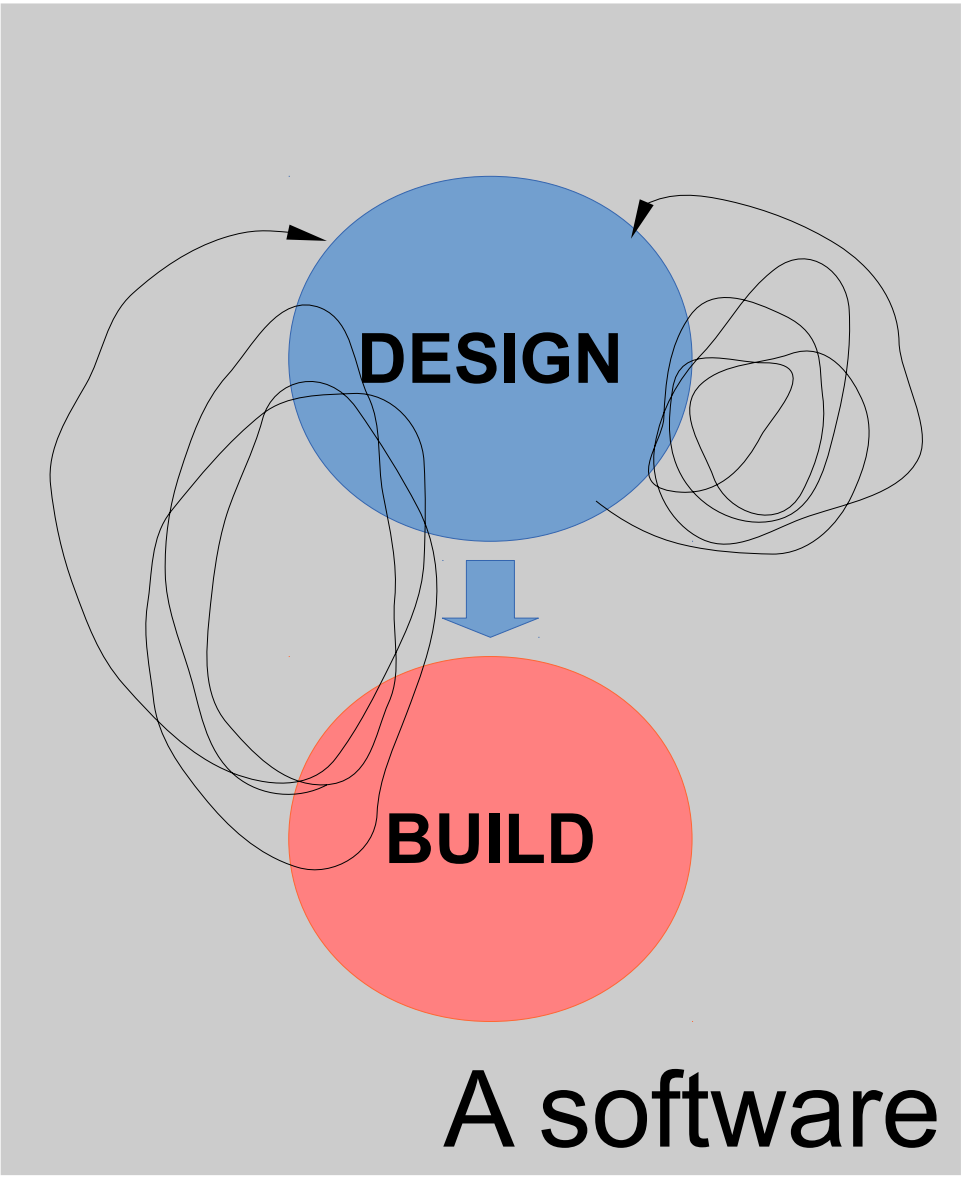
- You can design and model a new software.
- When the model and design is ready, you can start building the actual software.



What's wrong with this approach?

Oh...



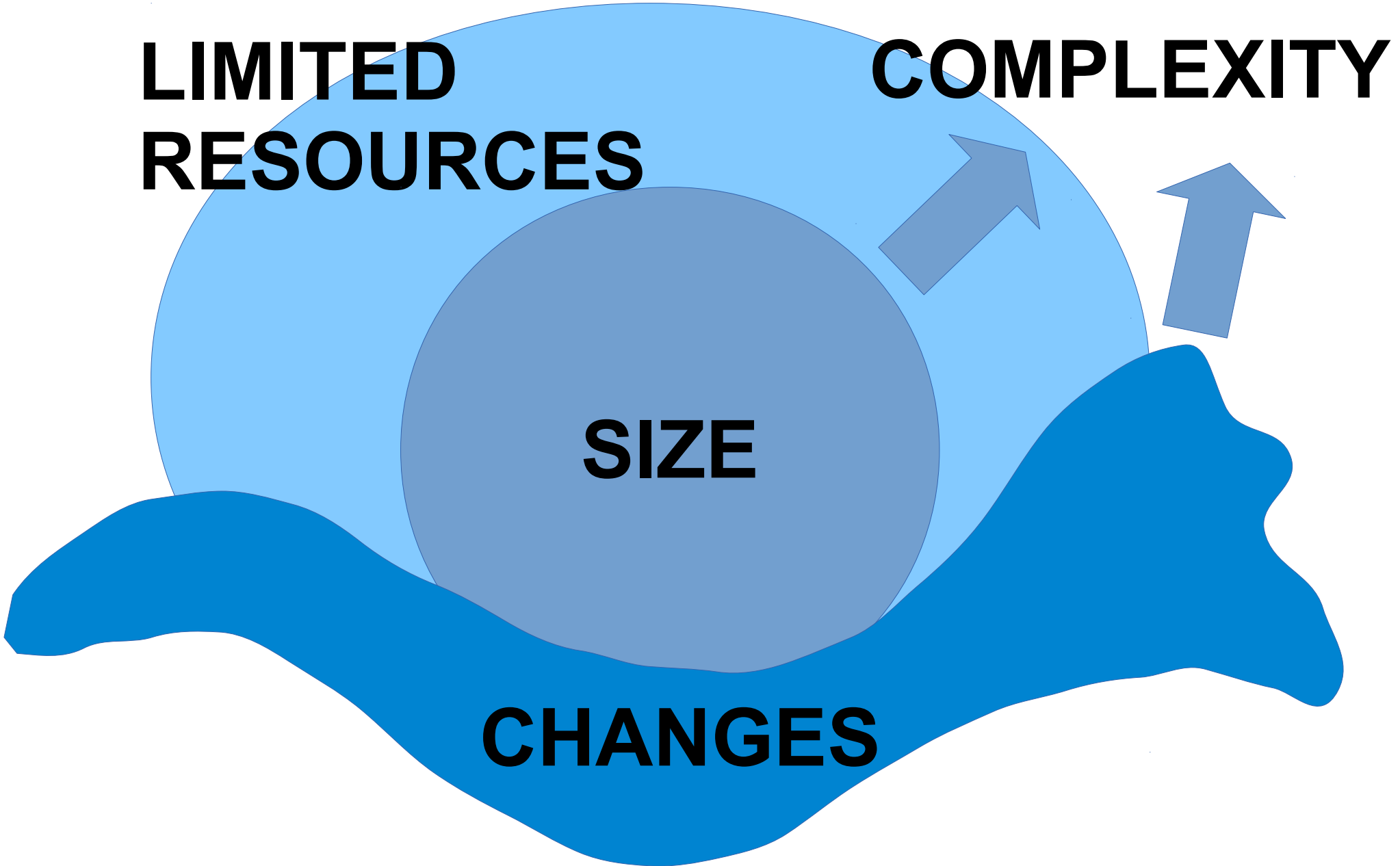


Perfect communication

- Even with perfect communication, we still have to fix the design.
  - See this by yourself, when you actually build a software project for yourself.

Change is inevitable

Challenges

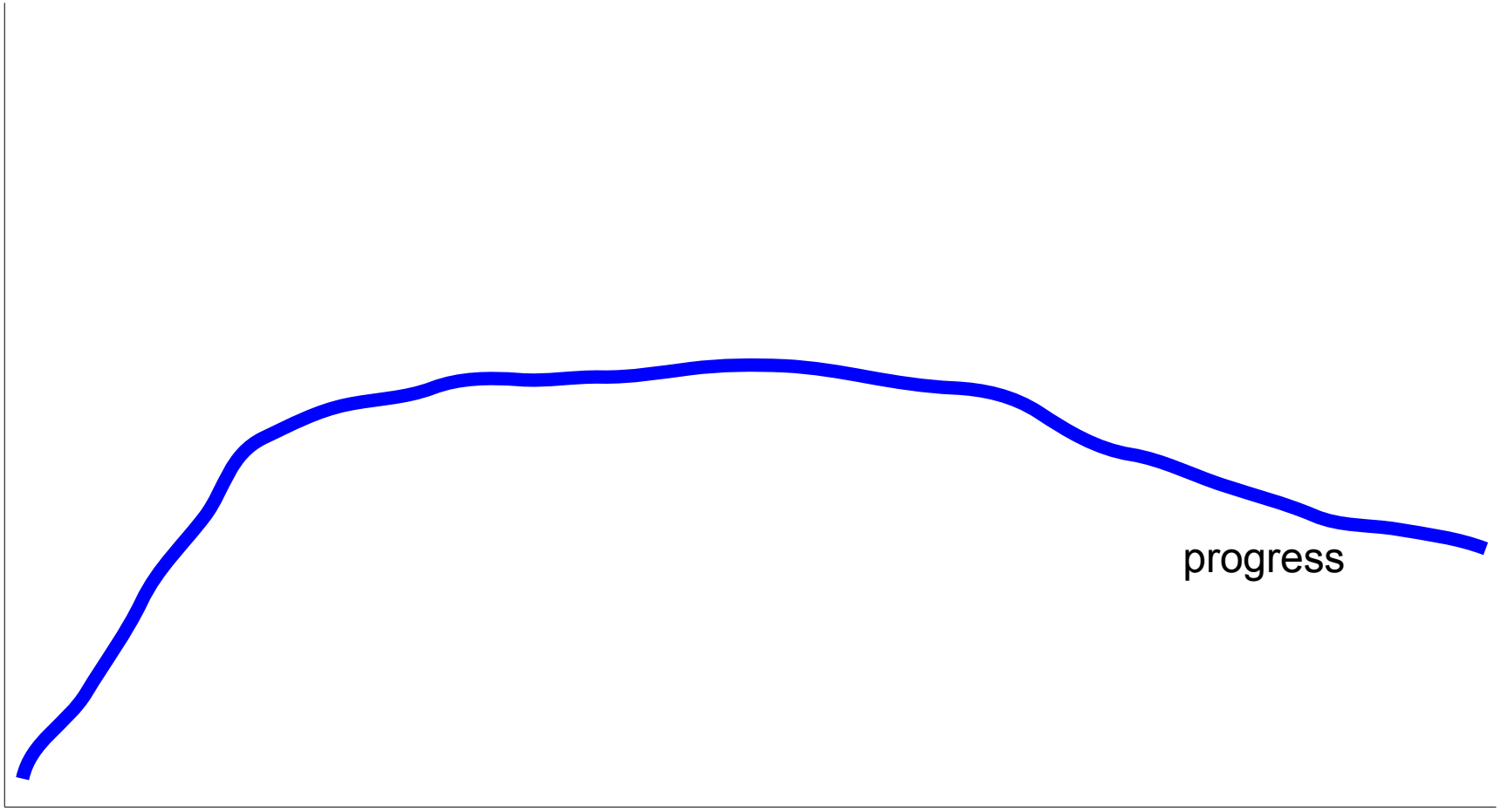


Skills

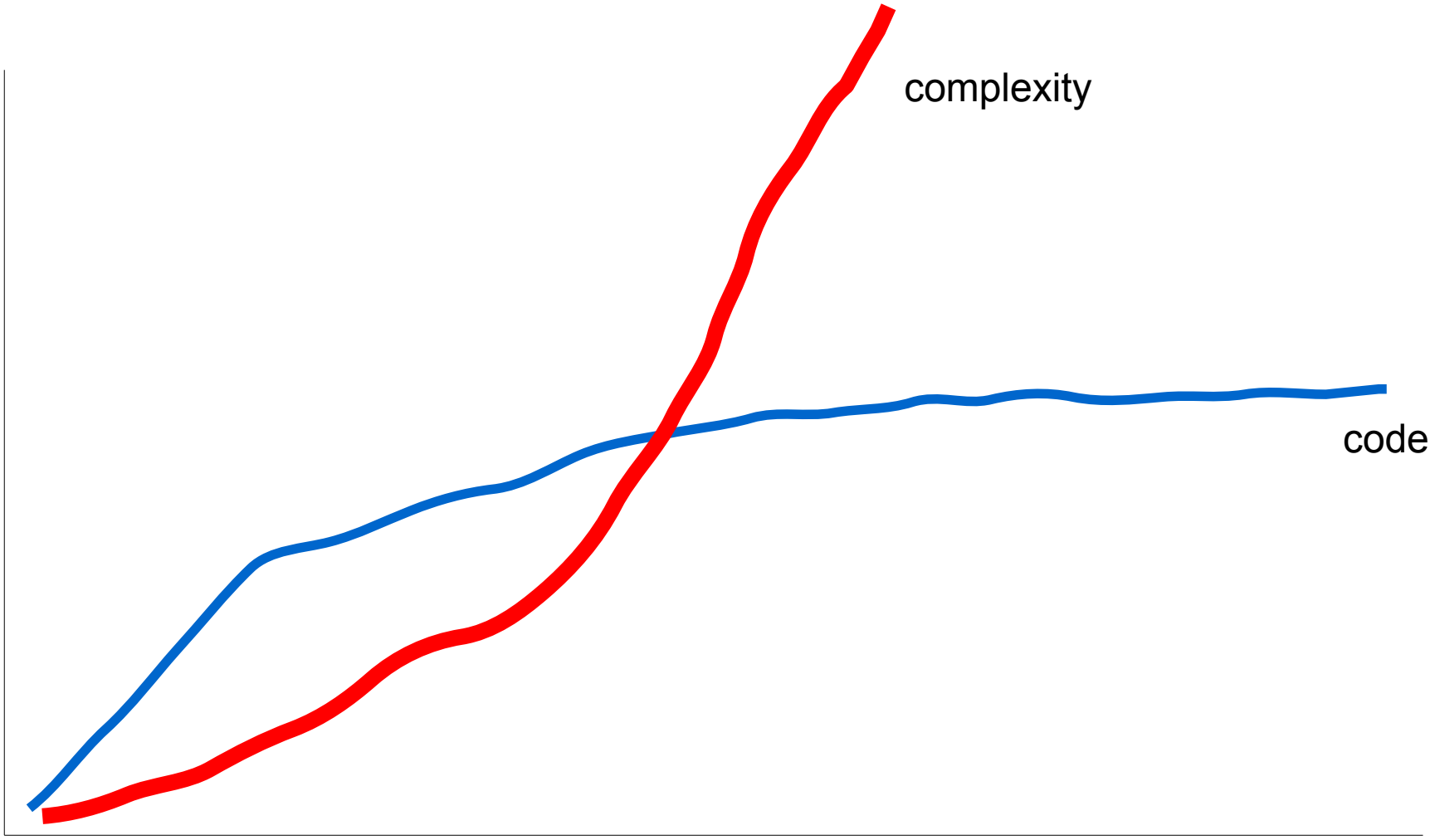
- Basic programming skills
  - Coding
  - Debugging

ONE DAY WORK

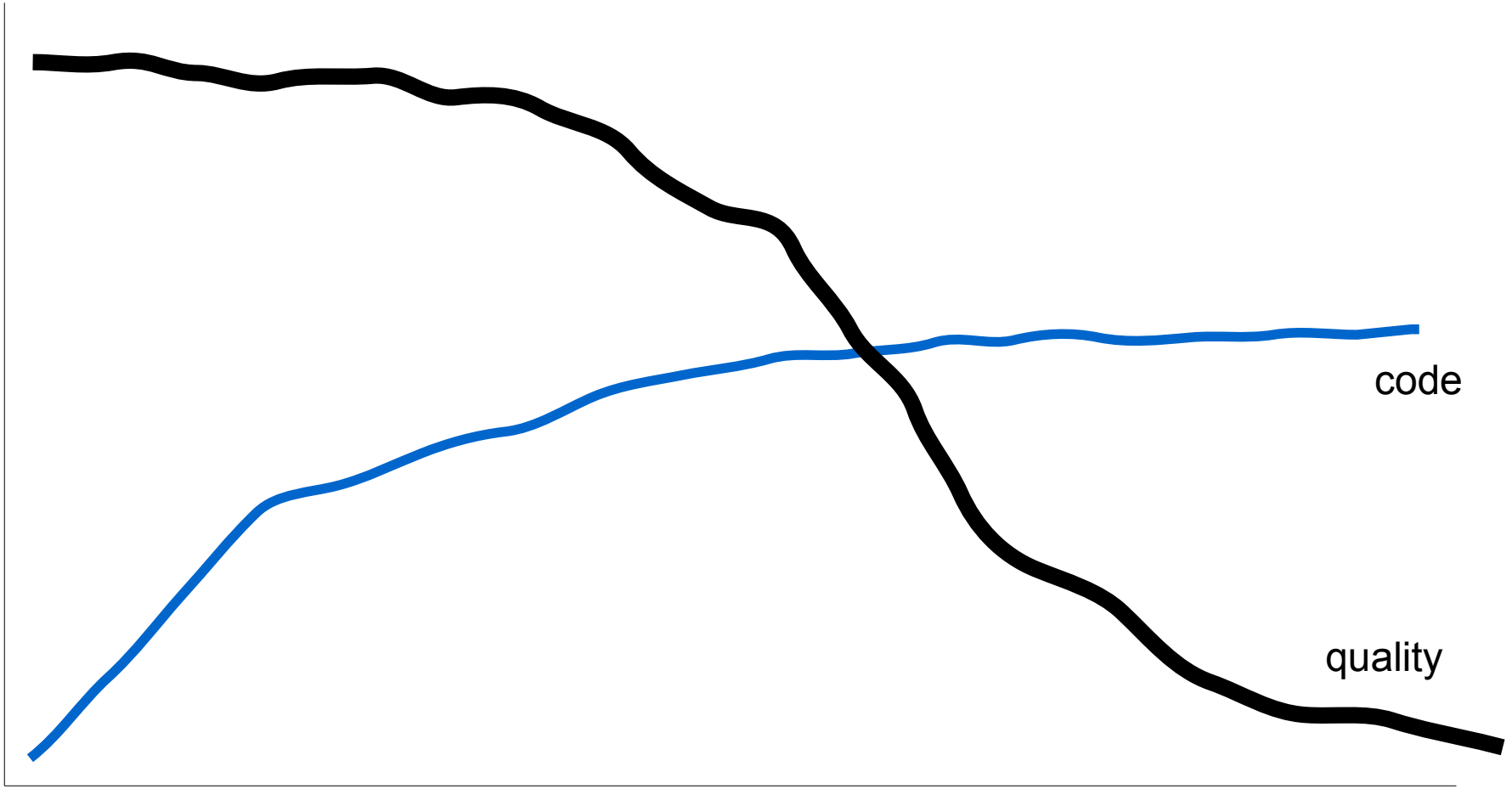
Basic skills: Progress over time



Basic skills: codes/difficulties



Basic skills: code quality rating



Skills

- Basic programming skills
  - Coding
  - Debugging

ONE DAY WORK

- How to keep making progress while
  - the software gets larger
  - the software gets more complex
  - changes are arriving

SCALING UP

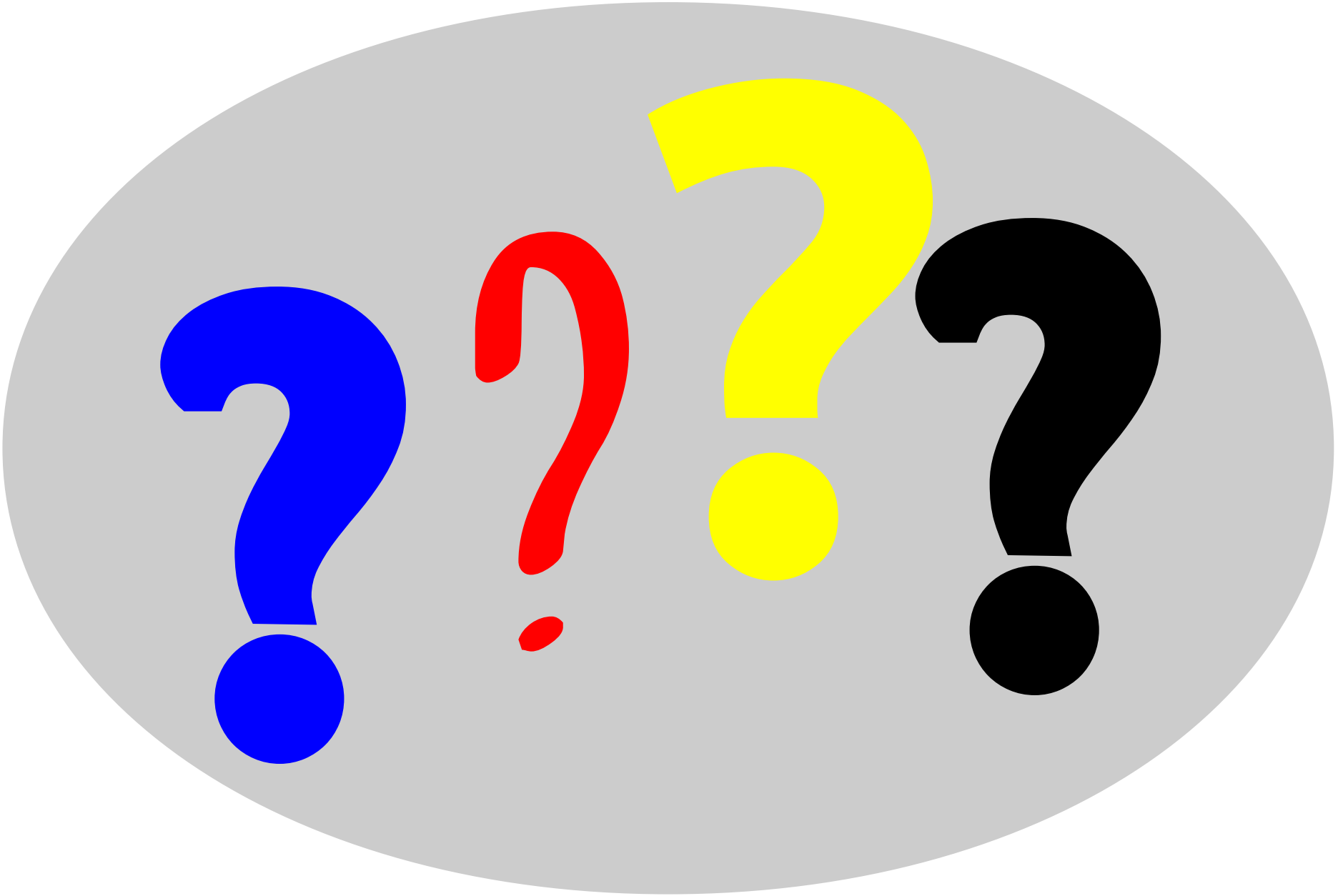
Is it possible?

- Engineering practices and cultures help facebook to keep building new features while the code base grows at an increasing rate.

Skills for not-so-small software

- Project breakdown
  - so that you can develop incrementally
- Complexity reduction techniques
  - so that you understand what you have done
- Automation
  - so that you do not have to do repetitive work
- Work tracking
  - so that you understand how well you work
- Planning/Estimation
  - so that you can make commitment

How to acquire these skills



Yes!

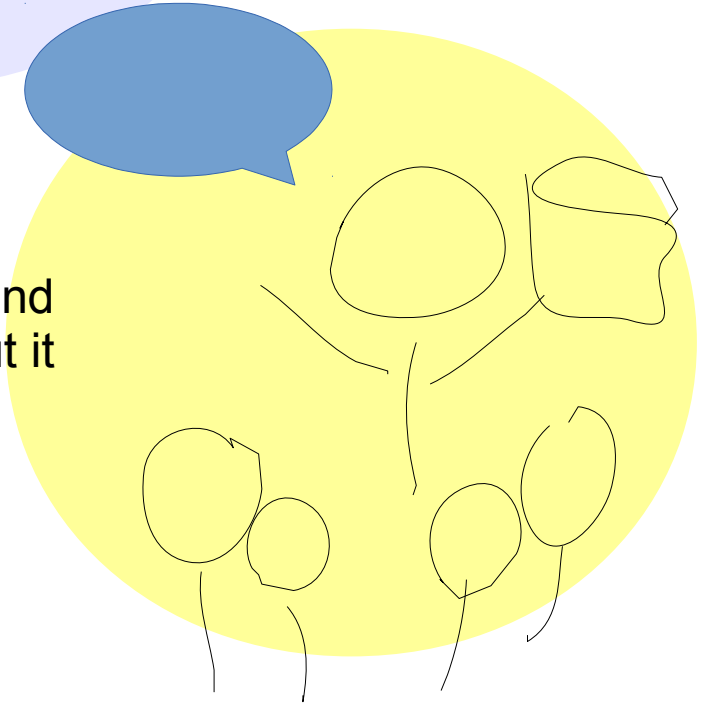
- We will have to do

quests

How to train your ~~dragon~~ self?

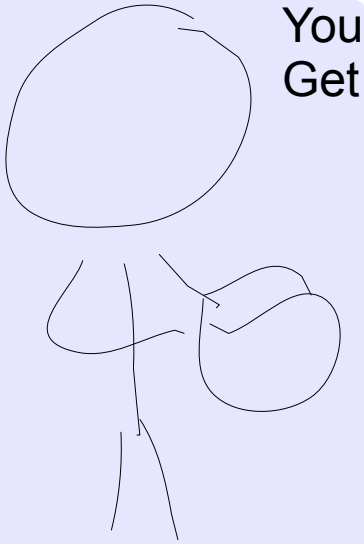
You work on your project.
Get some increment.

We plan on what to do next.



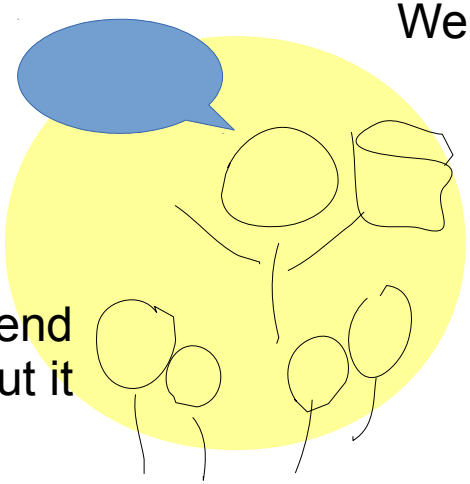
You tell your friend
about it

How to train your ~~dragon~~ self?

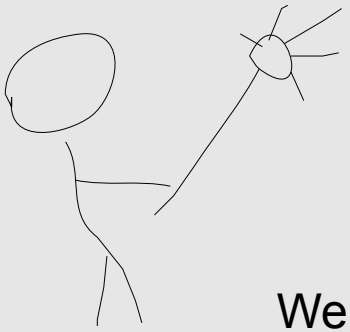


You work on your project.
Get some increment.

We plan on what to do next.



You tell your friend
about it



We will learn new techniques
that you can try to apply to your project

And do that again, and again...