Joining Your First Collaborative Software Project

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Avondalien
Software

Summary

- Goals change when you transition from student to collaborator
- Teams can decide what works best for them, but an agile framework can be a good way to collaborate
- Many popular tools exist to facilitate collaboration - we'll examine git and GitHub
- Software composition patterns that may seem onerous in solo dev actually facilitate group work

About Me

George Dill | Age 40

- Software Engineer since 2020
- Worked in enterprise shops like John Deere and Echo Global Logistics
- Earned a Masters Degree in CS from University of Illinois at Chicago
- Previously worked in Construction Mega-Project Management both in the US and South Korea
- Also ask me about AWS, React, and Pizza

Transitioning to Collaborative Projects

A Student's Journey

George's Perspective (USA)

Graduate

Work at an Internship

Study for Finals

Do a Group Project

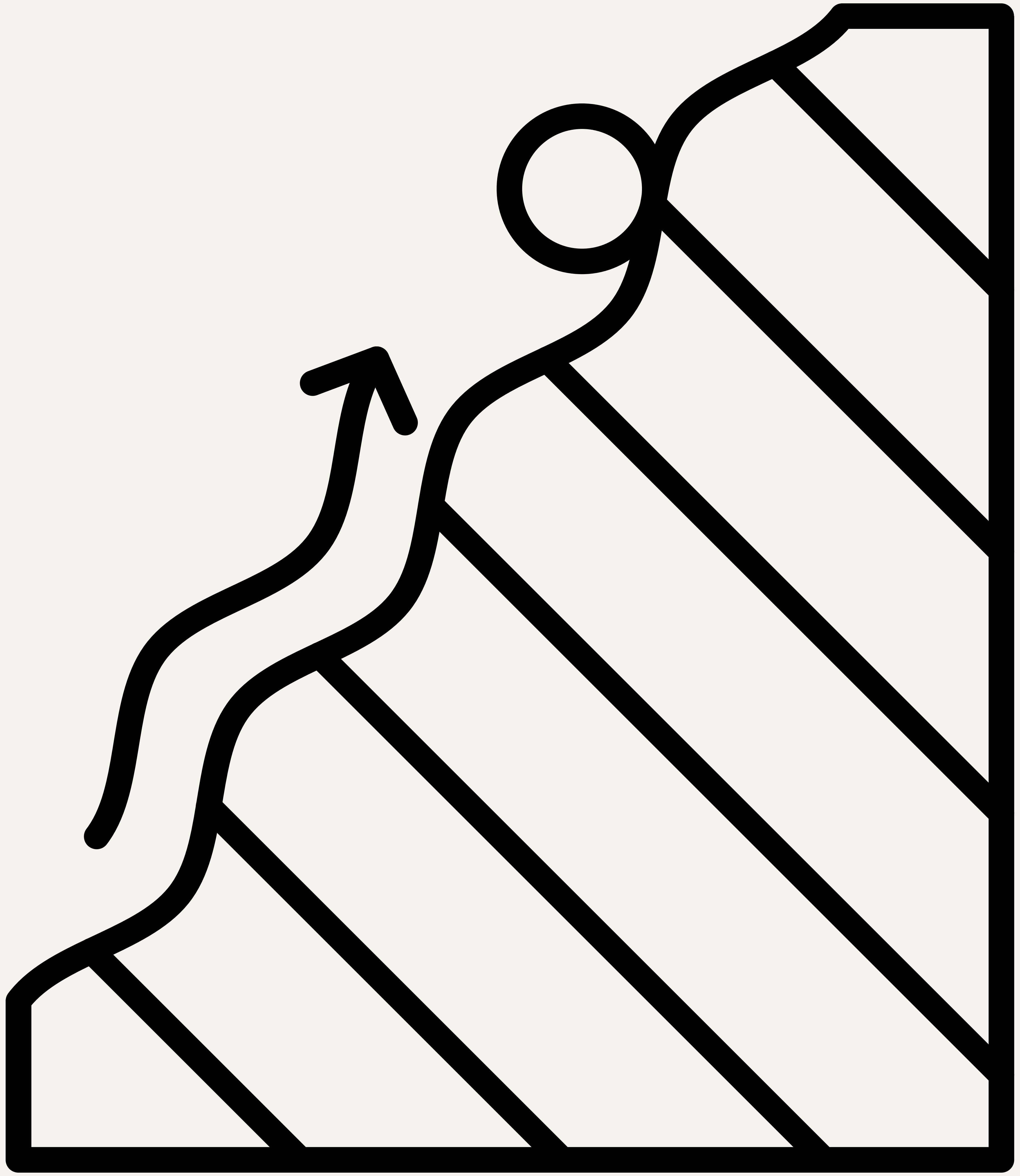
Study for Midterms

Get Admitted to a University

Take college admissions exams

Study flash cards

Learn to read



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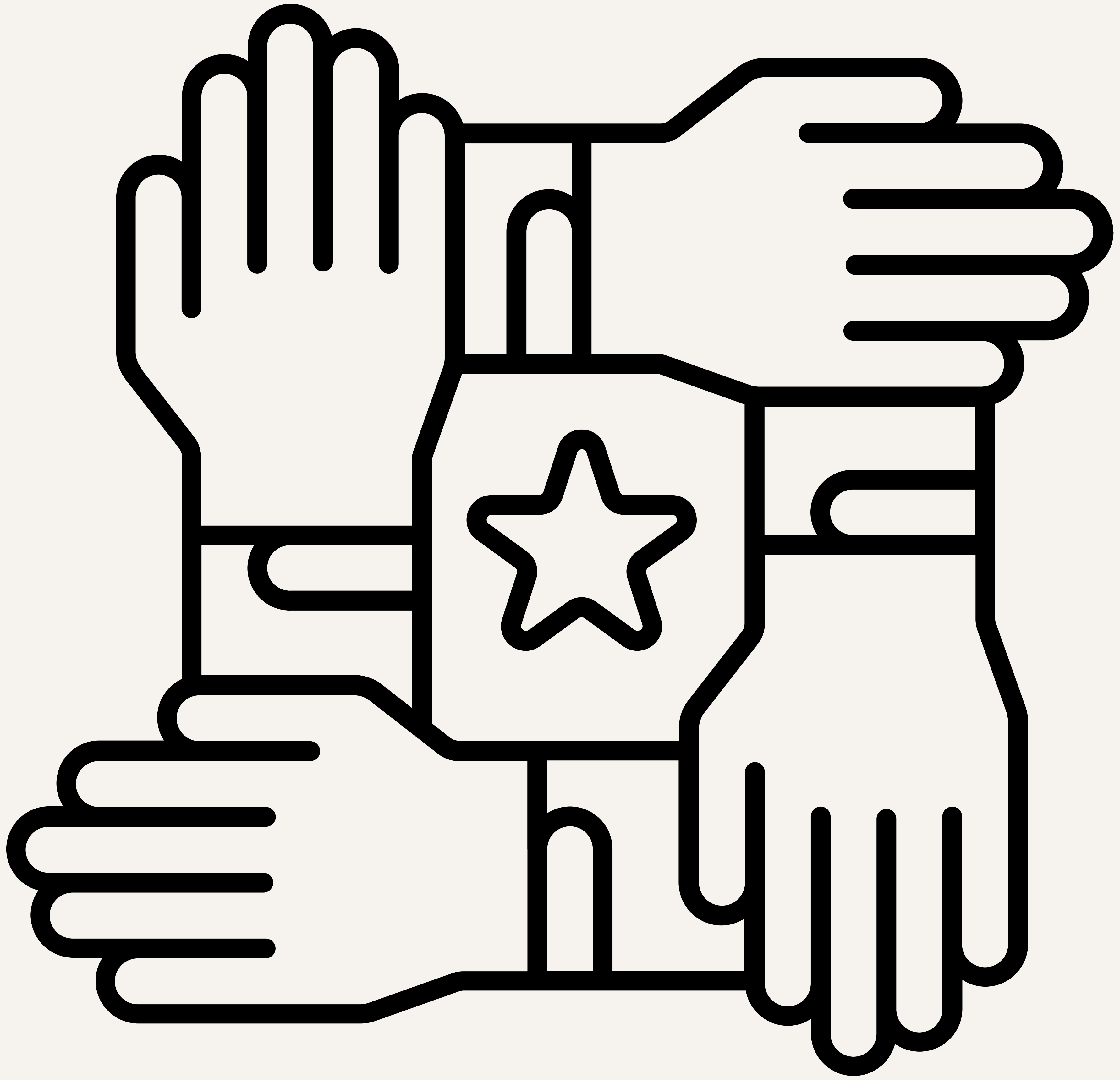
The student’s journey is focused on individual mastery of course material

What is the Objective of Collaborative Work?

Use everyone's unique abilities to accomplish a goal together!

Adopting a Collaborative Mindset

- Be vulnerable - Your teammates want to help you accomplish your goals
- Over communicate your progress and updates - You might think you’re on the right track, but maybe you aren’t.
- Help your teammates - when your teammate is on the group chat looking for help be there for them
- Always be learning - You’ll pick up more knowledge by taking on a challenging task.



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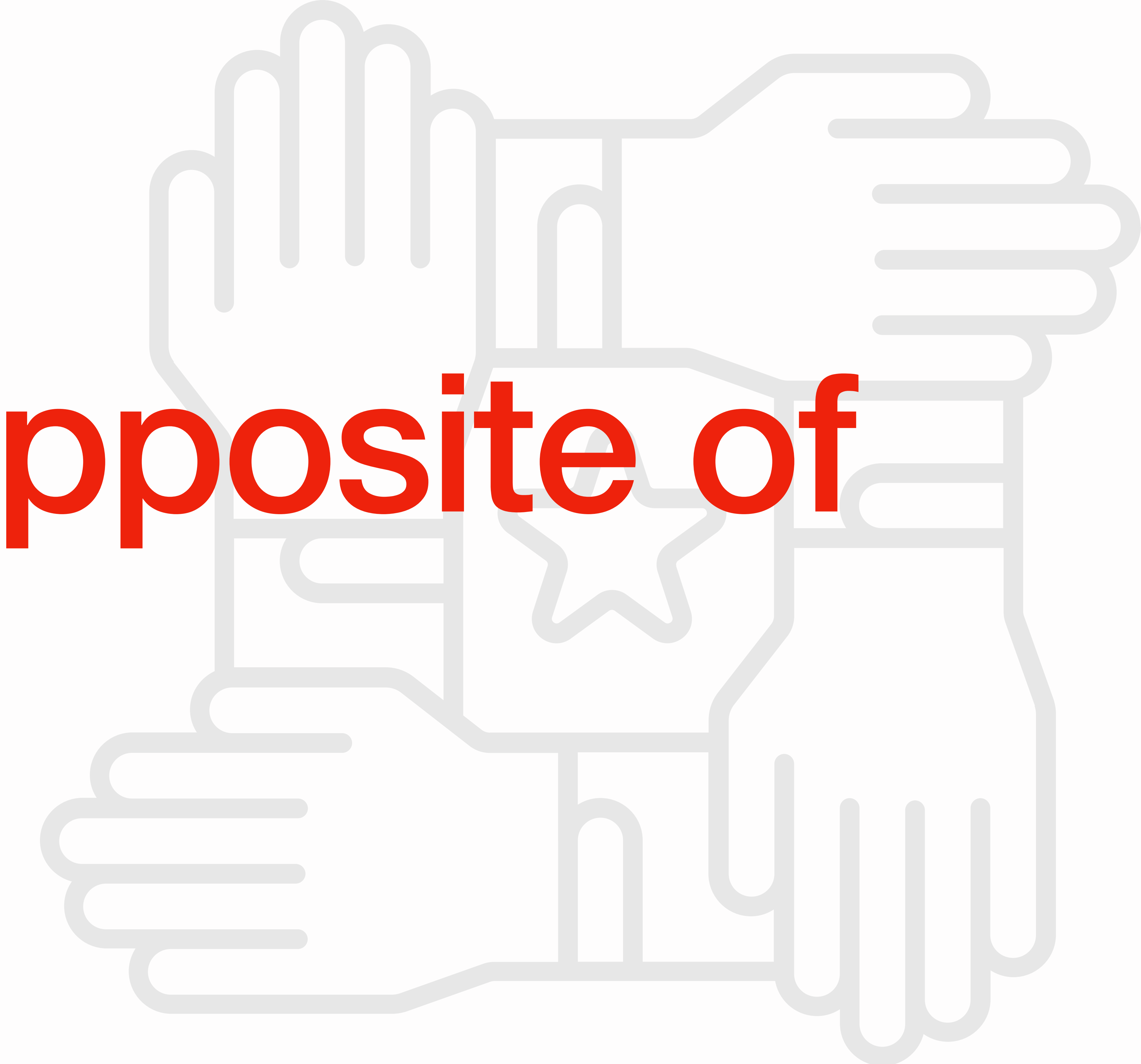


Collaboration is the opposite of homework!

How Software Project Teams Work Together

Introduction to Agile

agilemanifesto.org

- **Individuals and Interactions** over processes and tools
- **Working Software** over comprehensive documentation
- **Customer Collaboration** over contract negotiation
- **Responding to Change** over following a plan

In Practice - A Typical Software Team

Product Owner

- Voice of the customer
- Makes decisions on software requirements
- Provides feedback on in-progress software
- Accepts the “finished” product

Engineers

- Architect a solution that meets the PO’s requirements
- Test their own work
- Provide value recommendations
- Implement the Project

Engineering Manager

- Provides guidance on software architecture
- Communicates project status to stakeholders
- Coaches engineers on opportunities for growth

An Engineer’s Day

Task	Hours	Frequency
Coordinate with teammates	0.5	Daily
Clarify business requirements	1-2	Weekly
Architect a Feature - Get consensus on scope	2-4	Weekly
Review Code	2	Daily
Write Tests	2	Daily
Write Code	2	Daily
Demonstrate work in Progress	1	Weekly

Collaboration Tools

What Should I Be Working On?

Kanban Board

How Do I Know My Code Is Current?

Version Control Systems

How Do I Get Approval or Provide Feedback?

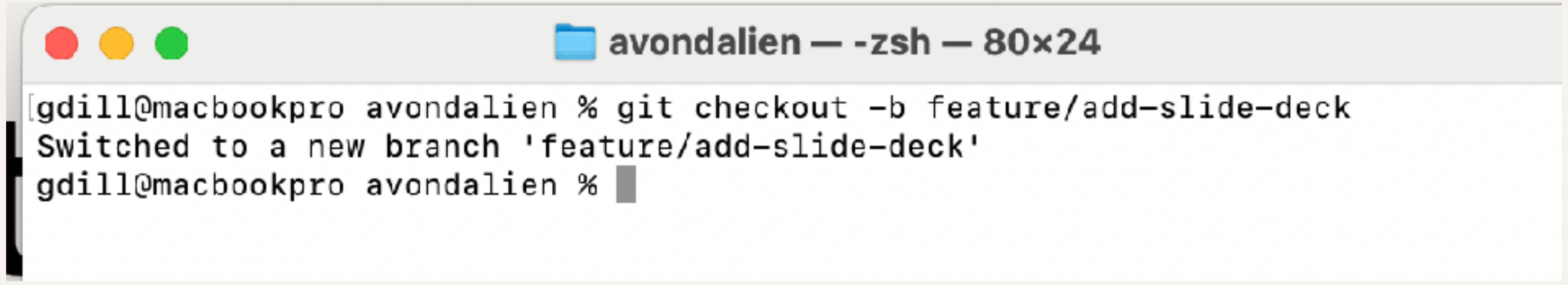
Git Hosting and Collaboration Platforms

How Do I Communicate?

Messaging Software

Demo

1. Create a new branch with a descriptive name



```
[gdill@macbookpro avondalien % git checkout -b feature/add-slide-deck
Switched to a new branch 'feature/add-slide-deck'
gdill@macbookpro avondalien %
```

Software Patterns for Collaborative Projects

SOLID Principles

- Single Responsibility
- Open-Closed
- Liskov Substitution
- Interface Segregation
- Dependency Inversion

Test Driven Development

Try Writing Your Tests First

Recommended Reading

- Clean Code - Bob Martin
- The Agile Manifesto
- The Phoenix Project - Kim, Behr, et al.
- The O’Reilly’s manual for your favorite programming language