SDLs, scrum and teams

CSE 403 Software Engineering

Winter 26

Today's Outline

- Assignment 1 – Project proposal teams
- Software development lifecycles review
- Deeper dive on scrum (agile) teams
- Building a highly performing team

Reminder: see the required reading material on the course Calendar webpage

Assignment 1 - Project proposals

- Monday 1/12 - 11:59pm
  - Proposals due in Canvas (one submission per proposal-group)

- Tues, Wed, Thurs
  - Pitches in class: UPDATE – now 3 minutes per pitch
  - Staff will publish the order by noon Tues (see Ed Announcements)
  - You will "share" your deck over the class Zoom link – be ready

- Thurs 1/15 – 11:59pm
  - Preferences survey due (Calendar and Ed Announcements for link)

- Friday 1/16
  - Be available for questions from staff regarding project teams

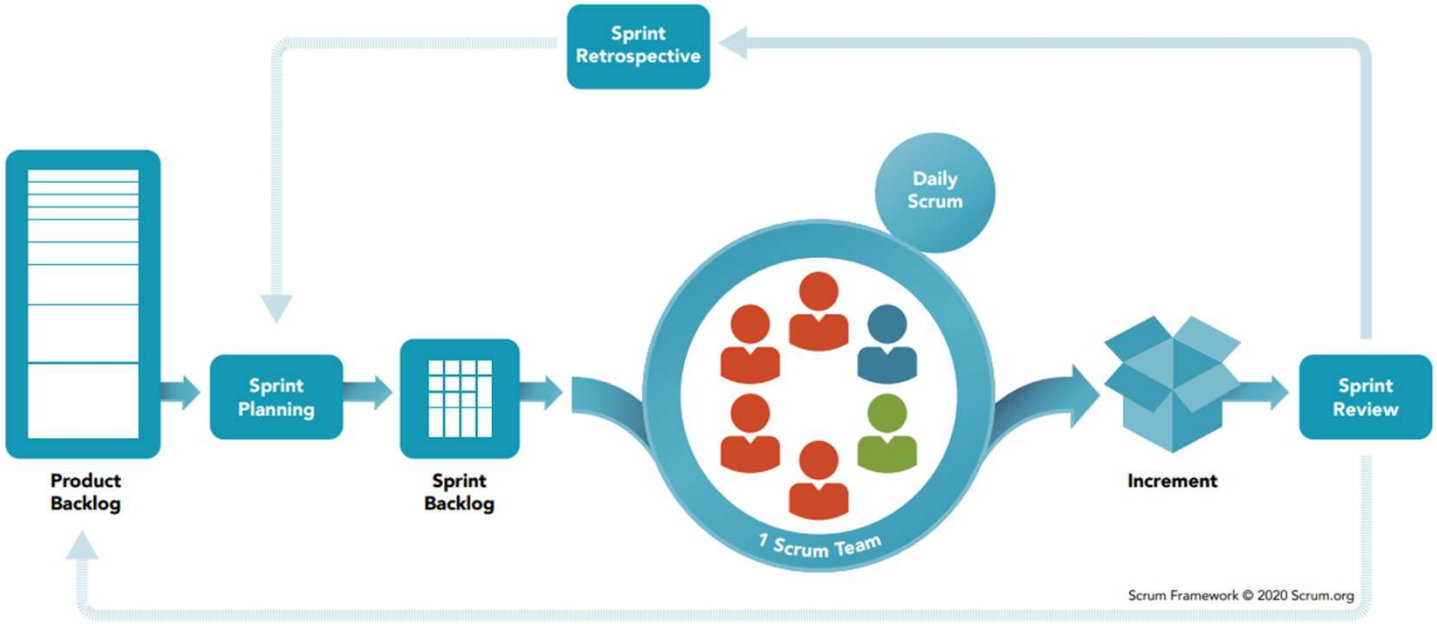
Back to SDLC – lots of models

- Code and fix
- Waterfall model
- Prototyping
- Spiral model
- Staged delivery
- Scrum

Common stages

- Requirements
- Design
- Implementation
- Testing
- Release
- Maintenance

Agile SDLC: Scrum



- Many analogies with XP
- Scrum focuses on management and productivity
- XP addresses software quality and engineering techniques

Scrum – start with the team

Very popular model used in industry

Product Owner

- Owns the product and is responsible for defining and prioritizing features
- Signs off on the deliverables

Scrum Master

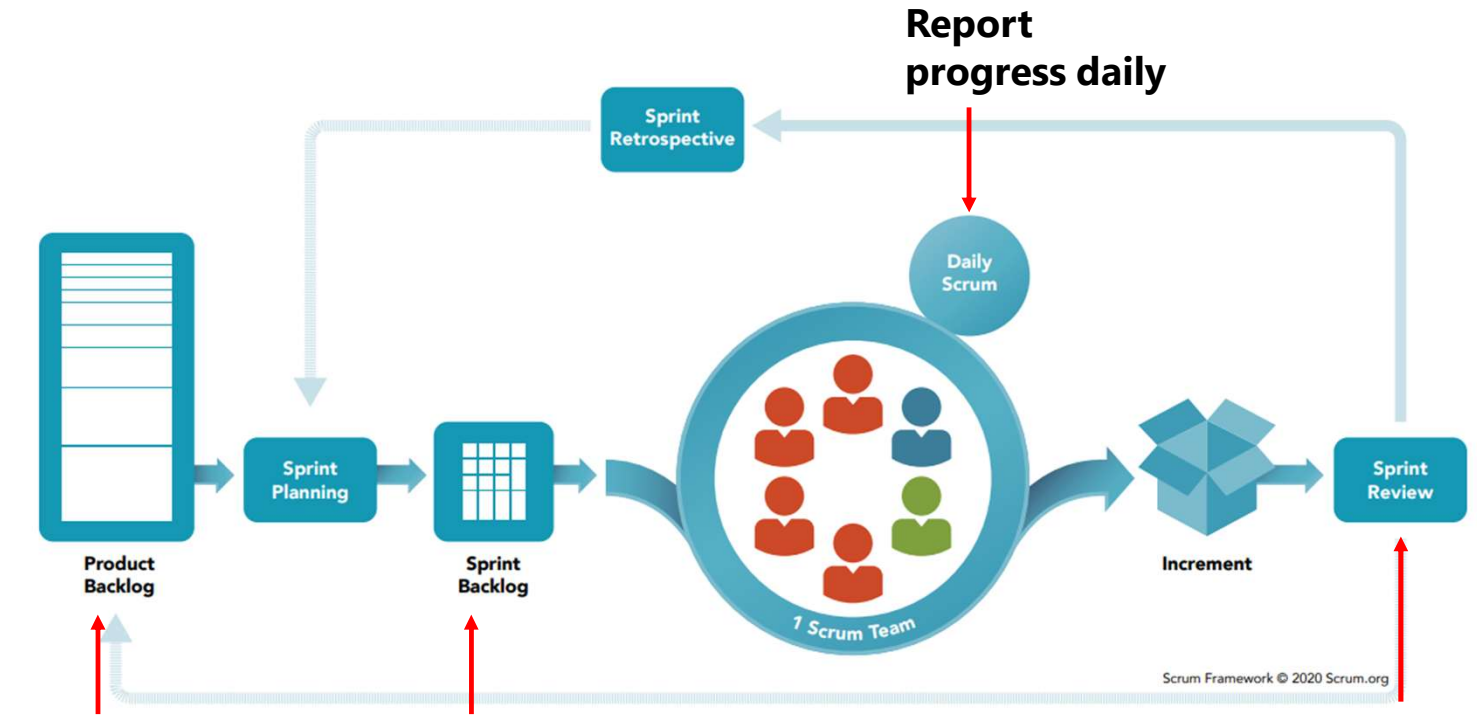
- Runs the scrum, removes blockers, and coaches the team to continuously improve

Development Team

- Develop, test, and evolve code

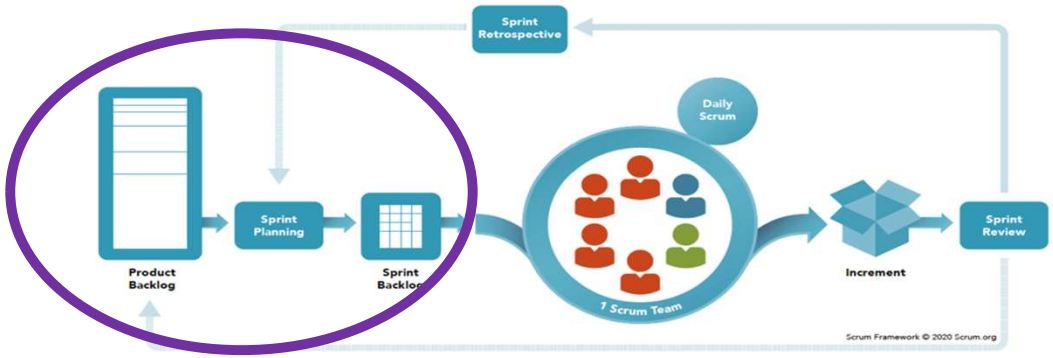
Scrum process

What aspects reflect the Agile philosophy?



https://www.scrum.org/

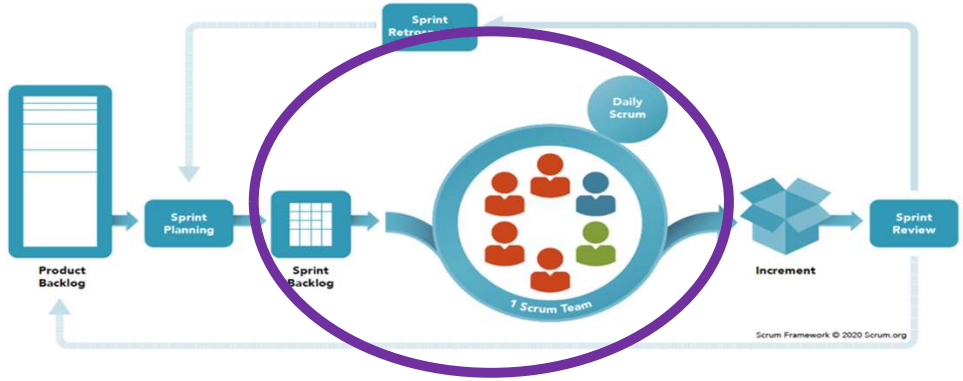
Key scrum activities



Sprint planning

- What features can be delivered this Sprint? (from product backlog)
- What tasks are needed to get these features delivered? (build sprint backlog)

Key scrum activities



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Daily standup

- What did I accomplish yesterday?
- What am I planning to work on today?
- Are there any blockers that are preventing me from making progress?

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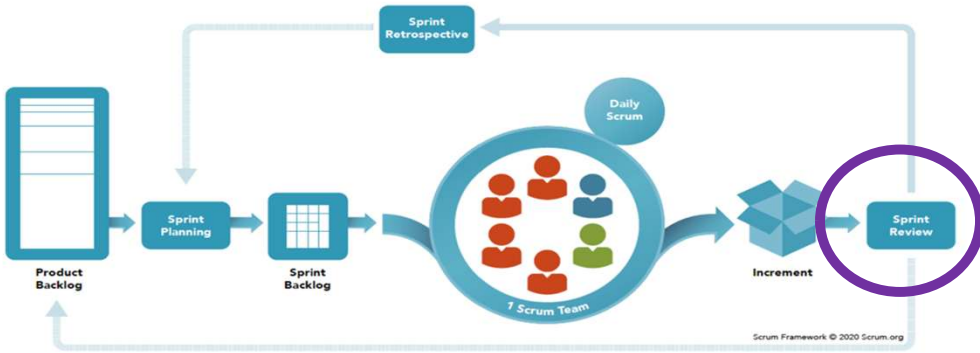

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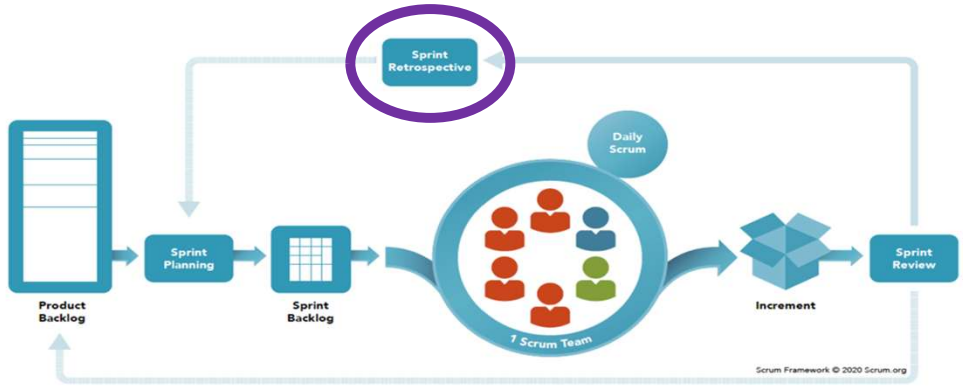
Sprint review

- Demo of working software to product owner

Key scrum activities



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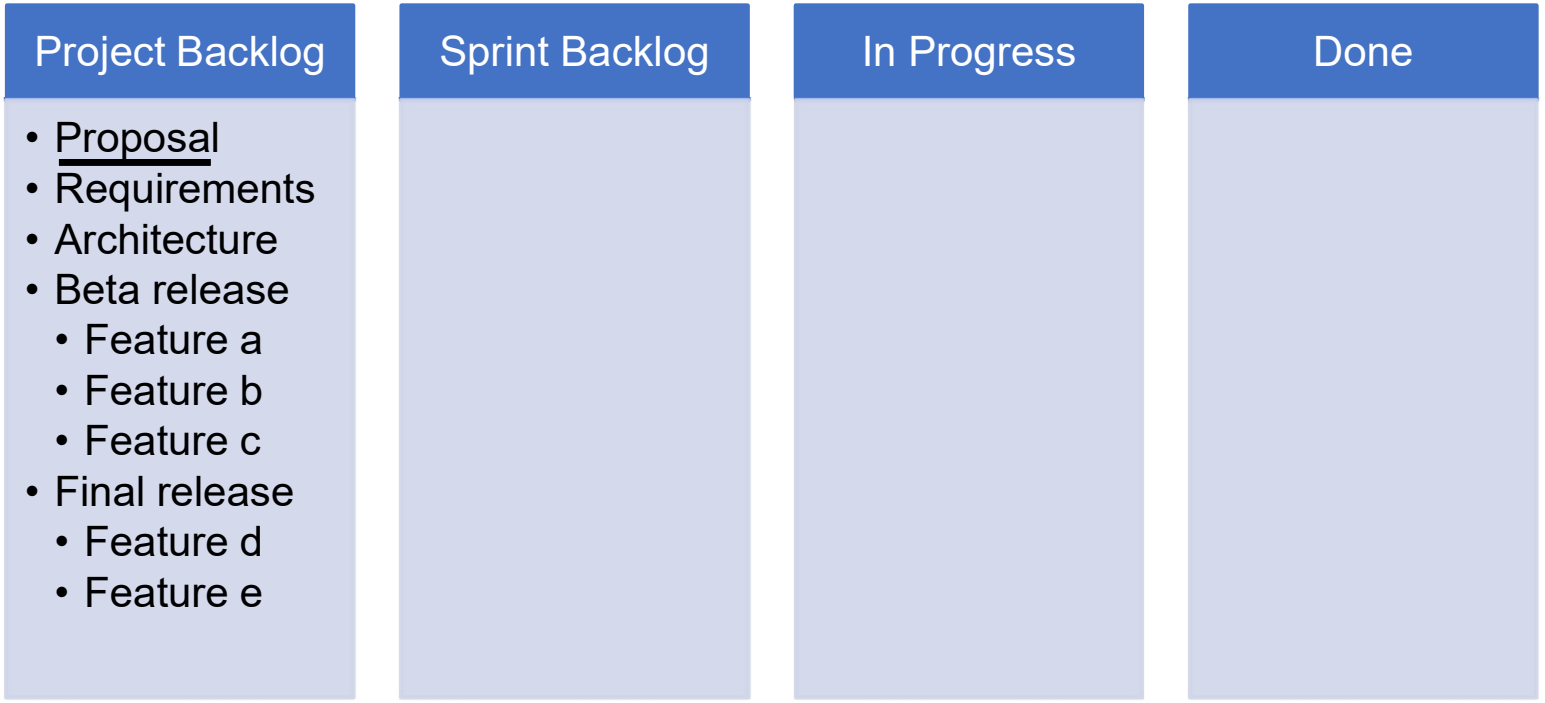
Sprint review
- Demo of working software to product owner

Sprint retrospective
- Reflect on what went well and what could have gone better
- Identify specific actions to improve processes and teamwork in the next sprint

Shall we try it out with a scrum board?



Sprint goal:
Proposal

What tasks should we put in the Sprint backlog?

Shall we try it out?

Project backlog	Sprint Backlog **[Proposal]**	In Progress	Done

• Requirements
• Architecture
• Beta release
  • Feature a
  • Feature b
  • Feature c
• Final release
  • Feature d
  • Feature e
	• Signup team
	• Brainstorm
	• Create proposal doc
	• Create presentation deck
	• Submit to canvas		

Shall we try it out?

Daily Standup

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Team members take tasks from the backlog

Shall we try it out?

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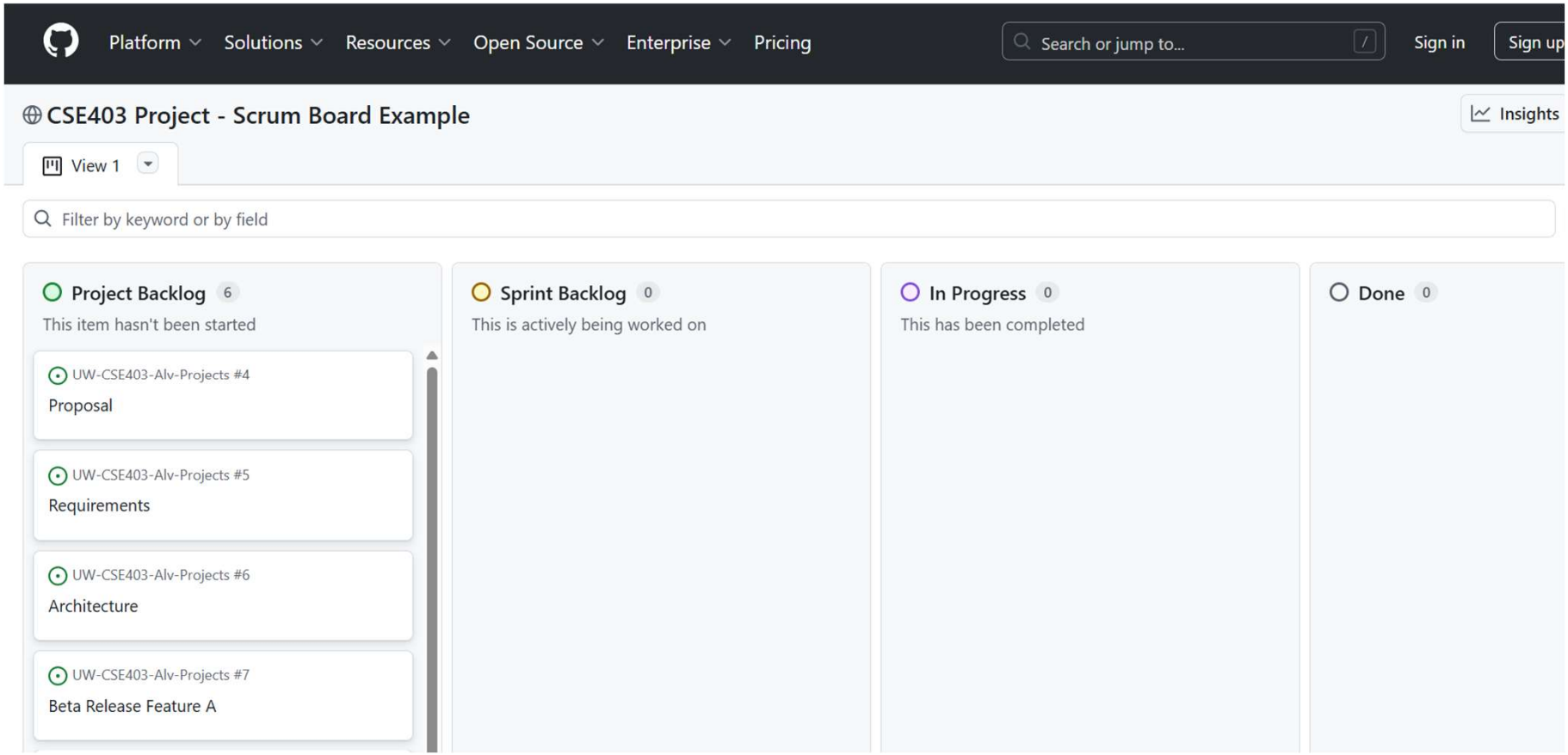
Update board as part of the daily standup

Leverage scrum planning tools

https://tinyurl.com/cse403-scrumboard



Agile Summary

Pros

- Flexibility (changes are expected)
- Focus on quality (continuous testing)
- Focus on communication – with customers – with team

Cons

- Requires experienced management and skilled developers
  (e.g., responsible, proactive, communicate well)
- Prioritizing requirements can be difficult when there are multiple stakeholders
- Needs customer to be flexible in delivery (what / when)

Let's try a poll in PollEV: https: //PollEv.com/cse403wi

What SDLC would you pick and why?

- A control system for anti-lock braking in a car
- A hospital accounting system that replaces an existing one
- An interactive system that allows airline passengers to quickly find replacement flights
- New innovative but tbd features for a social media app
- Your 403 class project

What SDLC would you choose?

0 surveys completed

0 surveys underway

A control system for anti-lock braking in a car

- Waterfall | Staged Delivery
- Prototyping
- Spiral
- Agile - XP | Scrum

A hospital accounting system that replaces an existing one

Waterfall | Staged Delivery

Prototyping

Spiral

Agile – XP | Scrum

An interactive system that allows airline passengers to quickly find replacement flights

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New innovative but tbd feature for a social media app

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Your 403 class project (ok to change)

Waterfall | Staged Delivery

Prototyping

Spiral

Agile - XP | Scrum

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- **Building a highly performing team**

> *Talent wins games, but teamwork and intelligence wins championships.*
>
> *- Michael Jordan*

First, what is a team?

How does a **team** differ from a **group**?

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How does a **team** differ from a **group**?

A group is a collection of individuals with a common interest

whereas

A team is a cohesive coalition of individuals working together towards a common goal

Another definition

A team is a set of people with complementary skills who are committed to a common purpose, performance goals, and approach for which they hold themselves mutually accountable

Katzenbach and Smith

Why do we need to work in teams?

Common software team roles

These could be all different team members, or some members could span multiple roles, and/or it they can change over the life of the project:

- Program manager
- Product manager
- Project managers
- Group manager
- Designers/architects
- Dev leads (“tech leads”)
- Devs: programmers, testers, integrators

Tip: definitions can vary with the company – learn the language early

How do we become a high performing team?

According to research, high performing teams are 20% more productive and profitable, with 10% higher customer satisfaction.

Characteristics of a high performing team

The team has:

- **A shared elevating vision or goal**
- A sense of team identity
- A results-driven structure
- Competent team members
- **A commitment to the team**
- **Mutual trust**
- Interdependence among members
- **Effective communication**
- A sense of autonomy
- A sense of empowerment
- **A high level of enjoyment**

all “buy in”
keeps team focused
streamlines decision making

willing to make personal sacrifices

keep members on the same page
the bad as well as the good

creates energy

High performing 403 teams

Based on past classes, the high performing teams have:

1. A clear shared vision (result) that they're excited about
2. Excellent and effective organization and communication
3. Strong collaboration and trust between members, open to ideas and adaptable
4. Individual and group responsibility/accountability to deliver

403 Project Teams: Student input - Student preferences survey

1. Rank (highest to lowest) the top 10 projects you'd like to work on
   - Top entry == project you'd most like to work on
   - Talk to other students during pitch days if you're interested in their project!

2. [Recommended] Identify other students that you'd like to be on a team with (team size max is 6)
   - Note 1: Your requests and ranking must match the other students
   - Note 2: This may affect which project you'll be placed on as there will need to be space

How staff then forms the teams

1. Staff first select the set of projects, those:
   - That students have found most interesting (higher ranked) and
   - That we think will be successful in our quarter class and
   - That balance the types of projects done in the class

2. If a project is selected to go forward, then students who proposed that project have priority for it (assuming they ranked it their top preference).

3. Next, we will place other students on the selected projects:
   1. We aim for groups of 5-6 students per project.
   2. If you have mutually identified a set of students, we will try to keep you together.
   3. We will try to give you one of your top ranked projects. But, just as in the real world, you may not get your top choice.

Summary: working in teams can be great!

Benefits

- Attack bigger problems in a short period of time
- Utilize the collective experience of everyone
- Learn from each other

Challenges

- Communication
- Planning and coordination
- Trust between and conflict resolution between team members