



Education

Bringing Modern Software Practices to
Your Department and Your Classroom

Dominic Letarte
GitHub Campus Advisor
dominic.letarte@temple.edu



Presentation goals

Introduce modern software practices and tools used in industry.

(Issue Tracker, Project Boards, Pull Requests, Commit logs, Online IDE)

Show how modern software practices and tools can be used in the classroom.

Provide simple actions to integrate modern software practices and tools in the classroom.



Agenda



Introduction

- Experience

Theory

- How group work is difficult

Resources

- Modern tools in practice

Take actions

Questions



Introduction

Dominic Letarte

- Worked in the industry for many years
Team leader at Ericsson
- Assistant Professor of Instruction
Dept. Computer and Information Science
Temple University, Philadelphia
- GitHub Campus Advisor



Introduction

Teaching Experience

Introduction to Object Oriented Programming

- Introduction to Java

Software Design

- Design Patterns
- Multiple team assignments
- One five-week team project

Capstone

- Two semester projects with a real client.



Theory - Why teamwork is difficult

Learning and work happens better in groups but grading at the end is a solo affair.

Challenges of teamwork

- Barriers to Communication
- Diversity of Available Equipment
- Disparity in Technical Background

[Walker2002]



Theory - Why teamwork is difficult

Best practices to keep students engaged in project group work :

- Providing project structure and subtask scaffolding.
- Provide regular opportunities to report on their progress, challenges, and roadblocks with peers and with faculty.



[Stoddard2019]



Resources

Applying the theory and best practices to provide **communication tools**, **progress reports** and **task scaffolding**.

- Issues Tracker,
- Project Board,
- Pull Requests,
- Commit logs and Code Insights,
- Online IDE



Issues Trackers

Issues Trackers are a usual way to keep track of tasks, enhancements, and bugs for projects. Focus is on collaboration and communication.



- I use them to allow students to share ideas for projects, comments on each other ideas and vote for the more interesting projects.

🛠️ Use reaction emojis to help communication

🛠️ Use labels to help navigate issues.



Project Board

Project Board allows the ability to organize, prioritize, and track work in a project. A foundational tool for Scrum, Kanban and Agile.

- In the agile spirit, a project board tries to reduce administrative overhead and is good at tracking progress and roadblocks.



Github Project Board, Jira or Trello.



Pull Requests

Pull Requests tell others about changes that have been pushed to a branch, encourage discussion and revision before changes are merged into the base branch.

- ✗ Lock master and force peer review before merge.
- ✗ Use Draft Pull Requests.



Commit logs and Code Insights

Commit logs and Code Insights use this data to get a better understanding of who's using the repository and how they're using it.

- Use it as a data for discussion and as basis for peer evaluation. Take Actions



Commit logs and Code Insights

Commit logs and Code Insights use this data to get a better understanding of who's using the repository and how they're using it.

- Use it as a data for discussion and as basis for peer evaluation. Take Actions



Online IDE

Online integrated development environment, also known as a web IDE or cloud IDE, is a browser based integrated development environment. Useful for online pair programming.



- Repl.it
- Cloud9

Take Actions



Use more emojis

- To vote on issues: +1 👍
- To grade: 😎A 😃B 😓C
 😁D 💩E 🧟F.



Use **Project Boards** to report on team progress and roadblocks.



Lock master branch and use **Pull Request** as an internal communication tool.



Take Actions

🛠 Register as a teacher with Github
<https://education.github.com/teachers>

🛠 Automate repository creation with Github Classroom <https://classroom.github.com/>

🛠 Create a free Github Organization to host your students repositories
<https://github.com/organizations/plan>.





Questions?

GitHub Education at CSTA 2020

<https://education.github.com/csta>

Slides:

<https://github.com/domincl/csta2020>

