Welcome!

From One Beginner to Another: How to Get GIT Into Your Classroom

Dr. Dee A. B. Weikle
Associate Professor
Computer Science
James Madison University
Harrisonburg, VA
weikleda@jmu.edu

JAMES MADISON UNIVERSITY

Motivation

Background

Situation 5 Years Ago

Experiences Trying to Learn VCS

John D'Angelo aka MagicDude (creative commons)

My Resources

Academic Success Center

Credit for Course Work

CL Requirement

Culture of A Learning Community

POGIL and POSSE Communities

Building on the work of others….

JAMES MADISON UNIVERSITY

Solution

Work toward HFOSS in Capstone

Spread HFOSS learning outcomes out

Start with Git/GitHub in CS1/2

Incorporate content learning outcomes

JAMES MADISON UNIVERSITY

This Workshop

- POGIL: What it is and example with VCS
- POSSE VCS Big Picture
- POSSE Wiki Resources
- Break: 4:15
- Working Through an Example
- HFOSS Projects (Jupyter – Work Flow)
- Wrap-up/Feedback

POGIL

Process Oriented Guided Inquiry Learning

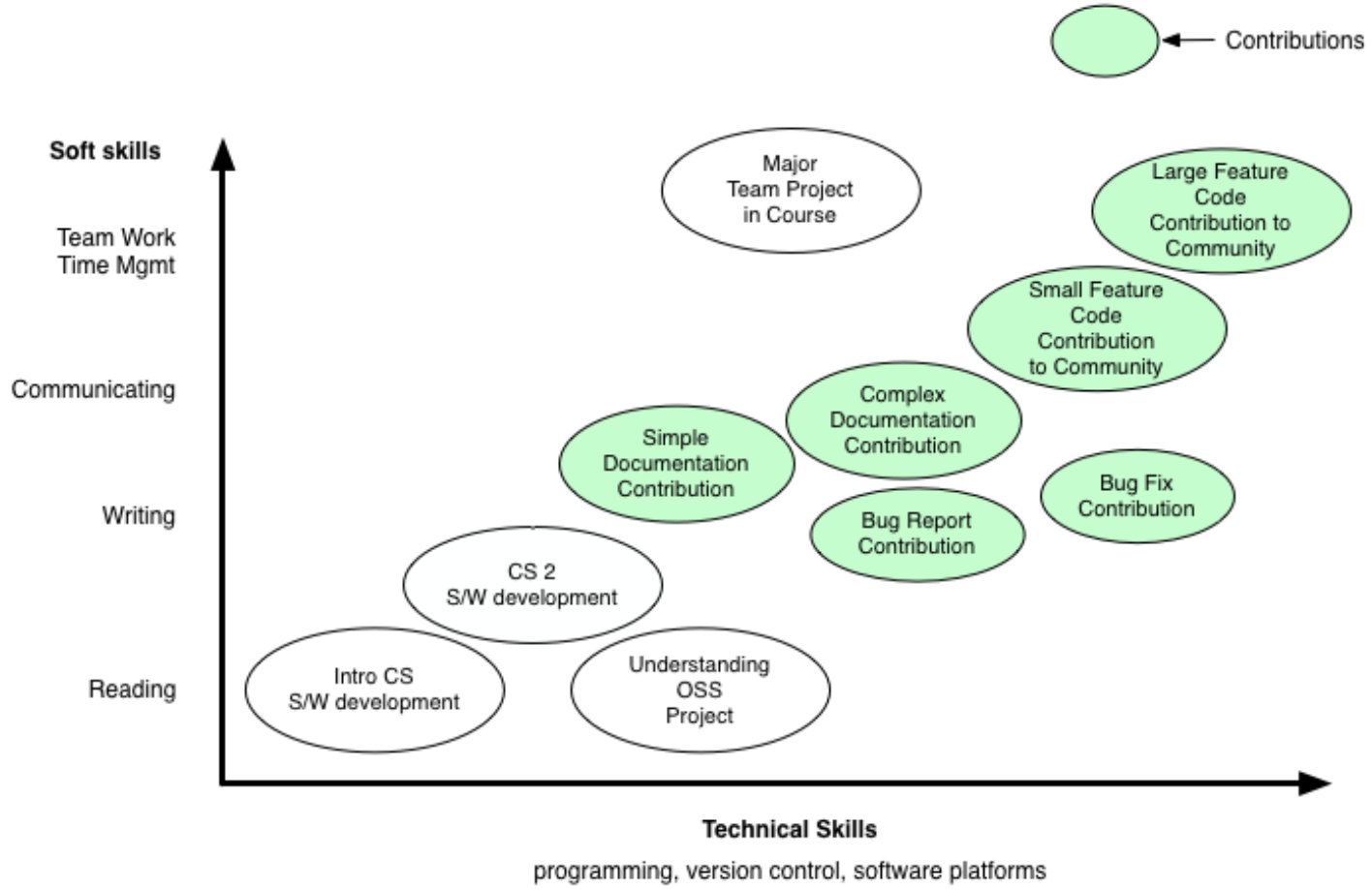
- Interdisciplinary POGIL site: pogil.org
- Computer Science POGIL site: cspogil.org
  - (VCS Activity: Clif Kussmaul – Muhlenberg)

Idea

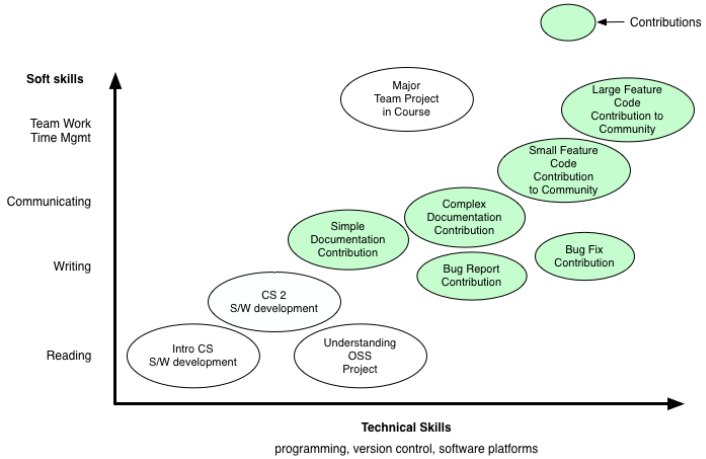
Use teams to solve carefully constructed “Activities”
Each person on team has a specific role
Activities designed to observe, explore and apply
Form of problem based, active learning
See interdisciplinary site above for research references
Win for me – scaffolding into larger project problem solving, HFOSS

Look at Team Roles in Folders – discuss and assign
Let’s do part of Clif’s VCS activity – end by 3:30

VCS Big Picture



SIGCSE 2016



HFOSS Learning Outcomes

1) Personal Software Development

a) Save different versions of a document or code base (commit)

b) Query and visualize history (git-status)

c) Roll-back to an earlier version of document or code base (git-reset)

2) Explore options in developing document or code base (git-branch)

a) Understanding code bases

b) Track/identify author of an artifact (git-blame)

c) Obtain own copy of other's work (clone, fork repository, Git-Hub basic)

3) Teamwork and Collaboration (local)

a) Provide personal contributions to others (pull-request)

b) Describe benefit of a contribution (also pull-request)

c) Resolve document/code base conflicts (merge)

d) Provide access control and work in a project with access control (admin to approve contribution)

4) Direct Contribution to External Code Base

Apply all of the learning outcomes above to an open-source project that has participants outside of the class/university community.

FOSS2Serve

POSSE
http://foss2serve.org/index.php/POSSE

Learning Activity Links – Git and GitHub
Pathways
Courses
HFOSS Links

Example CS1/2

Overall Structure

http://foss2serve.org/index.php/Voting_Program_Activity

Take ~5 minutes and read through

Discuss with neighbor

Example(s)

Two example CS1/2 Assignments
Form see Voting Activity on foss2serve for overall structure

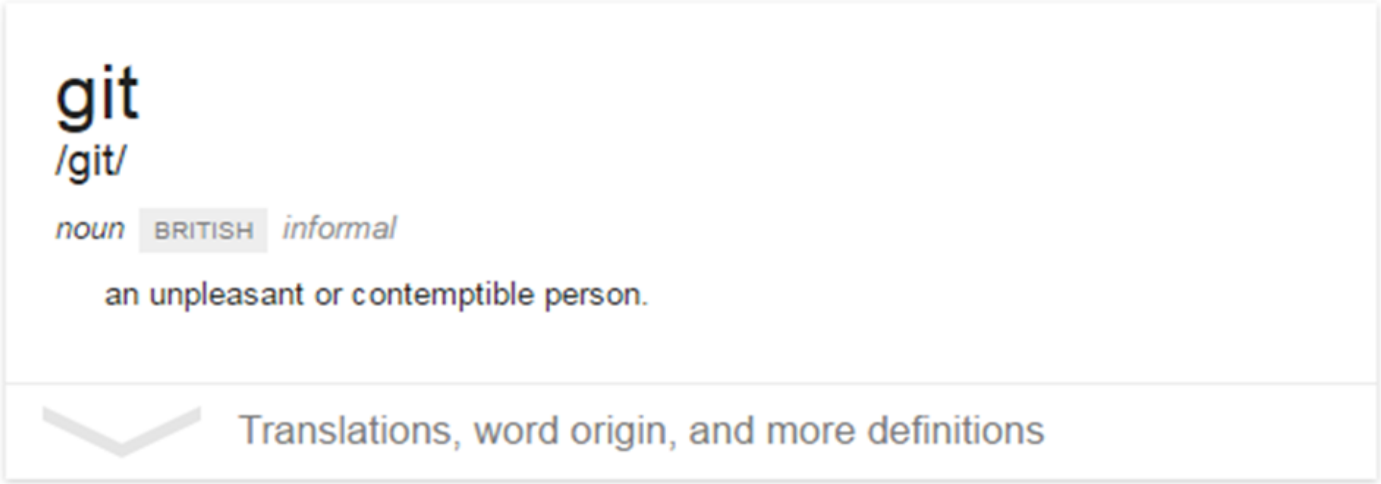
In pairs, pick one of these and write solution as .java or other file
Specifically
Voting: https://w3.cs.jmu.edu/mayfiecs/cs149_16fa/pa4/ArrayElection.html
Implement basic class with countPopular method

Sudoku: see handout
Implement basic class with printMySudoku method

Git Intro Activity

Darci Burdge
Stoney Jackson

What is Git?


git
/git/
noun BRITISH informal
an unpleasant or contemptible person.
Translations, word origin, and more definitions

What is Git?

- Git is a version control system
- It allows you to keep track of changes to a set of files over time
- You can also revert back to the previous state of a file

Team Formation

- Roles:
  - Driver: Creates and maintains a local git repository
  - Navigator: Ensures that the team is following the activity
  - Recorder: Records all answers and questions
- For teams of 2, combine the navigator and recorder roles
- Record answers to questions on a titanpad; use your first names, for example, titanpad.com/JoeMarySue

For CCSC-E Workshop

Use paper, teams of 2

Activity ~30 min

GitIntro – download and basic use

1) Read Overview:
http://foss2serve.org/index.php/Git:_Git_Intro_Activity
2) Do Activity as described below (also link from above)
https://github.com/StoneyJackson/git-intro-activity
In G, create .java file with initial method solution to one of code assignments done previously instead of birthday.txt

Specifically
Voting: https://w3.cs.jmu.edu/mayfiecs/cs149_16fa/pa4/ArrayElection.html
basic class with countPopular method

Sudoku: see handout
Basic class with printMySudoku

Who we are – foss2serve.org

- Acknowledgement
  - This material is based on work supported by the National Science Foundation under Grant Nos. DUE-1225708, DUE-1225738, DUE-1225688, DUE-1525039, DUE-1524898, and DUE-1524877. Any opinions, findings and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation (NSF).
- Copyright and Licensing
  -
  -

JAMES MADISON UNIVERSITY

GitHub

Tips for later

Get account ahead of time, get educational discount
Beginning of semester have students get StudentPack
Make organization for specific class
Request estimated number of private repositories
Create private repositories for each student for semester
Add them during semester

Create a GitHub account https://github.com/

- For now just make it public and use personal email
  - Consider using professional user name @gmail.com
- Educational accounts take time to get (give 2 weeks?)

JAMES MADISON UNIVERSITY

Load Code

Once you have account, let me add you

Can have submit assignments for HW here with final submit in normal way…

Short description of features
- Issues etc.

Other Resources

Carol Willing https://github.com/willingc
- Nice set of slides with beginner work flow described

Thank You!

I am happy to share please just email me

Please fill out feedback form!

[1] Interdisciplinary POGIL site: pogil.org
[2] Computer Science POGIL site: cspogil.org (VCS Activity: Clif Kussmaul – Muhlenberg)
[3] http://www.hfoss.org/index.php/goals-and-objectives

Dr. Dee A. B. Weikle
Associate Professor
Computer Science
James Madison University
Harrisonburg, VA
weikleda@emu.edu

Other suggested workshops:
POGIL: 8:30-9:45 Sat
Git and GitHub: 10:15-12:45 Sat