

Team Number: May15-31
Project Name: CoderLab
Client / Advisor: Joe Zambreno

Week 1 Report (9/1/14 - 9/7/14)

Name (Role)	Team Meeting (9/8)	Advisor Meeting (9/3)	Week Hours	Total Hours
Jake Bertram (Comm)	P	P	4	4
Dan Smith (Key Concepts)	P	P	4	4
Kyle Tietz (Lead)	P	P	4	4
Jacob Wallraff (Webmaster)	P	P	3.5	3.5
Erich Kuerschner (Webmaster)	P	P	2.5	2.5
Bryan Passini (Comm)	P	P	3.5	3.5

Key: P - Present AE - Absent, Excused AU - Absent, Unexcused

Group Accomplishments

- Set up weekly meetings with Joe Zambreno (Thursdays @ 8:30am)
- Set up tentative weekly team meeting (w/o Zambreno) (Mondays @ 8:00pm)
 - May not always be a physical meeting, could be Google Hangout
- Picked out major concepts to research for next week (See individual accomplishments)
 - Potential libraries, languages, tools, etc.
- Entire team met with Joe on 9/4/2014 for ~45 minutes
 - First time meeting, getting to know each other, the professor, and the project

Individual Accomplishments

Jacob Bertram

- Look at CodeMirror and other web-based text editing components

- Found <https://github.com/firebase/firepad> firepad, an open-source collaborative text editor with support for code editing via CodeMirror
 - Does not appear to have a server component, which could be a big benefit since we wouldn't be married to any technology on the server-side if we used this.
 - Consider using it or at least research the code
- Consider AngularJS as a client-side framework
- Setup weekly report template

Dan Smith

- Look at Docker
 - Uses Linux workspaces to isolate containers from one another
 - Similar to VMs, but less resource intensive
 - Built-in shared volume management between containers, port mapping to host, connection to containers on the same host
 - Container linking seems fishy, needs more research
 - Creating images (container templates) doesn't seem crazy difficult
- Look at Etherpad
 - Appears to have no syntax highlighting
 - Limited options, based on Ace editor
 - Fairly granular change tracking
 - Not well geared towards code editing
 - Source available on github
- Checked out firepad
 - Support for both Ace and CodeMirror
 - Embeddable
 - Needing to use firebase as a backend could be an upside or downside
 - Used by CoderPad

Kyle Tietz

- Looked at CodeBunk
 - Logs all keystrokes, which can be replayed as a sort-of video
 - Chat mixed in with console, supports audio/video communication

- Looked at Nitrous.IO
 - Traditional IDE layout with console at bottom and several sidebars
 - Has a desktop application that can sync with the web workspaces
- Looked at Cloud9
 - Most popular of the ones I looked at
 - Looks very similar to Sublime text
 - Many features (code history, debugger, code completion, jump to definition, Vim / Emacs mode)
 - Workspace is powered by Docker Ubuntu container, allows SSH access

Jacob Wallraff

- Code Completion Libraries
 - There are a number of different options, will require more testing
 - AutoComplete - source available in github
 - YouCompleteMe - also available on github
- Code Highlighting
 - Prism - really lightweight, seems widely used anyways

Erich Kuerschner

- IDEOne (<http://ideone.com/>)
 - limited user interaction with the programs (relies on stdin)
 - PHP server-side, JavaScript client-side
 - uses Sphere Engine (previously ideone api) (<http://sphere-research.com/sphere-engine.html>)
 - Sphere Engine allows for src code execution on your own website or mobile app
 - SOAP based webservice
 - Licenses are available but they are costly -we can probably rule using this out..
- Looked at FirePad (<http://www.firepad.io/#1>)
 - JavaScript client-side
 - Doesn't include code execution, intended to be embedded within other web apps or mobile apps

- Uses no server-side code, uses an API called Firebase to sync documents
 - Firebase requires monthly fees for use of its service. No further research has been done at this point on my end.

Bryan Passini

- Looked into CoderPad
 - Supports 18+ languages with some syntax highlighting. The coding environment feels very similar to a Notepad++ or Sublime
 - Uses docker
 - Front end : “mishmash of JavaScript”
 - Communicates to back end using web sockets and other real-time interfaces (these interfaces were not specified)
 - Code either runs on a remote machine or sandboxed in a JavaScript interpreter
 - Good resource that talks a little about how CoderPad is implemented, is an interview with the founder of CoderPad:
<http://codeinsider.us/i/5.html>
 - This seems like a good existing software to try to replicate
- Looked into EtherPad
 - Much harder to open a web instance of etherpad, seems to be more geared to downloading and installing etherpad.
 - Not designed with coding in mind, more of a collaborative text editor such as Google Docs
 - Might help us to look into how etherpad implements collaboration, but probably won't be useful to look into anything with etherpad
- Looked into AngularJs as a framework for this project
 - More research needed, but may be too much for this project. Not sure if we really need the data binding.

Pending Issues

- We need some more requirements laid out, which should be a focus for next week's meeting with Joe Zambreno

- What does “collaboration” all entail in this project?
- Any preferred primary technology stacks? OS's? Server provisioning?
- What will integration with ISU single-sign on require?
- Building a collaboration engine or building on top of one? (Firepad)
- Find out when weekly reports are due

Meeting Minutes (9/8)

- Went over everyone's research
- Decided on Docker as a key technology
- Further research needed:
 - Firepad
 - AngularJS and alternative frameworks
- Concerns to bring up with advisor:
 - See pending issues

Plans for Upcoming Week

- Bring results of individual initial research to team meeting on Monday
 - Share the results
 - Discuss any technologies or libraries that we might use
- Determine Monday team meeting format (live meeting, Google Hangout, or other)
- Formalize requirements with Zambreno at advisor meeting
- Create a mailing list to ease communication
- Find when website needs to be running