Abstract

Students often make it through their entire 4 years of undergrad CS without learning how to use source control tools, such as git. One possible reason this happens is that the workflow that comes with available revision control tools and platforms do not mesh well with the workflow of academia: professors need ways to keep students accountable that don’t fit into the corporate world and use cases. GitSubmit provides a solution for tracking and submitting source code that relates to school projects and assignments. GitSubmit provides many of the functions that exist in other platforms such as GitHub, GitLab, and BitBucket, but with a focus on academic use cases, such as supporting deadlines and in-line source code grade feedback, all while teaching students how to use source control technologies they will use every day in their professions.

Results

http://gitsubmit.com

- Fully functional and easy to use interface
- Responsive website design
- Fast, dynamic single-page application
- Fully functional git repository hosting service
- Reliable deadline detection and rejection
- Modern, fast, scalable authentication
- Suite of automated acceptance tests
- Automated deployment

Impact

GitSubmit is a promising proof-of-concept for using enterprise tools in academia without sacrificing academic needs. Professors that use GitSubmit (or a similar platform) will better prepare their students for success in their careers, while efficiently managing class projects and assignments. Students that use GitSubmit in a classroom will have better chances to grow as software developers, become more enticing to prospective employers, and be more likely to contribute to open-source projects hosted on similar git repository services, like GitHub.

While GitSubmit itself is ready to be used in a classroom, it is the hope of the GitSubmit team that this proof-of-concept will inspire more competition, leading to a plethora of options to bring source control tools into the classroom.

Architecture

Backend / Server
VPS: Digital Ocean Droplet / Ubuntu / 1GB RAM / 30GB SSD / Region NY
Server: Gunicorn
Application: Python / Flask
Authentication: JSON Web Tokens (JWT)
Git Infrastructure: Git / Gitolite v3

Frontend / Hosting
Static Serving: GitHub Pages
Design: HTML5 / MaterializeCSS
MVC Framework: AngularJS

Testing / Automation
Continuous Integration and Deployment: Jenkins CI

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