SAGE Integration, GIT, Feasibility Study Support

Midterm Report

COMS6901 – Projects in Computer Science, Spring 2018

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Abstract

Over the course of this semester, we are focusing on the DevOps MVP (Story #304) and Workstream Integration (Story #249) stories within SAGE Integration (Epic #339), the SAGE Feasibility Study & Publication (Story #340) within Survey, Field Study Design, and Publication Strategy (Epic #182), and the Intelligent Hinting MVP (Story #107) within Gameful Intelligent Tutoring (Epic #17).

In the first half of the semester we have worked primarily on DevOps tasks, in order to facilitate work by other researchers, and preparation for field studies.

Accomplishments

SAGE Integration

- Created dummy CI build in TFS to trigger on every commit
- Exploring migrating dev server to run node services under IIS to enable Continuous Deployment
- Exploring migration of Github repo to TFS
- Writing "Introduction to GitFlow" doc for inclusion in wiki
- Initial mocha tests for SAGE node
- Integration of gulp.js (TFS build dependency)
- Introducing SAGE-DEV and the Team Work Area
- Specify stories to be completed in the Workforce Integration Feature (prioritize Parson Programming, Gameful Constructionism), migrate and test into UAT using CI
- Researchers' local environment setup support
  - Objective elements not showing up partially/symptomatically due to added games in Dev: need DevOps for a stable env and separated mLab
- Setup UAT mongoDB mLab environment. Login: cu-sage
- Verify that Continuous Integration is working properly into UAT
- Updated SAGE system data-model

SAGE Feasibility Study

- Prepare 1st draft of the Semi-structured Interview Protocol (completed by Field Study team)
- Summarizing some Field Study Articles
- Completed Training (TC0087 - Human Subjects Protection (HSP) Training) necessary for field studies

Next Steps

SAGE Integration

- sage-scratch and scratch-analyzer migration to TFS, CI/CD builds for Dev and UAT
- Expand test suites for **sage-node** and **sage-frontend**. Add test suites for sage-scratch and scratch-analyzer.
- SMTP on Dev and UAT.
- Config management for local and shared environments?

SAGE Feasibility Study

- Research and drafting of Related Work section, looked into potential CT concepts and patterns that should be in-scope
- Looking into setting up a use case for Direct Instruction walkthrough in UAT

Milestones and Future Work

In the second half of the semester, we will complete the remaining DevOps tasks (including migration of the **sage-scratch** and **scratch-analyzer** repositories from GitHub to TFS, and expansion of our test suites), then shift focus to completing several POCs for the Intelligent Hinting MVP, integrating workstreams from other teams into SAGE, conducting field studies, and preparing for publication.
We've also defined three stretch goals. If time allows, we will focus on these following completion of our other goals. Alternatively, these could be addressed in future semesters

1. **Intelligent Hinting - Chatbot POC** - Use our trained model as a decider in an n-gram analyzer to create a proof-of-concept chatbot, that would provide intelligent hinting to students on-demand through a natural language chat interface.
2. **Configuration management** - Automated setup for shared and local dev environments, performed through Ansible, Puppet, or Chef to accelerate future research teams and allow for repeatable environment builds, and configuration-as-code for shared environments (Dev, UAT, Prod).
3. **Interactive Intelligent Hinting Analysis and Framework** -

Task	Date	Status
Facilitate Lab Interaction, increase Lab productivity, & enhance Lab's workflow/processes	Sprint 0 to 5	On Track
DEV/CI Environment Deploy Automation and Unit Test Framework complete	Sprint 1 - 03/01	Completed
Complete baseline version and enable of SAGE Continuous Integration	Sprint 1 - 03/01	Completed
Design, prepare and distribute Survey	Sprint 1 - 03/01	Sync with Jeff on timing
Design Field Studies	Sprint 1 - 03/01	Sync with Jeff on timing
Midterm Code Check-in by all SAGE Teams; pass all Continuous Integration Tests	Sprint 2 - 03/15	Sync with Jeff on timing
UAT Push-on-green + project lead approval complete for sage-node, sage-frontend	Sprint 2 - 03/15	Sync with Jeff and Alex

UAT Push-on-green + project lead approval complete for sage-scratch, scratch-analyzer	Sprint 3 - 03/29	
Conduct and Summarize Field Studies	Sprint 4 - 04/12	Sync with Jeff on timing
Complete Intelligent Hinting (text hint, block-shaking) with Decision Tree POC	Sprint 4 - 04/12	
SMTP on Dev and UAT	Sprint 4 - 04/12	
Intelligent Hinting - ANN POC	Sprint 4 - 04/26	
Intelligent Hinting - Frontend integration v0.1 (multi-layer hinting, on-demand hints, SAGE points integration)	Sprint 4 - 04/26	
Intelligent Hinting - Chatbot POC - *Stretch Goal*	Final Report Sprint - 05/03	
Configuration management - automated setup for shared and local dev environments - *Stretch Goal*	Final Report Sprint - 05/03	
Interactive Intelligent Hinting Analysis and Framework - *Stretch Goal*	Final Report Sprint - 05/03	
Code Freeze and Final Spring 2018 CI Build, Final Report and Presentation	Final Report Sprint - 05/03	
Complete First Draft of SAGE Feasibility Study	Final Report Sprint - 05/03	
Documentation and Code migration	05/31	