SAGE Integration, GIT, Feasibility Study Support

Midterm Report

COMS6901 – Projects in Computer Science, Spring 2018

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Contents

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 1) DevOps tasks, in order to facilitate work by other researchers, and 2) preparation for field studies.

Accomplishments

SAGE Integration

The following are a list of completed tasks up to the date of this report:

- Created Continuous Integration build in TFS to trigger on every commit
- Setup Development and Test Node.js services under IIS to enable Continuous Deployment
- Migrated the CU-SAGE Github repository to TFS
- Wrote "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 on Confluence for research and studies support
- Researchers' local environment setup support
- Setup UAT mongoDB mLab environment
- Verify that Continuous Integration is working properly into UAT
- Updated SAGE system data-model

SAGE Feasibility Study

- Prepared 1st draft of the Semi-structured Interview Protocol (completed by Field Study team)
- Summarizing some Field Study Articles within the wiki's Theoretical Foundation section
- Completed Training (TC0087 - Human Subjects Protection (HSP) Training) necessary for field studies

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: 1) completing several POCs for the Intelligent Hinting MVP, 2) integrating workstreams from other teams into SAGE, 3) supporting the conduction field studies, and 4) 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
Supporting the design, prepare and distribute Survey	Sprint 1 - 03/01	Completed
Support Design of Field Studies	Sprint 1 - 03/01	Completed
Enable Midterm Code Check-in by all SAGE Teams; pass all Continuous Integration Tests	Sprint 2 - 03/15	Completed
UAT Push-on-green + project lead approval complete for sage-node, sage-frontend	Sprint 2 - 03/15	Completed
UAT Push-on-green + project lead approval complete for sage-scratch, scratch-analyzer	Sprint 3 - 03/29	On Track
Support of Implemenation and Summarization of Field Studies	Sprint 4 - 04/12	On Track

Complete Intelligent Hinting (text hint, block-shaking) with Decision Tree POC	Sprint 4 - 04/12	On Track
SMTP on Dev and UAT	Sprint 4 - 04/12	On Track
Intelligent Hinting - ANN POC	Sprint 4 - 04/26	On Track
Intelligent Hinting - Frontend integration v0.1 (multi-layer hinting, on-demand hints, SAGE points integration)	Sprint 4 - 04/26	On Track
Intelligent Hinting - Chatbot POC - *Stretch Goal*	Final Report Sprint - 05/03	On Track
Configuration management - automated setup for shared and local dev environments - *Stretch Goal*	Final Report Sprint - 05/03	On Track
Interactive Intelligent Hinting Analysis and Framework - *Stretch Goal*	Final Report Sprint - 05/03	On Track
Code Freeze and Final Spring 2018 CI Build, Final Report and Presentation	Final Report Sprint - 05/03	On Track
Complete First Draft of SAGE Feasibility Study	Final Report Sprint - 05/03	On Track
Documentation and Code migration	05/31	On Track