# SAGE Midterm Report

# Learning Metrics

Ruimin Zhao rz2390

Neng Chen nc2734

**Abstract**

Most of our progress were completed based on close discussion with our mentor during weekly meeting. The related user stories lie in the Gameful Affinity Space Epic - Learning Metrics Feature - user stories related to progress bar, spider graph, and hairball analysis. Concretely implementation and outcomes mostly lie in mLab database entities relation clarification and modification, front-end code modification so as to aggregate the metrics features onto master account and without any conflicts to other features like adding classes, and some hairball package exploration which we are currently working on.

November 8, 2018

# 1    Architecture

- Front-end: User could log in either as an instructor or as a student and then click on Metrics option from the navigation bar.

- Back-end: The mLab hosted mongoDB is connected directly with the our front-end operations such as search for metrics (spider graph or progress bar) for this logged in user.

- Database: The related collections all lie in sage-login database within the mLab hosted mongoDB server. However, these usage of NoSQL database has potential issue due to its lack of developer-defined primary key. And this was actually one of the biggest block when we tried to aggregate the metrics feature with the class feature.

- Plugin: The hairball plugin should be used to assess the game result after a game is finished and the score obtained from the hairball should be saved into database so that the metrics graphs actually show real score that make sense rather than hardcoded as what is done for now.

# 2    Implementation

- Metrics Reproduce:

    - Outcome: As described in the link `https://gudangdaya.atlassian.net/wiki/spaces/SAG/pages/579436651/Learning+Metrics+Badges+Reproduce`, a step-by-step guideline for reproducing the learning metrics progress bar and spider graph in master accounts rather than customized accounts could be seen.

    - Findings: This portion of work was mainly related to getting familiar with the database collections co-relation and the sage-frontend repository. Due to the lack of the game result generation UI, the score were manually inserted into the database and there are more than 3 collections related to one graph, which took us some time to figure out the correct schema to follow so as to reproduce them on master account.

- Hairball Exploration:

– Progress: We figured out the current working command for triggering the plugin onto a given sb2 file after looking into the source code and readme file etc. However, we are still not not able to get a score other than zero currently without modifying the hairball open-source repository itself.

- Merge Metrics into Classes:

  – Progress: We moved the Metrics feature into Classes option to avoid duplicate places holding metrics feature. However, we still have some small HTML variable transfer within AngularJS framework related issue to figure out.

# 3   Limitations and Assumptions

- Game termination front-end UI: Currently, we do not have a UI page for use to properly terminate a game and the upload the game result sb2 file onto cloud so that we could then trigger the assessment (call hairball plugin) process at a proper time.

- Hairball Package: The hairball package behaviour does not fit what had been expected for it even though we used the sample input sb2 file as the game result to be assessed.

# 4   Future Work

- Hairball: We would have to take closer look at the library itself to re-factor the hairball library to make it work for standard sb2 file provided by the scratch-analyzer repository first. And after that, we should understand the hairball package source code better and able to start to actually manipulate the code to make it able to assess our sb2 game result. This might take quite a process of trails and errors since the package source code itself is a new repository and we should also learn how plugin work etc. so as to understand the current pipeline designed and then re-factor it. In all, We might need to make more modification on the hairball repository itself and there could be a learning curve for that.