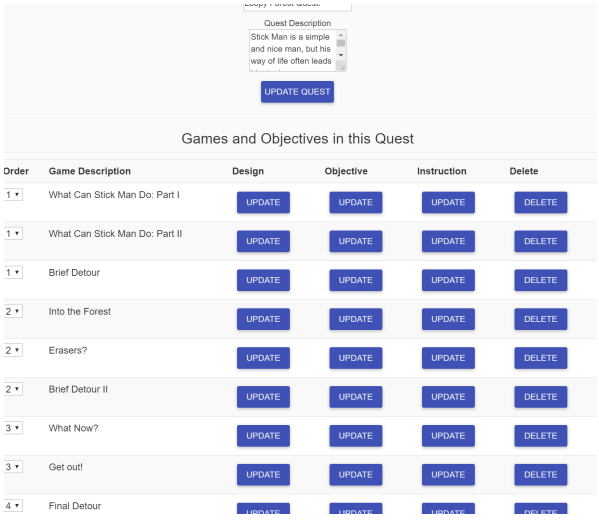
COMS 3998 Spring 2019 Midterm Report

Calvin Goah
Columbia University, New York, NY
cgg2126@columbia.edu

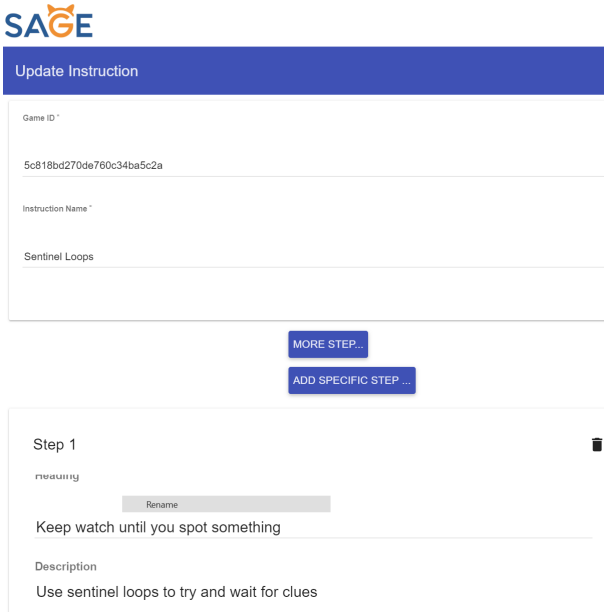
Abstract

The Feature that I've been working on so far this semester has been the Parson's Puzzle Library in the Gameful Direct Instruction Epic. My primary focus during this time period has been in constructing games for the Parson's Puzzle Design: Loops User Story while simultaneously maintaining a log of bugs encountered using the SAGE Dev. site. I've created a basic scaffolding of how I would like the games in this User Story to flow, but have only created one fully functional game. The two goals for the remainder of the semester involve actually creating more playable games inside each basic scaffold I've created, and then taking that set of games into a classroom to see how effective they are in conveying computational thinking concepts.

Architecture



The above picture shows the scaffolding that I created, and below is an inside look at the instruction associated with one of the games.

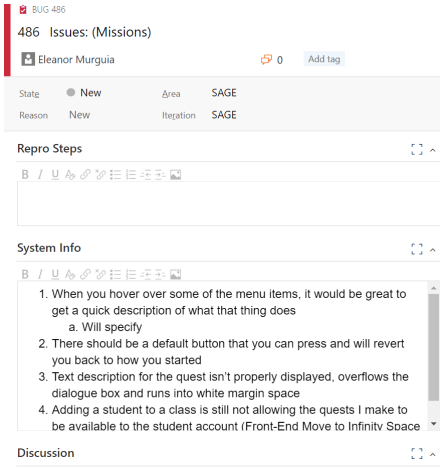


Implementation

I have been focused mainly on implementing an outline for the loop User Story. When I first started out I was just going to create games that dealt with loops, but this method didn't quite pan out as I became fixated on just the first game, "What Can Stick Man Do Part 1." I moved away from this general implementation of looping concepts to a more systematic one involving the three main loop types: Count, Sentinel, and Conditional. I then tried to create three games for each concept. Essentially, an easy, medium, and difficult level for each concept.

Limitations and Assumptions

Some of the limitations that included certain bugs within the Dev. site that prevented me from fully testing out the games I made. I've listed them in the Sage-Scratch Bugs User Story entitled "Issues: (Missions)."



Of these bugs, the one that affected my work the most was the one associated with adding students to classes in for them to be able to view the games. I had attempted to do this but the game I created in the teacher portal did not show up in the student portal. On a different note, the way I've chosen to represent these game concepts, as a stickman story incorporating loops, may not be all that great of an idea unless I test it, but to test it I need to make at least more than just one game.

Future Work

For future work, I'm hoping to create simple baseline games for each game concept in the Loop scaffolding. I want to get something concrete down upon which I can iterate. I've been overthinking about how complex these games could be and haven't focused on the most important aspect of the game, the code. The best way to populate these games is to create the Parson's Puzzle independently of the sprites (shown below), and then craft the visuals after the Parson's Puzzle itself, as opposed to the opposite, which is what I've been attempting to do but have just been overthinking everything and not achieving any tangible results. Additionally, I don't know how much time I may have towards the end of the semester, but it would be great to get these games in front of instructors and students to see how well they perform and how best to improve upon them for future researchers.