

# CS307 Sprint 3 Planning Document

Team 2 - Anant Goel, Don Phan, Jason Rahman, Jon Egeland, Josh Selbo, Levi Linville

## Prologue

### Organizational Details

Joshua Selbo will continue to lead as Scrum Master.

### Meeting Schedules and Team Policy

We will continue to hold standup meetings at 5:00 pm each Tuesday, Thursday, and Sunday. Integration meetings, which were introduced as a necessity during Sprint 2, will be held on an as-needed basis on Wednesdays at 6:30 pm.

As established in Sprint 2, team policy dictates that all members are required to attend all meetings. If a team member cannot attend a meeting, he or she shall communicate to the group progress, concerns, and feedback through the GroupMe group or via email. Each team member is expected to make a fair contribution and be proactive about communicating perceived obstacles.

### Systemic Risks

The greatest risks and difficulties in this sprint will revolve around the user experience of the game. Since we will be receiving direct feedback from our target audience after this project is completed, the greatest risk is that students are not engaged or fail to comprehend the programming material as a result of poor user experience.

## High Level Goals

The primary goal of this sprint is to implement the remaining functionality established in sprint 2 and to refine the user experience to make the overall gameplay experience engaging, fun, and functional. Other goals, such as making maintainable source code, are secondary but important as well.

### Promised Gameplay Functionality

- Gameplay Interaction
  - Speaking to characters
  - Dependent triggers (e.g. cannot advance until completed 3 previous tasks)
  - Level transitions
- Objective sets (number of objectives completed)
  - Game page UI
  - Logic implementation in game library

## Sprint 3 Stories

Story	Tasks	Owner	Est. Time
As a developer, I want the routing server code to be clean and maintainable	<ul style="list-style-type: none"> <li>Simplify complex sections of code</li> <li>Rename and refactor as needed</li> </ul>	Jason Rahman	7
As a user, I want the routing server to behave well when receiving many submissions	<ul style="list-style-type: none"> <li>Implement one of the two following mechanisms</li> <li>(A) Reject additional sessions beyond a limit</li> <li>(B) Drop sessions which are deemed senescent</li> </ul>	Jason Rahman	7
As a system administrator, I want sessions to run inside an isolated container	<ul style="list-style-type: none"> <li>Use modified or older revision of the Docker API to isolate code execution</li> </ul>	Jason Rahman	7
As a developer, I want unit tests for the app server to make development smoother	<ul style="list-style-type: none"> <li>Get initial unit tests working again</li> <li>Add unit tests for custom controller actions</li> </ul>	Jon Egeland	5
As a developer, I want behavioral tests to simulate potential use cases.	<ul style="list-style-type: none"> <li>Implement Cucumber testing framework</li> <li>Add test to simulate enrolling in a course.</li> <li>Add test to simulate user playing a level.</li> </ul>	Jon Egeland	8
As a developer, I want unit tests for the game library to ensure it functions properly	<ul style="list-style-type: none"> <li>Add tests for error conditions</li> <li>Add tests for new functionality</li> </ul>	Jason Rahman	3
As a developer, I want an automated test suite to efficiently test the entire application	<ul style="list-style-type: none"> <li>Create unified Make test rule.</li> <li>Ensure idempotency of tests</li> <li>Add options for sub-testing.</li> </ul>	<b>Many</b>	
As a developer, I want the execution server to have automated testing of its communication	<ul style="list-style-type: none"> <li>Create makefile to run tests</li> <li>Add tests of inbound messages</li> <li>Add tests of outbound messages</li> </ul>	Levi Linville	8
As a developer, I want the execution server to have	<ul style="list-style-type: none"> <li>Create makefile to run tests</li> <li>Add tests of state retention</li> </ul>	Levi Linville	8

automated testing of its internal state and code execution	<ul style="list-style-type: none"> <li>• Add tests of code execution</li> </ul>		
As a level designer, I want to tool to ensure my levels conform to the requirements	<ul style="list-style-type: none"> <li>• Refactor level parsing code</li> <li>• Write level checking tool</li> <li>• Test and train users on tool</li> </ul>	Josh Selbo	3
As a system administrator, I want student code to be restricted	<ul style="list-style-type: none"> <li>• Choose between options</li> <li>• A) Get Restricted Python to work with Boost.Python</li> <li>• B) Revert to import ban</li> </ul>	Levi Linville	5
As a user, I want a confirmation dialog for class removal	<ul style="list-style-type: none"> <li>• Enable a flash message that will display the appropriate information</li> <li>• Double check the database to make sure the change has been saved</li> </ul>	Anant Goel	2
As an instructor, I want student management to be secure	<ul style="list-style-type: none"> <li>• Create student management view</li> <li>• Redirect Student management to new page</li> <li>• Implement confirmation of changes</li> <li>• </li> </ul>	Jon Egeland	5
As a non-registered user, I want to have some basic functionality	<ul style="list-style-type: none"> <li>• Guest views for courses</li> <li>• Guest views for levels</li> <li>• Define Guest abilities</li> <li>• Ensure blank user accounts do not throw errors.</li> </ul>	Jon Egeland	5
As a user, I want an improved search experience so I can find things more quickly	<ul style="list-style-type: none"> <li>• Implement Tag searching for courses</li> <li>• Suggest courses based on previous enrollments/completions</li> </ul>	Jon Egeland	8
As a user, I want levels to have objective lists	<ul style="list-style-type: none"> <li>• Add objective information to game state</li> <li>• Make exit trigger dependent on objectives</li> <li>• Add mechanism to satisfy objectives</li> <li>• Develop tests as needed</li> <li>• Add UI components</li> </ul>	Jason Rahman	10

As a developer, I want tilemap IDs to be clearly defined so we know which tiles are impassible and which are passable	<ul style="list-style-type: none"> <li>• Select appropriate tiles for indoor (Passable) v.s. outdoor (Impassable)</li> <li>• Update game library with new tile choices</li> </ul>	Don Phan	4
As a student, I want submission error information clearly displayed in the UI	<ul style="list-style-type: none"> <li>• Parse received error message</li> <li>• Implement UI to highlight problematic line in Ace editor and present popover with error message text</li> </ul>	Josh Selbo	4
As a student, I want a refined gameplay experience	<ul style="list-style-type: none"> <li>• Refine game page UI (vertical center canvas, etc.)</li> <li>• Provide visual cues to indicate where the user should focus his or her attention</li> <li>• Miscellaneous experience improvements</li> </ul>	Josh Selbo	6
As a student, I want my hero's name to be included in game dialogue (Optional)	<ul style="list-style-type: none"> <li>• Add custom username support (If not already present)</li> <li>• Add placeholders to level format</li> <li>• Add substitution in game library</li> <li>• Inject into routing server submission from app server</li> </ul>	<b>Many</b>	
As a student, I want to choose my hero's gender.	<ul style="list-style-type: none"> <li>• Present a gender selection screen for user</li> <li>• Store gender selection in course-specific settings for user</li> </ul>	Josh Selbo	3
As a developer, I want to have maintainable code that conforms to Javascript best practices in the game implementation	<ul style="list-style-type: none"> <li>• Convert Javascript recursive iteration to use Phaser event timer</li> <li>• Change variable and method names to be more consistent</li> </ul>	Josh Selbo	2
As a student, I want the hero to interact with NPCs in the game	<ul style="list-style-type: none"> <li>• Implement double-dispatch pattern</li> <li>• Add speak interactions</li> <li>• Add other interactions</li> <li>• Add new fields to level format</li> </ul>	Jason Rahman	10

As a student, I want terrain that changes in response to game actions (Door opens, etc) (Optional)	<ul style="list-style-type: none"> <li>• Provide trigger dependency mechanism</li> <li>• Update logging to support new log entry</li> <li>• Update UI to handle terrain change log (Is this possible?)</li> </ul>	Josh Selbo	5
As a developer, I want to create the final 3 levels of the game.	<ul style="list-style-type: none"> <li>• Array Level</li> <li>• String Level</li> <li>• Last Level that will review everything that has been done.</li> <li>• Each level will have corresponding</li> </ul>	Don Phan	10
As a developer, I want to refactor the tile maps that were created in Sprint 2.	<ul style="list-style-type: none"> <li>• Make them more pleasing to the eye</li> <li>• Make paths to force the student to go through all NPCs</li> <li>• Edit dialogue to make it more middle school friendly</li> <li>• Fix the properties of the tiles so the game library can read them properly.</li> </ul>	Don Phan	8
As a developer, I want the problems to be tested and checked if they are age appropriate.	<ul style="list-style-type: none"> <li>• Go over with them with Phil.</li> <li>• Check if the problems I came up with this sprint and last sprint can be answered within our game.</li> </ul>	Don Phan	5
As a student, I want to be able to complete a level and proceed to the next one.	<ul style="list-style-type: none"> <li>• Implement level exit trigger to reload canvas with provided level id.</li> </ul>	Josh Selbo	2
As a user, I want to be able to have a user-friendly tutorials page.	<ul style="list-style-type: none"> <li>• Finish the remaining portions of the Tutorials page.</li> <li>• Add images/snapshots of the game page to increase user understanding.</li> </ul>	Anant Goel	3
As a student I want to have a warning before I withdraw from a course	<ul style="list-style-type: none"> <li>• Enable a flash message to ask if the student is sure they want to withdraw from the course</li> <li>• Make sure that the check exists for all cases</li> </ul>	Anant Goel	2

As a user, I want to have a user-friendly and pleasing site to play the game on.	<ul style="list-style-type: none"> <li>• General site improvement, improving views where possible.</li> <li>• Adding more links, pages, as seen necessary.</li> </ul>	Anant Goel	10
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## Backlog

These user stories arose during sprint 2 development.

- As a developer, I want messages between the different servers to be more consistent
- As a developer, I want the routing server code cleaned up for easier future development
- As a developer, I want to keep game client logic maintainable by converting recursive iteration to use the Phaser event timer

The following user stories are low-priority, optional user stories continuing from the sprint 2 backlog.

- As a student, I want to be able to play levels of the game in another programming language in addition to Python.
- As an administrator, I want the entire system to be easily deployed to common hosting providers.