Sprint 2 Planning

CS 307 Group 16 | Kyle Day, Jason Seeley, Stefan Gerber, Yuchuan Huang

Sprint 2 Overview:

In this sprint we plan to build off of our current game engine by adding more functionality, adding in more player statistics and enemy movements, as well as more intricate level generation algorithms. These will help increase the game's overall immersion.

SCRUM master: Yuchuan

Weekly Meetings:

    <u>With Project Coordinator</u>: Standup meeting every Tuesday 6PM - 7PM & Thursday 7:30PM-8:30PM

    <u>Without Project Coordinator</u>: Open discussion and programing every Tuesday Starting 7PM & Thursday Starting 8:30PM

Risks and Challenges for this sprint:

There should not be too many risks or challenges for this sprint. It will mainly be dealt in optimizing previously attained user stories. Additionally we will be implementing some other very simple user stories that are largely built off of our previous work.

<u>**Current Sprint Detail**</u>

Game Engine:

1. As a user I would like the ability to be able to view or examine terrain and enemy stats on mouse click. (Stefan 5hrs)

Number	Description	Estimated Time	Owner
1	Create an on-context-menu menu. This potentially could look like a sidebar menu. The interpreted tile information should appear here.	2hrs	Stefan

2	Allow the menu to be displayed on either a mobile long press or two finger click	2hrs	Stefan
3	Test that menu appears on various operating systems and browsers	.5hrs	Stefan
4	Test that empty tiles are displayed properly and do not cause errors	.5hrs	Stefan

Acceptance Criteria:

- Given a valid game state, when the player on any device tries to inspect a tile's details, then a menu should appear displaying that information.
- Given that a player is inspecting a tile, when the player loads the context menu, then all of the game objects upon the tile should be displayed
- Given that a player is inspecting a tile, when a player is displaying all of the objects in a tile, then they should be nicely formatted with an image and name for reference
- Given that a player is inspecting a tile, when a player is displaying all of the objects in a tile, then they should be parsed in a way that displays all statistics and attributes of the tile
- Given that a player is inspecting a tile, when a player no longer wishes to inspect the tile, then they are able to close the menu by losing focus of the sidebar menu

2. As a user, I would like there to be a home screen with the title of the game and start game button. (Stefan 2hrs)

Number	Description	Estimated Time	Owner
1	Create scenes that play in the background of the home page to entice players to start playing Test that slideshow works	.5hrs	Stefan
2	Allow the login menu to be a toggleable popup.	.5hrs	Stefan
3	Display leaderboard and description of game on homepage	.5hrs	Stefan
4	Test that the leaderboard display is accurate, Test that the leaderboard loads asynchronously or with a reload button Test that the leaderboard is responsive for all screen	.5hr	Stefan

	sizes Test the functionality and verify it does not collide with different screen sizes		

Acceptance Criteria:

- Given that a user loads in the main page, when a user observes page content, then there should be no ill-displayed (not centered, overlapping) elements on various screen sizes
- Given that a user loads in the main page, when a user wants to learn information about the game, then they can easily view some basic information about the game
- Given that a user loads in the main page, when a user wishes to play the game, then the login or start game button is always easily accessible.
- Given that a user loads in the main page, when a user wishes to view the leaderboard then it must be easily accessible to them
- Given that a user loads in the main page, when a user wishes to view the most current version of the leaderboard, then the leaderboard automatically refreshes every 30 seconds or they may be able to tap a reload button to trigger a refresh

3. As a user I would like the ability to log into my profile and save my game states. (Stefan 5.5hrs)

Number	Description	Estimated Time	Owner
1	Create prepared SQL statements to prohibit potential injections	1hrs	Stefan
2	Test that logging in and account creation is actually possible	.5hrs	Stefan
3	Test malicious SQL statements	.5hrs	Stefan
4	Test that username and password requirements are required	.25hrs	Stefan
5	Test that various save states are recoverable	.25hrs	Stefan
6	Create a user profile page	2hrs	Stefan

Acceptance Criteria:

- Given that a user wishes to create an account, when the user enters a username and password, then they will become a logged in user
- Given that a user wishes to create an account, when the user enters a username or password that fails the requirements (password too short, already taken username, username too short), then an account will not be created and they will be prompted to try again
- Given that a malicious actor wishes to cause an SQL injection attack, when the actor attempts to perform the injection, then they will fail
- Given that a user is logged in, when they play the game, then their game state is automatically saved and is recoverable for the next time they wish to log in
- Given that a user is logged in, when they wish to no longer be logged into their account, then they have the ability to log out by pressing the logout button

4. As a user, I want a music track to play for each level. As a user, I want the ability to change the volume settings of music and sound effects in the pause menu. (Stefan 6 hrs)

Number	Description	Estimated Time	Owner
1	Each level must have a music level associated with it and its theme	2hrs	Stefan
2	Test that each new level loads its correct track	.5hrs	Stefan
3	Test that the audio plays on different devices and browsers	.5hrs	Stefan
4	Add volume sliders to the settings menu to replace the toggle buttons	2hrs	Stefan
5	Test that the sliders are able to manipulate sound effect and music volumes	.5hrs	Stefan
6	Test that the audio does not affect performance	.5hrs	Stefan

Acceptance Criteria:
- Given that a player is playing the game, when a new level is reached, then the music theme will change to the appropriate track

- Given that a player is playing the game, when they wish to hear sound effects or music, then they are able to toggle the volume with the volume sliders
- Given that a player has toggled the volume sliders, when they play the game, then their settings must be saved for this session
- Given that a player has toggled the volume sliders, when they restart a new session, then their settings must carry over in the browser settings
- Given that a player is playing the game, when they wish to diminish the volume of a sound effect or the music, then they are able to with the volume sliders

5. As a user, I would like a pause game button, which brings me to the settings screen. (Stefan 4.5hrs)

Number	Description	Estimated Time	Owner
1	Create a key bind menu which will allow for any key to be mapped to any action	2hrs	Stefan
2	Verify keybinds can be set and that they are persistent as a browser parameter	.5hrs	Stefan
3	Add the escape key to the event listener bound to the settings menu and make sure the menu stays open if toggled by the button	.5hrs	Stefan
4	Test that the bound keys are able to perform their intended action	.5hrs	Stefan
5	Test to see if controllers are supported	1hr	Stefan

Acceptance Criteria:
- Given that a player is playing the game, when they wish to access the settings menu, then they are able to press the escape key to open the menu which will keep it open until it is closed
- Given that a player is playing the game, when they wish to close the settings menu, then they are able to press the escape key and the menu will close
- Given that a player is playing the game, when they wish to reassign a key's functionality then they are able to do so in the settings menu
- Given that a player has customized keybinds, when they wish to be reverted to the default controls, then there must be a button to accomplish this

- Given that a player has customized keybinds, when the player plays on the same browser, then the keyboard controls must be preserved

6. As a user, I would like there to be an end screen, for when a player dies and doesn't beat the game, also for when the player beats the game. (7 hrs)

Number	Description	Estimated Time	Owner
1	Create a game log for each user that details their moves and scores	2hrs	Stefan
2	Create end screens	1hr	Stefan
3	Parse the game log to determine a player's statistics for their run	1hrs	Stefan
4	Add their final score to the leaderboard	1hr	Stefan
5	Test that the proper end game screens are displayed when required	.5hr	Stefan
6	Test that the game log is accurately describing each turn	.5hr	Stefan
7	Test that users are able to view the log of their game	.5hr	Stefan
8	Test that the game log is accurately parsed to determine the correct game statistics	.5hr	Stefan

Acceptance Criteria:
- Given that a player is playing the game, when their health has run out, then a death screen appears
- Given that a player is playing the game, when they have completed the final level without dying, then a congratulatory win screen will appear
- Given that a player has concluded their run through, when they either die or win, then their score will be added to the leaderboard
- Given that a player has concluded their run through, when they either die or win, they are able to see their playthrough statistics
- Given that a player has previously played a game, when they wish to see their past scores, then they are able to view their scores on their user profile page

Level Generation:

7. As a user, I want to complete a level by finding the staircase(s) to the next level. Defeating all mobs or collecting all items is not necessary. (10 hours)

Number	Description	Estimated Time	Owner
1	Integrate staircase game object into level generation algorithm	4 hours	Kyle
2	Add ability for multiple staircases on each level	3 hours	Kyle
3	Test multiple functioning staircases are on each level	1 hour	Kyle
4	Test that player placement on next level does not interfere with game playability	2 hours	Kyle

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Acceptance Criteria:
- Given a user is traversing a generated level, when they step on a staircase, then the player is placed appropriately in a new level (on the traversable game path).
- Given a player has not defeated any creatures on a level and has not picked up any items, when they step on the staircase, then the player is placed on the next level without issue.
- Given a player has taken a staircase to a new level and is placed properly, when they try to find the next staircase, then no terrain objects or hazards should completely stop the player from finding and stepping on the staircase.
- Given a generated level, when traversing the level, then there is a possibility of multiple staircases occurring (each with proper functionality) which will take the player to different levels.

8. As a user, I want the procedurally generated level maps to make sense and be completable/traversable. The staircase to the next level is accessible because it's on a traversable path. (12 hours)

Number	Description	Estimated Time	Owner
1	Create 2 more level generation algorithms	5 hours	Kyle

2	Integrate ability for multiple level generation algorithms while in a playthrough	4 hours	Kyle
3	Test multiple generation algorithms are used in a playthrough	1 hour	Kyle
4	Test path carving on each level is actually creating a traversable path (staircase is accessible)	2 hours	Kyle

Acceptance Criteria:

- Given a game playthrough, when a player steps on a staircase, then a level generation algorithm is selected out of many and the level is generated accordingly (the difference in algorithms used for the level generation will be visually distinguishable).
- Given there are multiple level generation algorithms, when a player is exploring all types of these generated levels, then there must be a traversable path on each one (staircase is accessible and not blocked off by any terrain or hazards).
- Given that a user is placed on a newly generated level, when the player tries to move, then they are able to move in a way that allows them to reach the staircase to the next level.

9. As a user, I would like there to be the same bosses, some of which are optional depending on path selected, across each new game playthrough. (10 hours)

Number	Description	Estimated Time	Owner
1	Create multiple bosses as Creatures part of game object	5 hours	Kyle
2	Assign a boss to the correct levels in the level generation algorithm	3 hours	Kyle
3	Test that boss levels are same across multiple playthroughs	2 hour	Kyle

Acceptance Criteria:
- Given that a player is on a boss level, when a player explores the level, then a boss creature will appear.
- Given that a player is on a boss level, when the player sees a boss, then the boss must be visibly different from basic creatures.

● Given multiple playthroughs, when a player is traversing levels, then every boss level must have the same bosses across each playthrough.

Entity Intelligence:

10. As a user, I would like mobs to attack me through melee attacks/shooting/spells. (Yuchuan 19hrs)

Number	Description	Estimated Time	Owner
1	Define each item's attack range which will determine if a target is in range	2hrs	Yuchuan
2	Create functions for handling different attacking styles (melee, shooting, spells) which will be used dependent on a creature's held item	6hrs	Yuchuan
3	Create algorithm for non player creatures to decide whether to attack a target, move closer to the target, or move further away from a target	7hrs	Yuchuan
4	Allow for movement_api to receive non movement commands such as attacking	2hrs	Yuchuan
5	Define default action for each type of game object	2hrs	Yuchuan

Acceptance Criteria:
● Given that a player is playing the game, when a creature becomes in attacking range of the player, then the creature may attack or move away
● Given that a player is playing the game, when they pick up a weapon, then the player's attack range will be dependent on the weapon
● Given that a player is playing the game, when they click on a tile, then the tile's default action (movement or attack) will be performed based on the tile's circumstances
● Given that a player wishes to attack, when the attack button is pressed, then they will be shown all of the spaces in which they can attack
● Given that a player has pressed the attack button, when a tile within their weapon's range is selected, then the weapon's attack on that tile must be performed

11. As a user, I would like to start out with maximum health and have the game end when I run out of health. (Yuchuan 4hrs)

Number	Description	Estimated Time	Owner

1	Assign maximum health to the player through race system	1hr	Yuchuan
2	Update current hp when the player loses hp/gains hp	1hr	Yuchuan
3	End the game when the player's hp drop to zero	2hrs	Yuchuan

Acceptance Criteria:
- Given that a player has created a new game session, when they load into the game, then their maximum is set based on their chosen character's starting statistics
- Given that a player is playing the game, when they are attacked by a creature, then their health diminishes in correspondence with the attack
- Given that a player is playing the game, when they are attacked by a creature, the amount of damage inflicted should be displayed as an alert to the player
- Given that the player is playing the game, when enough damage is inflicted to the player to cause their health to drop to zero, then a death message must be sent to the client to call the death screen
- Given that the player has died, when they wish to play another round of the game, then they are able to press the start new game button

12. As a user, I would like the mob die and be removed from the map when they run out of health (Yuchuan 7hrs）

Number	Description	Estimated Time	Owner
1	Assign maximum health to each creature	2hrs	Yuchuan
2	Reduce the HP of creatures when players attack them	4hrs	Yuchuan
3	Remove a creature from the game if his HP drops to zero	1hr	Yuchuan

Acceptance Criteria:
- Given that a creature is generated on the map, when it spawns, it must have a defined maximum health value.
- Given that a player attacks a creature, the creature's health should decrease by the appropriate amount.

- Given that the creature's health reaches zero or below, it will be counted as dead and will no longer move/attack.
- Given that a creature is dead, it will be removed from the game.

Game Content/Balancing:

13. As a user, I would like to have statistics including: health, attack, defense, level according to experience points, and special abilities that boost or diminish user related movement, speed, attack range, and enemy tracking. (Jason 16hrs)

Number	Description	Estimated Time	Owner
1	Build active ability framework	8 hours	Jason
2	Create the subtleties of the different forms of active abilities	3 hours	Jason
3	Create experience point system	5 hours	Jason

Acceptance Criteria:
- Given a player or enemy has an ability and the resources to use, it, they should be able to activate the ability and its effects should take place
- Once an ability is activated, it takes away resources from the creature that activated it
- Once a monster is killed, experience points are added to the player
- Once the experience threshold of the next level is achieved, the player levels up

14. As a user, I would like a mob to die and leave a corpse behind when it runs out of health. (Jason 2hrs)

Number	Description	Estimated Time	Owner
1	Create death functionality in each creature	1 hour	Jason
2	Create corpse decor object	1 hour	Jason

Acceptance criteria:
- Given that a player is playing the game, when a creature runs out of health, then it dies and is no longer fightable
- Given that a player is playing the game, when a creature dies, then it should leave behind a corpse

- Given that a player is playing the game, when a creature is eliminated, then the players score will update based on the statistics of the killed creature

15. As a user, I would like the ability to pick up and use different items, including: potions which increase certain statistics temporarily and armor/gear that I can wear/use. (Jason 12hrs)

Number	Description	Estimated Time	Owner
1	Finish Equipment System	4 Hours	Jason
2	Create Enchantment System	6 Hours	Jason
3	Create Armor and Potion Items	2 Hours	Jason

Acceptance Criteria:
- Given the player is playing the game, when the player equips an item, then the item's stat changes should be applied to the player character
- Given the player is playing the game, when the player unequips an item, then the item's status changes should be removed from the player character
- Given the player is playing the game, when an item generates that is able to be equipped, then it has a chance to gain an enchantment, the chance and strength of that enchantment should be based on the current depth
- Given the player is playing the game, when the player drinks a potion then the potion should alter the player's statistics

Summary of Efforts

Member Name	Focus	Effort in Hours
Stefan	Game Engine	30
Kyle	Level Generation	30
Jason	Player Statistics	30
Yuchuan	Enemy Movement	30

Gantt Chart:

Task	Owner	START DATE	DUE DATE	WEEK 1					WEEK 2					WEEK 3				
				M	T	W	R	F	M	T	W	R	F	M	T	W	R	F
Game Engine:																		
As a user I would like the ability to be able to view or examine terrain and enemy stats on mouse click.	Stefan	10/14/24	10/20/24															
Create an on-context-menu menu. This potentially could look like a sidebar menu. The interpreted tile information should appear here.	Stefan	10/14/24	10/20/24															
Allow the menu to be displayed on either a mobile long press or two finger click	Stefan	10/14/24	10/20/24															
Test that menu appears on various operating systems and browsers	Stefan	10/14/24	10/20/24															
Test that empty tiles are displayed properly and do not cause errors	Stefan	10/14/24	10/20/24															
As a user, I would like there to be a home screen with the title of the game and start game button.	Stefan	10/14/24	10/20/24															
Create scenes that play in the background of the home page to entice players to start playing Test that slideshow works	Stefan	10/14/24	10/20/24															
Allow the login menu to be a toggleable popup.	Stefan	10/14/24	10/20/24															
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As a user I would like the ability to log into my profile and save my game states.	Stefan	10/21/24	10/27/24															
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Create a user profile page	Stefan	10/21/24	10/27/24															
As a user, I want a music track to play for each level. As a user, I want the ability to change the volume settings of music and sound effects in the pause menu.	Stefan	10/21/24	10/27/24															
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As a user, I would like a pause game button, which brings me to the settings screen.	Stefan	10/21/24	10/27/24															
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Add the escape key to the event listener bound to the settings menu and make sure the menu stays open if toggled by the button	Stefan	10/21/24	10/27/24															
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Level Generation:																		
As a user, I want to complete a level by finding the staircase(s) to the next level. Defeating all mobs or collecting all items is not necessary	Kyle	10/14/24	10/20/24															
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Create 2 more level generation algorithms	Kyle	10/21/24	10/27/24															
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Assign a boss to the correct levels in the level generation algorithm	Kyle	10/28/24	10/30/24															
Test that boss levels are same across multiple playthroughs	Kyle																	

Entity Intelligence:

As a user, I would like mobs to attack me through melee attacks/shooting/spells.	Yuchuan	10/14/24	10/20/24
Define each item's attack range which will determine if a target is in range	Yuchuan	10/14/24	10/20/24
Create functions for handling different attacking styles (melee, shooting, spells) which will be used dependent on a creature's held item	Yuchuan	10/14/24	10/20/24
Create algorithm for non player creatures to decide whether to attack a target, move closer to the target, or move further away from a target	Yuchuan	10/14/24	10/20/24
Allow for movement_api to receive non movement commands such as attacking	Yuchuan	10/14/24	10/20/24
Define default action for each type of game object	Yuchuan	10/14/24	10/20/24

Game Balancing:

		10/14/24	10/20/24
As a user, I would like to start out with maximum health and have the game end when I run out of health.	Yuchuan	10/21/24	10/27/24
Assign maximum health to the player through race system	Yuchuan	10/21/24	10/27/24
Update current hp when the player loses hp/gains hp	Yuchuan	10/21/24	10/27/24
End the game when the player's hp drop to zero	Yuchuan	10/21/24	10/27/24
As a user, I would like the mob die and be removed from the map when they run out of health	Yuchuan	10/28/24	10/30/24
Assign maximum health to each creature	Yuchuan	10/28/24	10/30/24
Reduce the HP of creatures when players attack them	Yuchuan	10/28/24	10/30/24
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As a user, I would like to have statistics including: health, attack, defense, level according to experience points, and special abilities that boost or diminish user related movement, speed, attack range, and ener	Jason	10/14/24	10/20/24
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Create the subtleties of the different forms of active abilities	Jason	10/14/24	10/20/24
Create experience point system	Jason	10/14/24	10/20/24
As a user, I would like a mob to die and leave a corpse behind when it runs out of health.	Jason	10/21/24	10/27/24
Create death functionality in each creature	Jason	10/21/24	10/27/24
Create corpse decor object	Jason	10/21/24	10/27/24
As a user, I would like the ability to pick up and use different items, including: potions which increase certain statistics temporarily and armor/gear that I can wear/use.	Jason	10/28/24	10/30/24
Finish Equipment System	Jason	10/28/24	10/30/24
Create Enchantment System	Jason	10/28/24	10/30/24
Create Armor and Potion Items	Jason	10/28/24	10/30/24

3. Remaining User Stories: Backlog

    (a) Include all the other user stories from your Product Backlog document.

Level Generation:
1. As a user, I would like there to be changes in the map textures based on the different level themes (caves, sewer, ziggurat, etc. have their own styles).

Gameplay and Statistics:
1. As a user, I would like there to be non-playable characters with optional dialogue. The NPCs will talk with the player by displaying text on the screen if the player chooses the option to talk.
2. As a user, I would like to have an overall score, that increase with defeating monsters, collecting items
3. As a user, I would like the score to be displayed that will be displayed within the game and on a competitive leaderboard
4. As a user I would like certain mobs to have the ability to destroy the terrain.
5. As a user, I would like there to be an overarching narrative/story that is presented to the user through text (boxes and screens), so that I understand why I am going through the dungeon and defeating enemies.

Audio/Visual:
1. As a user, I would like to see animated sprites and textures.
2. As a user, I would like the ability to change textures, meaning edit player and mob sprites as well as the map components.