Enemy AI

1. What are you trying to achieve?

This prototype was designed to work out the enemy AI. Specifically how the enemy pathfinding worked.

2. Who worked on the prototype

Hayden

3. How long the prototype took to complete

The prototype took around a day to complete. Initially I got the pathfinding working using the lab material however I had some difficulty getting it to correctly work when using raycasting to detect if the player was within a specific distance/radius of the monster. The first problem I had was due to not correctly adding the angle (delta) to be used in the point calculation. This took me a while to figure out as I copied the OnDrawGizmos() method and it was being calculated correctly in there so the red lines were being drawn correctly while the rays were not being cast directly.

4. What decisions did you make based on the prototype? What worked and what didn't?

Based on the prototype we decided to stick with our idea of having the enemies spawn in the map and having the pathfinding triggered when the player gets a certain distance from them. Once properly set up using raycasting to trigger the pathfinding algorithm successfully worked. One thing that I discovered was that with multiple AI all the AI end up following the same path after crossing over which may cause boring gameplay if all the enemies are doing the same thing

5. What new questions / prototypes arose from this one?

Some questions that came from this prototype were implementing different random behaviors to the enemy AI. Currently, when there is more than one AI chasing the player, because of the nature of A* all the enemies ends up following the same path. A question i had from this is how am I going to change this in the final game as it may cause boring gameplay. Could I change the heuristic used in A* so that it favours paths that are not being travelled by other AI. Do I need to generate other behaviours/states that can the AI may do randomly to change their behaviour.

The player movement in the AI/parhfinding prototype is controlled by a clicking the mouse on the game screen.

Rage System

What are you trying to achieve?

Create the skeleton of the rage system. Basic UI elements, and prove that it can work.

Who worked on the prototype?

Aidan

How long the prototype took to complete.
The prototype itself took around 4 hours to get working. The rest of the time was just me planning what to do once I had all of the pieces to create the final prototype. Initially when working on the prototype for this system I did not have access to our other features like the character movement, damage system, etc. This created a small roadblock in the creation of the prototype, so I created a simple movement system to have a playable character and then began writing a script for the players “abilities”. I tested the script with the unity debug function and managed to get a good blueprint that I plan to complete when we combine all of our progress into the main directory.

What decisions did you make based on the prototype? What worked, what didn't?
In the beginning, my idea for testing the rage bar was to add a UI slider that would fill up with rage points up to a maximum of 100 points. This proved impractical at the time because of scaling issues with the bar on the game screen (the underlying system would work but the slider would fill up instantly instead of filling up incrementally as planned). As a workaround, I opted to use a simple text UI element to represent the rage meter. This worked as intended and allowed me to visualize the rage system in game, or at least the early version of the system. As for the code for the prototype, it seemed to be relatively straightforward. I see the prototype becoming more complex when I replace the debug statements with their actual features.

What new questions / prototypes arose from this one?

- Am I going to have to rethink the implementation of the UI bar of the system?
    - Do I use unity’s built in UI systems?
    - Do I create my own bar using sprites and states?
- How am I going to implement a fun version of this system once I have all of the pieces I need?
- What animations does this need?
- This one experience actually opened my eyes in terms of how much the art and animation side of the game will be so for now I am going to completely rethink my workflow, simplify the art, decrease the scale of the sprites to 16x16, and focus on the feel of the game and the animations we need (not really a question)
- Am I going to need more than one script to fully flesh this system out?

Movement prototype

<u>What are you trying to achieve?</u>

Create a prototype for the movement controls and walking animations for the player character. Trying to make the movement look smooth.

<u>Who worked on the prototype?</u>

Nick Garner

How long the prototype took to complete.

The prototype took around 4 hours to get working to a standard that I was happy with. Using the animation lab and a few youtube tutorials I was able to adjust the animations with the movement and have the main camera follow the player around as they move around the placeholder map I made for the prototype. I still plan on prototyping one more movement mechanic and that is a dash/blink mechanic where the player will 'blink' to another coordinate in the direction that the player is moving with the wasd keys with a certain hotkey.

What decisions did you make based on the prototype? What worked, what didn't?

The movement keys wasd is more effective for use than the arrow keys with our other planned controls. I decided that we don't need more animations for the player moving diagonally as the up, down, left, right animations do the job to a satisfactory level. The camera following the player was also a decision I came to during prototyping as I feel that it would be less disorientating for the player to have the camera change from room to room as well as giving the player an experience of 'exploring' a dungeons room instead of being able to see the whole room from the start.
The animations and control worked quite well after some tinkering with the values for player speed and timings of the animations. The collider of the player character being the whole player didn't work as it kind of seems like the player's head would touch the wall instead of its body/feet. It also had some issues when trying to navigate around some obstacles.

What new questions / prototypes arose from this one?

Maybe having the player collider just be on the feet of the player character would be a better visual and playable experience.

- How would it affect other situations?
    - The raycasting from enemies
    - Projectile damage from enemies

How would the blink mechanic look/feel?
What animations is the blink mechanic going to need?
What is going to happen if the direction of blink is towards a wall / enemy / obstacle?
How is the movement going to work with the combat animations?

- Will the player stop moving when casting a spell and the combat animations will play?
- Or will there be a separate animation for the player moving and casting a spell?

With the eventual implementation of skill points, how will the animations adjust to match the increase in player character speed if skill points are allocated to speed.

Combat Prototype

What are you trying to achieve?

I was trying to create the aiming and shooting for the combat mechanics in the game. This included aiming with the mouse and the collision detection for the projectiles.

Who worked on the prototype?

Luke Hopkirk

How long the prototype took to complete?

The prototype took roughly a few hours to complete with a bit more time to polish off the debugging

What decisions did you make based on the prototype? What worked, what didn't?

I decided to change the keybind for the spell casting to the mouse button instead of space which was what we originally agreed on in our GDD. I had an issue with the projectile collisions as the projectiles were not properly colliding with the alien sprites I used as a placeholder. I managed to fix this later on however finding a box that was not properly ticked so I will be able to keep this in mind when further developing the game. The aiming prototype worked well however it provided me with some further questions for development in order to make the gameplay more fun and enjoyable as well as arising questions about spell cooldown ect.

What new questions / prototypes arose from this one?

What keybind would be best suited for the combat mechanic as the space button didnt quite feel right when aiming with the mouse most shooter games aiming with the mouse use the left click in order to fire the gun so adopting this instead of the spacebar would be more intuitive to the player.

Do we need an arrow in order to show where the person is aiming as the mouse cursor isn't that large. This could aid the player in aiming better to have an arrow coming out of the character sprite in order to guide the player on where they are aiming.

Do we need to introduce a spell cooldown between casting spells in order to stop the player from just spamming spells everywhere which would make the game more challenging.