**Types of AI that could be used for the game.**

**Follow**

The Follow AI is a simple AI that can be used throughout the whole game specifically in the early stages. This can be used in tangent with our game mechanic of “shooting to move” by adjusting the speed of the enemy’s movement. In the early stages of the game, this would allow the player to get to grips with the mechanics. Whilst during the latter stages of the games, there could be rooms with large amounts of enemies with a fast rate of movement, this can result in the player being overwhelmed with the large number of enemies and would test the player’s skill on the use of the mechanics to successfully eliminate all the enemies whilst being able to manoeuvre away from danger, depending on the weapon of choice for the player this can also subtly adjust the difficulty of the game. Weapons with a lower rate of fire would have a difficult time eliminating a large number of enemies in a room compare to a weapon with a high rate of fire.

To implement the AI, a simple code to locate the player’s position and move towards them, the player can be identified using the tag feature in Unity.

**Attacking from range**

Attacking from range has enemies fire projectiles towards the player, most likely within a specific range that is maximum, slightly less than the room to prevent the player from being instantly attacked once entering said room. The challenge this will present to the player is having to use the “shooting to move” mechanic to weave around enemy projectiles and then having to eliminate them. To escalate the difficulty there are multiple variables we can adjust or add. Faster projectile speed making it more difficult to dodge enemy fire, random movement patterns this will make hitting the enemy more difficult and increase in rate of fire, the more bullets being fired would make the player have to do more work in dodging the bullets and would have them think about they’re weapon type, as something with a low rate of fire wouldn’t allow for the lengthy amount of dodging potential that a higher rate of fire weapon would allow for.

A simple code to create a radius in which if the player steps into that radius, the enemy would turn to face the player and fire the projectile in that direction, the projectile woulduse prefabs to spawn in the projectiles, giving them travel time as previously mentioned could be adjusted to be quicker or slowly depending on the difficult needed. Likely wise the radius can be adjusted from a variable within the code.

**Patrol**

The patrol AI has enemies move from node point to node point in a looping fashion, using markings in Unity you can plot out a map of the patrol route you want. Then in the code for your enemy you tell it to move the first node, then to the next one in the sequence, repeating until you get back around to the first one, this patrol AI works well in conjunction with other AI types, for example, you can combine this with the attacking from range AI previously mentioned to have the enemy fire and the player if in range, another option would have the it be a melee attack type in which the enemy attacks in front of it, if the player is detected.

**Enraged after % health**

Once the enemy reaches below a particular health point, it could have all it’s stats multiplied by a value, this would result in it, moving faster, being more difficult to hit, shooting fast, resulting it outputting more potential damage towards the player and possible other traits the enemy might possess. This can be achieved with an if statement in which if the enemy’s health is below a certain point, the variables associated with the above receive that multiplier. This can have the possibility of throwing off the player who wasn’t expecting the changes in the enemy.

**Attack and retreat**The Attack and Retreat AI would work by having the enemy approach the player at a set speed, attacking the player, then backing up towards a certain point. A possible way of achieving this, is giving the enemy an initial attack radius in which the enemy approaches the player, then having a second radius, which is small to have the enemy attack the player. Doing so would act as a melee attack applying one strike to the player dealing X amount of damage to the player before retreating to a certain number of units from the player, before restarting the cycle after a small waiting period.