

Retrospective

23100410 - Matthew Hicks



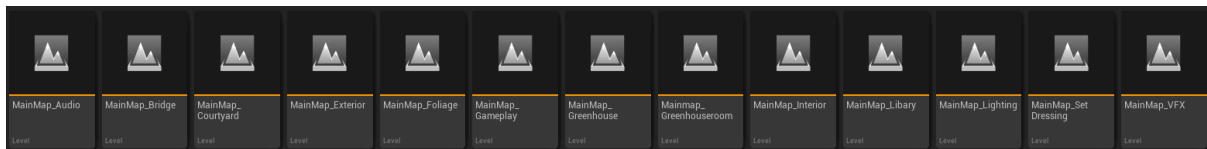
-Introduction-

For this project we were briefed to create a Kart Racing Game in Unreal Engine based on a triple A title; for team A we chose 'Hogwarts Legacy'. 'Hogwarts Legacy' is a game based on the beloved 'Harry Potter' franchise that "In nearly every way, Hogwarts Legacy is the Harry Potter RPG I've always wanted to play." (Northup, 2023). One staple of The Wizarding World is the brooms and the famous game of Quidditch that the students play competitively so merging these two different distinctions was a no brainer for us. We had 12 weeks to research, produce and polish the racing game, making it a priority to playtest our: gameplay, mechanics, level design and more to ensure we are creating the strongest industry studio project possible. Our core game pillars were: 'Wonderfully Magical', 'Speed Is Key' and 'Customisation'.



-Project Engagement-

Due to my team having two Games Designer we were able to split the workload. Joel took the abilities / pick up side of the game where I took a more gameplay and project organisation side, this entailed: everything in the main menu screen, fixing the lap system, ensuring the core game loop was implemented, making the obstacles that create a unique engaging gameplay, creating / polishing the broom movement, making sure sublevels are being correctly used, making sure most blueprints were clear and concise and more. The role I was assigned was approached with structure and proper industry practice in mind. The game's design and treatment document would always influence my decisions when a mechanic was implemented as it was important we stay loyal to what we had set. During this project my role meant communication with the other team members was crucial, both me and Joel had to know if any changes were logical and possible to be achieved by the other departments, for example ability VFX, characters and assets, we'd discuss these ideas through the means of scrum type planning. Scrum is a method of discussion where daily your team meets to identify what we are working on so everyone is on the same page with progress, here you are able to voice concerns and ideas boosting productivity.



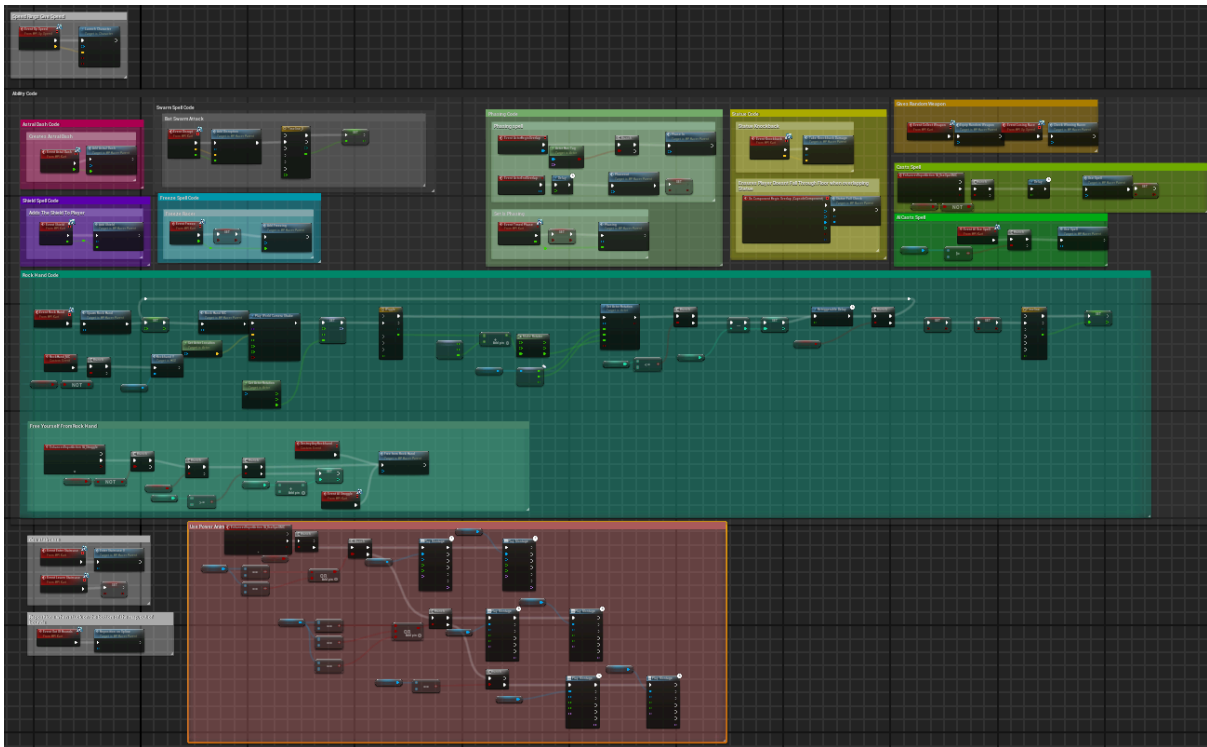
We did a lot of playtesting for this project as it had such a unique movement mechanic, it was important to identify what worked well and where the majority of playtesters thought needed improvement so we can effectively act on this, one issue that was consistently mentioned was the spiral staircase; due to the player having limited up and down camera view it became hard for the player to understand how to effectively navigate the stairs. After our meeting with the industry partners they suggested removing the flight but I was extremely sceptical about that as a high portion of playtesters loved the flight movement and how different it feels, so discussing with tutors it was brought to my attention that forcing the player to the spline could be an effective way to help the player down such an awkward area of the map. Implementing this the playtester initially found this mechanic confusing but later got the hang of how it works.



One way in which I adapted how I worked was initially I worked hard to get a working MVP of the broom flight system taking a lot of inspiration from 'Hogwarts Legacy' broom flight gameplay (IGN, 2022) the only issue with HL's flight is how sluggish it feels you don't have a lot of freedom and control of you location which is not ideal for a fast paced racing game which explores interior as well as exterior; this led to me having a lot of playtesting and value iteration to make it right. One version of our movement someone said it feels like drone controls which was ironic as the flight code was directly inspired by my drone mechanic for my specialism. Drone mechanics was not what we were aiming for so I had to go back to the drawing board and tinker more, this is where my process slowed and became more about polish than new mechanics. I found adding camera, simple movement animations and broom movement drag was all it needed to feel floaty and broom like. I'm glad I spent the time perfecting the broom as it's what makes the game fun to play. The right amount of freedom allows the players to immerse themselves in our wizarding world.

Another way I adapted my workflow was recognising I am working in a big team and others might need to use my code so commenting code and making my white lines neat, this was incredibly important for consistency and better peer understanding, optimising my use of functions with correct useful names to really help newcomers trying to find their way around things. Keeping the project and its files clean for all departments was one of my top priorities, also ensuring to educate team members on ways to better optimise where I could. There were a few instances where members would use the wrong sublevel as someone else was using the needed one

leading me to clean up the level moving all appropriate meshes, lights, etc due to this I would inform them to just communicate with others as they might be wrapping up their work or forgetting it's actually checked out this will allow overall better sublevel organisation.



Although this project was with a lot of new faces I tried my best to make sure I give my opinion on topics of discussion such as art changes or mechanic changes this helped the team to think into if something is possible or logical, as it was only an opinion it was never said as fact but instead another thought process we could use to have the best outcome for our game. I believe it is important for all members to be vocal throughout the project as they could have an amazing idea and keeping it to themselves means it might not happen. During the project I tried to encourage those people to be vocal about those good ideas which showed to have a great outcome especially when it came to the abilities.

-Technical Effectiveness-

From the start of the project when we chose our idea we tried to be fair to all departments in terms of the art, for example all our game artists specialise in realism but our character creator and tech artist specialised in stylised. Due to the sheer amount of game artist we had, it was leaning towards appealing to them and making a full realistic game but I remember a suggestion Ata mentioned that got swept under the rug, that being 'Hogwarts Legacy' with a realistic environment and fantasy creatures that could be really stylised and magic spells which could also be stylised we have an idea that everyone is happy with. This idea wouldn't have come to life if people didn't explain their concerns and voice their opinions showing that

communication is so important in a team setting like this.

Bug	Lap Box	2-High	Entering the lap box at the same time only adds time to one of the racers	1: have two or more controllers connected 2: fly into the lap box at the same time	adds individual times to each of the racers	Resolved	Matthew
Bug	Astral Ability	2-High	Player 2 spawned at 0,0,0 when uses astral ability	1: be player 2 2: use ability	it uses the ability and makes to zoom through map	Resolved	Joel
Bug	Abilities go through walls	3-Medium	When you use a projectile ability it goes through the wall and can hit plays far away	1: have a projectile ability 2: Shoot the ability	break when a projectile hits a wall	Resolved	Joel
Bug	Astral Ability doesn't register lap	2-High	When using the astral ability and you go through the lap box it doesn't register	1: use the Astral Ability when you're near the lap box 2: Be near the AI	adds a lap	Resolved	Joel
Bug	AI only uses Astral Ability when in a radius of the player	3-Medium	When the ai has the Astral Ability it only uses it when you're near it	1: Make sure the ai has the Astral Ability 2: Be near the AI	it should use it when it has it	Resolved	Joel
Bug	Controller reconnecting not working	3-Medium	When you disable a controller you're not able to reconnect when in main map	1: Be in the main map 2: Disconnect the player 2 controller 3: Reconnect Controller	It shouldn't be able to add a new player but should inherit one if its in the scene already	Resolved	Matthew
Bug	Ready up text isn't hidden when entering new level	4-Low	When the main map has loaded due to you setting the ready up text unhidden it stays that way	1: Ready up the characters loading into the main map	Should be hidden	Resolved	Matthew
Feature	Add a loading screen	3-Medium	Because the main map is large a loading screen would help with game feel			Resolved	Matthew
Bug	Broom won't change when trying to change	3-Medium	pressing a or d to change broom mesh won't work	1: press a or d when in main menu	change broom mesh	Resolved	Matthew
Bug	After using some of the abilities they cause errors	1-Critical	Some of the abilities cause accessed none errors	1: play the game 2: use some abilities 3: quit the game	zero error	Needs review	Joel
Bug	when finishing the game you can see lap 0 appear	4-Low	due to it playing the animation although the games done	1: finish the 3 laps	not have the animation play	Resolved	Matthew
Feature	Spin broom and character without turning character	3-Medium	spin character without it disrupting and changing its movement, and camera view			Resolved	Joel
Bug	the danger corner (a collision problem maybe?)	3-Medium	this corner traps the player and makes them stuck	1: play the game at start 2: get to the corner 3: get shot by AI or h		Resolved	Matthew
Bug	errors after UI timer and whatspell removed	2-High	After finishing all the laps and it shows raceboard, it shows errors after the UI timer and whatspell UI are removed/or maybe removed from viewpoint	1: play the game 2: Finished all laps until won 3: quit the game	no errors from WB_WhatSpell and WB_Timer	Resolved	Matthew
Bug	Getting attacked whilst in the staircase can bug out the tracking	1-Critical	due to the different flight mechanic the player can bug out when being attacked	1: be in the staircase 2: get attacked 3: quit the game	you dont bug out and your flight path not be messed up	Resolved	Matthew Joel
Bug	the teleporting door fires the player to the side	3-Medium	when you enter the teleporting door that always open it teleports the player sideways instead of forward	1: enter the teleporting door that always open	teleport you where the door is facing	Resolved	Matthew
Bug	broom / character animations unsync	4-Low	in the main menu sometime different actions can unsync the broom from the character	not too sure	move together	Open	Matthew
Bug	the name changer doesn't carry the name to the game	3-Medium	when you select a name it doesn't take it to the next level	1: choose a name 2: choose the next level	carry the name over	Resolved	Matthew
Bug	keyboard not highlighting it	4-Low	when using 2 controllers and using the name keyboard it doesn't highlight it orange	1: use name keyboard with player 2	highlight the keys orange	Open	Matthew
Bug	loading times are too slow	2-High	the loading time between the main game and the track is slow	1: load into the game	quicker loading times	Resolved	Matthew Joel

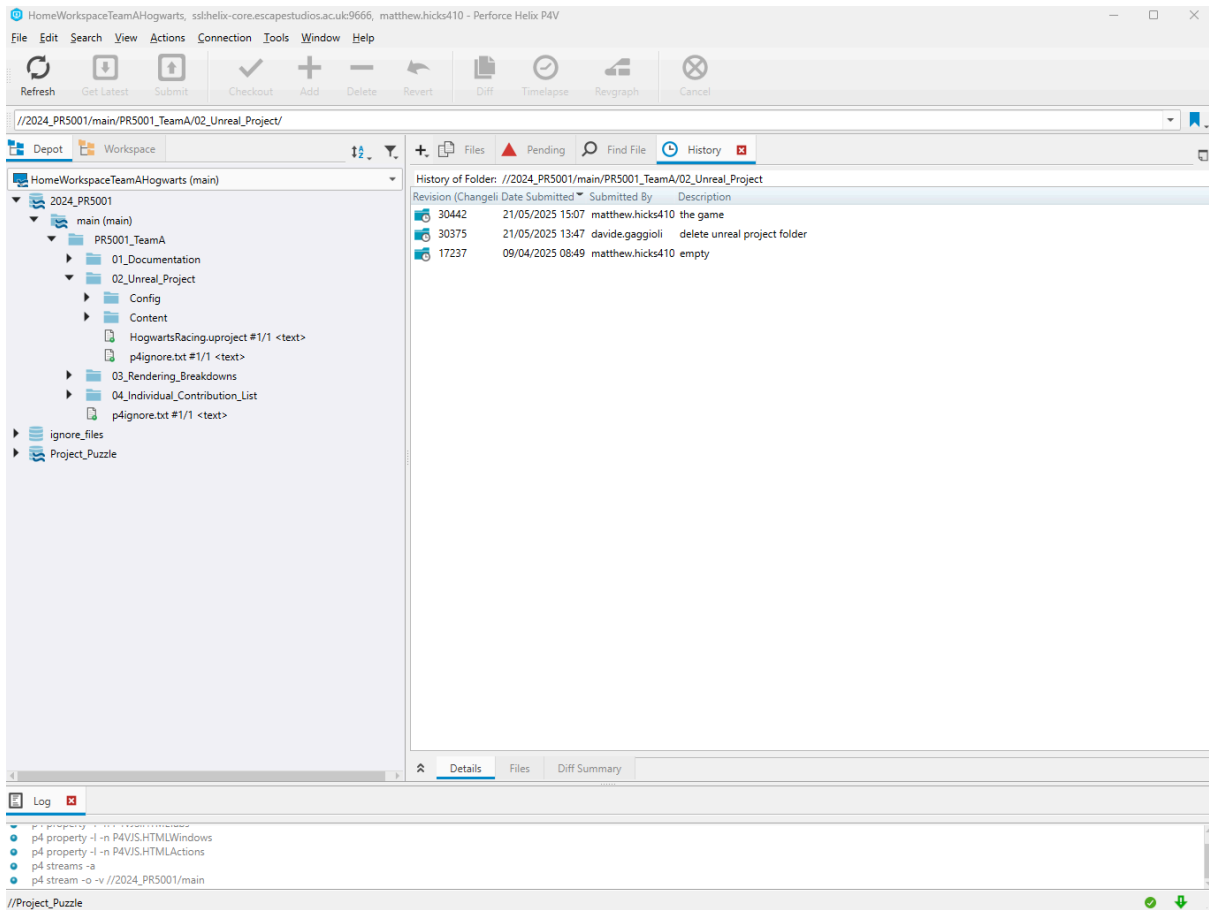
One document that I found really useful was the issue tracking sheet regrettably unutilized in previous team projects but I was happy and grateful to have used it more this project. An issue tracking sheet is an area where you can store bugs, glitches or features that can get tackled at a later point in case you would forget or not have time to explain to another member, on this document you are able to link these issues to team members so they know if they have something to work on. These issues are usually tested in the scrum or sprint meeting leading them to discuss how to fix them. One great feature is the priority box allowing the member how important this bug is to fix for example if there happened to be an issue in the map which stopped the player from finishing that could be classed under critical or high, where a texture missing would just be low showing the team member it would be nice to be fixed but won't break anything not being fixed. Me and Joel really optimised the effectiveness of this document but due to time restrictions not all bugs managed to get fixed.



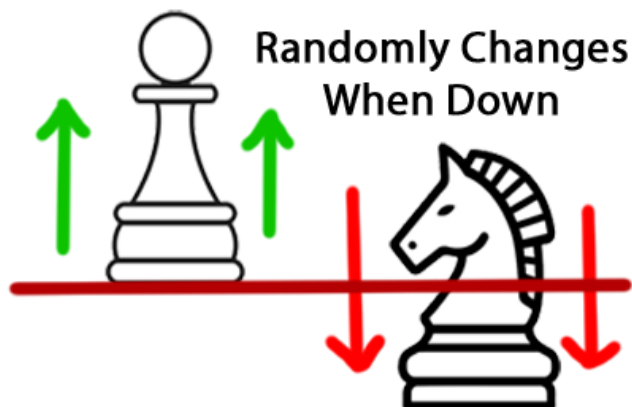
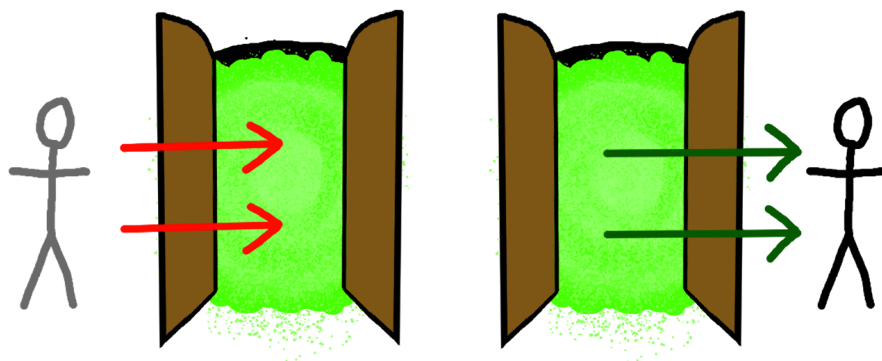
When me and Joel were discussing different pick up abilities a lot of my ideas were inspired by popular 'Mario Kart' (Nintendo, 1992–2023) abilities. The fireball spell was based off the red shell, the statue spell was loosely based off the banana and the astral dash was the bullet bill ability. For the majority there was very little disagreement between the idea generation which was nice. If there ever was any disagreement we'd test what works best in the engine, this would help to form a more educated / advanced opinion on the discussion. The reason we used these inspirations was because they work, red shell is the perfect no skill attack, the banana means the player is forced to a different route which leads to better decision making and finally the bullet bill ability is for the not so great players who need that extra bit of help. Due to playtesting feedback Joel implemented a detection system that checks what placement you're in and gives you different abilities to help you gain a lead in the race.

-Industry Practice-

Throughout the project it was important for us to stick to the tried and tested industry methodologies as they work. One really effective practice was correctly using revision control, this was something I took charge in as I had previous experience using Perforce. I was very fond of this role as it helped me to learn more about this powerful piece of software. We did end up experiencing some big issue in the form of losing 90% of the sublevels in the main map, with the assistance of the tutors I had suggested taking a version someone in my team had and reuploading it to perforce as this would reset any old confliction my push might have caused, although this was a really stressful time for our team we worked together to fix the issue and came out of it with a working project. This mistake taught me a lot about moving assets and files in perforce and updating redirectors effectively, as assets can hold information from other areas of the project and editing them can confuse the program.



Another thing I was conscious of was the games design document as this is the area our team can reference to help further base their assets or VFX off, whether it be how an attack fires or an object that moves which needs certain dimensions so no clipping could be possible. All important information can be found here. In the game's design document simple illustrations were involved to elaborate on our idea and end goal.



Some areas our team struggled to keep up to industry standard were naming conventions, there were some instances where on the last day people rushed to fix any forgotten asset names when this should be common practice to do when importing into the engine. Also from the start of the project our game was in the wrong location on perforce as it became the last day I made it a priority to fix the location for the project, I was advised to take the project off perforce fix the file locations and then push it back onto perforce which is a simple task and should not take any time, this became an issue though due to the extremely slow university computers, after waiting an hour to log onto my computer I was already behind next moving the files to the right location took upwards of two and a half hours to stop loading at this point I was cutting it extremely fine but I managed to get it relocated in time but with a lot of stress, granted I am to fault here too I could have done this sooner but I was already conscious something fatal could occur again and my team was always working on the project so I did not want to disrupt their flow. Unfortunately a lot of the optimisation in reference to deleting old assets saving us around 2GBs of space all came back, so the project on perforce for submission was not how I would have liked it at all. The biggest lesson to take away from this is to get it right the first time, I will be ensuring this is a must for the future.

-Reflection On Performance-

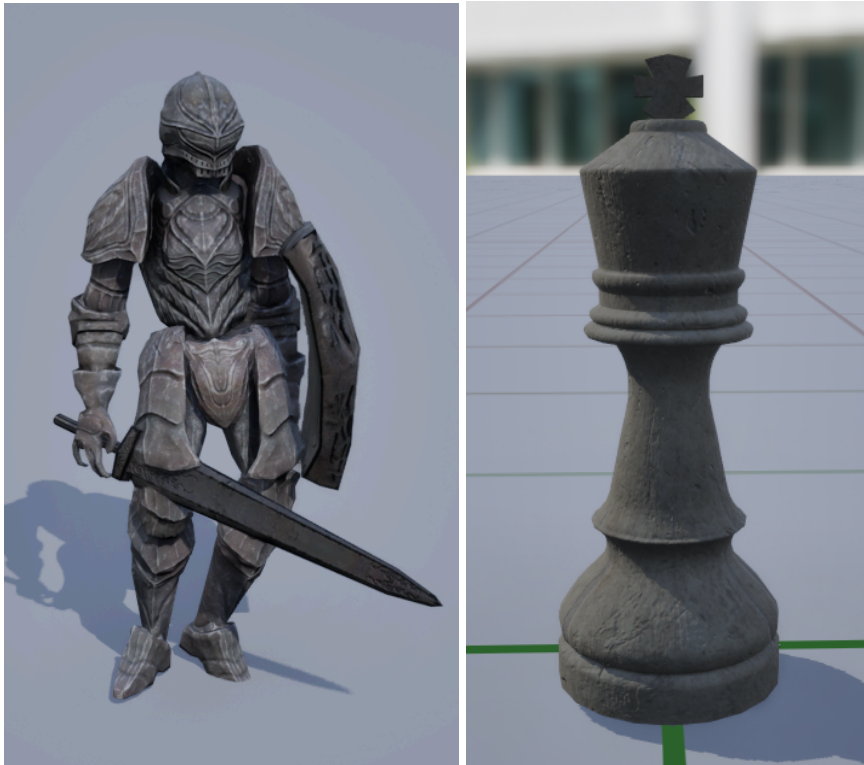
Overall I am extremely proud of what me and my group has accomplished especially when it comes to scope which was something that tutors and other students would mention but amazingly everyone pulled through and got it done to a really high standard. Granted on the games design sides there's still a few bugs but the game works, has a proper loop and is really fun to play with friends which is what the brief was all about. If i was to approach a similar project another time one thing I'd do differently is have a personal schedule that I can use as a base for my process as I was doing a lot of it mentally for example my first weeks were spent trying to perfect the broom mechanic as this was the most important to get in as soon as possible, next I worked on the core game loop essentially getting the lap system functional, next I'd tackle obstacles for the map and I tackled a proper main menu. Although it was successful in the end it wasn't the most effective way to work; having that base written plan will help me with the entire project structure. Another thing I'd do differently if properly inform the team how to conduct effective playtesting so we can make the most of people playing, in the end most of the playtesting feedback wasn't 100% documented which meant the document does not have as much as was actually conducted which is a massive shame.

One of the main contributing factors into the effectiveness of our project was having a really passionate engaging team who all cared about the success compared to the next, it also helped that they were all a lovely bunch of people who we all got on really well together, also the game artists are amazing at what they do, majority of the team had really professional practice when it comes to the craft; this skill helped to uplift the less skilled meaning everyone learnt a lot from each other.



One major legal issue that could arise is the 'Hogwarts Legacy' (Avalanche Software, 2023) IP as we've used scenes from the game and the name of the game doesn't help our case, this doesn't mean it isn't something we could in theory pitch to the company and look into making it a fully fledged game making the legal issues go but in the meantime it isn't ideal. Also we never got time to replace all the chess pieces (ELOY.3D, 2021) and the sword swinging knight (xelus, 2020) as they are

both from sketchfab (Sketchfab, n.d.) and the animations from mixamo (Adobe, n.d.).



-Looking Forward-

When it comes to using Perforce I have learnt so much, I understand the concepts of reverting files and how ownership works now, I understand how careful you have to be renaming and moving files in Unreal Engine making it even more important that it is done correctly the first time. I was also really interested in the game art sides of the pipeline as this was something I was dabbling in in college, due to my team being really supportive and helpful they would answer any questions I had linking to the pipeline and its processes, for example I'm more familiar with RGB masks, trim sheets and vertex painting now. This project has also taught me how complex game design gets when talking about racing games and the amount of behind the scenes code that boosts player enjoyment without them knowing.



One area I have always been sceptical about was AI and managed to avoid it mostly but next project I need to challenge myself and tackle more AI. Due to us removing it I never managed to tinker with AI speeds and behaviours.

-Conclusion-

In conclusion I'm so happy with this outcome and to have met such amazing talented people in my team who made everything possible. It's been a rollercoaster of emotions and feels like only yesterday I started this, I've learnt so much when it comes to teamwork, workflow and optimisation. After this module it does make me really excited for the next team project we are tasked with.



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IGN (2022). *Hogwarts Legacy - Official Flying Broom and Hippogriff Gameplay (4K)*. [online] YouTube. Available at: <https://www.youtube.com/watch?v=RkkGBT2oS4E> [Accessed 22 May 2025].

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