Module 9
Human Computer Interface
Eve Ryan

HCI

HCI, which stands for Human-Computer Interaction; is an integrative area of study which focuses on the design of technological features and the interaction between us as users and computers.HCI was invented in the 1980s alongside the Apple Macintosh, IBM PC 5150 and Commodore when they were first being used in professional environments and for personal use.HCI developers focused on improving the ease of access to home computers. However, with the fast movement of new technology like the world wide web and mobile phones, computing and developing HCI started to become less important for desktops and more important for apps and smartphones, as this is the direction technology was moving.

UX and UI

UX design stands for user experience design and UI stands for user interface design. UX Design encompasses all interaction between a potential or active customer and a company. This focuses heavily on providing the user with good experience on the website, software, or any other aspect that might affect the user's experience. The design of the user interface takes into account the visual aspects of the software and interactive interface parts, such as typography, buttons, menu systems, colour scheme and icons. The UI should be simple enough to guide the user so that they don't get lost, by making sure the design is consistent and visually appealing.

Forms of Feedback

Forms of Feedback are particularly important because it allows feedback from its users. For example; the spinning blue wheel in Windows that replaces the mouse cursor after a user clicks on a link allows the user to wait until the page loads, instead of constantly pressing the button that could create too much traffic on the website, causing the process to become unresponsive.

Moodboards
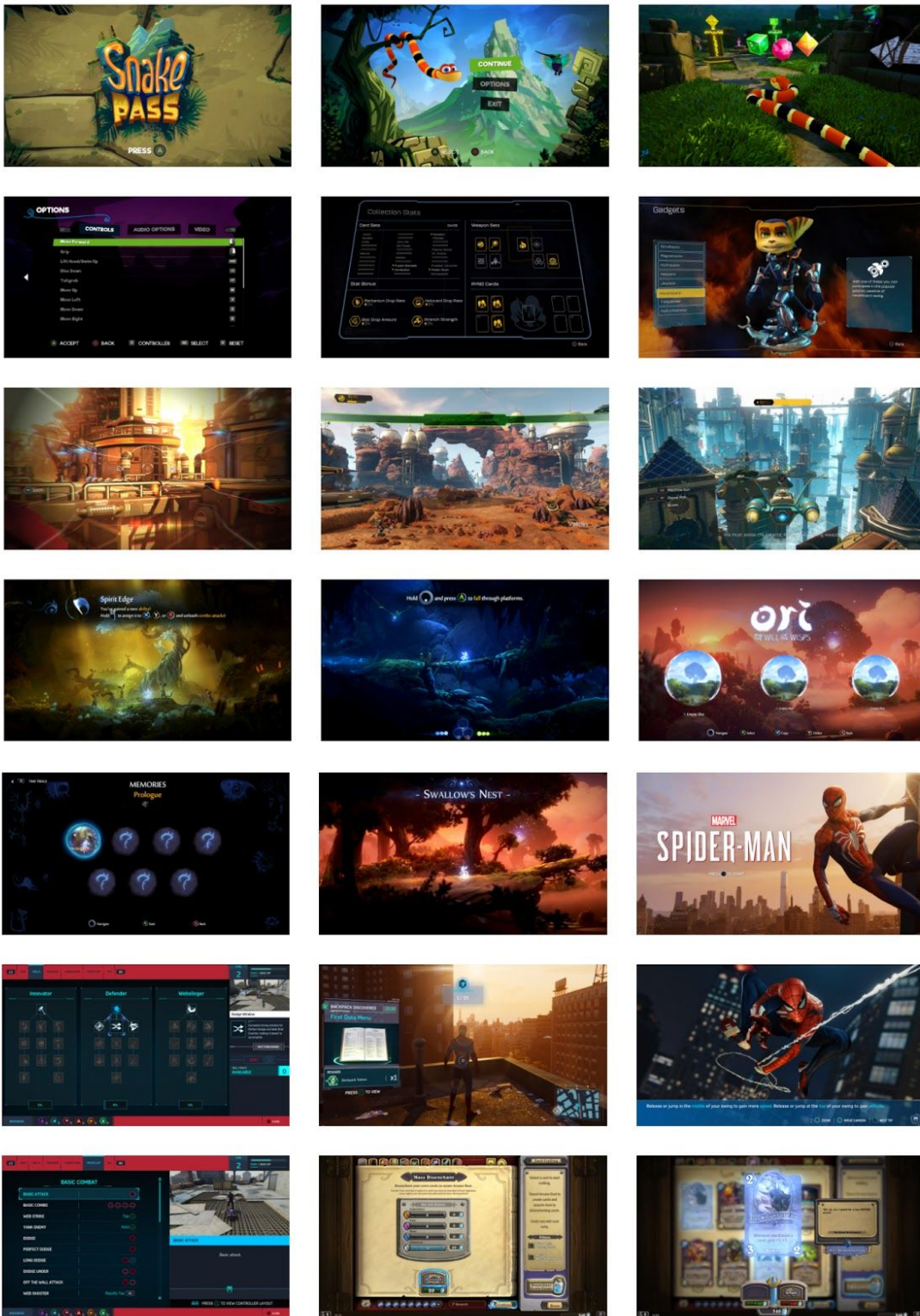
(Interface In-Game | Collection of video games UI | Screenshots and videos, 2020)

(Interface In-Game | Collection of video games UI | Screenshots and videos, 2020)
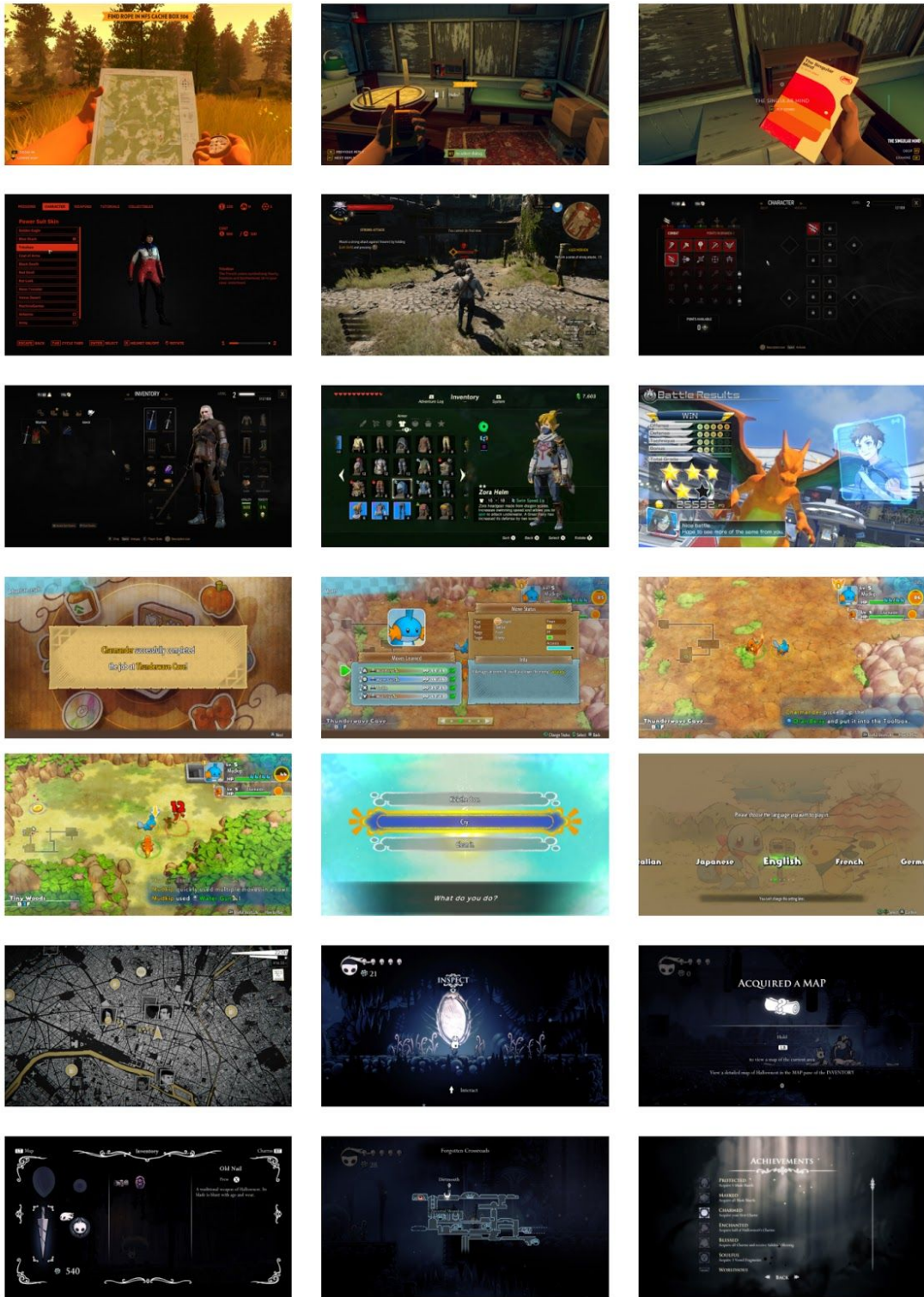
(Interface In-Game | Collection of video games UI | Screenshots and videos, 2020)

Character Customisation

GTA V

GTA V is notorious in the gaming community for having one of the poorest quality character customers within modern games. From the physical appearance of the characters, to how the looks of the character's features are determined, it is near impossible for the user to create a character the way the user wants it to look.

Ancestry is a dominant factor in the GTA V customisation process, originally on the Xbox and PlayStation, the user had to choose their character's two grandmothers and grandfathers, and then decide which parents resembled which grandparents. After this, you would then choose your resemblance to whichever parent you chose, and then finally your gender. I see what the developers were trying to achieve with this, however, it was very poorly executed. The characters' finished results were very unattractive, wax-like in appearance, and some combinations were visually extremely strange and unappealing. It is near impossible to create a character to your taste, it's very randomised.

(Guide, Online and creation, 2020)

Aside from facial features and skin tone, the actual height and weight of the character's can also not be altered. The male characters are 5'6 in-game and the female characters are 6'0 and not shapely in any way. This was also frustrating for players, as the only features you could change by your choice was your skin blemishes, hairstyle, complexion, eye colour and hair colour. None of these is diverse in choice, especially for the women.
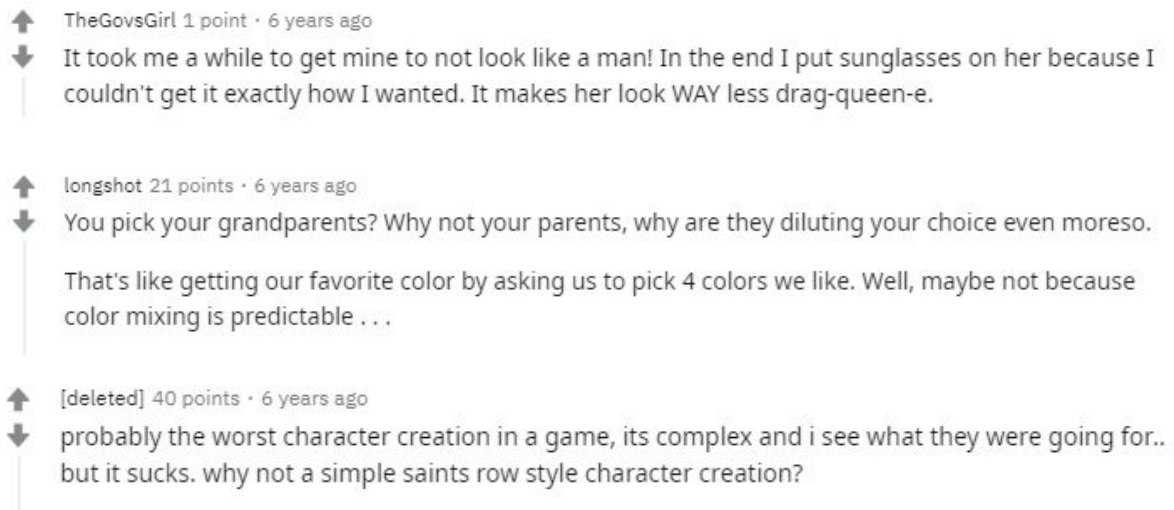
(GTA 5 New Character Customization, 2020)

Here is an example of my friend Becca's character (left), and my character (right). I tried to make my character look as feminine as possible. The body shape, height, facial features and complexion are all stereotypically masculine features on my character, which was disheartening to play as I like my character's in games to be cute and resemble myself in most games I play. This was also the most classically feminine hairstyle I could choose, there are no longer hair options which is also bad design in my opinion.

(Eve Ryan, GTA V Gameplay)

Here are some people on a Reddit post sharing their opinion on the character customisation in GTA V:

(Reddit, 2020)

In conclusion, GTA V Online does not have a good character customisation format. I feel if it was executed differently it could have worked and been unique. Hopefully, we will see an update in the future.

World of Warcraft

Due to release in November, World of Warcraft Shadowlands will include a whole new character customisation feature. I have very mixed opinions with the old character customisation features, as different races were held to different standards as time passed by. The newer models in the newer races such as 'Demon Hunters' and 'Pandaren' were updated and looked great, however, the original races such as the humans, dwarves and elves were left behind, and had not been updated in years. However, with the new release, we will be seeing more inclusive features to represent all ethnicities within the human models.

There has always been a variety of skin colours within World of Warcraft, from extremely pale white to a very deep skin tone, however, this wouldn't change the facial features, which are all default caucasian features.

(The Changing Faces of World of Warcraft, 2020)

As you can see, the facial features here are not inclusive, it is the same for the male models too. This has been updated and there are now new faces being released to represent Black and Asian people. I feel that leaving this until 2020 is very sad, as when the developers were first creating the facial features, any race that wasn't white was an afterthought, which I don't like at all. If I were to develop my character customisation in a game for realistic human characters, I

would probably include sliders from small to large for features such as cheekbones, nose bridge, lips, chin, forehead, etc, so that the user isn't limited to certain genetics and can edit their character however they like. Here are some examples of the customisation updates to be released in the Shadowlands update,

(Brown, Digital Trends, 2020)

(Bell, 2020)

Aside from the lack of representation for certain races, I generally do enjoy the way the character customisation looks, and the way you can edit your character in-game. This is going to be changed in November too, but I do enjoy the layout.

(Eve Ryan, World of Warcraft Screenshot, 2020)

(Eve Ryan, World of Warcraft Screenshot, 2020)

(Eve Ryan, World of Warcraft Screenshot, 2020)

Depending on your faction the background and lighting changes, which I think is great for the UX, it tells the user what kind of character you are choosing and what side you will be fighting on. As you can see in the screenshots I took from my game, The Horde Faction and Alliance faction is completely different, however, when the Death Knight Class was released in Wrath of the Lich King, they added a whole new background, even though you can choose your faction after leaving the starter zone.

When you enter the customisation page, you have the choice for skin colour, face, hair colour, hairstyle, and usually some kind of jewellery or accessory exclusive to the chosen race. I don't think the customisation choices are bare, however, I feel like including the eye colour with the face type could be separate, to add a little more personality. The characters do tend to look like clones in World of Warcraft, but that will be changing soon which I think will be fantastic and I cannot wait to see all the new features go live.

Interactive Menu Systems

Psychonauts

The first thing users interact with when they boot a game is the menu system, therefore it is important when creating a menu system that it sets the tone for the game. Some menu systems have very simple layouts with few options to cycle between, and in my personal opinion it detracts from the overall experience the user has; I tend to think less of a game when the menu system looks overcrowded and poorly thought through. On the other hand, some menu systems are interactive and fun, which is what I intend to explore today, and compare to non-interactive menu systems.

Psychonauts is a great example of what an interactive menu is. Tim Schafer, who was the creative director, co-writer and designer of Psychonauts has a very creative mind and I tend to enjoy any visuals to any games he makes; Schafer made it so that within the menu system in Psychonauts, you take control of the main character named Raz, who runs around a 3D brain with the buttons and the game's logo pressed onto it, with the same gravity and rotating functions in Super Mario Galaxy II or Wii Party: Globe Trot.
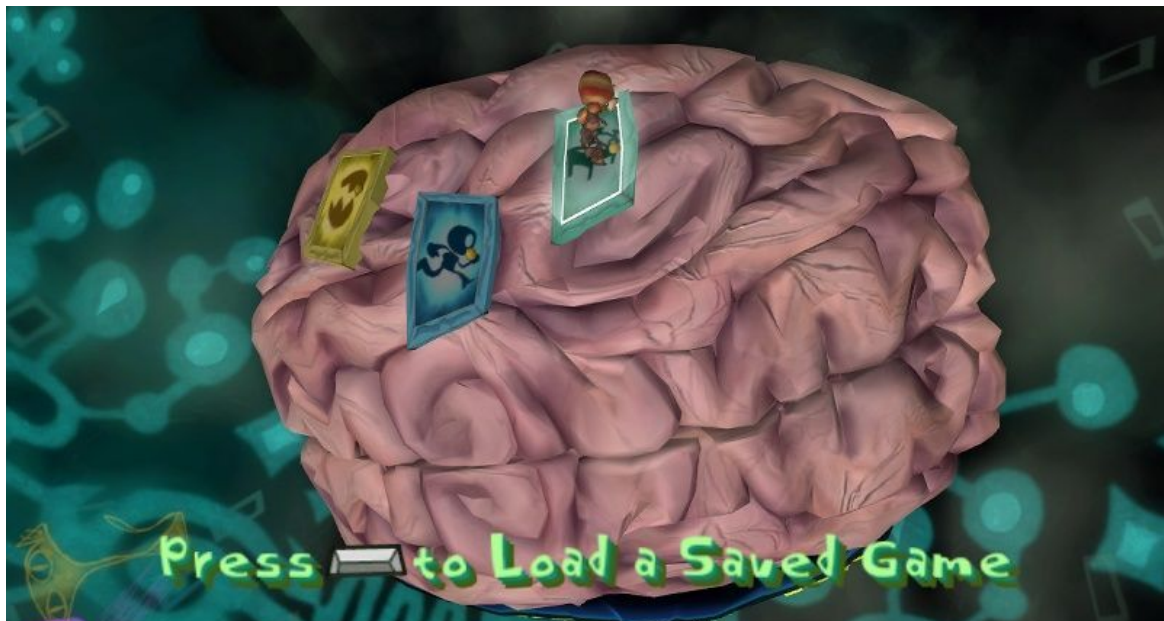
(Psychonauts Screenshots for Windows - MobyGames, 2020)

(Wii Party Globe Trot, 2020)

(If Super Mario Galaxy Can Not Get a 9.5 -- No Wii Game Will - System Wars - GameSpot, 2020)

Call of Duty: Black Ops

Another great example of an interactive menu is the Call of Duty: Black Ops menu system. In the menu, The user is stuck in a chair and can look around the room, there is a television displayed in front of the user with all the options for the game, however, if you press LT and RT in rapid succession, the character actually gets up and out of the chair, and the user can walk around the menu room, which I found fantastic. The user can actually walk over to an in-game computer and activate an easter egg mini-game too. I thought this was very clever and an amazing menu system, especially for young players, finding easter eggs and being able to wander around before even entering a game is incredible, before even finding a mini-game. This is a fabulous example of an interactive menu.
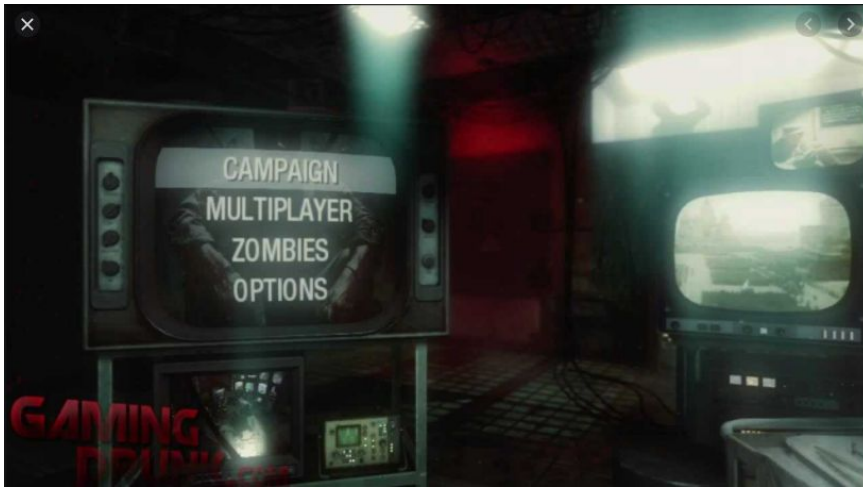
(DrGh0st, 2020)

(DrGh0st, 2020)

I do enjoy interactive menus in games, however, there are also some game menus I enjoy that are not interactive. Sound, colour and layout are important factors, as well as the menu not being confusing in any way, as if the UI is attractive, the UX will be well received. Some games have very simple main menus, however, the in-game menus such as inventory, vendors and quest logs can look fantastic. I am going to conduct some research and talk about some beautifully designed menus, and some unappealing poorly received menus.

UI and UX: The Good and the Bad

Gran Turismo 5

Gran Turismo 5 is a SONY PlayStation 3 game which was released in 2010, and possibly has one of the most visually unappealing menus I have seen in the last decade. The aim of game menus should be to help the user get to where they

want to go as easy and as fast as possible, however, in the GT5 menu, there are way too many tabs for this to be easy to navigate, as well as it looking cluttered and dull. I have never personally played this game, however, this game menu seemed to come up a lot when I was researching poorly designed game menus.

(Forum, Ka'bah and Quinn, 2020)

Star Wars Battlefront II

Another example of a menu system that is even more cluttered than the Gran Turismo 5 menu would be Star Wars Battlefront II. The UI is bland and not interesting in my opinion, and the number of tabs and options is unbelievable. I am going to include quite a few screenshots to demonstrate how cluttered the menu is.
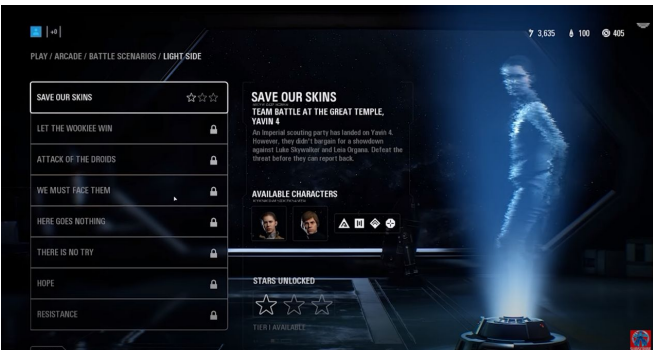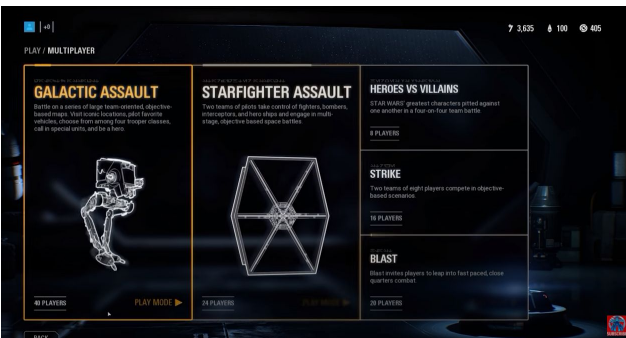
(MENU OVERVIEW - Star Wars Battlefront 2 Menu In-depth Look!, 2020)

Every tab leads to another page, and every option in that tab also leads to another page. Navigating the whole menu would take way too long, and to find the specific option the user wants to find would take minutes instead of seconds. The customisation of the game is extremely in-depth, however, this could've been easily condensed and displayed more clearly, much like in the first Star Wars Battlefront.

Cuphead

One of my favourite menu systems and UI, in general, is the game Cuphead. Cuphead's gameplay is visually stunning and doesn't slack when it comes to its game menus either.

(Cuphead, Steam, 2020)

The menus in Cuphead are easy to navigate, short and come with a quick well-placed tutorial of how to navigate the user's equipment menu. The settings are kept to a minimal, however, are not boring or dull. They fit well within the game and do not take the user out of the Cuphead universe, instead, it looks like a piece of paper overlaying the paused game.

The in-game shop UI is fantastic in Cuphead too. The currency is kept to a minimum so the user doesn't carry around a crazy amount of coins, and the

shop is an actual shop in the game. The actual items you can buy in the shop are represented as bottles on the countertop which glow when selected. When an item is bought, the bottle explodes, and a new unique bottle falls from the top of the screen and replaces the previous one. The item's description is kept to a minimum and is displayed in a big font below the counter, which closes when the user exits the shop. The first time the user buys an equipable item in Cuphead, instantly as the user leaves the shop, a speech bubble appears narrated by the shop owner, telling the user how to equip the item. The user cannot leave the screen until the user hits 'Y', opening Cuphead/Mugman's equipment slots, and equips the item. It's a fantastic quick way to teach the user, without a long tutorial at the start most of us forget.

(Cuphead, 2020)

(Cuphead, 2020)
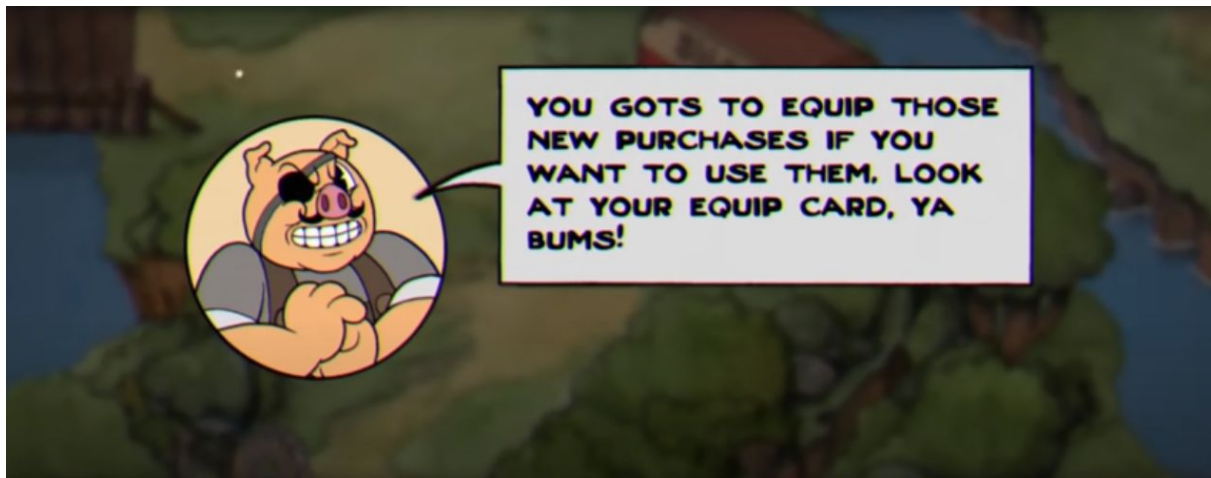
(Cuphead, 2020)
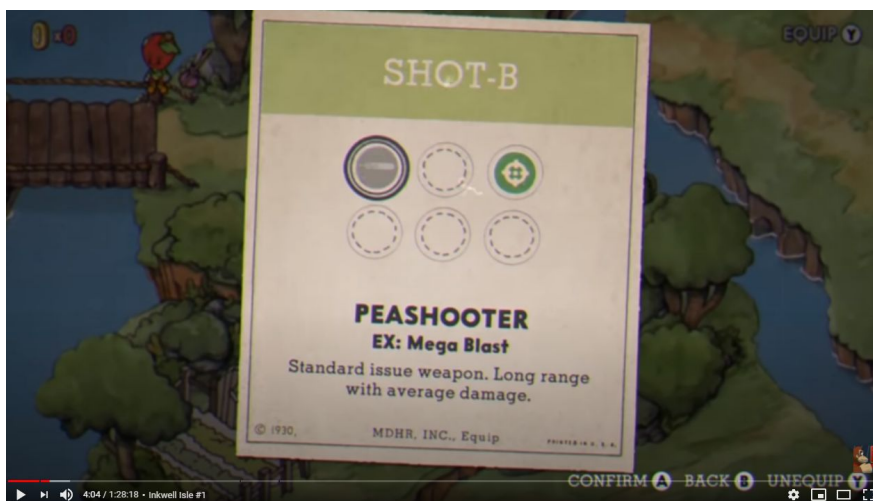
(Cuphead, 2020)

(Cuphead, 2020)

I also really enjoy the 'Equip Card' in Cuphead. Instead of a convoluted menu with skill trees and infinite decisions of skills to choose from, I love the simple choice of choosing two out of six total shot tabs, a superpower and a charm. This game really chooses style over substance, and for a small indie company to be so on the ball with their menu systems as opposed to huge game companies like EA who produced Star Wars Battlefront II, overthinking it and giving the

user a bad experience. The buttons and also in the bottom right-hand corner in case the player forgets what button does what job. The UI is just fantastic and the equip card reminds me of a ration card, which is very fitting for the style of the game.

Dark Souls III

An example of a menu that is a little complicated yet makes up for in style and layout is the Dark Souls II / III menu system. In the Dark Souls games, different weapons and armour can alter the 'player status'. This is necessary as there are different paths you can stray down when playing Dark Souls as there are many different classes to choose from.

(Dark Souls III, 2020)

(Dark Souls III, 2020)

I personally found the attack power and guard absorption lists confusing, however, I played Dark Souls casually and only chose to focus on physical and critical attack power, as it's what I am used to. The attribute bonuses are easy to understand however I found the icons redundant, as they are so small and similar at a glance you cannot tell what they are when you want to compare the item stats. The actual navigation of the menu is easy, and the almost catalogue-like display helps to filter through all of the items quickly, rather than them being small in a backpack like in World of Warcraft.

The menu does appear slightly crowded, however, the layout isn't confusing and everything is in one place. I also adore the design and I feel as though it matches the visuals of the game itself perfectly.

Less complicated in Dark Souls III is the menu system for travelling to different locations. The user, using detailed tabs displayed at the top of the menu can filter through different major areas, to then see an image/text list of the

different bonfires in the major areas for easy, non-convoluted access.

The image preview really aids the user in travel, and I really appreciate the different tabs so the locations are split up, and not be confused with other locations when they appear similar.

Elder Scrolls IV: Oblivion

An example of very poor UI, so poor in fact I stopped playing the game because I found the UI features that infuriating, is Elder Scrolls IV: Oblivion, Bethesda Game Studios.

(Oblivion, 2020)

Only 21.7% of the screen space is used to display the inventory
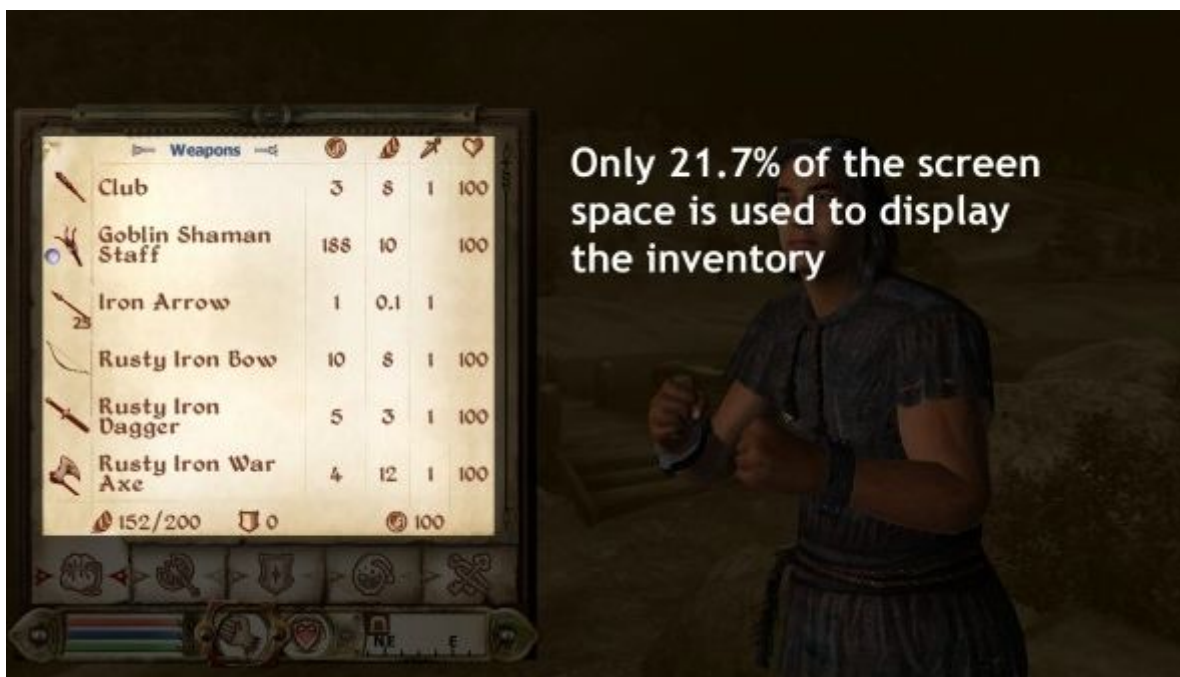
(Quintans, 2020)

Oblivion's inventory is a mixture of usable space, unnecessary scale, and inefficient controls. The section of the screen that shows the important information, like the user's inventory, takes up 21.7% of the overall screen size at a resolution of 1920x1080.

At a time, in the Dark Souls inventory, you can see twenty-five items at a time, as opposed to Oblivion, where you can only see a whopping six. The text and symbols are also way too big, completely unnecessary for displaying on a computer screen. This dramatically reduces the number of items that can be viewed on the screen at one time, on top of the fact the list is linear, not like in Dark Souls which is displayed like a catalogue, or a shopping website's UI.

This UI error becomes extremely tedious when looking for important items such as food or new armour, as they get completely lost in the list, as they are all in one place, not ordered or categorised. I also found it difficult to navigate to my character's status, as it entails accessing three sub-tabs, and then scrolling again. This is an important feature for the gameplay, and it was completely hidden; most of the time I had no idea what was making my health decline.

Another flaw in Oblivion which I and a few of my friends who have played the game have discussed is the lack of shortcuts within the game. There are no hotkeys to bring up a map, or any hotkeys to sell items; you have to enter a quantity and confirm it with a slider, then press enter. Possibly the worst feature is that if you want to exit any menu, whether it be the pause menu or another menu, all the keys to exit are completely different, so the user forgets which key does what, and it becomes extremely annoying when you want to resume playing.

The game which followed Oblivion, the Elder Scrolls V: Skyrim did fix most of these issues. However, as a stand-alone game, I found the UI & UX incredibly poor and infuriating.

Initial Sketches

(Eve Ryan, 2020)
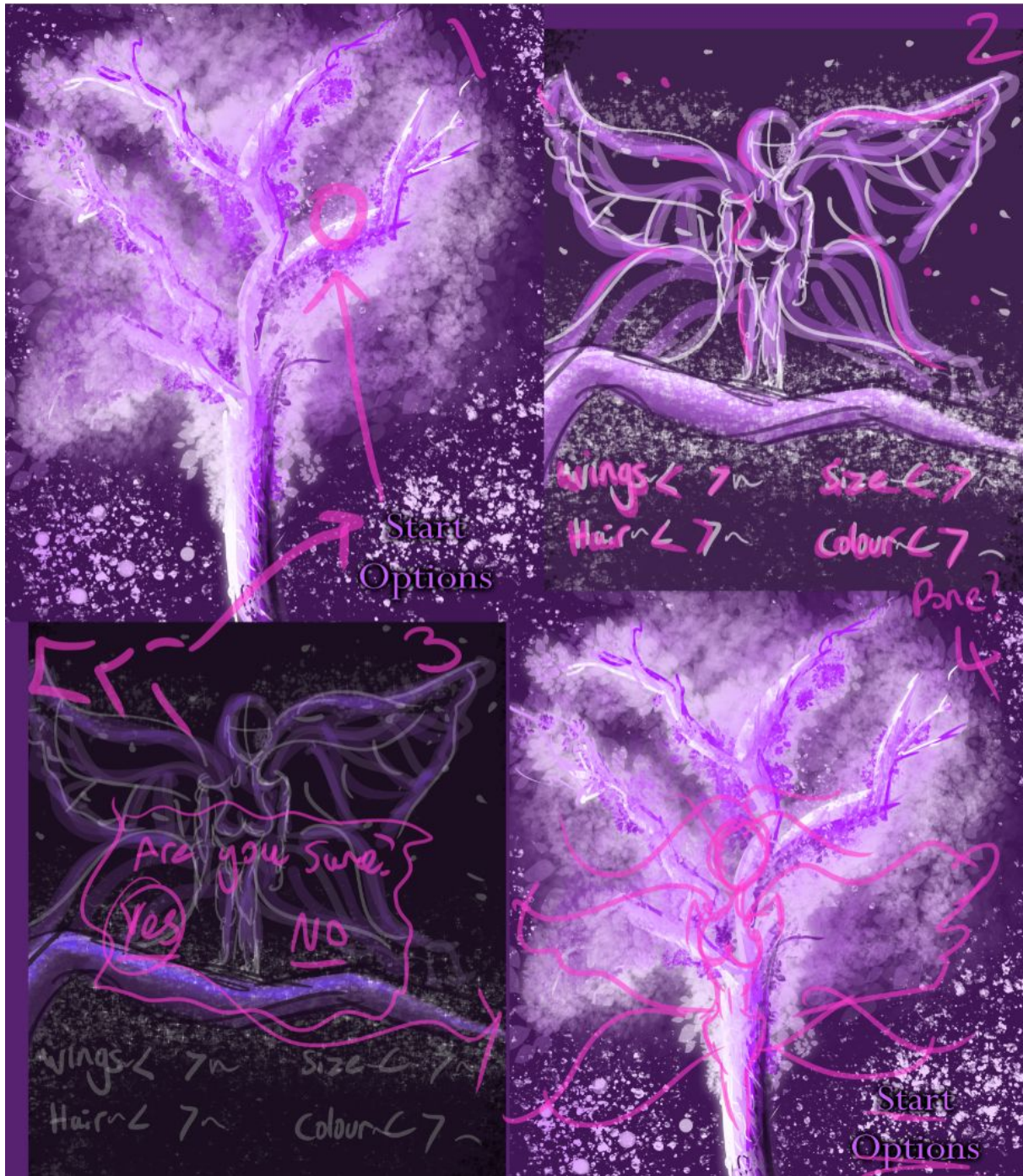
(Eve Ryan, 2020)

Flow Chart
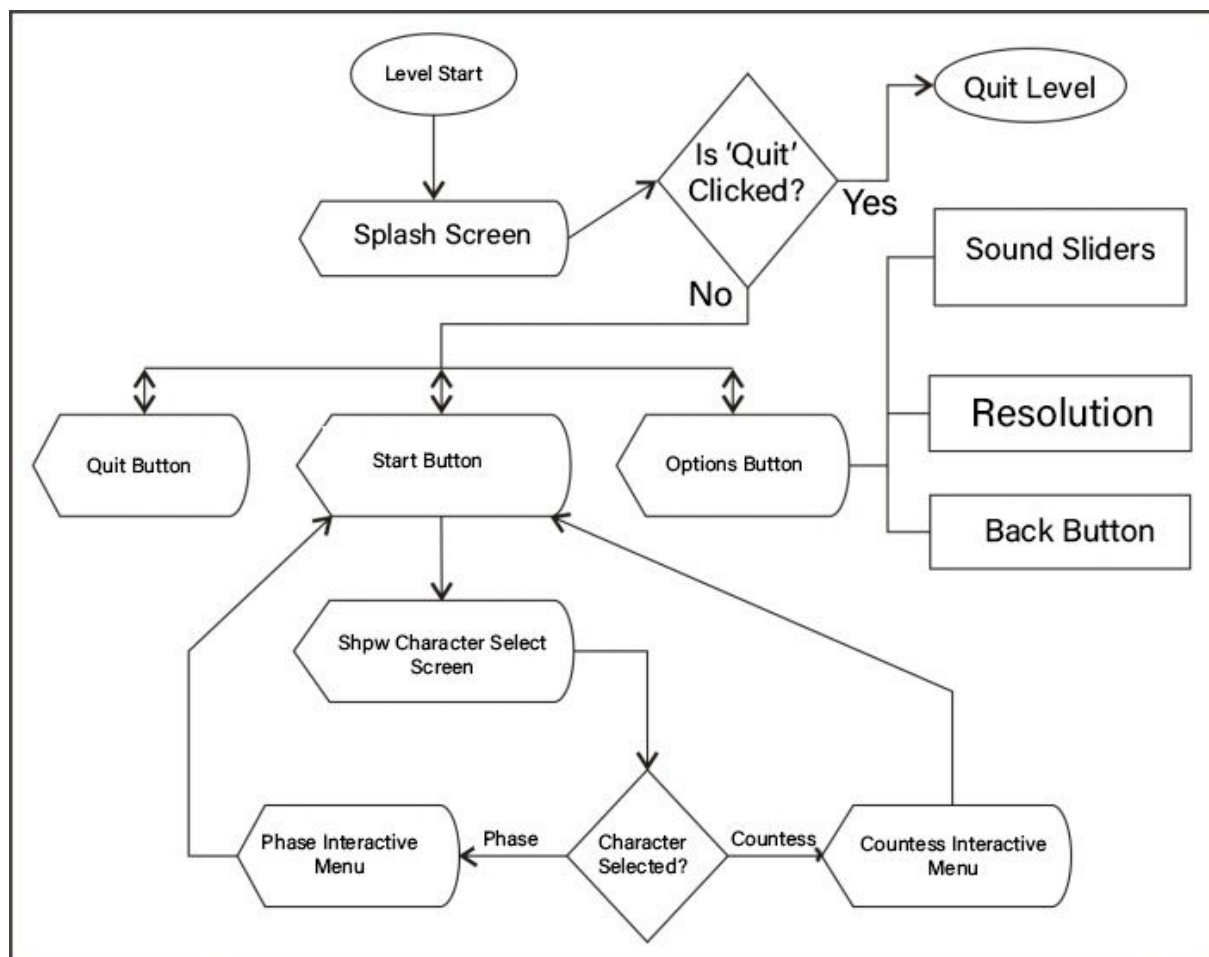
Production Log, Widgets and Character Customisation

I wanted to design my menu system with the same colour palette used in my concept sketches.   These Colours consisted of a deep Purple, a pale blue and light pink. I wanted the mood of my menu to be mythical, mysterious, dark but not scary. I wanted to have the background be the starting view of my level, however, this needed a little something more, so I decided to create a splash screen. I designed a purple sky background with the Unreal Engine logo in white and the title of my level; I had this fade into my level visual.   To do this I created an animation timeline within my widget and changed the render opacity of my splash screen to fade from 1 to 0 over 3.5 seconds.
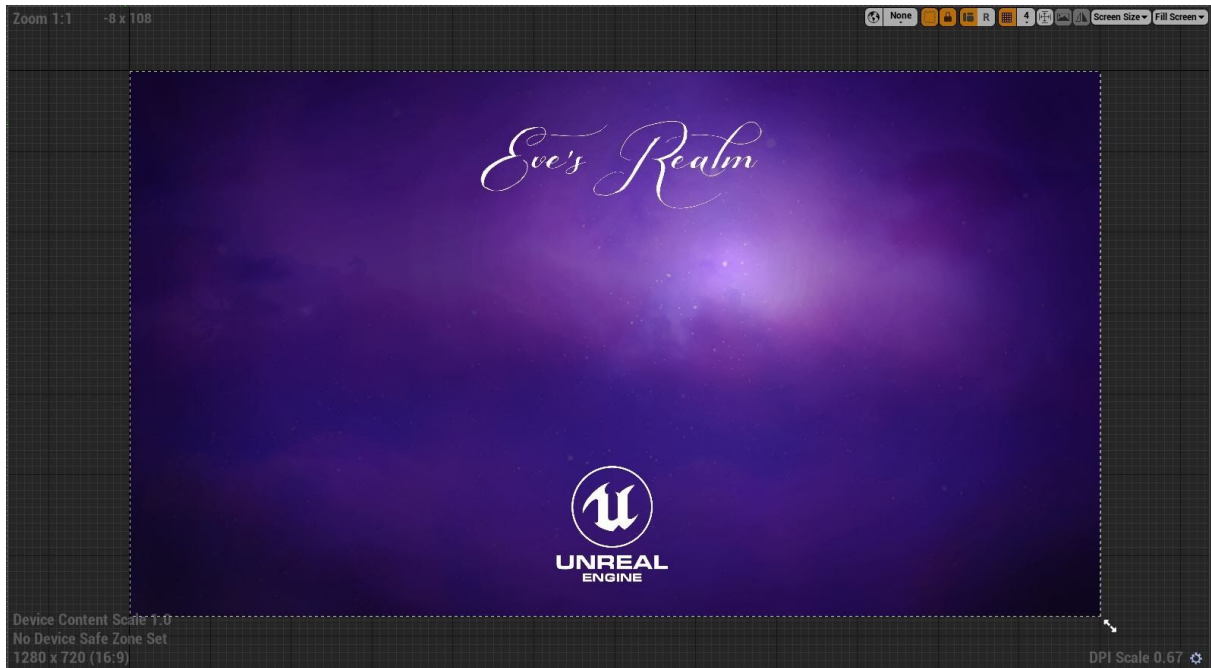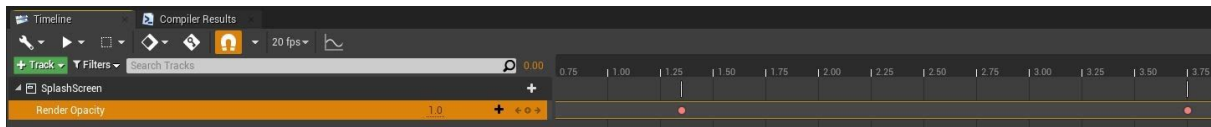
After this was complete I decided to add my start, options and exit buttons however I also wanted to animate these. I transformed each button on the x-axis, two would slide in from the left and the other slide in from the right. I really liked the way this looked so it was now time to design my menu buttons. I chose a white font, non-serif to match the mystical theme chosen for my level.
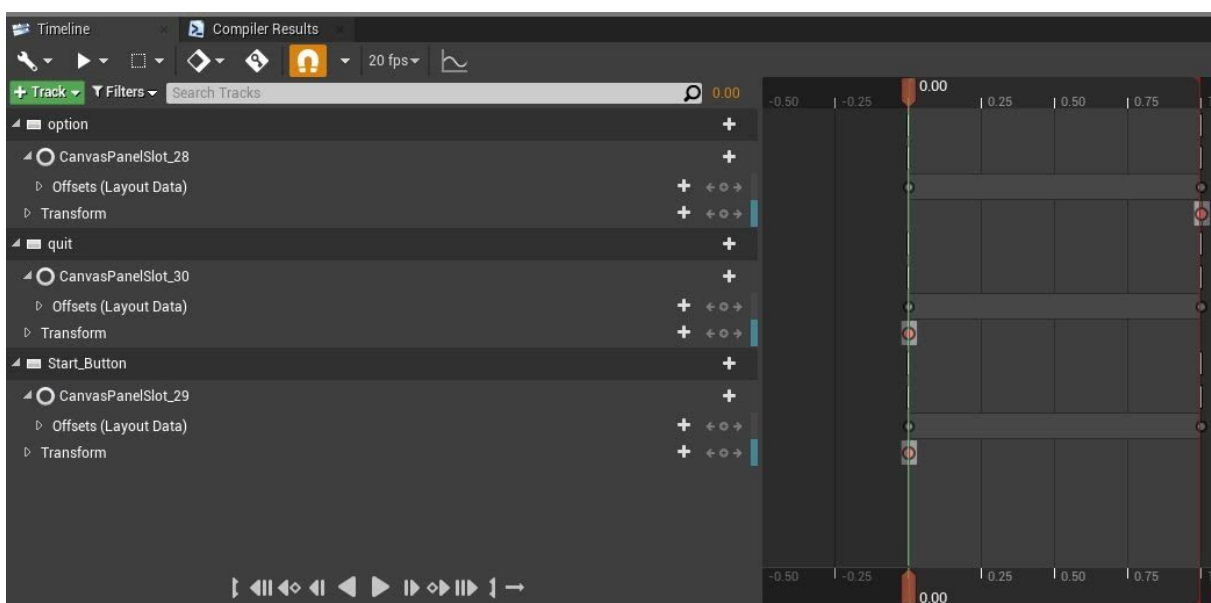
In the options tab, I decided to add resolution settings however instead of there being buttons like I have done in previous levels I decided to add a dropdown option. This was something new I wanted to try, and though it doesn't look exactly the way I wanted, I am proud of the code I used and followed instructions well via a YouTube video. (Horus Heretic, 2021)

Before creating my camera sequences I decided to also make the menu for my character selection screen. Two widgets for my character customisation screen, one to simply show the text 'select character' which would disappear on clicking

on the character named Phase. From this I made buttons appear which I designed myself. The character Phase which I downloaded from the Paragon Heroes on the epic games store comes with three different choices of skin. When Phase loads she is already loaded with the base skin, however, I added two button options to change the skin to the 'panda' skin or the 'kitten' skin. Instead of having another button which says 'base skin' I instead added an undo button to reset the skin. I also ensured on every button hovered it would glow brighter.
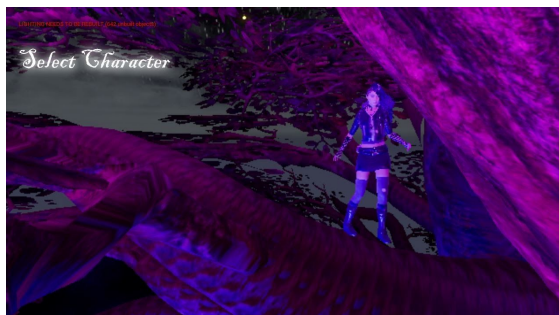
After this was complete it was time to create my sequences, possess the camera and adds a flip-flop node to ensure the skins were set correctly and correlated with the chosen buttons. In my code following events 'begin play' the widget would appear onto the player's viewport after the 'start game' custom event was triggered.
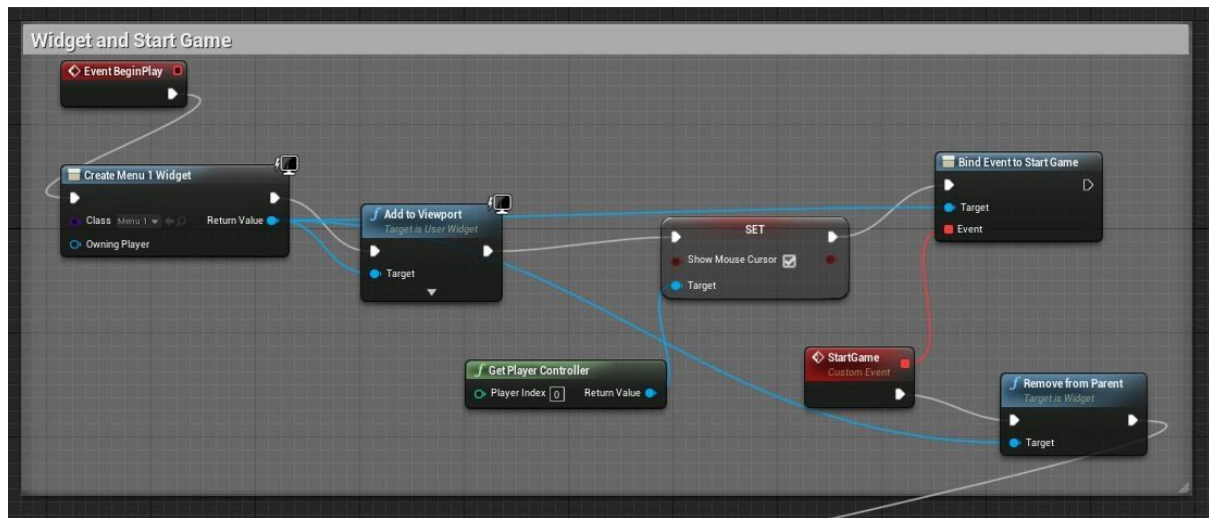
The widgets would now be removed and begin the 'camera sequence 1'. During this, the view target would now be set to camera one instead of my third person dummy character which I assigned the initial camera to.
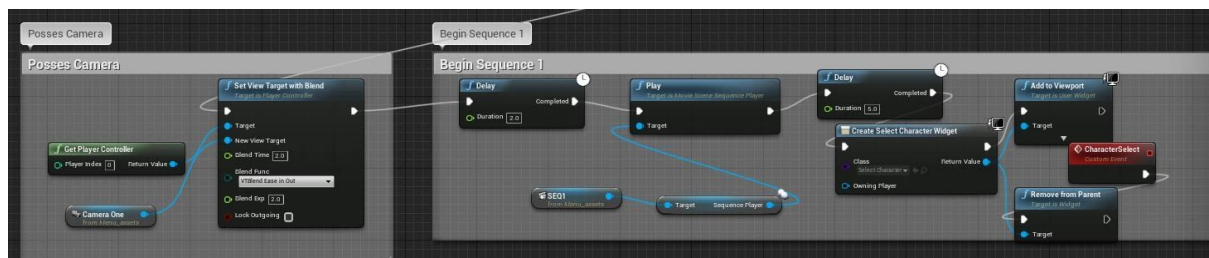
I set a delay so that after sequence one had finished a new widget would appear (the select character widget). After the user clicks the character, the widget would be removed and a new skin selection widget would open. On clicking the character I added another sequence so the camera would move towards Phase. From here I created custom events and added Event Dispatchers so that when the button for the chosen skin was selected, the new skin would replace the previous skin.

flipflop

OnClicked (Idle)
- Touched Actor
- Button Pressed

Character Select
Target is Menu Assets
- Target [self]

Flip Flop
- A
- B
- Is A

Set

flipflop b

Phase_camera
from Menu_assets

Get Player Controller
- Player Index [0]
- Return Value

Set View Target with Blend
Target is Player Controller
- Target
- New View Target
- Blend Time [2.0]
- Blend Func
  VTBlend Linear
- Blend Exp [2.0]
- Lock Outgoing

Remove from Parent
Target is Widget
- Target
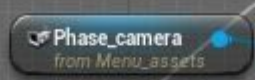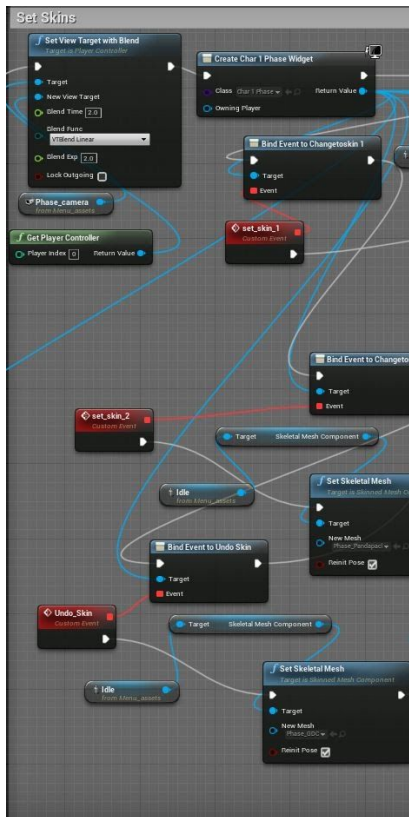
I tested this and it worked perfectly. After this was complete, I now had to create another sequence from the tree, where the character selection screen is, to the village environment I made, ensuring the character Phase has loaded in the village with the correct skin on the skeletal mesh loaded in. This code was extremely hard to do and it involved an area of unreal Engine I had not used before (game instances). What I had to do was when the custom event was fired, and the skeletal mesh was set, I had to cast to my new game instance and set the correct skin, by making sure I set the wrong skins in the Instance to 'false' and the correct one to be set to 'true'. After this, after my sequence to the village environment had played, I had to add more code to cast to my game instance again and create different instances for the three different characters skins. I would then create a branch from each character skin and spawn the actor at my set target point in the village. I would then select the correct character skeletal mesh, possess the character and get the player controller so the user can now control their character.

Set Skins

Set View Target with Blend — Target is Player Controller
- Target
- New View Target
- Blend Time 2.0
- Blend Func: VTBlend Linear
- Blend Exp 2.0
- Lock Outgoing

Phase_camera — from Menu_assets

Get Player Controller
- Player Index 0 — Return Value

Create Char 1 Phase Widget
- Class: Char 1 Phase
- Owning Player — Return Value

Bind Event to Changetoskin 1
- Target
- Event

set_skin_1 — Custom Event

Add to Viewport — Target is User Widget
- Target

Idle — from Menu_assets
- Target — Skeletal Mesh Component

Set Skeletal Mesh — Target is Skinned Mesh Component
- Target
- New Mesh: Phase_Kitty_GDC
- Reinit Pose

Bind Event to Done Char
- Target
- Event

Cast To MyGameInstance
- Object — Cast Failed
- As My Game Instance

Get Game Instance
- Return Value

SET — Char 1? — Target
SET — Char 2? — Target
SET — Char 3? — Target

Bind Event to Changetoskin 2
- Target
- Event

set_skin_2 — Custom Event

Target — Skeletal Mesh Component

Idle — from Menu_assets

Set Skeletal Mesh — Target is Skinned Mesh Component
- Target
- New Mesh: Phase_Pandapac
- Reinit Pose

Cast To MyGameInstance
- Object — Cast Failed
- As My Game Instance

Get Game Instance
- Return Value

SET — Char 2? — Target
SET — Char 1? — Target
SET — Char 3? — Target

Bind Event to Undo Skin
- Target
- Event

Undo_Skin — Custom Event

Target — Skeletal Mesh Component

Idle — from Menu_assets

Set Skeletal Mesh — Target is Skinned Mesh Component
- Target
- New Mesh: Phase_GDC
- Reinit Pose

Cast To MyGameInstance
- Object — Cast Failed
- As My Game Instance

Get Game Instance
- Return Value

SET — Char 2? — Target
SET — Char 1? — Target
SET — Char 3? — Target

LEVEL BL

tree to village

Village1 — Custom Event

Remove from Parent — Target is Widget
- Target

Get Player Controller
- Player Index 0 — Return Value

camera to village — from Menu_assets

Set View Target with Blend — Target is Player Controller
- Target
- New View Target
- Blend Time 2.0
- Blend Func: VTBlend Ease in Out
- Blend Exp 2.0
- Lock Outgoing

Delay
- Duration 2.0 — Completed

Play — Target is Movie Scene Sequence Player
- Target

Target — Sequence Player

sequncevillage — from Menu_assets

Delay
- Duration 4.0 — Completed

Cast To MyGameInstance
- Object — Cast Failed
- As My Game Instance

Get Game Instance
- Return Value

Target — Char 1?
Target — Char 2?
Target — Char 3?

Branch
- Condition — True / False

Branch
- Condition — True / False

Branch
- Condition — True / False

I did have a problem where my select character widget would not disappear, so I added a node telling the engine to remove all widgets. I could not add another widget after this however if I started a new chain of events, or created another level; which I would after the interactive menu screen, this is fine for now.

Sound

I wanted to add sound to my game menu system. To do this, I took a recording of me tapping my finger against my table on my phone. I placed this into Unreal Engine as a wav file. Before I could do anything with this I had to create different sound classes, my own ones so that my sounds would carry over. I created a music sound class and an SFX sound class. The tapping sound I made into an SFX sound class. I duplicated this wav file and pitched one to be a higher frequency so that when the buttons were clicked it would be a deeper sound than when the button just hovers over. I coded every button so that every clickable action has the SFX noise I intend it to have.
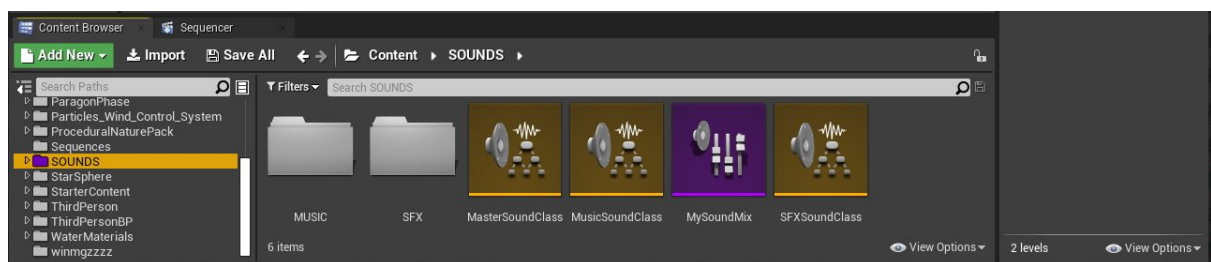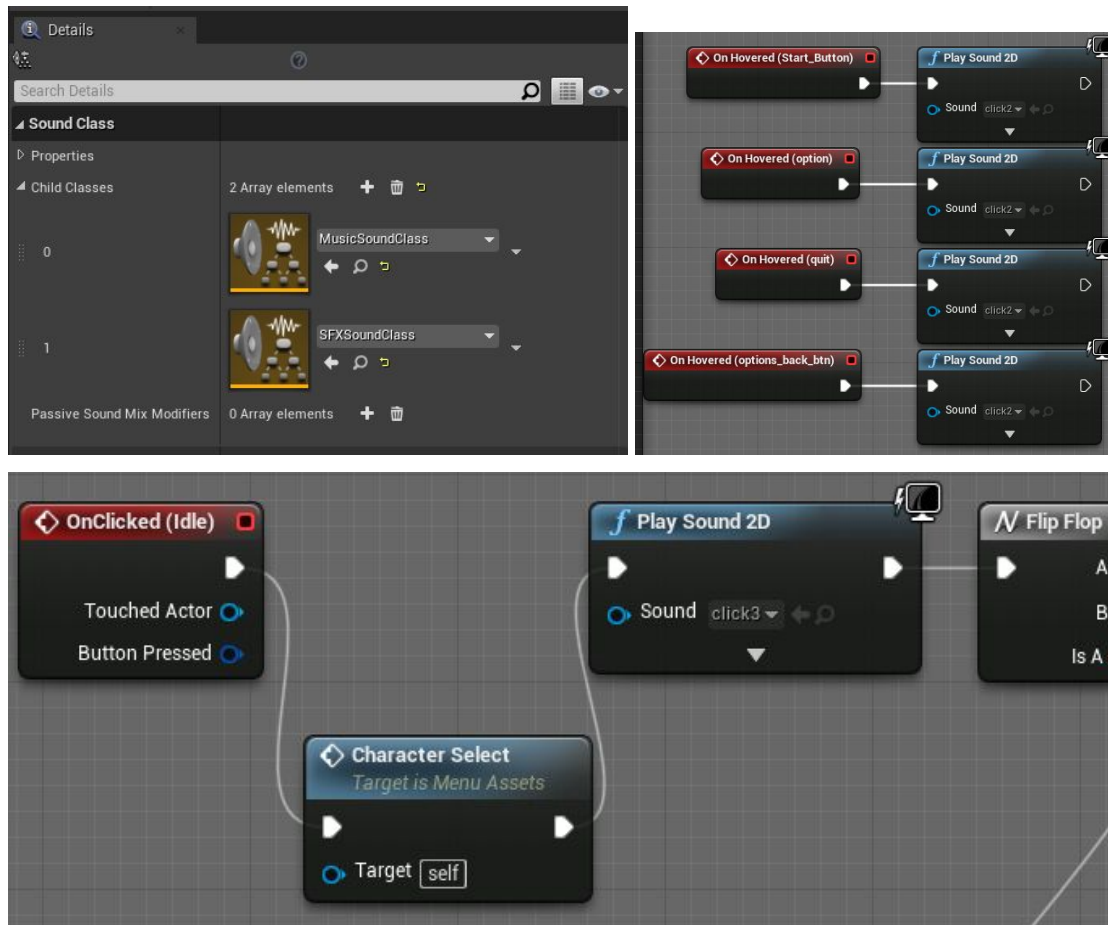
I then wanted to add some music into my level. I went onto youtube.com and searched for some royalty-free music to add to my game (Elvenshine, 2020). It took a while to find a short piece of music as I could only find 10-hour versions. After I found the perfect music at five minutes long I converted this to a Wav file, imported it into Unreal Engine and selected the Music Sound Class. I coded this so that it plays on the start button pressed; I also ensured that it loops.
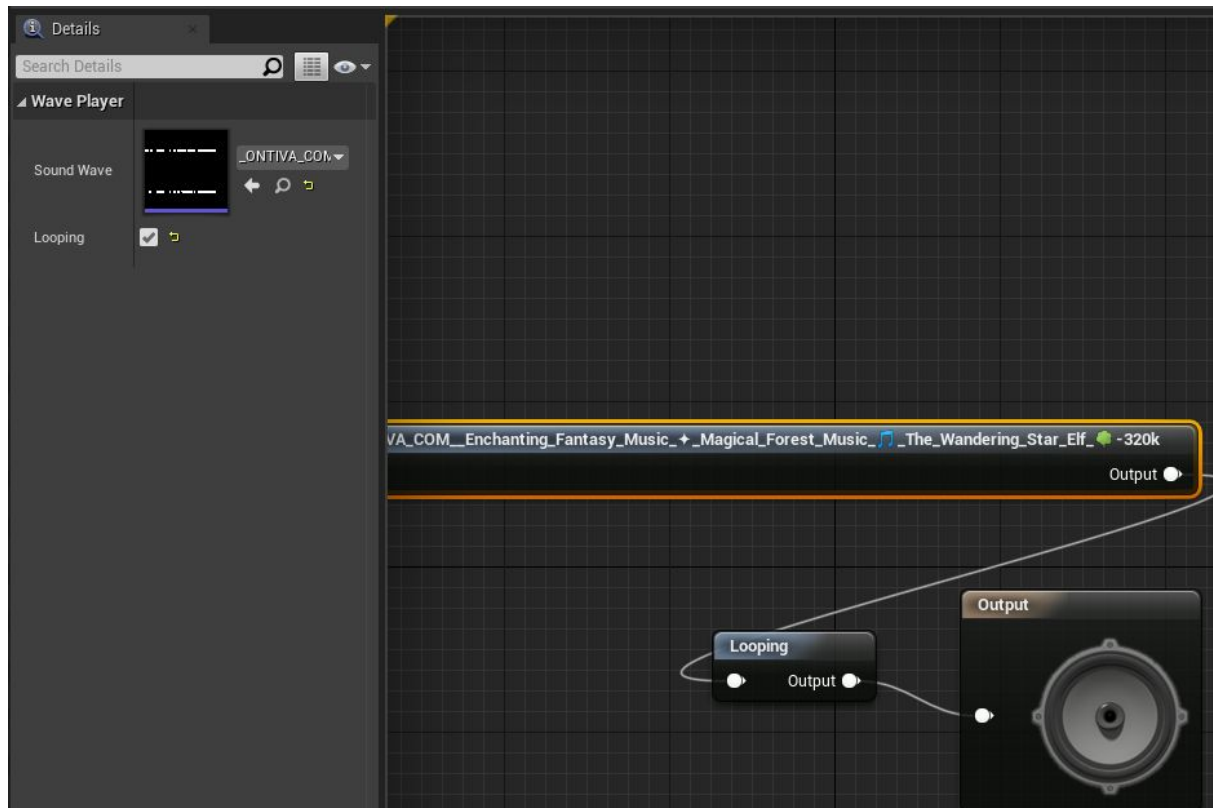
Building my Environment

Building my environment is always my favourite part of creating games in Unreal Engine. This time instead of using copy and paste assets from the Unreal store or from websites such as Sketchfab, which offers free 3D models, I decided to use the procedural nature pack. The procedural nature pack allowed me to create my own magnificent tree, I could make it as big or as small as I wanted to, or even have as many branches as I wanted with the scale of my choice; it is extremely open-ended and really helped me create the exact look I was aiming for. My inspiration came from the tree in Darnassus in World of Warcraft or the tree in Ori, Will of the Wisps.

(Khalid, 2020)

When I first decided to make the tree it was very hard to get grips with. Due to there being so many options and modifiers it was hard to discover what I could do, as I was not fully confident in using the procedural nature pack. Below I have inserted an image of the tree I began with by just messing around with settings, and the tree I eventually ended up with and placing in the world. As you can see there is a stark difference between the two trees and I have clearly developed a skill in using procedural tools in Unreal Engine 4.
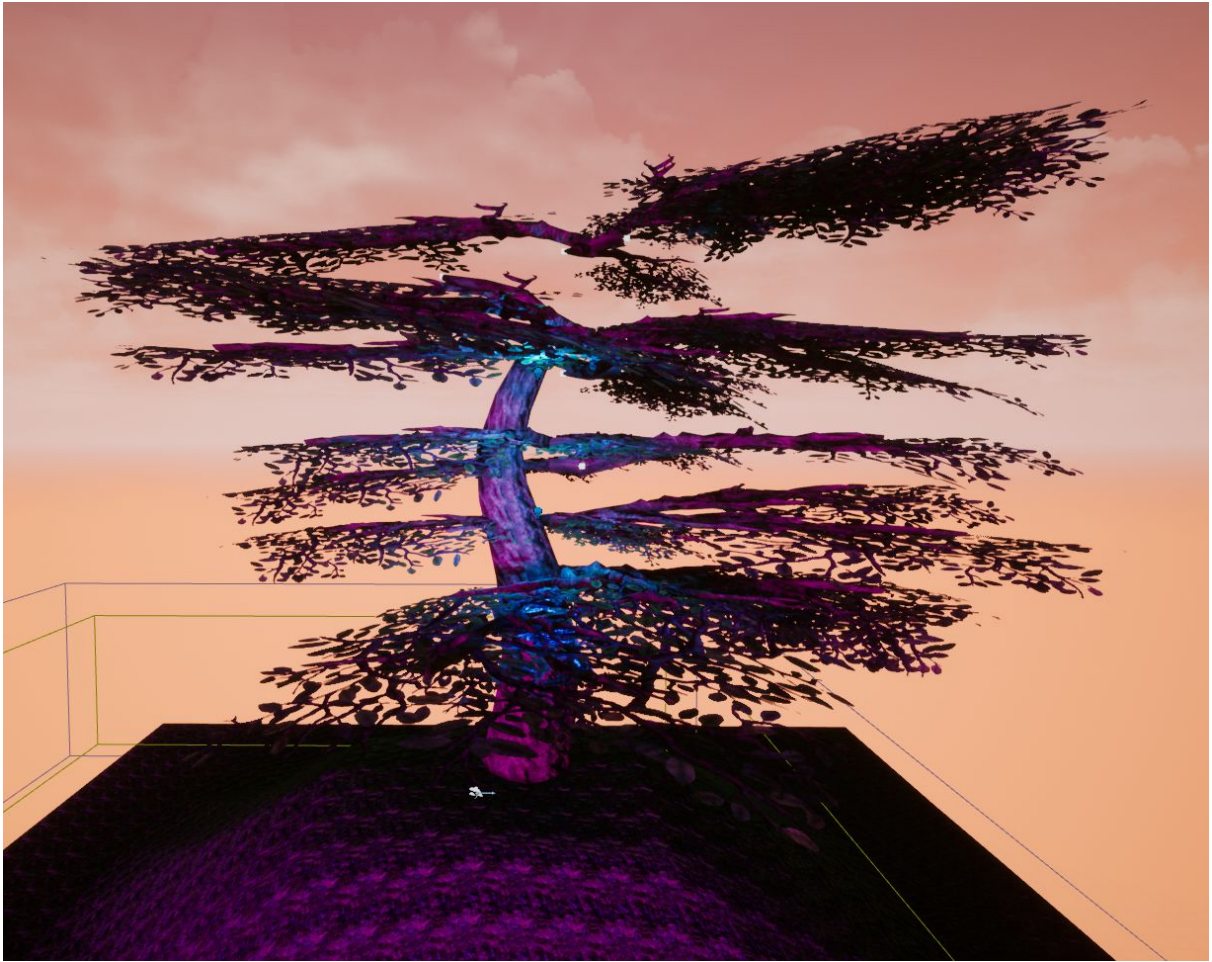
There is something really magical about a giant glowing tree that I just had to include as the main Focus of my interactive menu system. I added multiple moveable point lights and spotlights around the tree in colours such as pink purple and blue which makes the tree stand out as a central focus point in my level.   From this, I wanted to add some particle effects to tie in the magical iridescent sparkle my environment should have. In a set, which I got on the Unreal store, it contains fireflies I had used before in another level last year.   I wanted to make the Fireflies spawn radius big enough so they could be visible all around the giant tree instead of having to add many little orbs of fireflies. For some reason, there was no option to do this and the parameters were not showing up in my details tab.
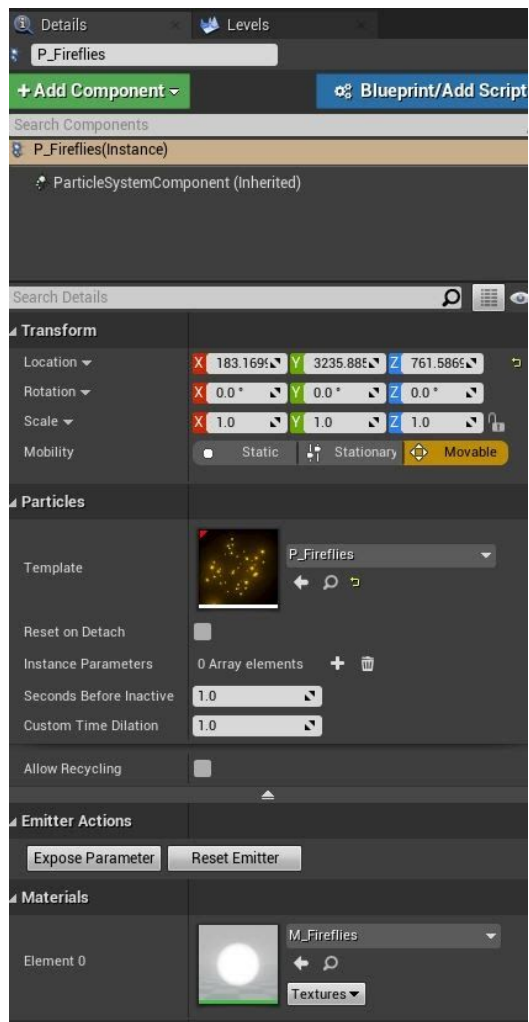
I asked multiple friends for help and even looked on the official YouTube tutorial from the creator and for some reason he had settings I did not. This was extremely frustrating as the Fireflies would really tie my level together, and add such depth to the visuals, however, it wasn't working so I decided to leave it. I eventually came back to the Fireflies weeks later and somehow the parameters had loaded. I'm not sure if there was an error or if I'd simply selected the wrong thing, but now I could change the spawn radius, the brightness, the amount of Fireflies and really make my level sparkle. I am so overwhelmed with how beautiful these particle effects are and I intend to use them in every project I do from this point going forward.

Details | **Levels**

BP_Particle_Fireflies3

+ Add Component ▾ | **⚙ Edit Blueprin**

Search Components

BP_Particle_Fireflies3(self)

▲ ParticleSystem (Inherited)
  Billboard (Inherited)
  Sphere (Inherited)

Search Details

▲ **Transform**

Location ▾	X 2260.43	Y 757.061	Z 6891.0
Rotation ▾	X 0.0 °	Y 0.0 °	Z 37.16199
Scale ▾	X 1.0	Y 1.0	Z 1.0

▲ **Modifiers**

Fireflies Amount	80.0
Fireflies Spawn Radius	6826.112793
Fireflies Size	7.880051
▷ Fireflies Color	
Fireflies Emissive	72.244247
Fireflies Lifetime Increase	0.0
Fireflies Turbulence X	5.0
Fireflies Turbulence Y	5.0
Fireflies Turbulence Z	5.0
Fireflies Turbulence Speed	0.05
Fireflies Turbulence Speed	0.05
Fireflies Turbulence Speed	0.05
Fireflies Light Intensity	1206.564575
Fireflies Light Radius	30.0
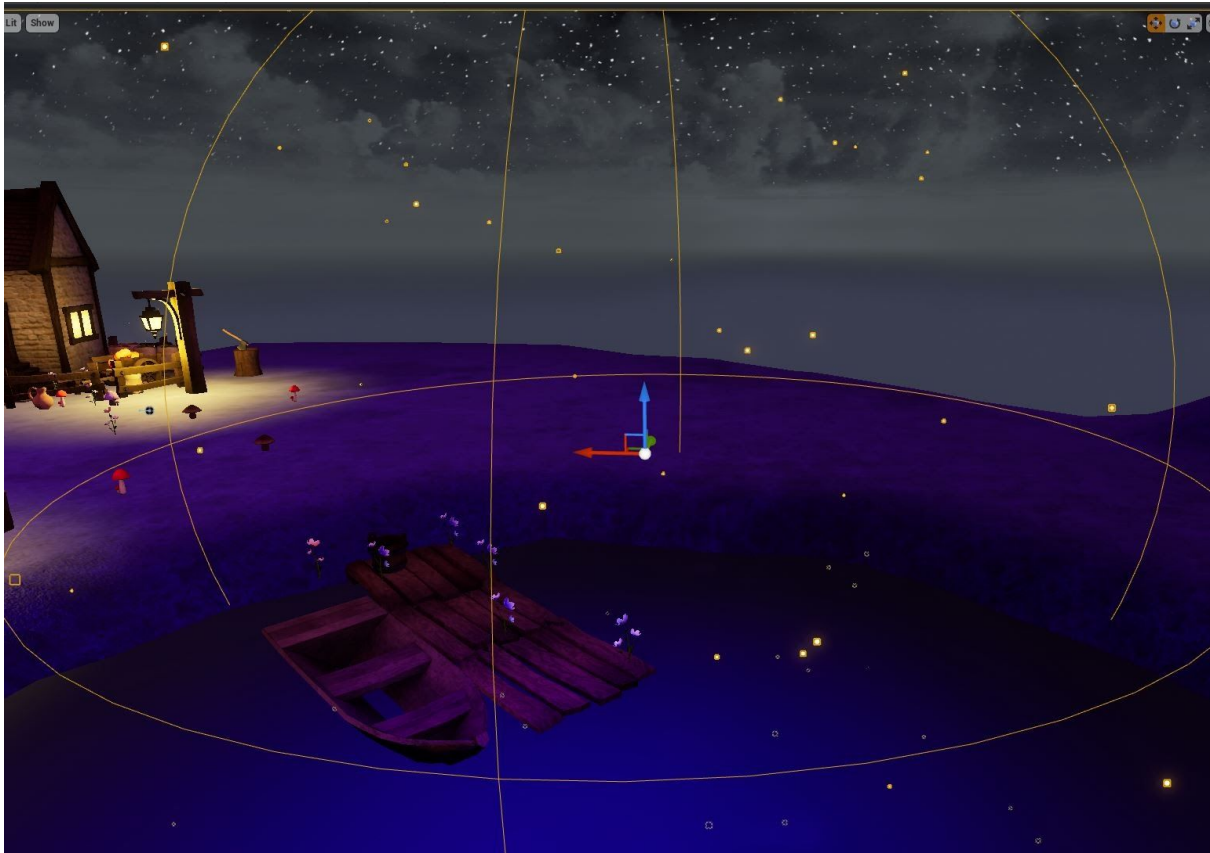
After completing the tree and adding the Fireflies it was time to create more environment around the area as it was looking very barren. I created three small villages using the advanced Village pack from the epic games store.   I had used this pack before in previous levels and fell in love with how beautiful the static meshes were. It also came with animation blueprints already set up to have a moving windmill, light emitting from houses, which can be controlled by parameters. Bugs and other insects hovering around lamp posts, vegetables, wheelbarrows; everything you would need to create a beautiful, fantastical, mythical village.

Perspective   Lit   Show

REBUILT (642 unbuilt objects)

I wanted to have enough actors so that I could start to code my interactive menu system. The intention being after the chosen character is placed into the village, the player can run around and interact with objects whilst still being in a menu. It would be nothing close to proper gameplay, however, I intend to do things such as being able to put logs on the fire, or throwing fruit around and even turning lights off in some of the houses. As mentioned previously interactive menu systems go a long way for a player's experience. It adds extra depth and creativity to a game and is highly appreciated among many avid game players. It would be nice to be able to have more assets that were interactive however it is very hard to find 3D models that would fit the aesthetic of my levels, such as fairies and other mythical creatures. I would create them myself however I am not the best 3D modeller and it would take me months upon months to create something that looked acceptable.
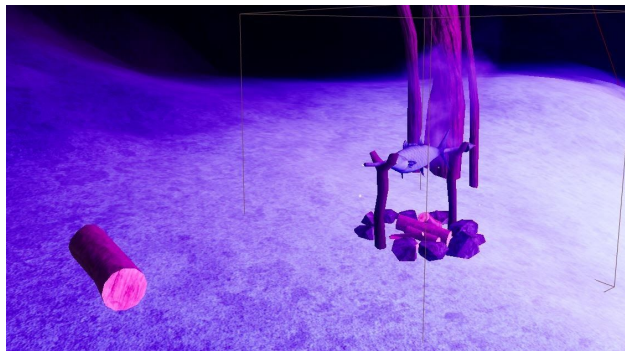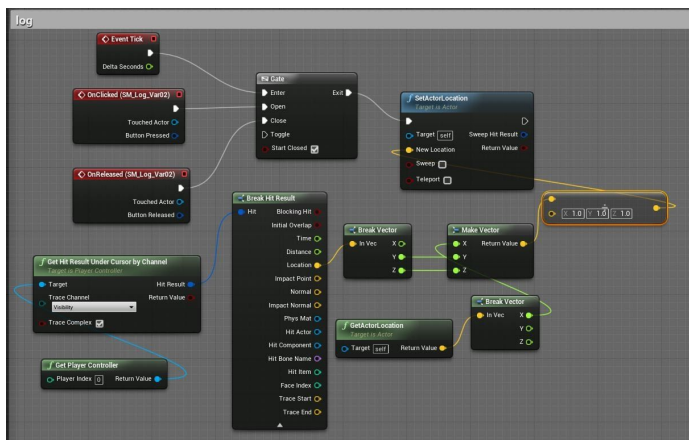
Another feature of interaction I want to add is a moving boat in the river next to my village. I could easily achieve this by using a timeline node and setting the boat on a constant loop however I think it would be an interesting feature if my character could start and stop the boat by simply clicking or even flipping the boat. I feel like this wouldn't be too difficult however I may have a problem with stopping the timeline if my character clicks, and resetting it. I'm not too sure how to approach this however I will give it to go and see what happens in my next attempt. Luckily I am used to timeline nodes from my moving platform game so it should go successfully.
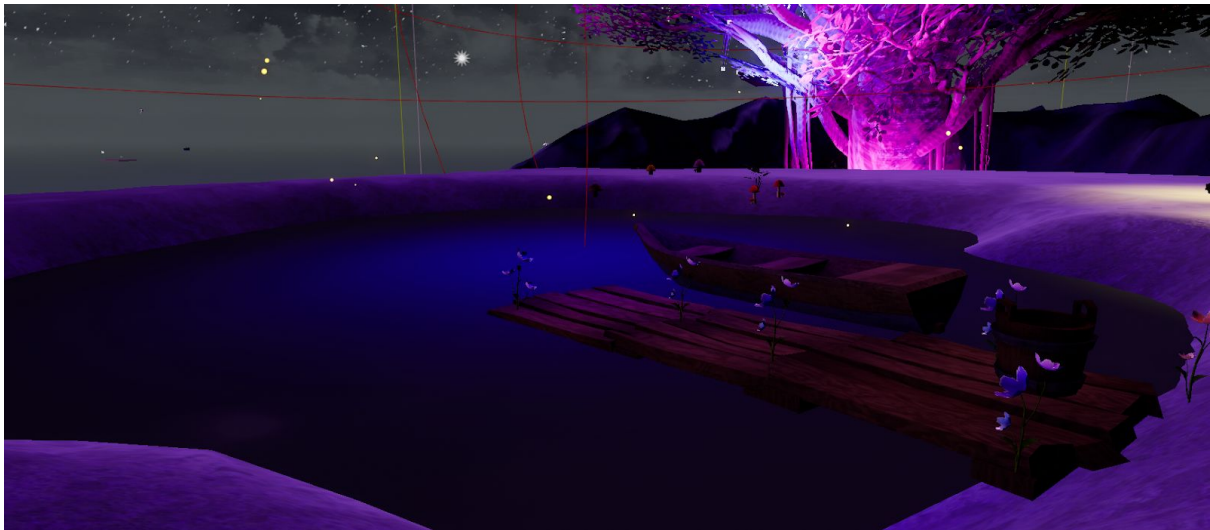
Issues

I was trying to code the log being put on the fire, and I ran into a slight issue with the widget for the menu. It would take up the screen and I could not interact with things behind it. However, to fix this I just made the overlay of the widget smaller and in the corner so that the user can still interact. After this, the main problem was I was no longer possessing the camera of the character which is moving around; I am stuck in a stalemate from the last known position of my sequence camera from the tree to my village. I fixed this with some simple code.

Another problem I ran into which I eventually fixed was I was having issues with the beginning of my game after the splash screen faded. The camera that would be in the viewport would be of my 3D dummy character standing on a platform. For some reason, my character would fall through the platform and not display the view I wanted. This wouldn't be a regular occurrence; it would happen now and again, however, I assumed it was just a bug. It turns out, the platform my character was standing on was in my menu level instead of the persistent level, it was loading at different times to my character, so if my character loaded at first he simply just fell, as the platform was not there yet. This was quite a simple fix however it was very perplexing to figure out what was happening as I'm not used to the program yet.

One major problem I had which broke not just my level but might entire Unreal Engine program to the point where I had to re-download it was the SkyBox. I didn't want clouds and sun on this level, I wanted it to be set somewhere not on Earth so I used a space sphere. The space sphere is beautiful, it has different parameters so you can change the colour of the Galaxy and what planets are visible, the brightness of the stars, everything to do with space. However, when I tried to replace the sky sphere with the space sphere it was appearing very dull and broken and not at all like what it looks like in a material instance. This was very strange and I got a second opinion from a friend, however, she could not identify what the problem was. Eventually, because the sky sphere looked so dull I intended to just put back to the normal sky however it appeared it had been completely removed from the program, including the parameters to change the brightness of the level and the source of the light. I have no idea how this happened and neither does my tutor as I am fairly certain I did not delete anything. This was very strange and I restarted the program. it was still broken, as was another level which contained a sky sphere, which was now just an empty void so I knew it was something to do with the core files of the program and not just my level. I uninstalled unreal Engine and reinstalled it with the help of my tutor who identified that I had multiple skyboxes that were all broken. This was a huge mess, however, we managed to reinstall the program again and fix it. I have decided to keep the normal sky sphere, however, increase the opacity of the clouds and make the sun's points at -1 so that the sky is black with bright stars and dull clouds. It does fit the mood of my level so I am not too upset with having failed at editing the Skybox, however from this point forward I would like

to educate myself on how to change the SkyBox as this is something I would love to do in unreal Engine; especially if I want you ever create a level set in space.

Before and after bloom, fog and expanding land
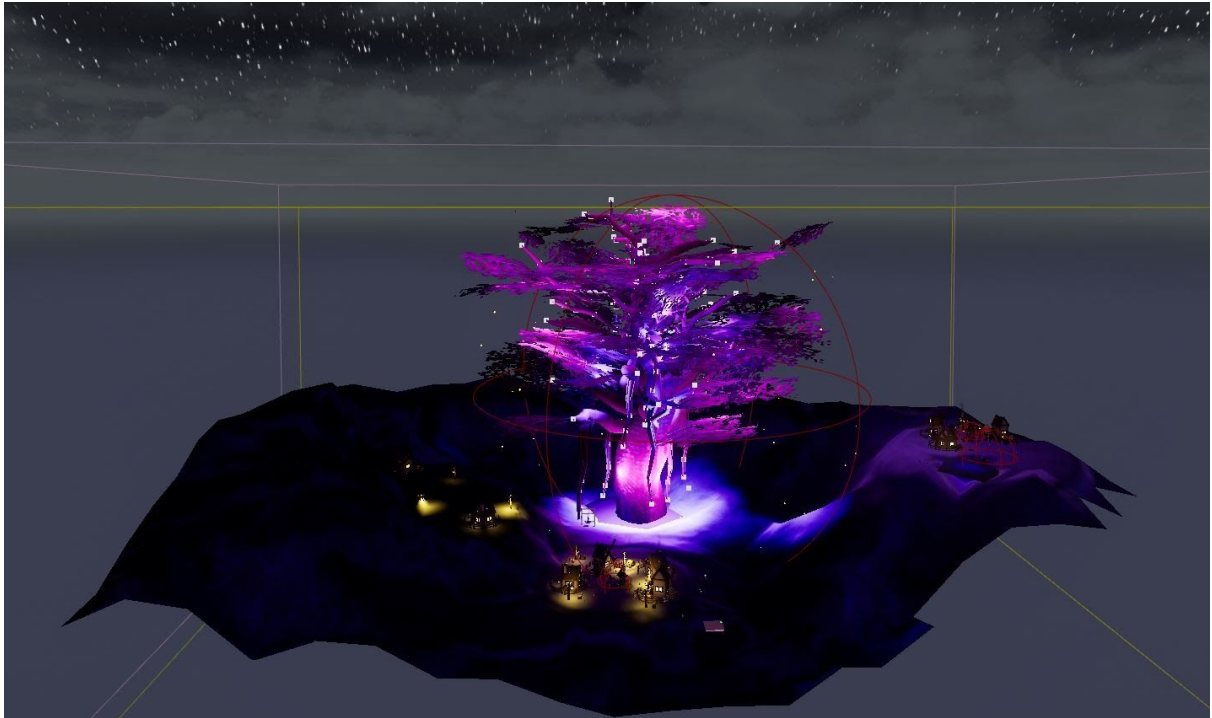
Video Demonstration

https://www.youtube.com/watch?v=8iHcg8sGjMo&ab_channel=EveRusso

Peer Review

For my peer review, I asked two people in total to play through my level and feedback on my UI/UX. The first person I asked was a classmate, who is a frequent gamer and is well versed in multiple different character customisation menus as well as games in general. They said they absolutely loved the design of my level and said it looked " visually stunning" as well as " immersive". I really appreciate the feedback as I put a lot of hard work and effort into making my level design look good.   As far as the menu systems go, they said it was "Easy to navigate and well laid out, with a good choice of font to match the style of the game."   I asked them if anything was confusing, not clear, or if they had any critiques at all. They did say "The part where you select the character would

have been nice if they lit up so it was clear you had to click on them." However they still did this without having to ask me. This greatly contrasted to the second person I asked to review the UX/UI of my level. For the interactive part of my menu, she loved the way the camera was positioned and really enjoyed that she could drag the fish into the cauldron causing it to burn, and the ability to turn the light off and on was "Really cool." I asked if there was anything she would have or anything should like to be able to do in the menu, to which she said, "It would be really cool to add a radial impulse to knock things over, I think that would be really fun." I really like this idea and I think I will definitely incorporate this into my game, I want to build a stack of logs and maybe a pile of pumpkins, which my character can press a button and fire a radial impulse.   I think this would tie my whole interactive menu system together and I intend to add this.   It wouldn't be hard to do and I would just have to make the actors I want to be affected by this have the simulate physics option enabled in the details panel.

For my second peer review, I asked an older woman in my family, who does not frequent in playing games at all, aside from simple mobile apps, to play through my level. She managed to navigate the original menu however when it did come to selecting the character she was very clueless as to what to do to progress through my game. After I told her to click the character, she also wasn't aware that she had to press the customise button until it was lit up. This showed me that when creating UI and UX I have to be aware that not every person using my menu system is used to navigating through them frequently. The only reason my classmate knew to click on a character is that they are used to playing games where that is a common function, and they'd know to try it. To fix this issue do I plan to implement either a texture or a trigger box when the mouse cursor hovers over a character a spotlight will become visible on one particular character, so it is clear to my user select the character.   I may also add text on the select character screen which says something along the lines of ' click the character you want to customise'.   In the next screen, if that character is chosen, I will then add more information about the character and a big button which says customise this character. This is a very important feature when designing UX and UI, as it is easy to overlook small issues like this because of my experience with games and navigating menu systems, that I forget other people do not have this experience. It's ok to tailor things to a certain demographic however I cannot guarantee when creating UI that no one out of my targeted demographic will be a user. For future reference, when testing my UI and researching other UI, I will ensure everything is made extremely clear from this point going forward and that these problems will not happen again, as I do not want to give any users a bad experience due to my lack of peer review.   Aside

from the menu system itself, she said the level looks "brilliant" and very realistic. She particularly loves the tree and said it was very "interesting to be able to fly into it, being on a menu." She also said she loves how "When the costume is done changing you can now play as her in that costume." In regards to my interactive system. She said it's "Really fun." And particularly enjoyed turning the light off and on above the house. I asked if there was anything else she would enjoy within the interactive menu that she would add herself, and she said: "It'd be nice to pick up more things." I agree with this and I don't think I could overdo being able to move actors within my interactive menu.

Q&A

I asked five of my peers some questions about my level.

"Did you find my menu system easy to navigate?" 100% said yes.

"Did you think the menu system was visually appealing?" 100% said yes.

"Is there any section you thought was visually unappealing or confusing?" 100% said no.

"Did you enjoy the interactive elements of my menu system?" 100% said yes.

"Is there anything you would've changed?"
    "Something to indicate you need to click on the character."
    "More interactive elements would be fun."
    "More characters/clothing choices."
    "Nothing I really like it."
    "More fish to burn!"

In conclusion, my menu system was easy to navigate and my Q&A answers are a summary of what I received in my peer review. I will add more interactive elements in the future and more obvious indicators for click events.

Evaluation

The project I was given was to create a character customisation menu in UE4, as well as researching and taking into account the importance and uses of UX/UI. I explored different types of game mechanics, visuals and different ways to implement my knowledge of UX and UI in the game. My goals were to be able to

change the skins of characters in a selection screen using buttons pushed by the user, as well as create an interactive menu system.

In Unreal Engine 4, we had to use our skills and online tutorials provided to create the interactive menu system, demonstrating our knowledge of UX/UI, character implementation, in-game environments, sequences and in-game nodes. I had to make the level look visually appealing, and add multiple camera sequences, finally adding a menu system with an animated splash screen and SFX noises on the buttons. I completed what the brief asked me to do, to a good standard of work. I produced a series of different mechanics within the interactive menu, such as a burnable actor (using a particle effect and a destroy actor node). I used a dispenser to regenerate the burning fish, as well as a switch to turn off and on the lights around a house. I also successfully implemented the cameras and created a successful series of sequences, three big ones in total. I then created my menu, which I think I did a good job of the design with. It would have been a lot better if it would have been even more animated by using after effect, however, I ran out of time. I didn't have time to perfect a character selection screen where they lit up on hover. It seemed very confusing and I ran out of time.

Most of my research came from opening up games and watching playthroughs. I looked into different types of menu systems, in class and at home, and looked at how the mechanics worked and through tutorials linked by my tutor either via the portal or Microsoft Teams. I looked into games which use interactive menu systems, such as COD, Psychonauts, and others. This was very interesting to research as you can really see how much time it takes to create these interactive systems and how it has to look good to be received well by an audience. I used mainly secondary sources as we have been home, and had to use only the internet and games I already own to experience interactive systems for myself. I interpreted this research to develop ideas, as it gave me more of the scope of what I could do with my interactive menu system, and what would take too long to perfect by myself. My first thought was to have the big purple tree in a land of mythical creatures, where the camera would fly around as though it was the point of view of a winged creature. This idea could easily be done as I had the correct meshes, environment, and UE4 Packs. However, this is something I may like to look into recreating in the future as I have experience using the Procedural Nature Pack now. When researching different environments and texture packs I used the Advanced Village Pack too, as I had used that previously in other levels and I enjoyed the aesthetic of the packs. I looked on websites such as sketchfab for other meshes to use however I already had everything I needed in the pre-packed packs.

I used Photoshop for all of the UI design, as it is the only software I am confident in using for completing designs, however in the future I might choose to make some animated designs using Adobe after effects, as a few people in my class used this for their menu systems and I really liked the look of it. For future planning and design, I will still use photoshop as I use that for design in general, but may even try illustrator for some of the button designs. Adobe Photoshop is fun to work with, and it helped me achieve my ideas to a great extent.

With the world, textures, light strength and textures, as well as the variety of available objects, the simplicity and flexibility to play around really give me a lot of free space to put everything together, the concepts in my mind to layout an aesthetically appealing level. It is also becoming increasingly easy to understand the code and branches, and they are beginning to become incredibly easy to me.

I felt like I handled my time within the brief very well, I made sure I did the level design as fast as possible, as I know that when I have a concept, it's the easy part, so I need to complete it as rapidly as feasible so I don't overlook the specifics. It would have been good to draw out everything I needed in more depth, but I felt I did everything within the stage at a reasonable time.

I struggled towards the end as the underlying mechanics of the game, specifically, the game instance wasn't up to standard, so I wanted some additional time to master it. While undertaking this in Unreal Engine 4, I designed my project and ensured to fully examine each transition within my sequences. I feel like in this I should have advanced a lot more, but it was very difficult to do so because of the time frame, and whilst creating something completely new such as a game instance.

I didn't use a formal timetable, but our tutor gave us online tutorials in order so this enabled me to clearly see just what I needed to do for when. I met the requirements imposed by myself, which was good, as with this brief I genuinely put in a lot of effort and learned a lot, forcing myself to try and achieve the utmost I could. I structured my tasks well, but by the end of the project, it was a little overwhelming.

Youtube Video Tutorials I Used

Highlight Object on Hover in UE4
https://www.youtube.com/watch?v=ctToub0bwrA&ab_channel=CodeLikeMe

UE4 Tutorial: Wall Switches
https://www.youtube.com/watch?v=7fUgU1wpBJ4&t=411s&ab_channel=RyanLaleyGames

UE4 Tutorial: Falling Leaves Particles
https://www.youtube.com/watch?v=aJe1ysBGbXs&t=523s&ab_channel=DeanAshford

UE4 Tutorial: Light Switch
https://www.youtube.com/watch?v=AmbD2twuuKk&t=216s&ab_channel=DeanAshford

UE4 Landscape Tutorial: How to Create REALISTIC Mountains!
https://www.youtube.com/watch?v=o9oRdazovoM&ab_channel=GavinEisenbeisz-TwoStarGames

UE4 Change Default Sky
https://www.youtube.com/watch?v=6Wp8xYbvhYg&t=126s&ab_channel=LevonChurch

Unreal Engine Tip #1 Changing Between Pawns and Possession
https://www.youtube.com/watch?v=UXFl_yWQjLs&t=309s&ab_channel=KevinRushin

How to Outline Objects | Unreal Engine
https://www.youtube.com/watch?v=9fxnv2ccklg&t=918s&ab_channel=VladyVeselinov

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