

# Ethan Baldwin's Gart160 blog



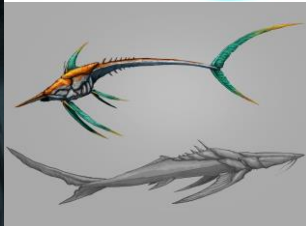
# Ethan Baldwin's Gart160 blog

**Week one-** This week was the commencement of the gart160 project where we were tasked with creating a three-story terrace shop to be positioned in the fictional Diagon Alley from JK Rowling's Harry Potter. This week I focused on developing a good understanding of the context of the assignment by doing research into both the architectural design of Victorian era shops as well as the sets and locations used during the filming of the Harry Potter film franchise and specifically the location used for the Diagon Alley scenes, Leadenhall Market in London. I compiled a series of reference images focused on my research, which I used to inform my creative direction moving forward, the main points I picked up on were the use of bay windows on the ground and the prevalence of sash windows. The architecture in Harry Potter followed many of the themes of Victorian architecture except the clean lines and right angles present around this time period have been distorted to lend a more fantastical twist to the buildings.



# Ethan Baldwin's Gart160 blog

**Week two-** I focused on coming up with a theme and some initial ideas for the shop itself, I decided to settle on an aquatic theme, taking the form of either a fish shop, pet shop or aquarium. I wanted to maintain the core Victorian shop aesthetic whilst adding more fantastical creatures which would contrast with the buildings traditional profile and help it fit within the setting of Diagon alley and the wider harry potter franchise. The brief states that the building should be three stories in height, and I plan to make the uppermost story of the building into a fish tank or an aquarium as this would allow me to add a central feature to the building in a similar vein to the dragon on top of the Gringotts bank in the film series. Whilst it is tempting to try and make the building more 'magical' having looked at the architecture present within shots of Diagon Alley in the films the shops are primarily Victorian in style with only minor changes as opposed to being built from the ground up to exist in a fantasy universe. In terms of texturing, I plan on using quite heavily weathered textures to give the illusion of the building having stood the test of time, this will make the building feel more 'lived in' as well as breaking up the uniform tile-able textures.

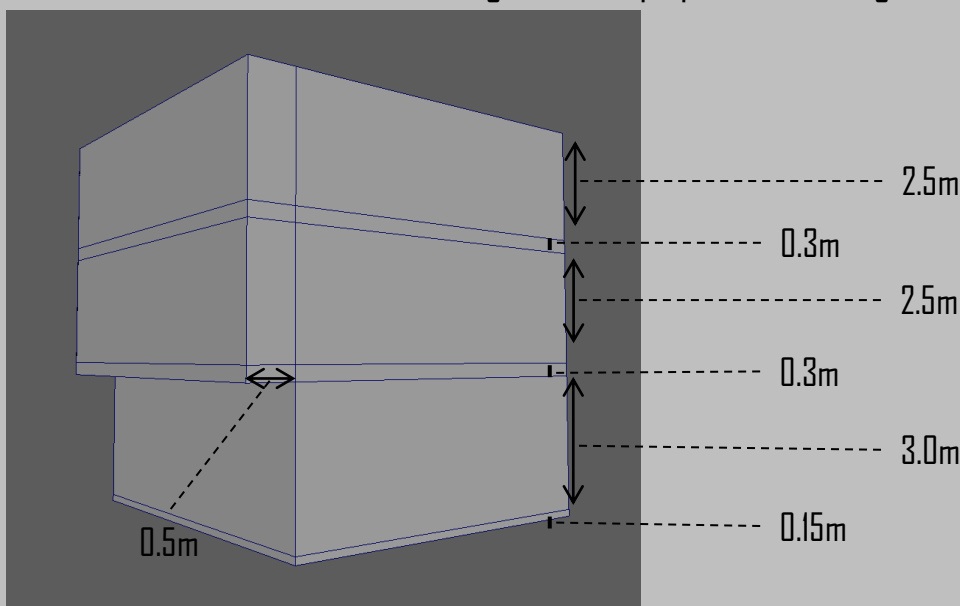


# Ethan Baldwin's Gart160 blog

**Week three-** This week I commenced blocking out the building itself, before starting in maya I compiled a list of dimensions that would help me scale the building and make it look realistic, I did this with the help of my father who is an architectural technician and thus was able to provide me with standardised measurements for different aspects of the building, these were as follows...

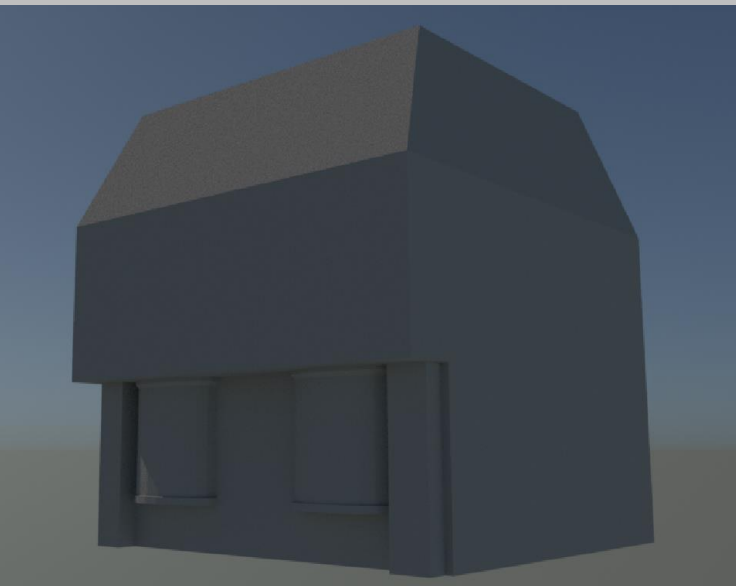
- A person is assumed to be 1.8m tall.
- Doors are all 2.1m high and around 1.0m wide.
- The ground floor is usually 0.15 above street level, with a step or ramp at the entrance.
- Modern buildings are around 2.5m high from floor to ceilings, but shops etc are noticeably higher around 3.0m. the floor thickness between ground & upper is 0.3 m.
- Window usually line up with the top of the door and are around 1.2m deep, shop windows can be deeper. Upper floor windows follow the same rule of 2.1m top head and 1.2m deep.
- Bricks are .075m high, stone around 0.225,
- Roofs have an overhang and a gutter at the eaves, roof pitches are 30 degrees and upward. Gutters are 0.1m square or half round.

With this information I was able to make a crude cube shaped model which defined the outer bounds of each floor and the edges of the building, I made the second-floor cantilever over the pavement slightly to allow me to hang signage over the entrance which I noted as a common feature amongst the shops present in Diagon alley.



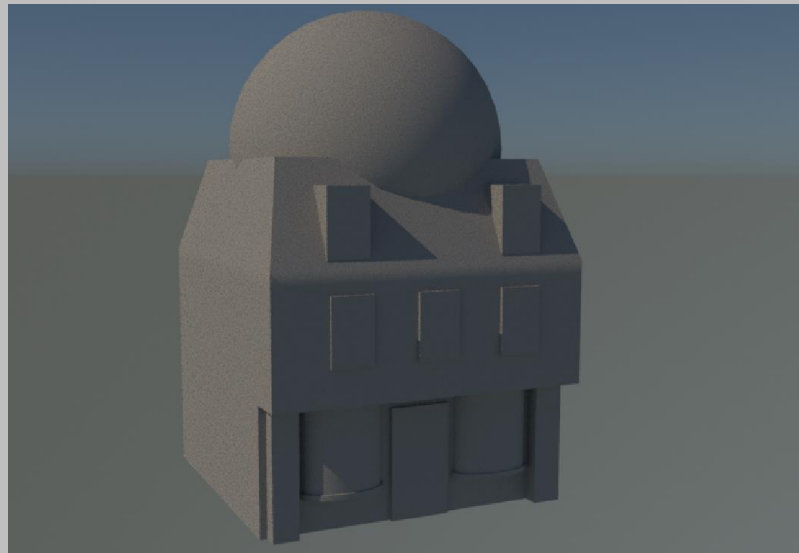
# Ethan Baldwin's Gart160 blog

**Week four-** This week developed the block out further by adding details to the front façade such as two bay windows on the ground floor I plan to split these windows up into small glass squares separated by wooden pieces as this is the style most prevalent in the reference images of Diagon alley. I will hopefully model some merchandise to display in these windows later in the project as this will help to solidify the model as a shop and not just a generic terraced house. I also created a set of pillars to flank the building as this is architecturally accurate so as to support the cantilevered first floor as well as adding further detail to the front of the building which was looking a little bland. I also added a slope to the roof following the angling guidance from last week this helps the block out look more like a building. I am unhappy with the lack of differentiation between the first floor and the roof so might add some guttering to break up the buildings shape.



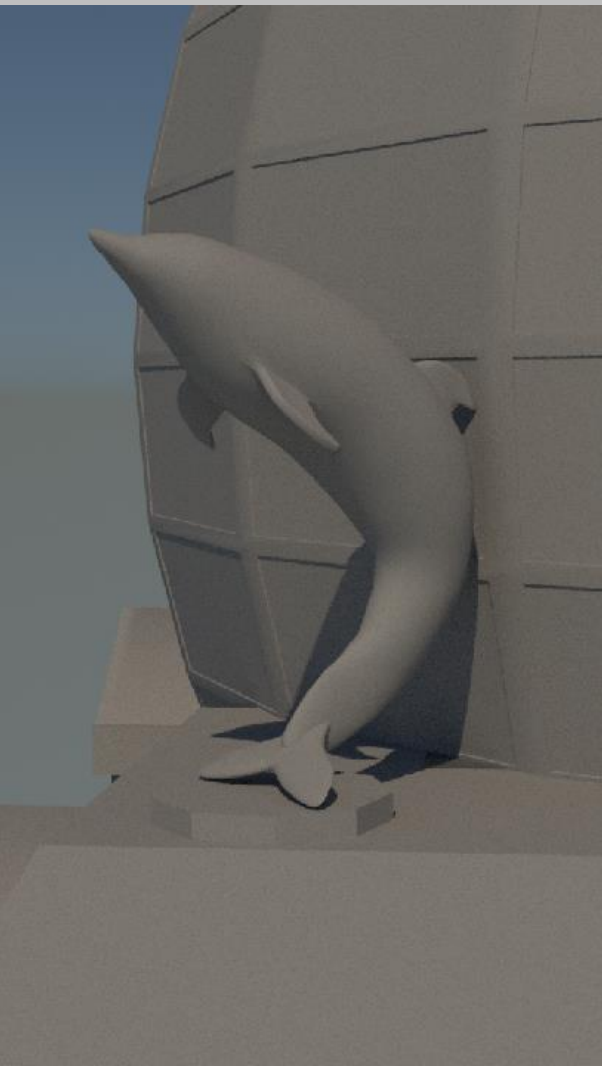
# Ethan Baldwin's Gart160 blog

**Week five-** This week I focused on developing my block-out to include the large fish tank on the top of the large fish tank on the top of the building, I decided to make this a large sphere as this would allow optimal visibility of its contents whilst contrasting the angular look of the building below. I plan to make the tank resemble to glasswork that was present on the iconic crystal palace as this is one of the most recognizable examples of Victorian architectural design ever created. I plan to model, rig and animate a fish to swim around in this tank but understand that this may be a little overambitious so may come up with an alternate solution dependant on time limitations closer to the deadline. I have also added some cubes in place of dormers to the roof to ensure the building fits the brief of having three stories. Dormer windows are also commonplace on Victorian buildings and thus I felt that they help to place the buildings architectural design as that of the Victorian period as outlined in the brief. Further to this I added a set of windows on the first floor as well as a door on the ground floor, the centre of the bay windows lines up with the side windows on the first floor as does the central window and the door.



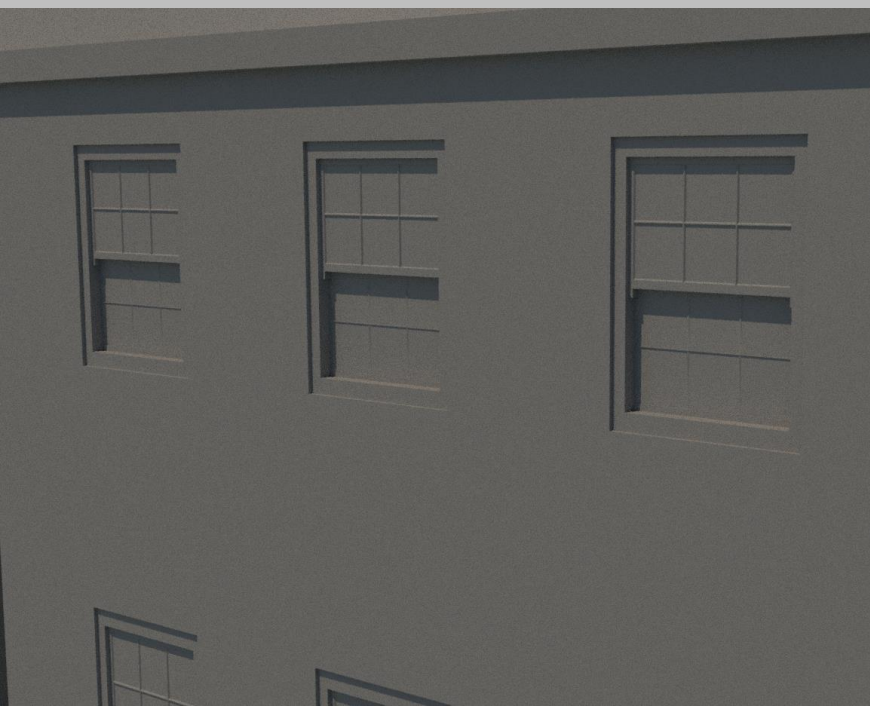
# Ethan Baldwin's Gart160 blog

**Week six-** This week heralded some significant changes to the shop, firstly I added an additional story to the building as I was worried that the shop felt to squat in comparison to the references of Diagon alley I was using. I also added a set of guttering between the second story and the roof as well as a gutter between the ground floor and first floor. I also decided that the roof looked too bland and that the dome stood out too much, so I remodelled the roof to roughly replicate the look of a stone set in a ring with the four corners rising to meet the side of the sphere to cradle it whilst still enabling a large portion of the dome itself to remain visible. I then modelled a dolphin which I used as a decorative piece to go on top of the raised corners of the roof and act as gargoyles, the dolphins also help to lend a more fantasy-esc style to the building. they also help to make the tank on the top of the shop feel more integrated into the building as a whole and blends the hard angles of the lower floors with the softer edges found on the rooftop dome.



# Ethan Baldwin's Gart160 blog

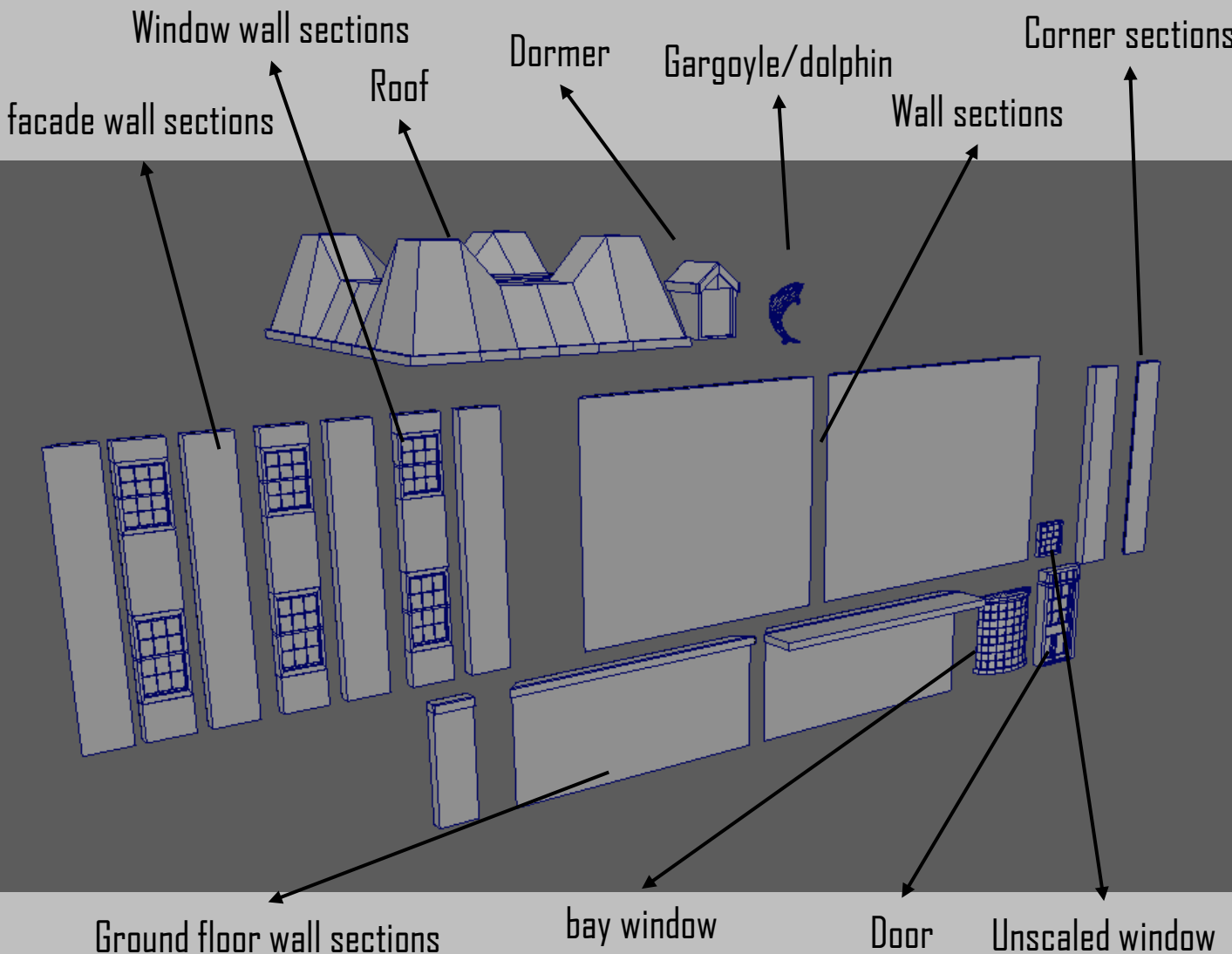
**Week seven-**This week I focused on transitioning the models from block outs to higher poly, more detailed assets whilst keeping modularity in mind. Firstly, I modelled a sash window, I settled on this style of window as from my research I have found that this type of window is most commonly used in Victorian era terrace shops as well as featuring heavily in my reference material for Diagon alley. In the interests of modularity, I have created one standard window asset with will be used 8 times throughout the model, three windows on the first floor, three on the second and two in the dormers on the roof. Each window will be the same just scaled slightly smaller dependant on the floor with the windows on the lower floors being larger than those on higher floors as this is common architectural practice. The bay windows are both identical so again one model. Finally for this week I modelled the door, I tried to keep a similar design style between the door and the windows keeping same square panes of glass with wooden dividers approach and square edges. I also added a step up to the door, but this is still a basic cube for the time being.





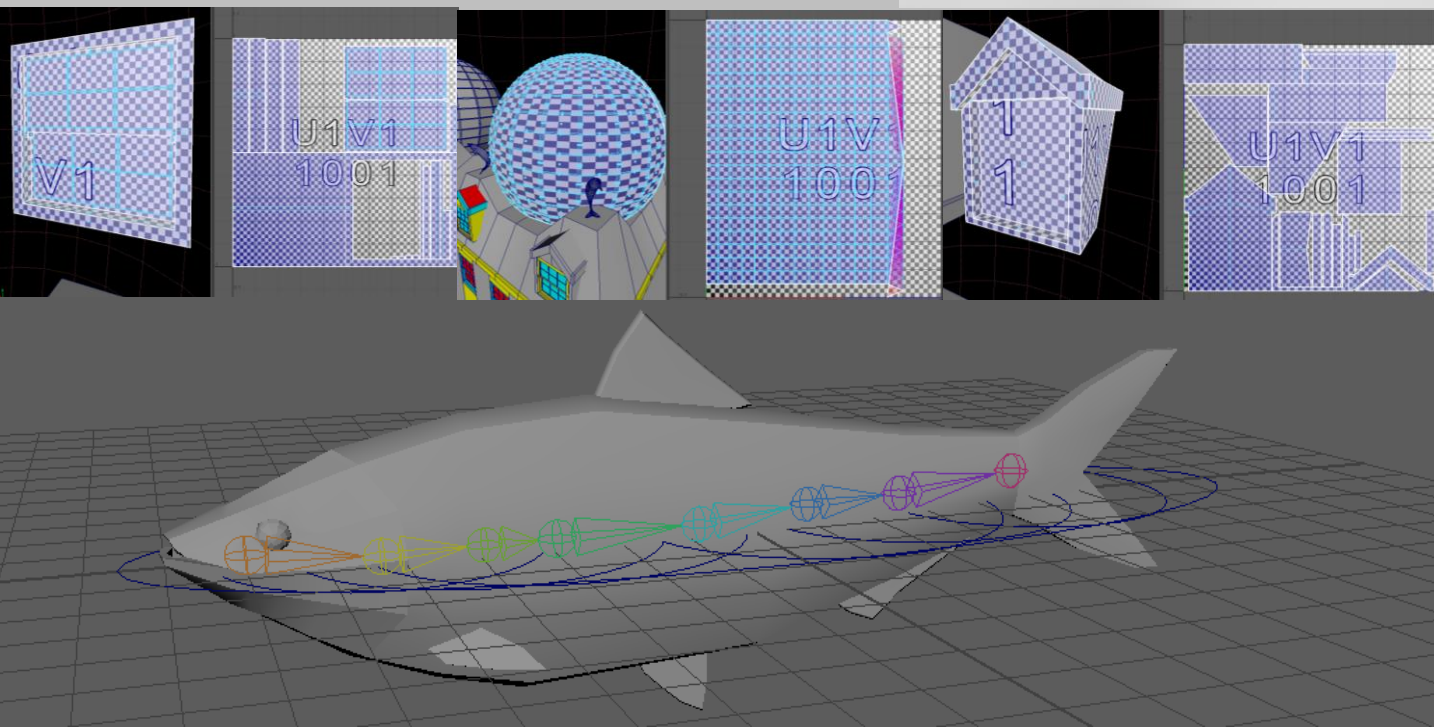
# Ethan Baldwin's Gart160 blog

**Week eight-** This week's primary focus was to break up the model into its modular components initially I planned to split the model into 1m wide segments two stories in height but quickly realised this was highly inefficient and instead settled on breaking the façade of the building into 2 distinct segments: one segment which is two stories tall and 1m wide and an identically sized segment but with two windows positioned at the correct heights inset into it. I then split up the remaining walls into segments matching the size of the whole wall as opposed to further segmenting it unnecessarily. Owing to the fact that I had modelled the building with modularity in mind from the start apart from these changes to the wall little was required to be done in order to ensure the shop was completely modular. Once I had compiled all the modular pieces, I exported them all into engine to test they worked. Apart from the fact that nothing was UVed, so lighting was not calculated correctly, everything else was working fine.



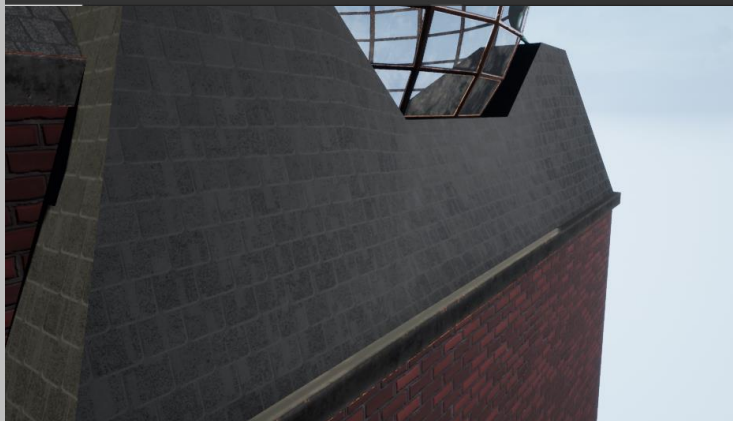
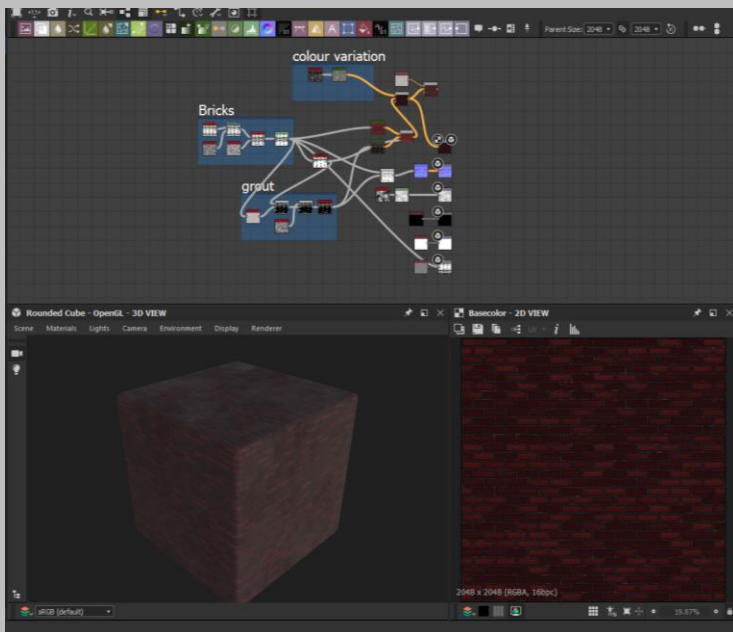
# Ethan Baldwin's Gartic160 blog

**Week nine-** This week I commenced the process of UVing the entirety of the shop as this is something I had not begun to do (In hindsight this was probably a mistake, and I should have probably been UVing the models as they were made). With that being said, on the whole this was a relatively painless process. The only models that I struggled to UV were the dolphin, dome and bay windows. The dolphin was hard as it was already posed but I eventually managed to UV it by going back to a previous iteration of the model before it was posed and UV it with the help of the cylindrical mapping function and then reposing it. I used the cylinder unwrap on the bay windows in combination with the planar map function and although there was some distortion towards the centre of the window it seems to be fine when I texture it in substance painter. I used the spherical mapping function to try and map and after multiple failed attempts I was able to find a satisfactory unwrap even though it was rife with artifacts, these are not too noticeable when textured but If I decide to attempt a spherical object again, I will definitely seek further help when it comes time to unwrap it. This week I also modelled and rigged the fish that I intend to swim around the tank at the top of the shop but I will probably animate this next week or the week after, I made this model and rig with some assistance from this tutorial (Alvarez ,A,2019)



# Ethan Baldwin's Gart160 blog

**Week ten-** This week I imported all various models that make up the shop into unreal engine to start building the scene for the final submission. I added the tile-able brick texture that made back in week five to all the relevant assets as well as a tile-able roof tile texture that I had modified from a texture on [substance.com](https://www.substance.com) (CGtextures, 2019). I had to make some further modifications to the UV maps of the walls as they were not quite scaled correctly and thus the bricks did not line up properly. I also made some changes to the ground floor front wall by cutting out holes for the bay windows and door to inlay in as this was something I had meant to do from the beginning but forgot. I also modelled the pillars that flank the buildings entrance and made them into small aquarium tanks that could be used to store more exotic creatures to further the magical aspect of the building.



# Ethan Baldwin's Gart160 blog

**Week eleven-** This week I focused on adding unique textures to all of the remaining assets, I choose to use a dark walnut for most of the wood parts of the building such as the pillars, door and window surround as this is a dark wood most closely resembling the materials seen in my reference images of Diagon alley. I used a dirty glass smart material with a dirt mask for all of the glass panes as this gave the shop a more mysterious tone by obscuring the players view into the building. The dirt is significantly more prevalent on the aquarium dome as this allows me to have a less detailed fish model as the player will not be able to make out the full fish furthering the mystery. I decided to texture the

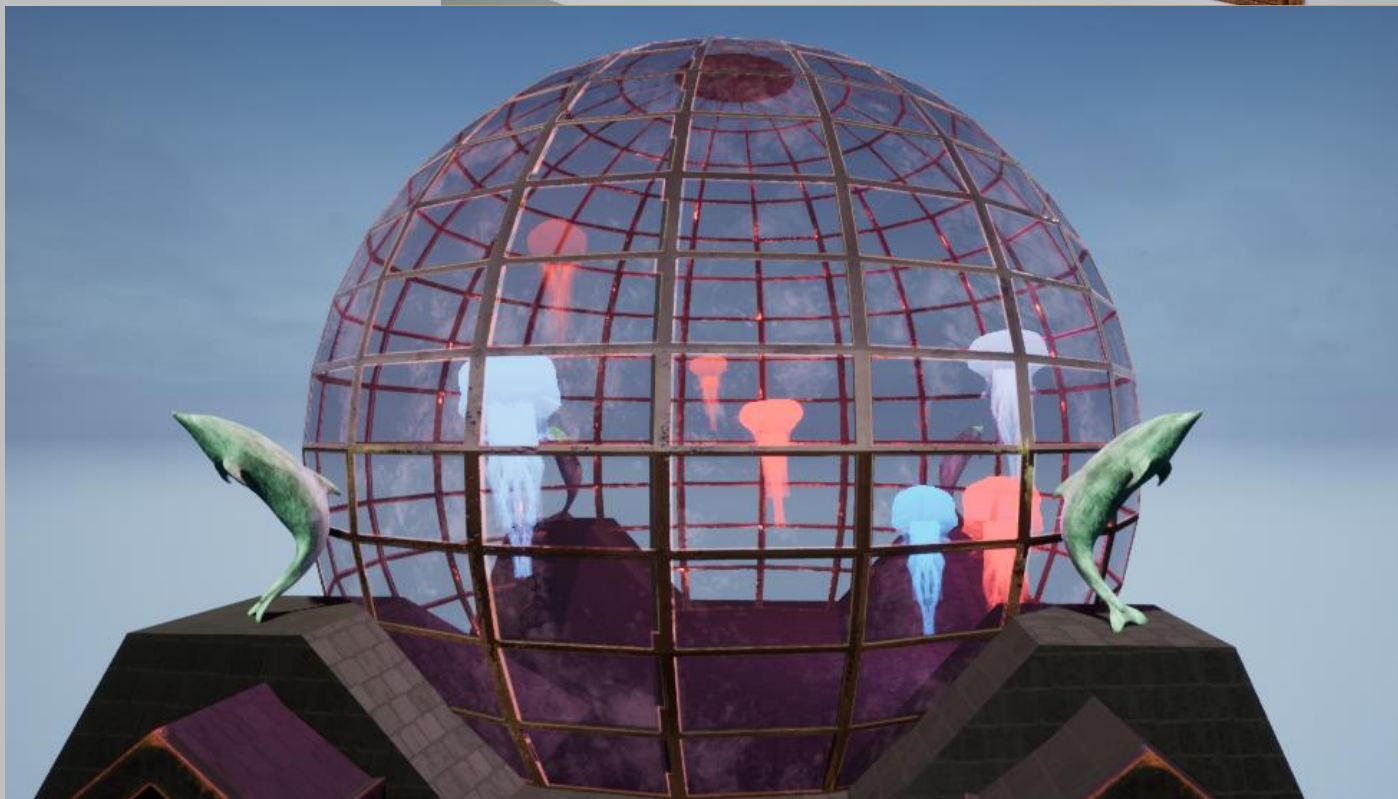


dolphins. I used a weathered bronze material to further the idea that the building had been standing for a long time and has succumbed to the elements. Overall, I hope that the textures turn the very clean lines of the building into a more rugged and beaten image better suited to the dark world of Harry Potter.



# Ethan Baldwin's Gart160 blog

**Week twelve-** This week I had a change of plan, I was originally intending to add in the fish animation, and have it swim around the tank, but I instead decided that it would be too complex and despite having a rigged fish model I felt it would be better to go with a more magical creature and settled on creating jellyfish. I felt the best way to create the illusion that I wanted was to have the jellyfish be part of an emitter that way I could easily have a large number of creatures 'swimming' through the tank without requiring complex animations or large numbers of models. I found a very helpful tutorial which pointed me in the right direction but didn't quite achieve the effect I wanted (CGHOW,2019). Once I had made a jellyfish system using the Niagara plugin in unreal engine I was able to set a variety of multicoloured glowing jellyfish to 'swim' in both the aquarium dome and front pillars. This added the magical element to my model that I was worried I was missing and also helped make a start on lighting the scene.



# Ethan Baldwin's Gart160 blog

This blog is due in prior to the completion of the project so I will dedicate the remaining words to explaining my next moves. I still have to properly light the scene and add a base to the shop. I think I am going to opt for darker lighting so that the jellyfish stand out more, I also need to add a sky environment that can be reflected in the windows and other glass objects. Another focus for the next couple weeks will be adding more branding and smaller assets to the shop as whilst I am happy with the model as a whole, I feel it could be made to feel like more of a shop than the generic building it is currently. I also intend to refine some of the textures and maybe change the way the roof is modelled to better accommodate the dormer windows.

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- Andrew R Baldwin- assisted with colour choices and provided reference dimensions



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