Jared Nickson - 3d Diorama and Presentation

by Jared Nickson

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Module: Environment & level Design

Module Code: ACCA4032

Assignment Title: 3D Diorama and Presentation

(Pages 15 – 19 are my screenshots of my Completed Diorama and the 10-minute presentation of my Diorama)

My work:

For this assignment I have been tasked to create a 3d diorama and presentation with the 3d diorama being something of my choosing. We must create 1 structure, either interior or exterior for us to arrange our props around, *at least* 1 textured object (mainly the floor), *at least* 3 medium sized objects, and many small objects. I am to arrange my props in a convincing and visually appealing way to form a themed diorama of my choosing.

For my structures theme I have created a Japanese style temple or more specifically a Pagoda for my 3d diorama. I have created a few katana, lamps, fences, chairs, and tables for my medium and small sized props. I have placed them in a convincing and visually appealing manner that makes them seem realistic. I have also implemented textures on all my objects, and I have done UV unwraps for all my objects too.

Here is my reference image I have used in maya to help me understand the designs and shapes of a Japanese temple: [1]



I used this image as a reference to guide me with how to design my structure. I did not want to copy this image one for one, so I adapted and created a structure with the same designs and shapes as one of these Japanese temples.

I also used a reference image to help me create a katana, but I forgot to save the image and I do not have the image to show here.

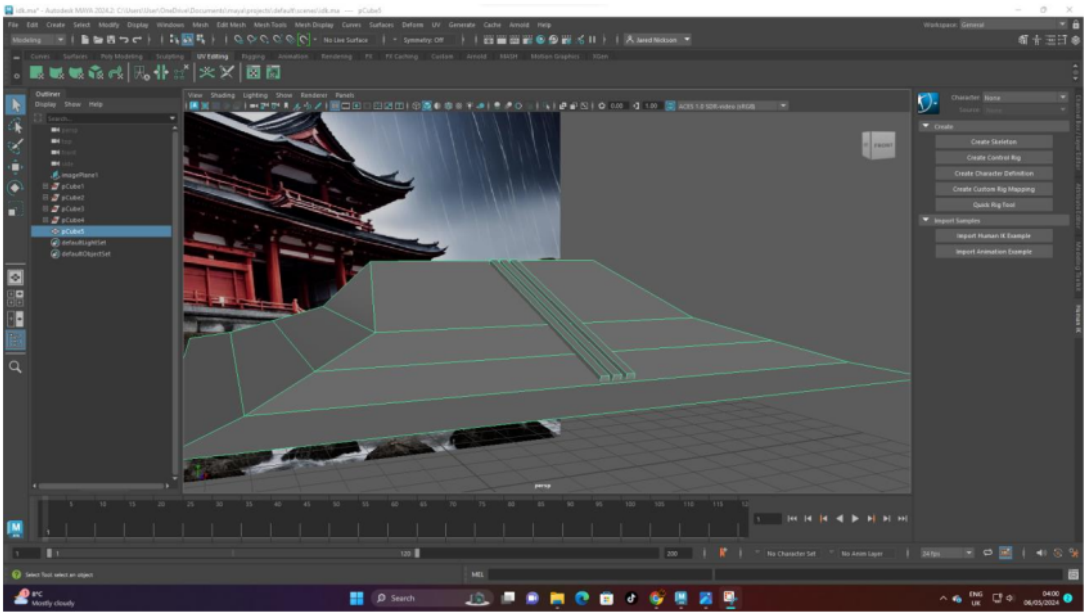
For my chairs, tables, lamps, and fences I did not use any reference image, so I created them from memory, and I went with the flow. I did this because I do not want my work to be replicas of somebody Elses work, I want my work to be original which is what I did.

Here is my progress throughout the assignment:

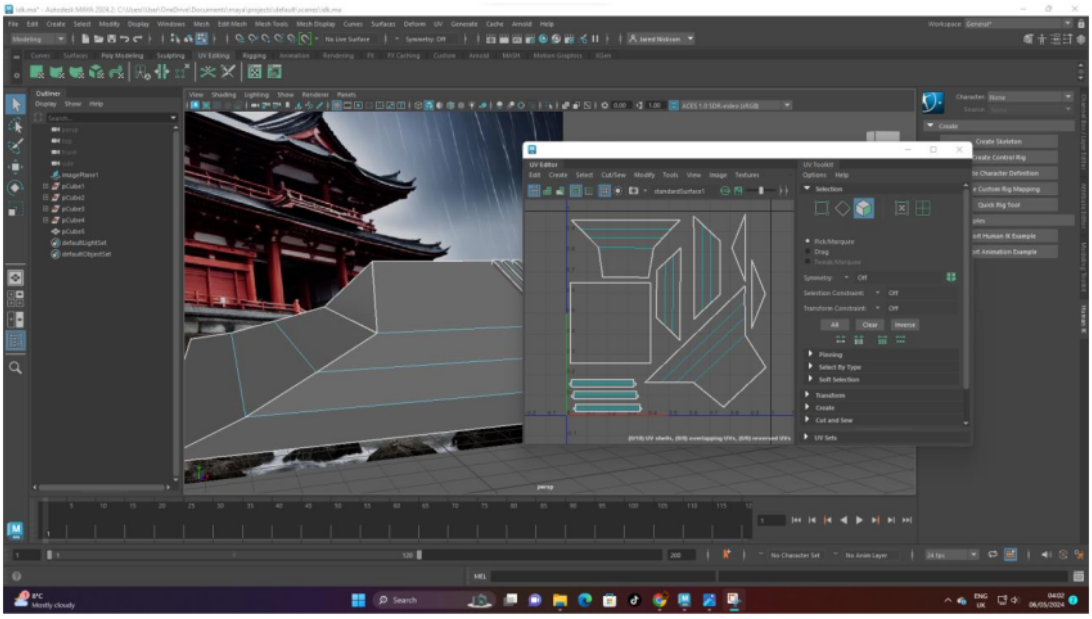
For the first week of the project, I completely forgot about doing screenshots of my progress, so we will be looking at things slightly ahead of the start of the project.

I initially created a quick and rough roof with complex geometry for me to practice my uv unwraps. This was because I was incredibly bad at UV unwrapping, and I needed to get better at it before I started my project to avoid issues when UV unwrapping later in the project.

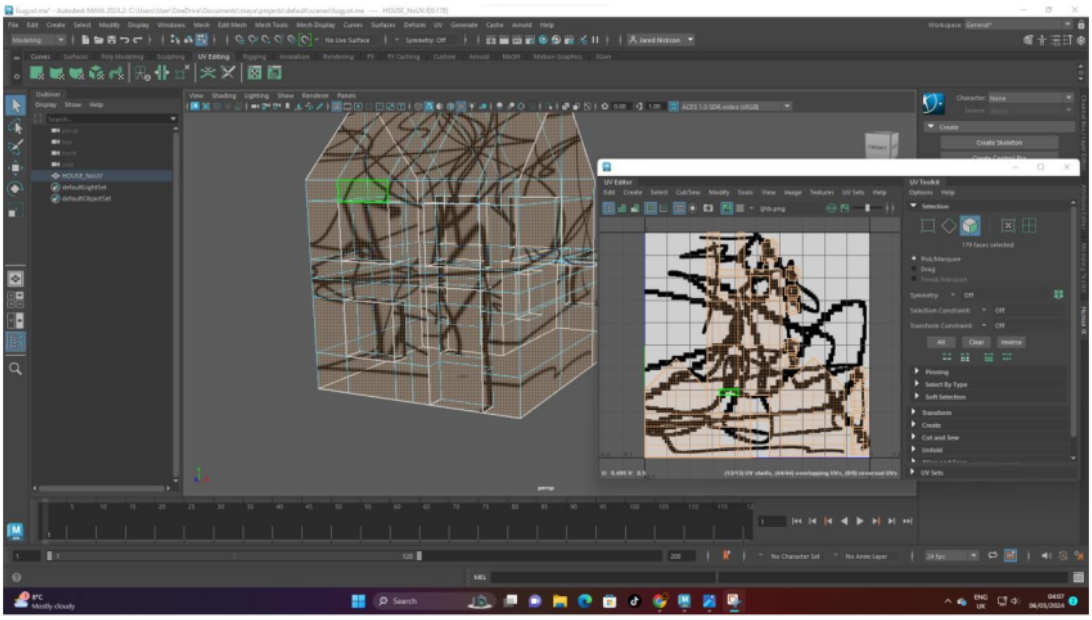
Here is how my UV testing prop looks like:



And here are the UVs:

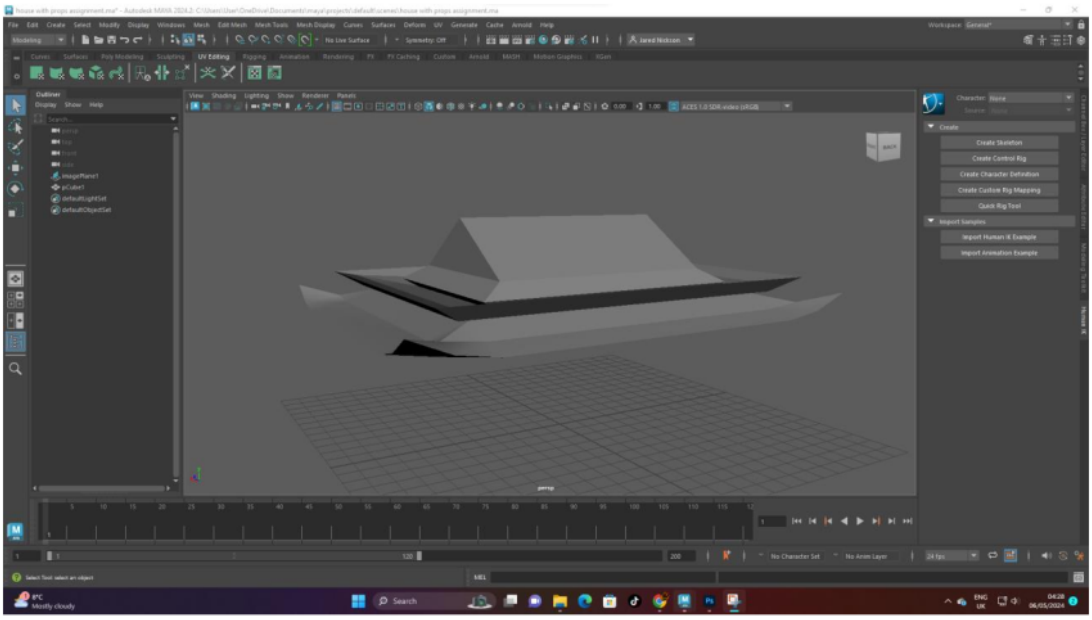


I also tried to do the example UV unwrap we were doing in class where I was terrible on since I had no idea how to UV unwrap at the time. Here is my retry of the example from class:



I highlighted the UVs because I already had a texture on them and I did not have an earlier save, so this is all I must show of my retry of the house UV from class. There are random black lines on the house because I was testing the textures in photoshop. I will probably never use photoshop to texture my models again since it is so tedious compared to substance painter.

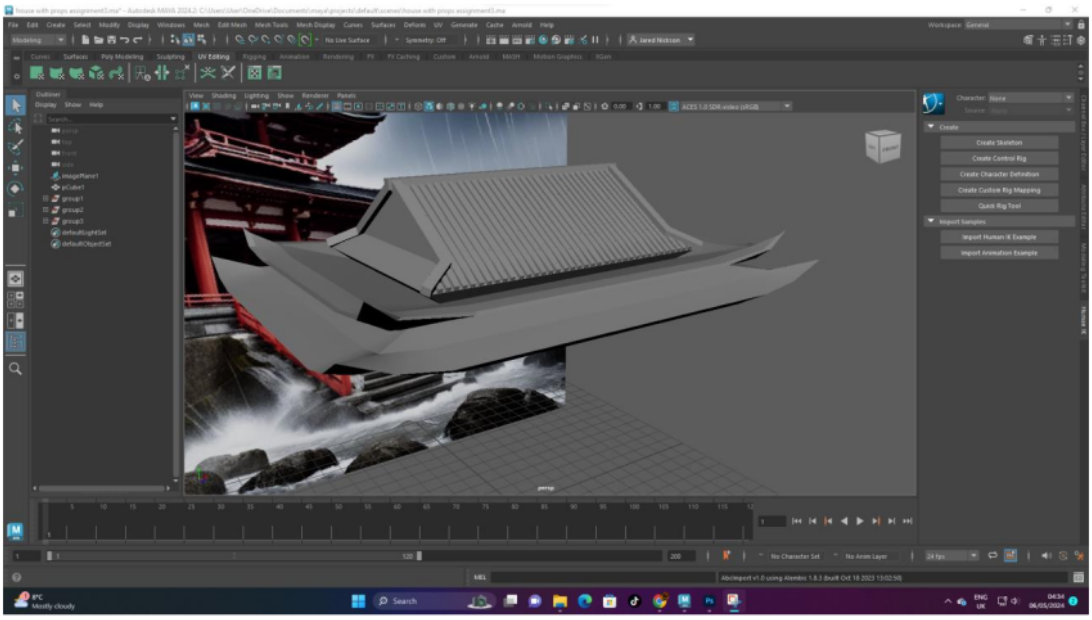
Once I knew how to unwrap UVs, I started my project. Since I have quite a few progress snapshots, I will briefly talk about each one. Here is my progress from then on:



Above was me learning how to extrude properly and using the cutting tools to get a curve in my model. It was a little tricky at first, but I learnt how to do it well and quickly too.

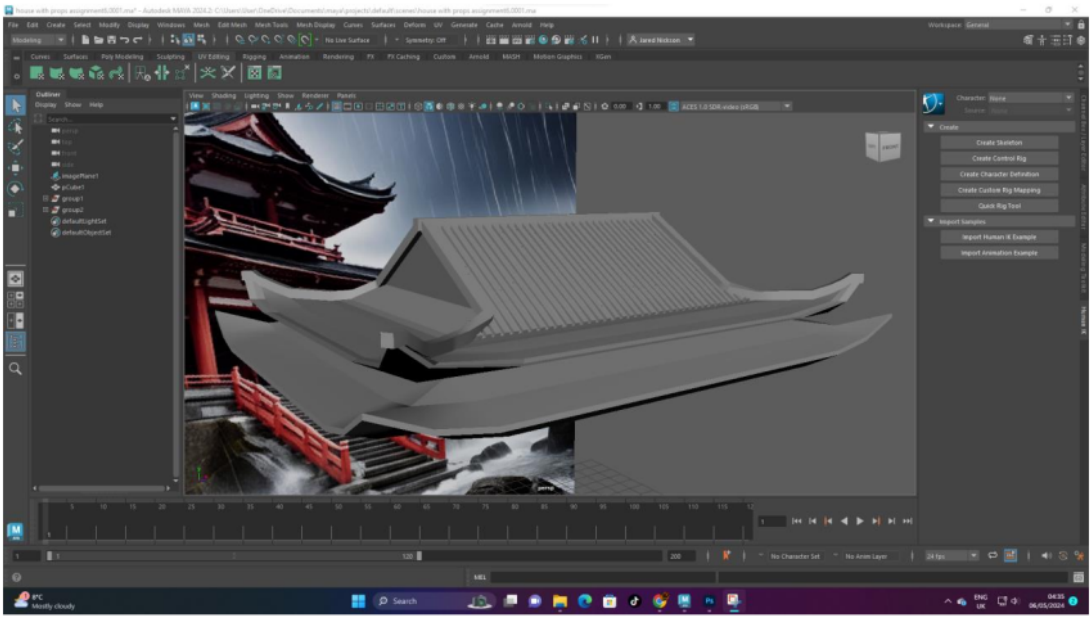
My earlier progress shots will be shown from the viewport since I did not have any lighting done yet and my model will not be visible in the rendering view.

Below was when I implemented the wooden beams that line the top of the roof which I will later have regretted doing later on.

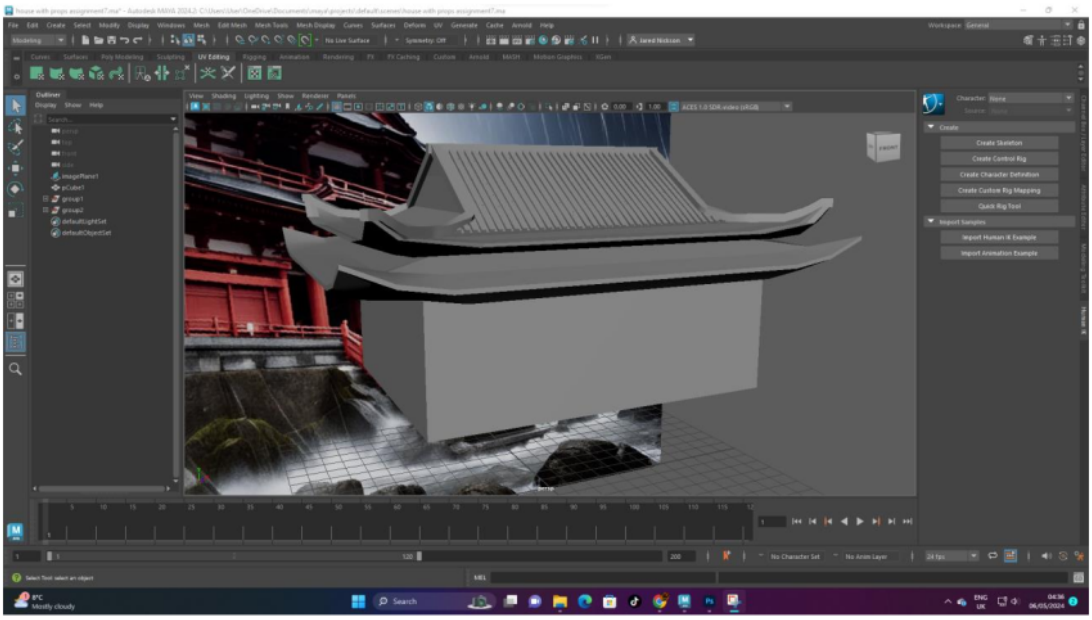


Below I updated the roof to take out the gap you can see on the top part of the roof. I thought it does not physically and realistically make any sense to have that gap because rainwater will accumulate and would rot the house from the roof. I also thickened the underside of the roof because the earlier version (see above) looks too sharp to be realistic. I also added the edge beams for the edges of the roof.

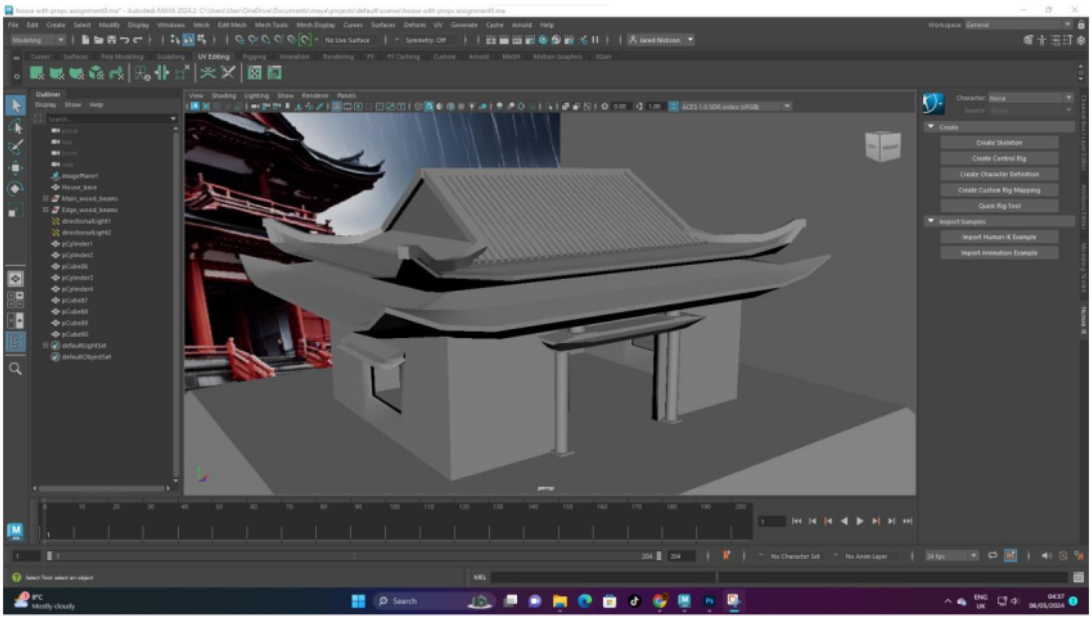
All of the wooden beams are their own objects and I forgot to UV unwrap the first cube which I duplicated over and over.



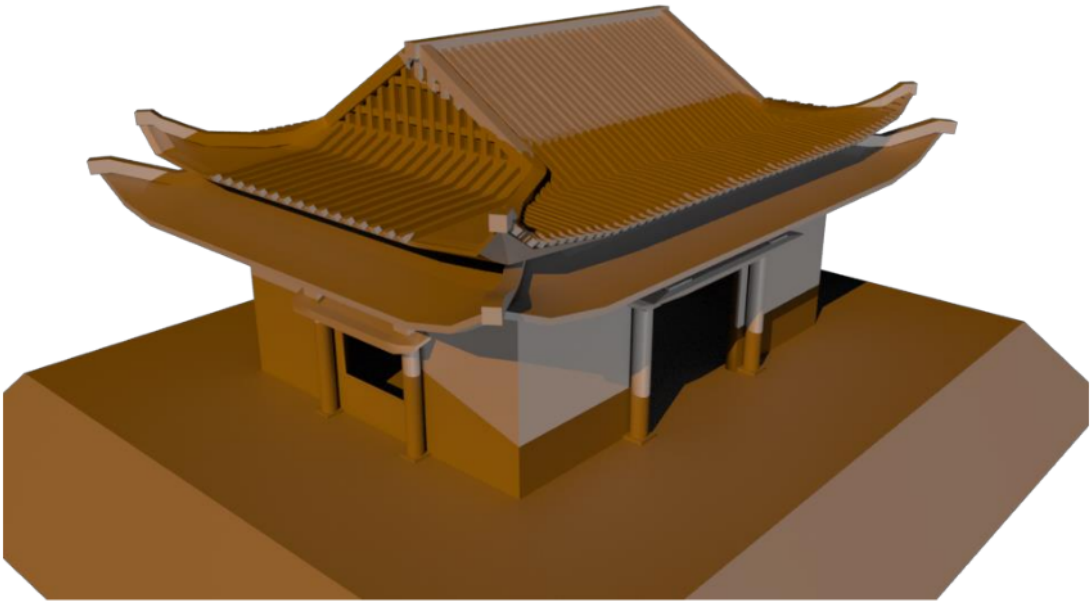
Below I started constructing the base of the temple. The whole temple is a singular object with hundreds of extrusions. The wooden beams are their own separate objects.



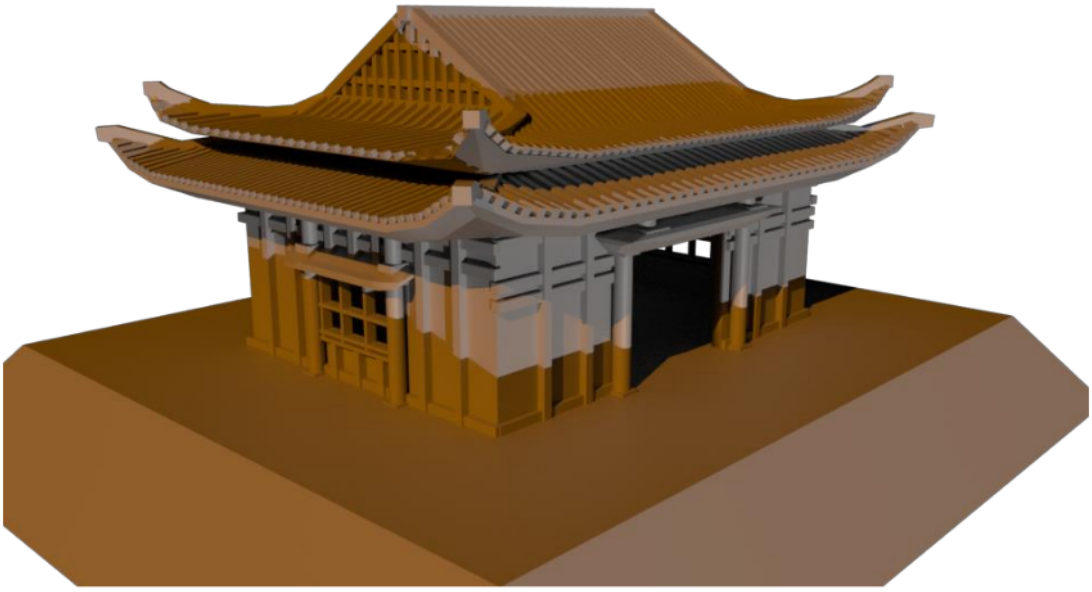
Below I started carving out the windows and I added roofs over the windows to prevent rain from getting inside. At this point I was completely finished with the base temple model and i was now focusing on the details, such as the pillars and beams.



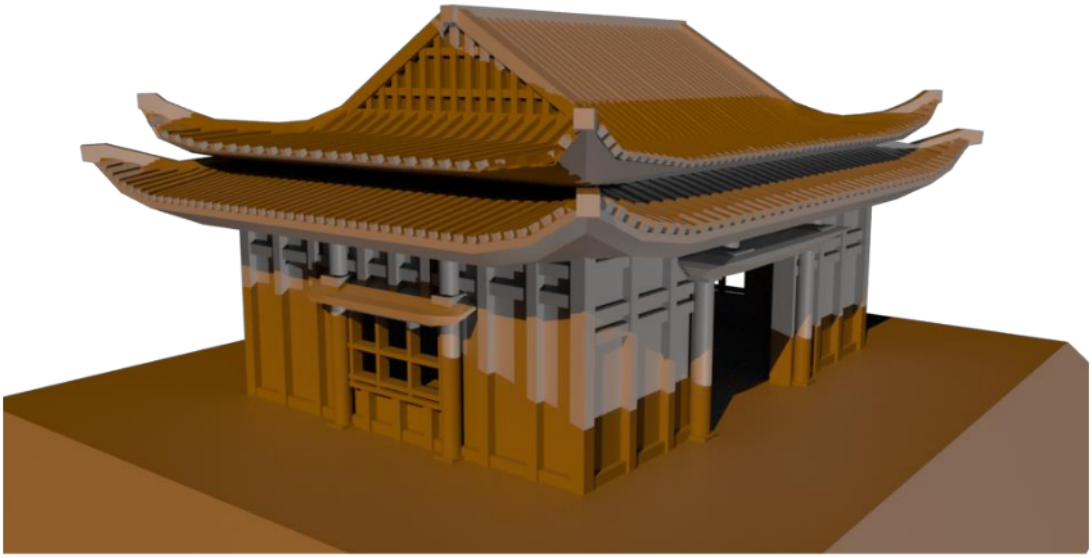
Below is when I started implementing lighting into my scene to see my rendered model in its true form:



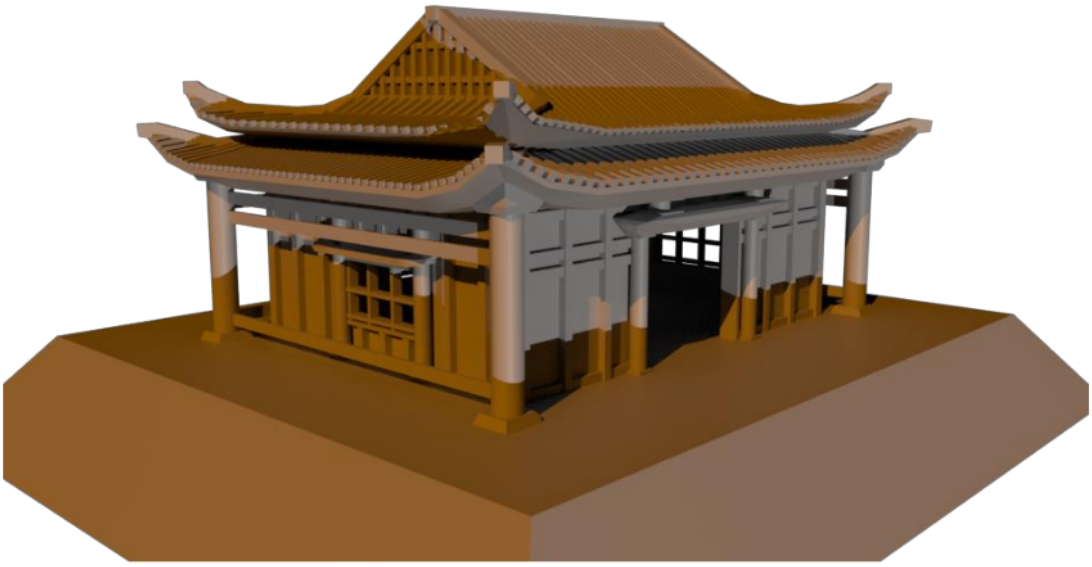
Below I have completely finished the wooden beams lining the roof and I have added wooden beams on the siding of the temple.



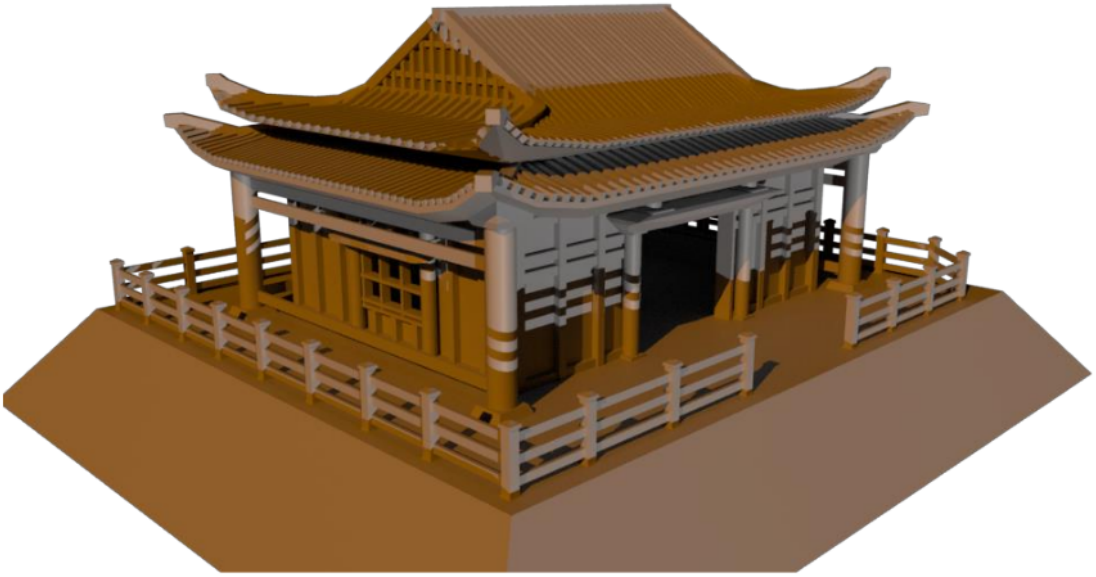
Below i was adding the finishing touches of the main designs of the temple which were the edge wooden beams you can see on every edge of the temple.



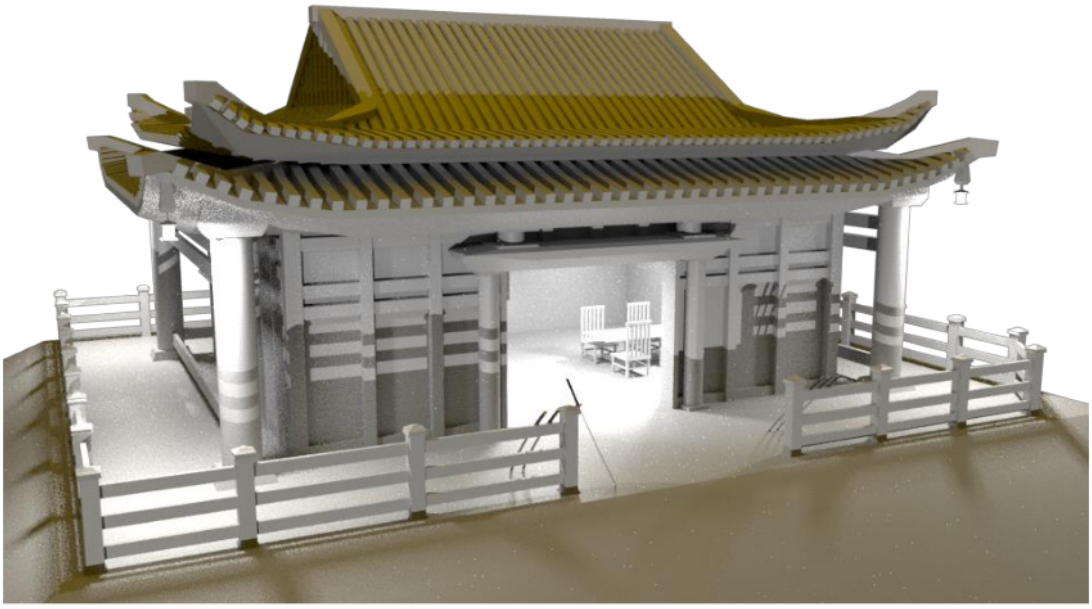
Below, I finished my temple's designs and added the main support pillars for it too.



I then added a fence like you can see below for my first prop.



Below I was adjusting the lighting to see which looks better for my scene, and I added all the props into my scene, these props being katana, lamps, chairs, and tables, this is my finished scene before I started implementing the texture maps into my scene.



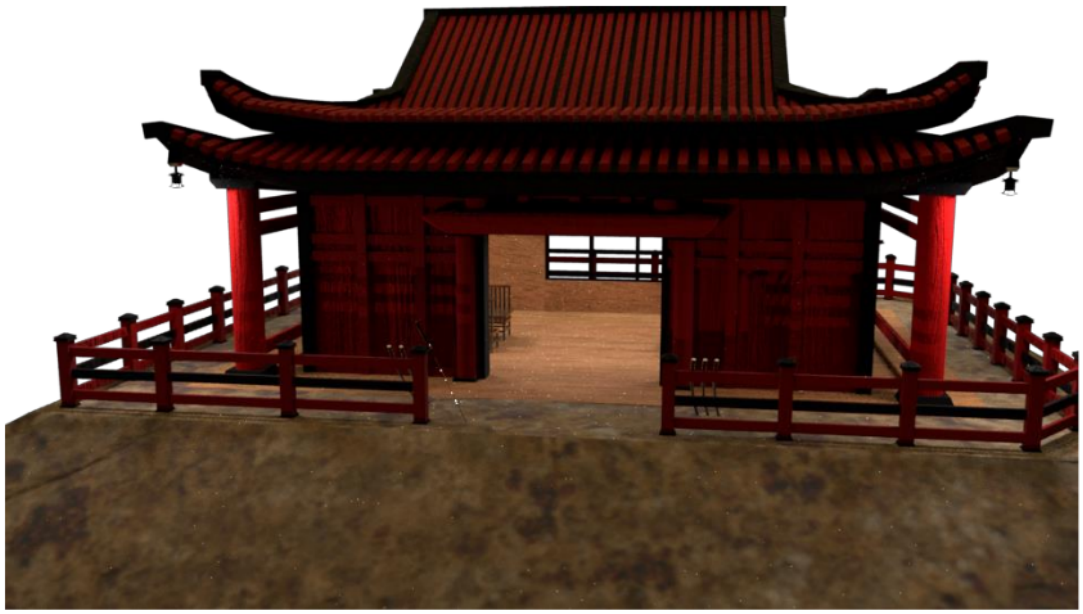
Below was the first prop I added my texture maps onto, which I think looks the best out of all of my props because it actually looks real. I then added all my textures onto all my props.







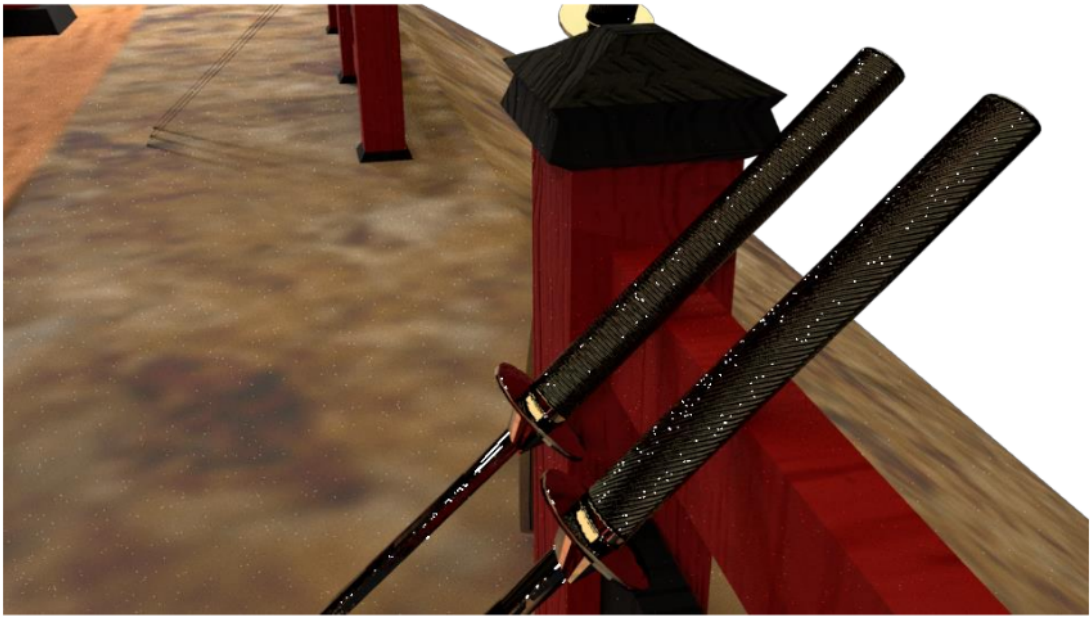
The 2 screenshots below are when I finished adding all my texture maps to my scene, at this point I am now adjusting the lighting to see what setting works best for my scene.





Below you will see the Final renders of my completed Diorama:

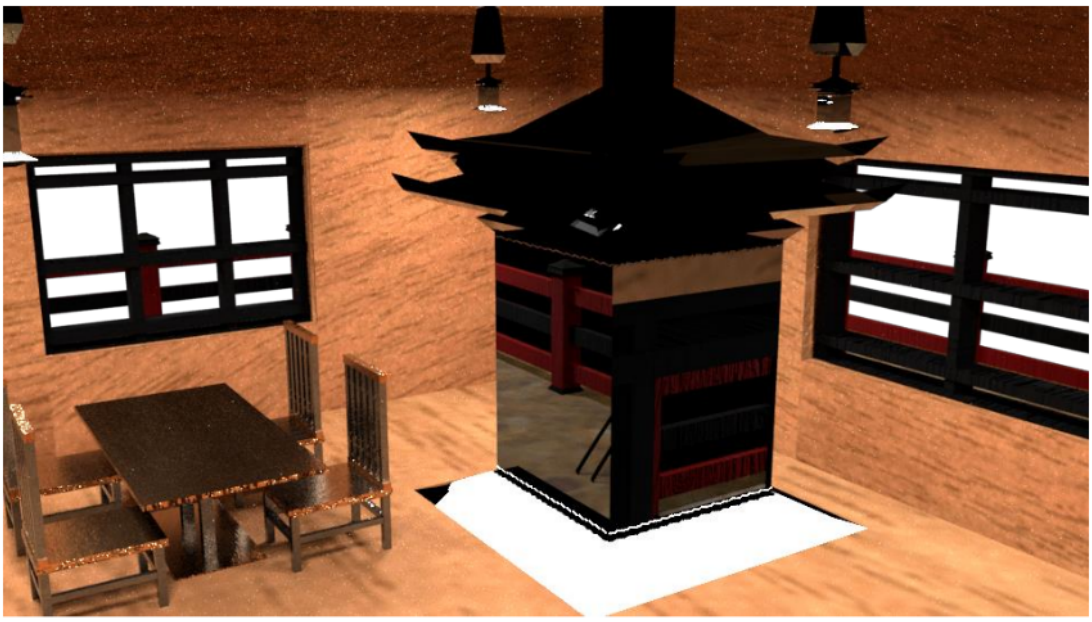
I think I did well with adding my texture maps and designing my models. However, some of the model's textures did not come out properly in maya and they look so much better and more visually appealing on Adobe Substance Painter. (I will show what I mean when I am talking about the problems I have faced throughout the project).









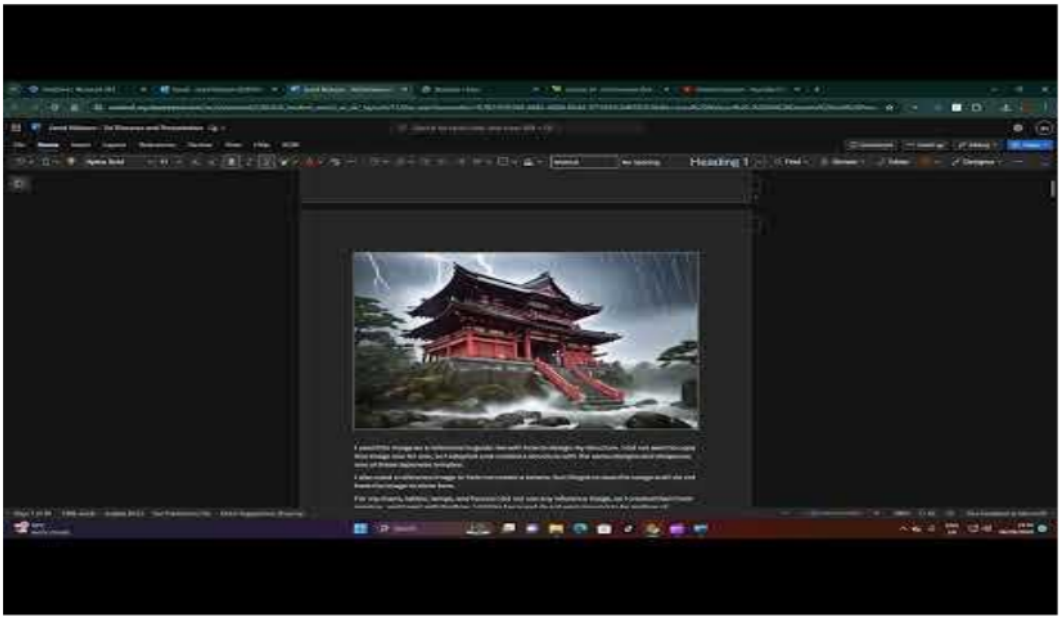






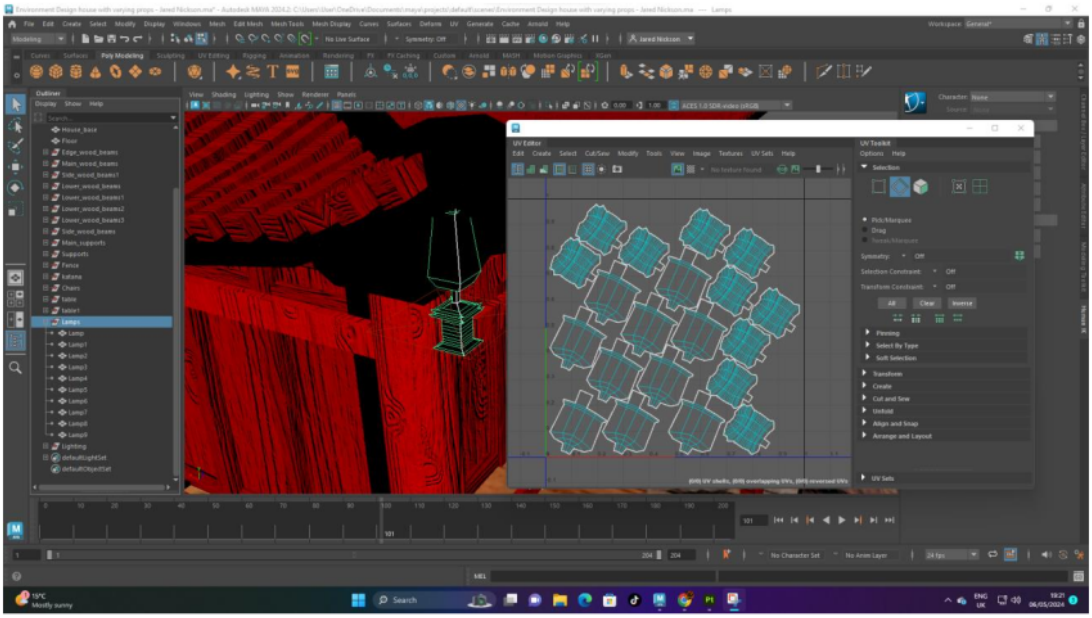
Below is my Video presentation of my 3d diorama:

https://www.youtube.com/watch?v=_MOIZSAUimw

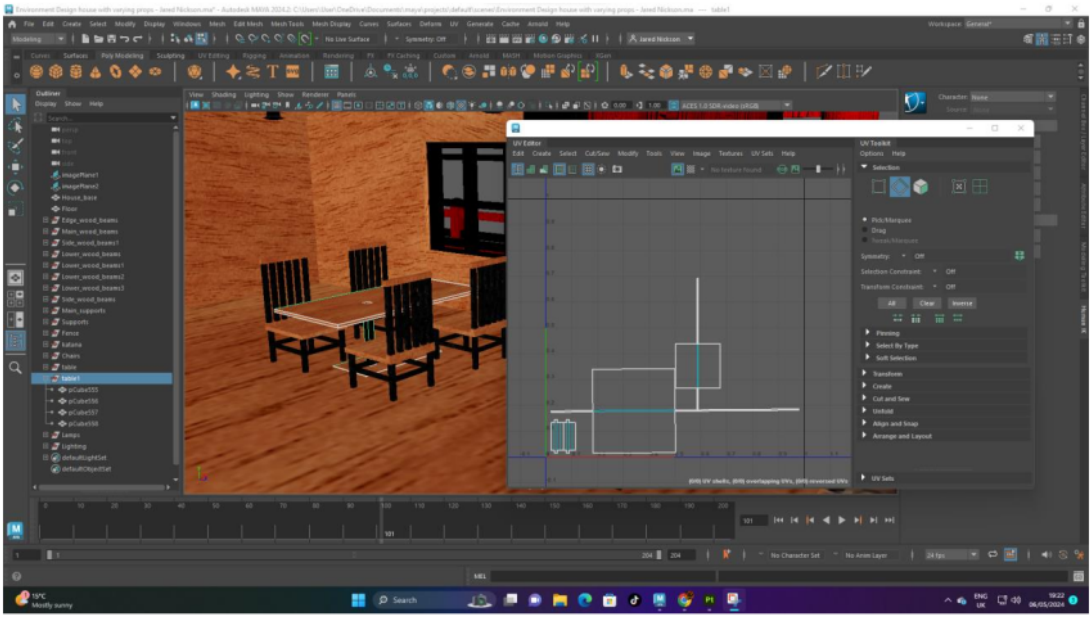


My UV unwraps for every object in my scene:

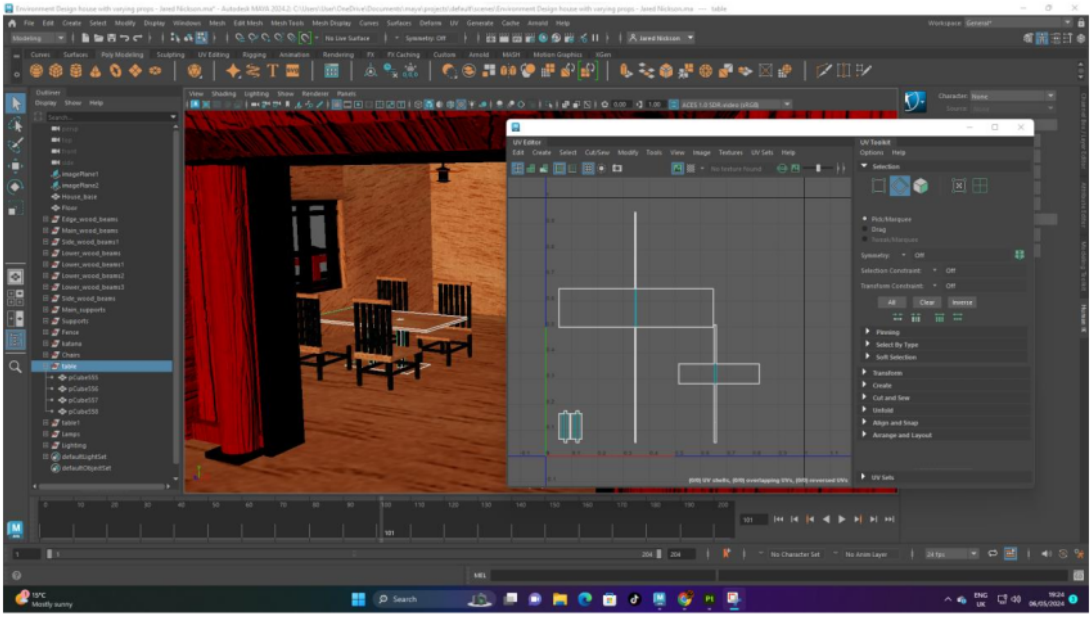
My Lamps:



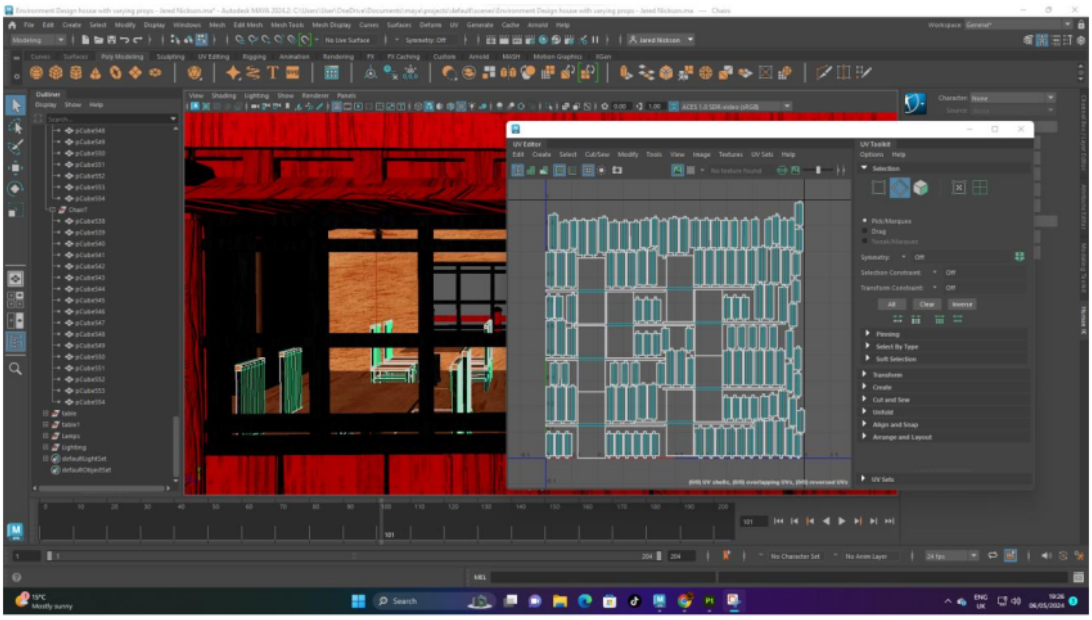
My First Table:



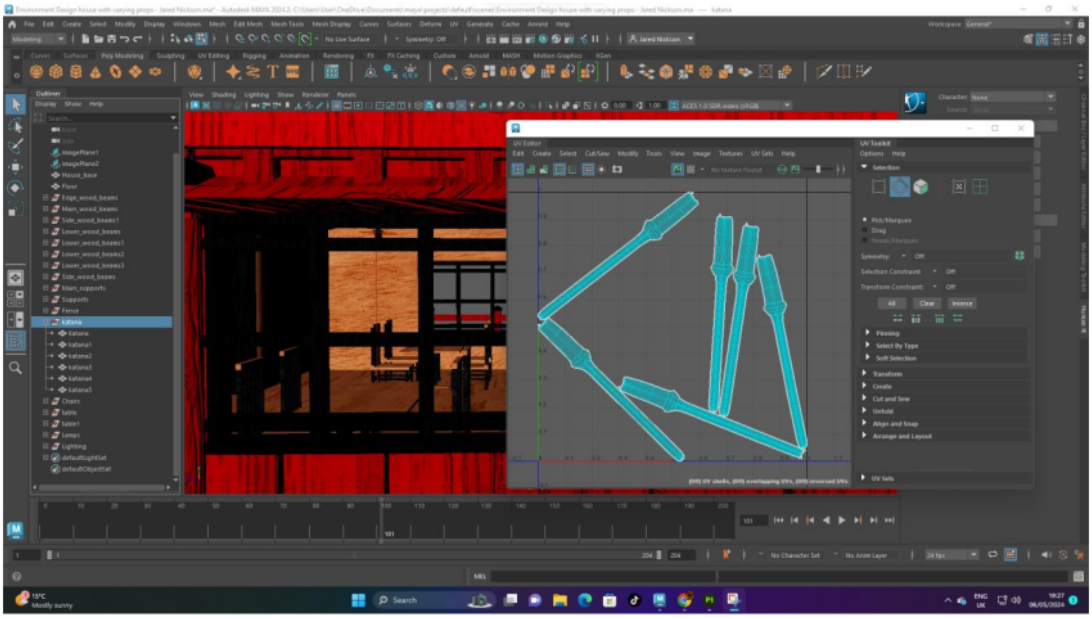
My second Table:



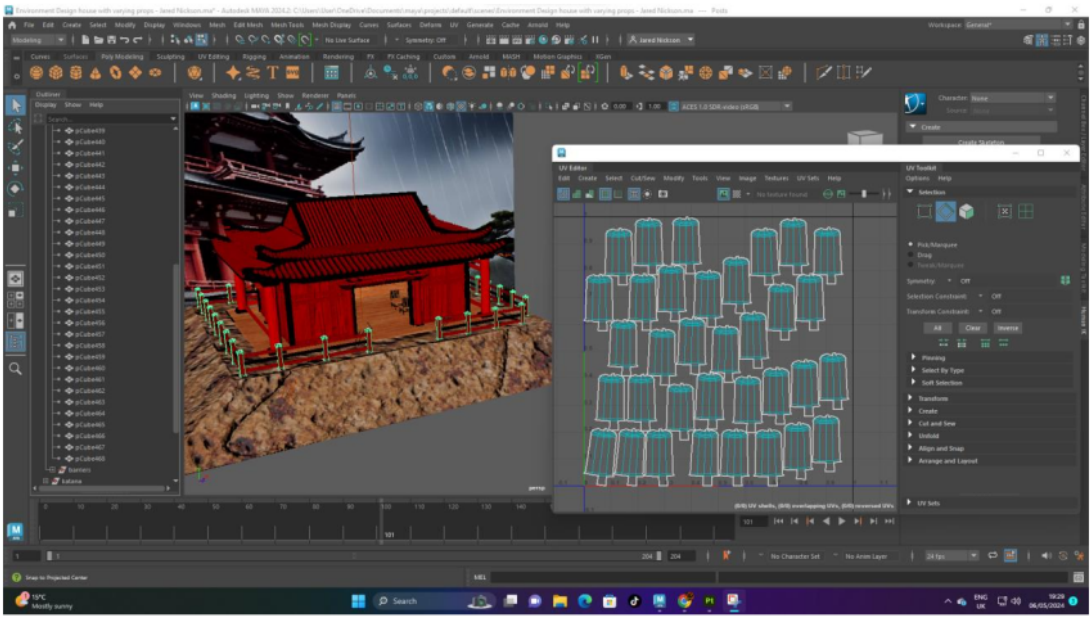
My 8 Chairs:



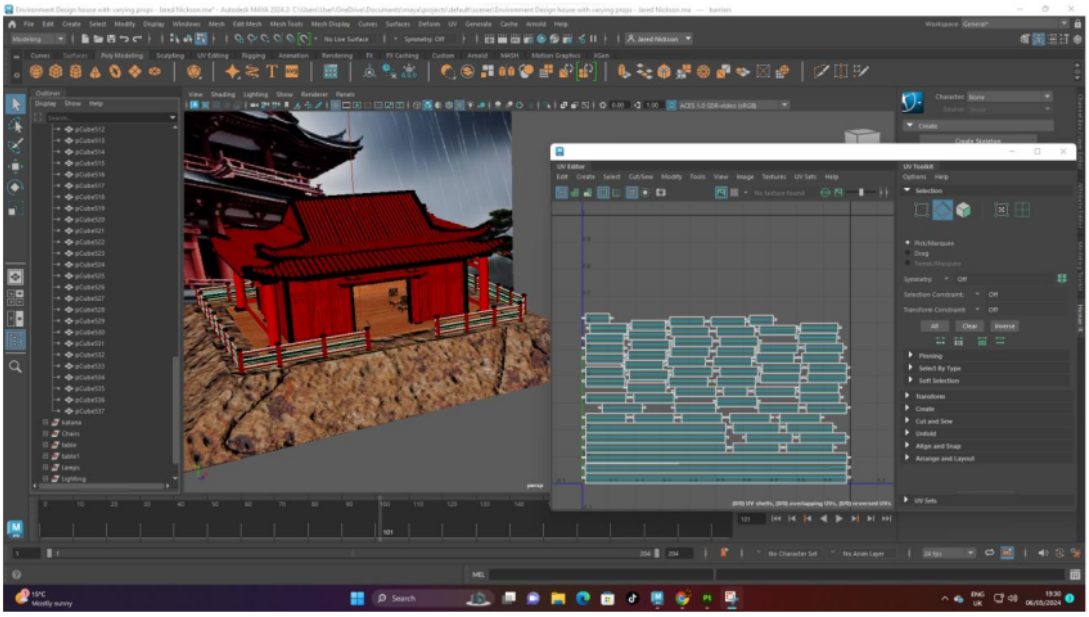
My 6 Katana:



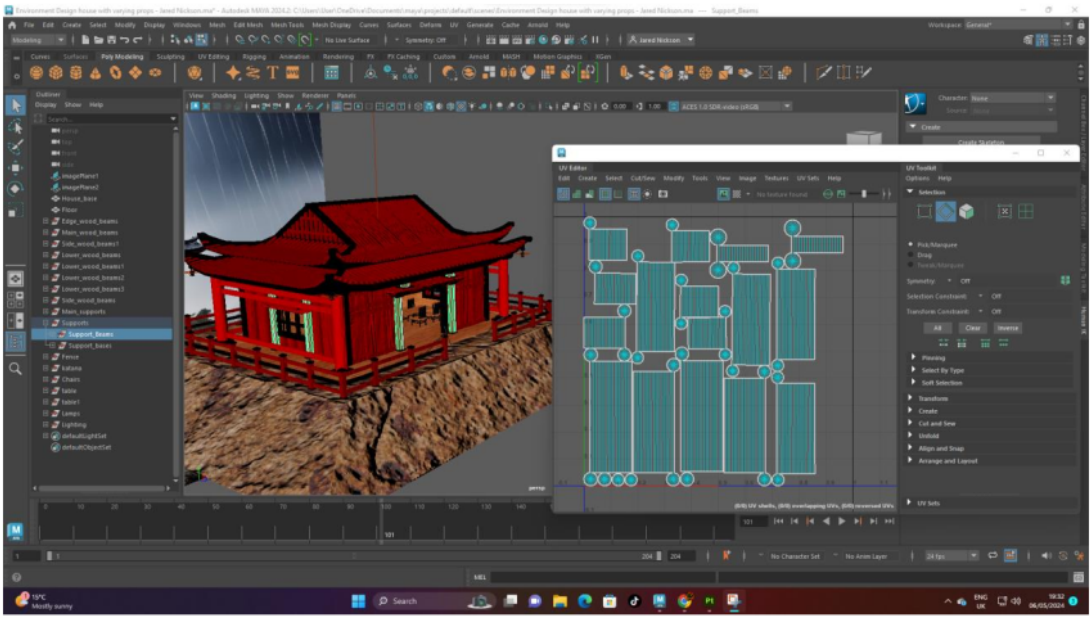
My Posts for my fence:



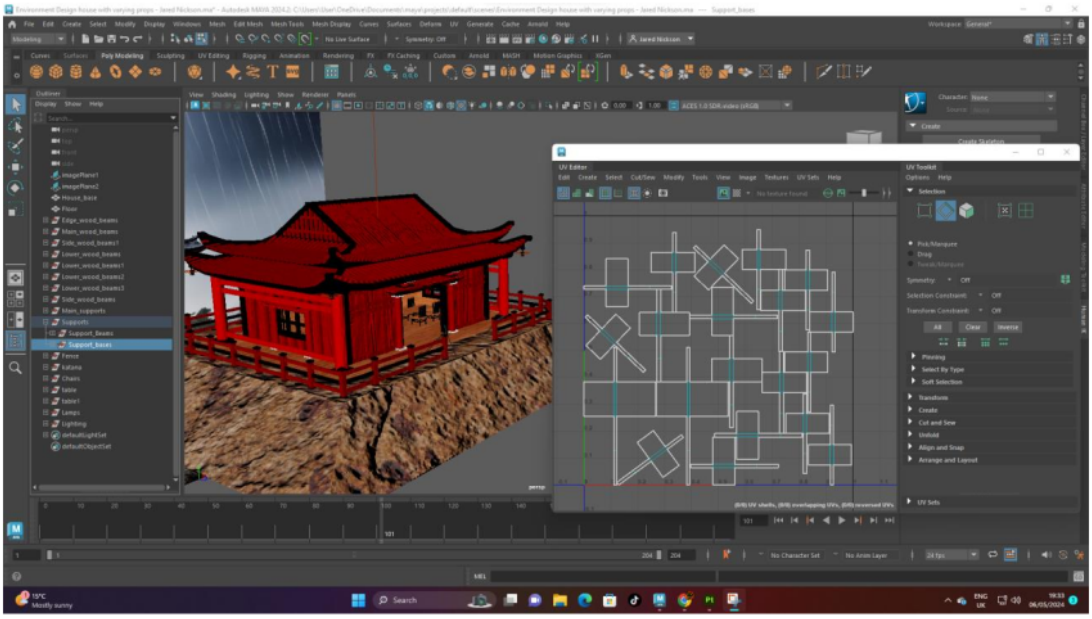
My Barriers for my fence:



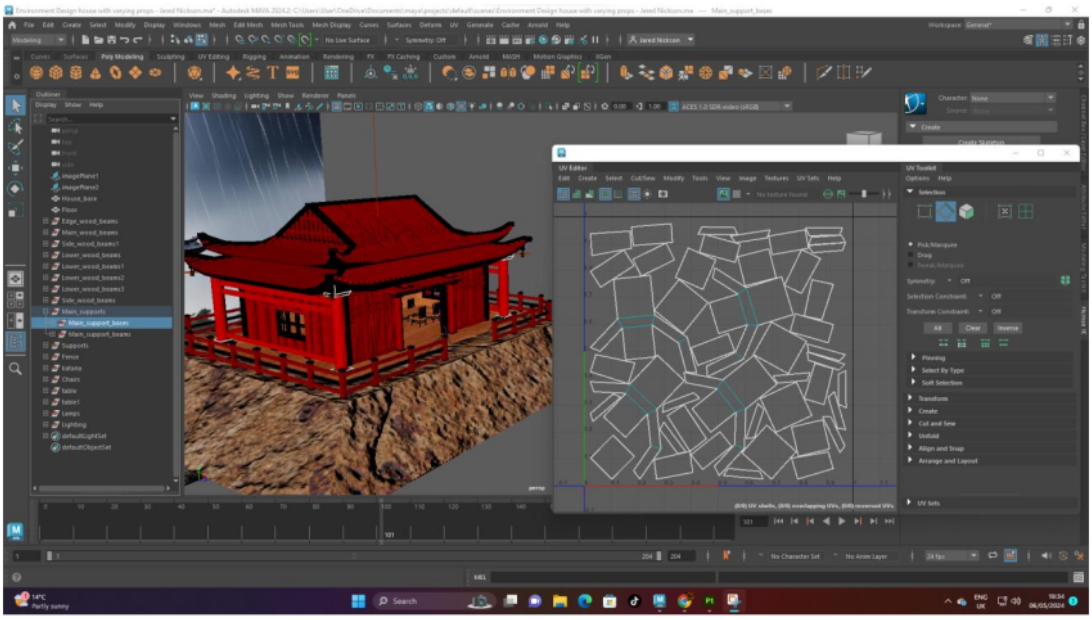
My Support beams:



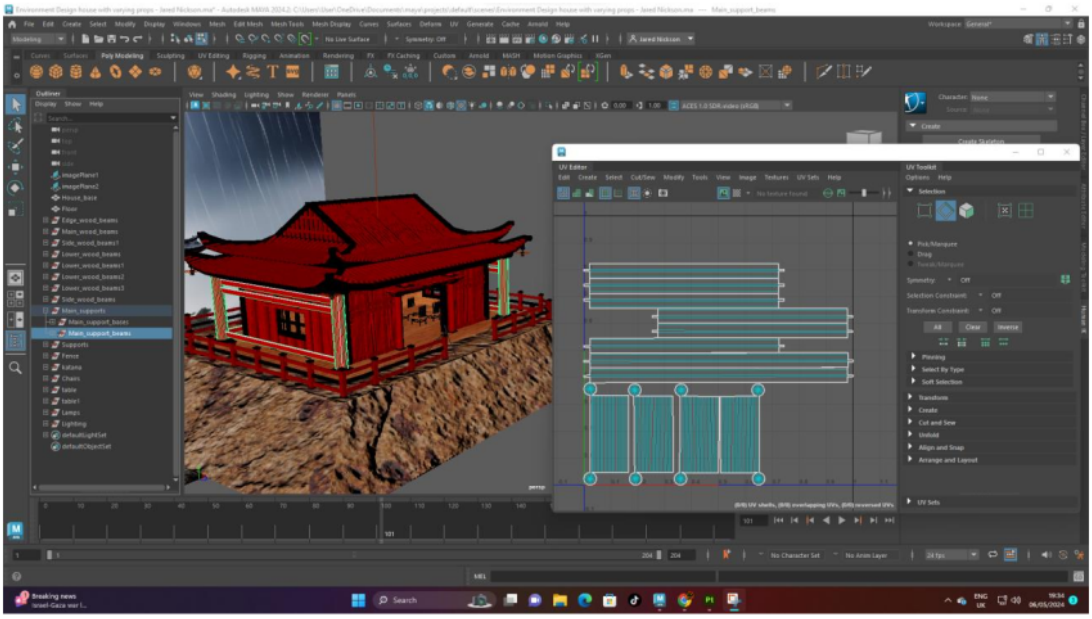
My Support bases:



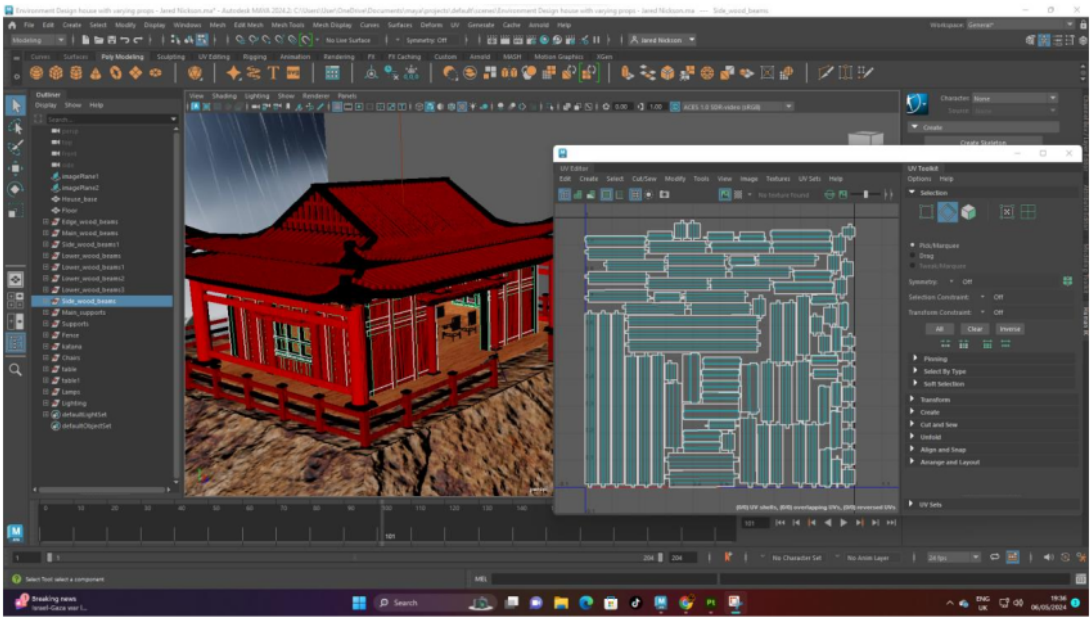
My Main support bases:



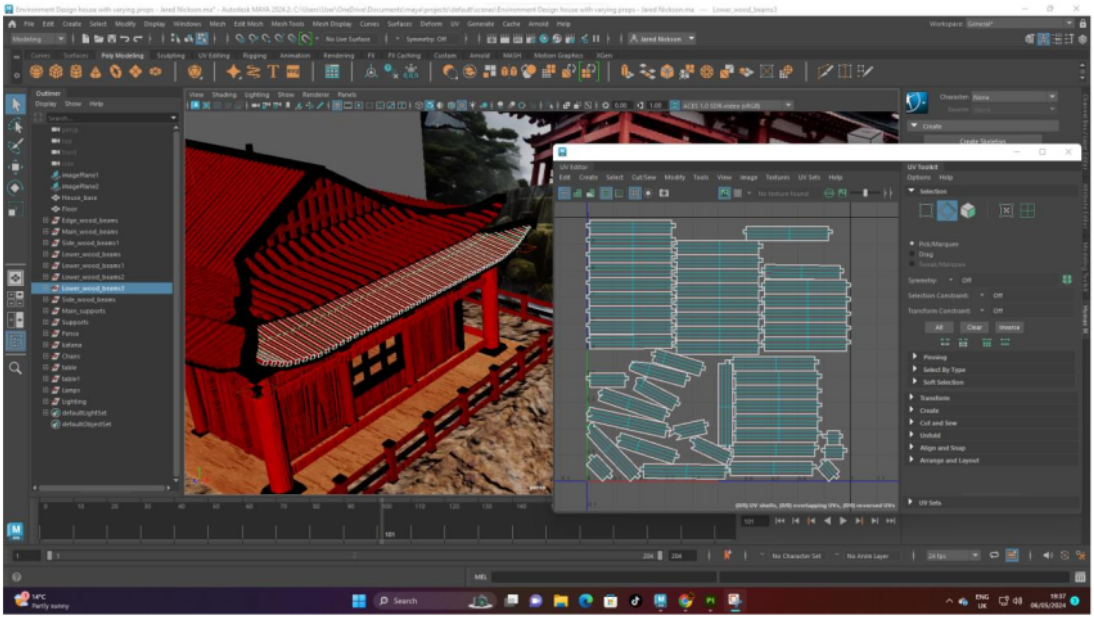
My Main support beams:



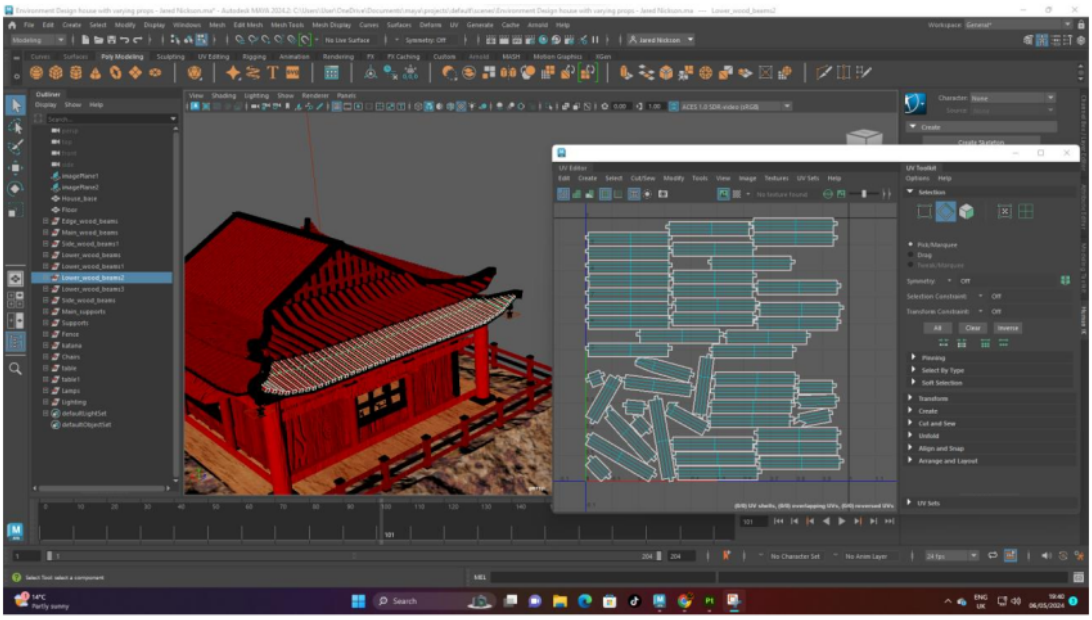
My Side wood beams:



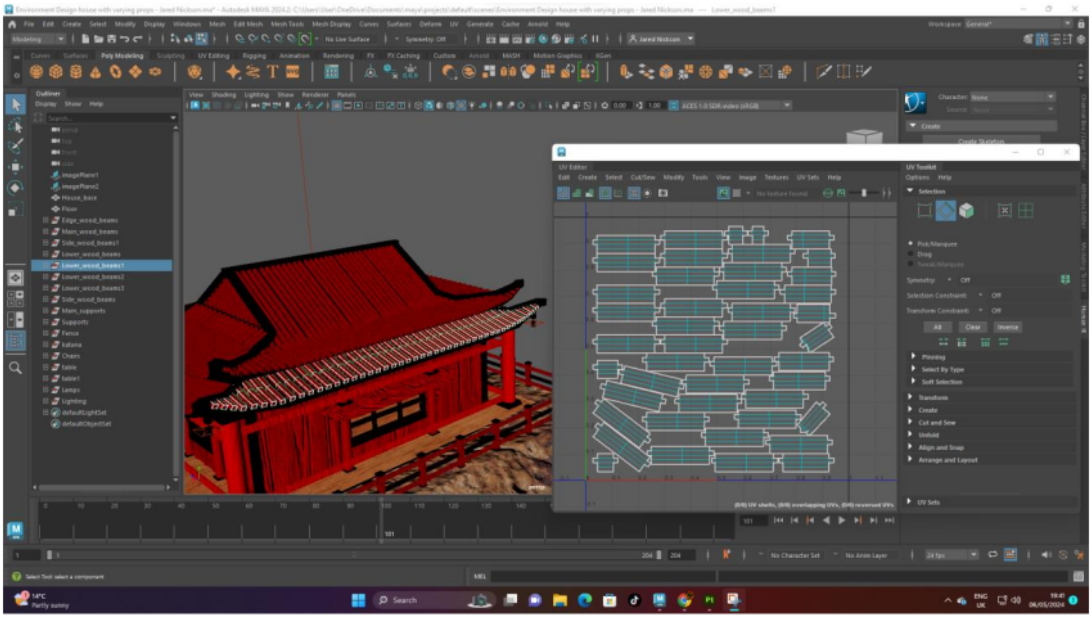
My 4th lower wood beams:



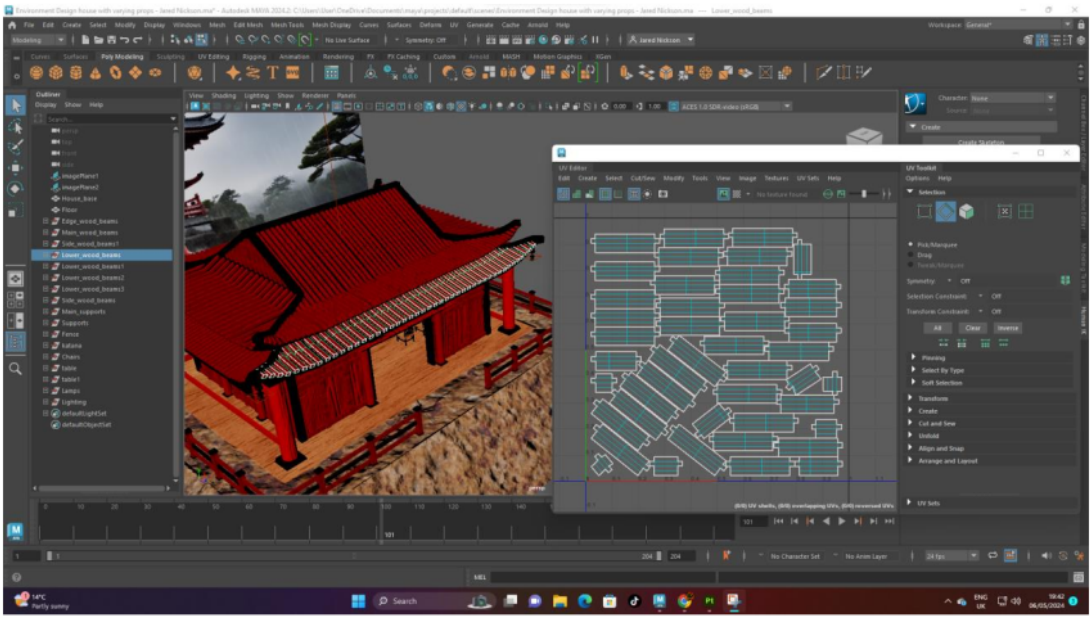
My 3rd lower wood beams:



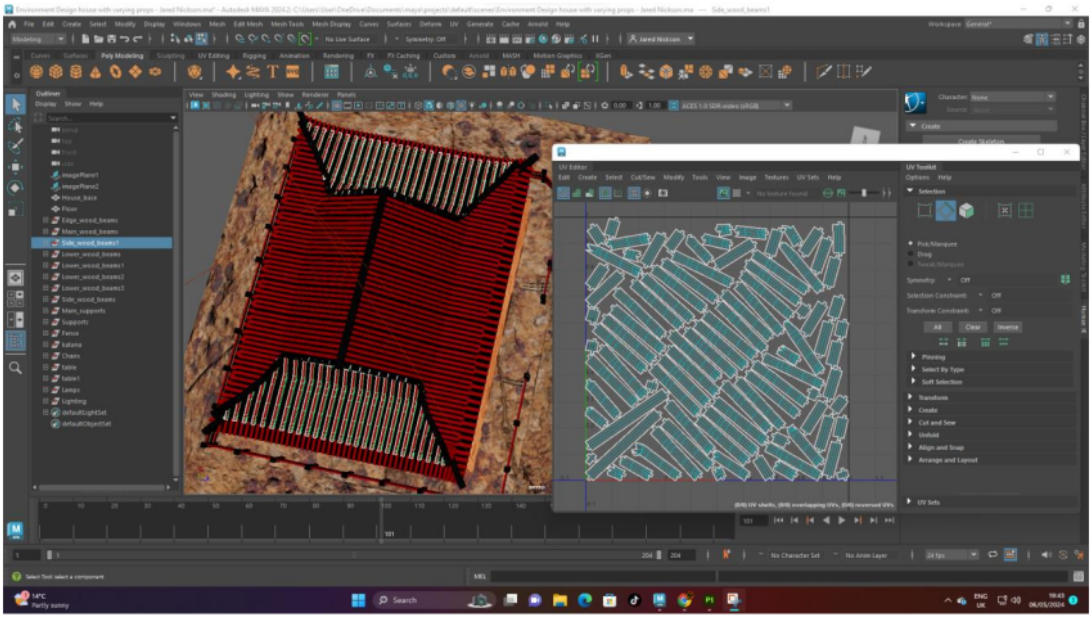
My 2nd lower wood beams:



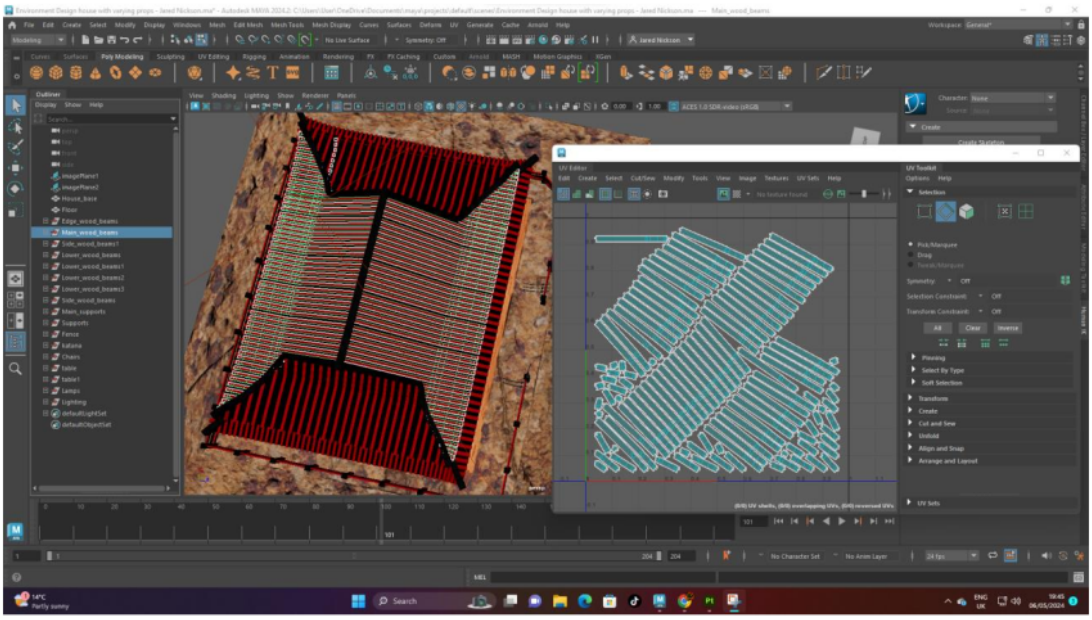
My 1st lower wood beams:



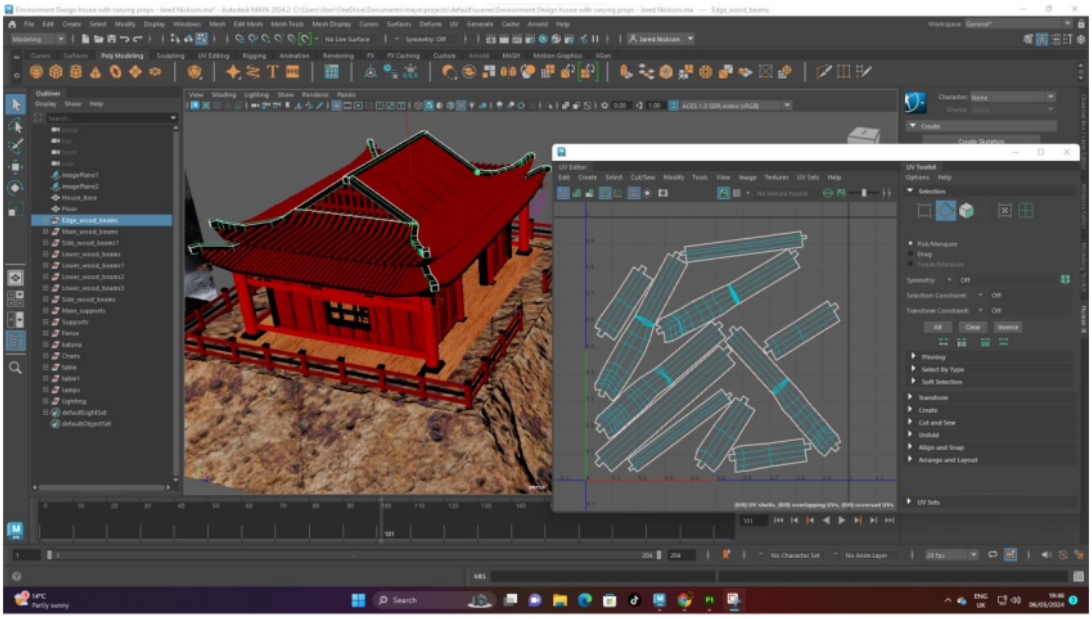
My main side wood beams:



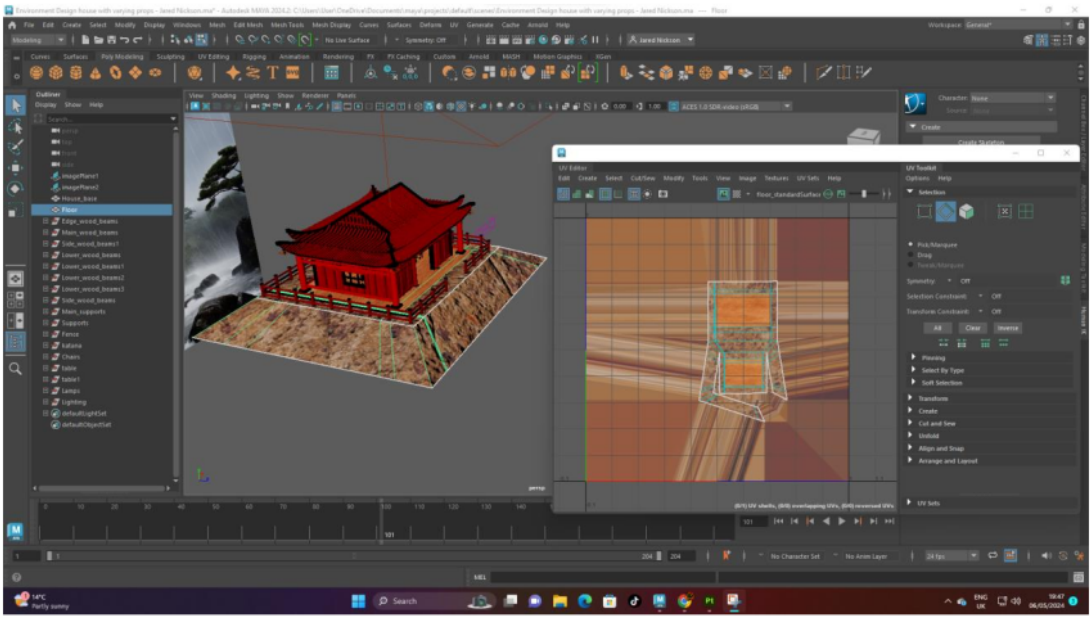
My main wood beams:



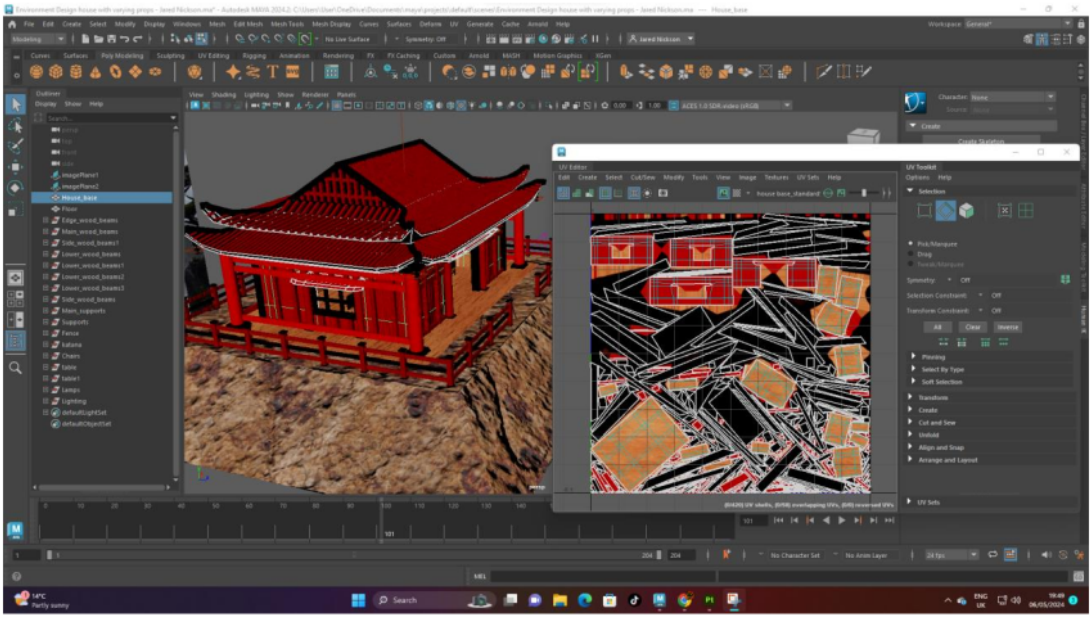
My edge wood beams:



My floor:



My house base:



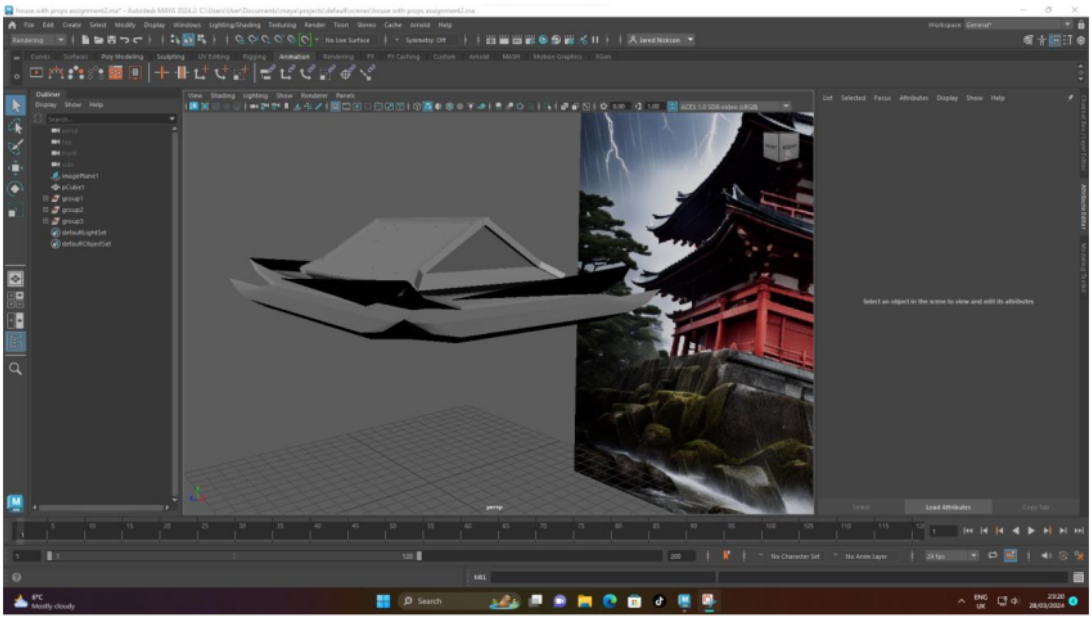
Problems and Challenges I faced and if I countered them:

I had **Many** problems when doing this assignment. The most major problem of all was the number of UVs I had to unwrap. It took me literally 3 entire days to UV unwrap all of my objects. I had 851 UVs to unwrap, One by One. Purely because I forgot to UV unwrap the first object and duplicate that object, so the UVs are already done. But instead of that, I duplicated an object without UV unwrapping the first object, so I had to manually UV unwrap 851 separate objects.

I did learn from my mistake, and I started doing it on some of my other props in the assignment.



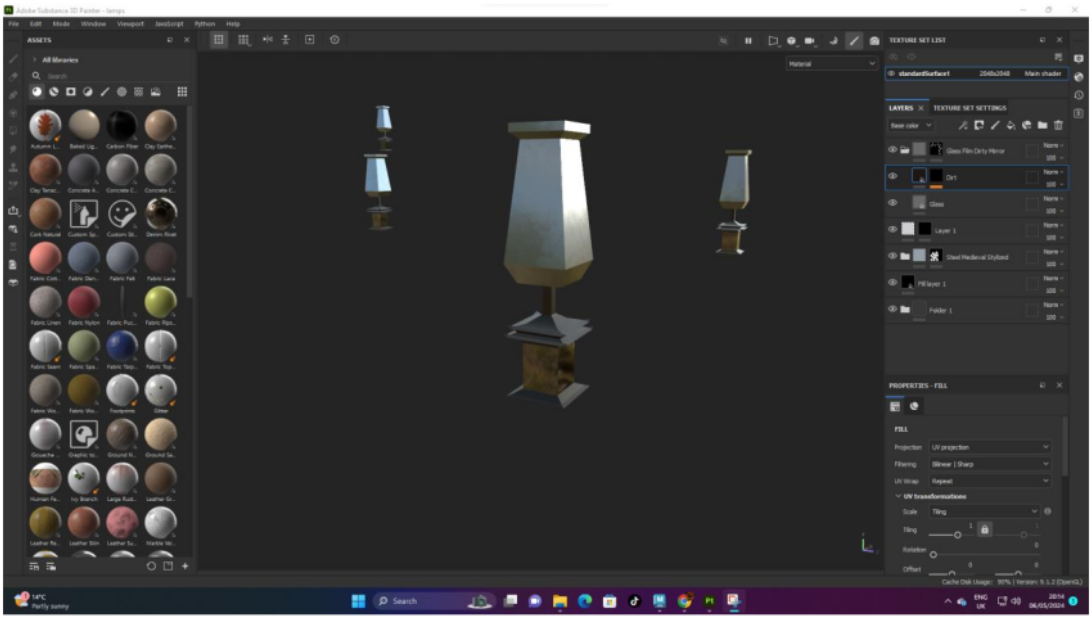
I also had a problem with the geometry of my temple at first because the geometry was going all over the place and was clipping through itself. I later found out that it was a bug, but it was concerning either way. Here is what I am talking about:



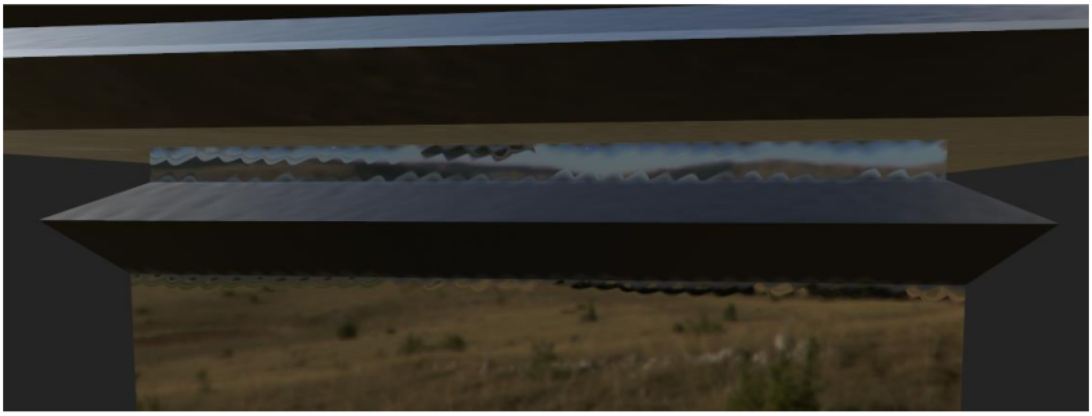
I was also struggling with UV unwrapping at the start of the project which I have previously mentioned. I learned how to UV unwrap by watching YouTube Tutorials and I tried to UV unwrap a complex shape like the roof of my temple, which I have previously shown.

I also found that some of my textures were not coming out as I expected in maya even though I added the texture maps correctly.

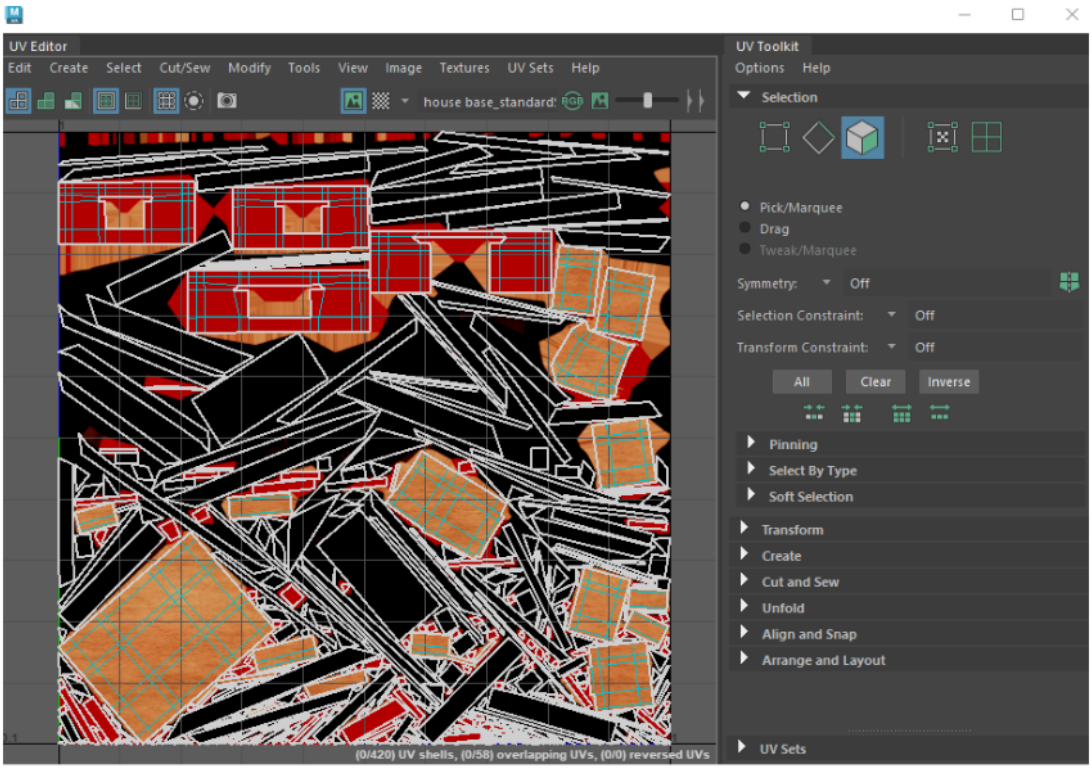
Here is one of my props that looked better in Substance Painer where I created my textures:



There was also a minor texture issue that made the texture boundaries look strange. I am still not sure how to fix this problem either:



The final problem was that my house base UV unwrap was an absolute catastrophe. Since my house was incredibly complex with many extrusions, I had to cut all faces of my roof of the temple to be their own UV so that my textures are not distorted. I am not entirely sure how I could do this better and more organized if I were to do this next time. But I could get better from more experience with UV unwrapping. Here is what I mean:



Research:

Most of my research was found on YouTube, I was watching tutorials to help me do various things in maya and substance painter.

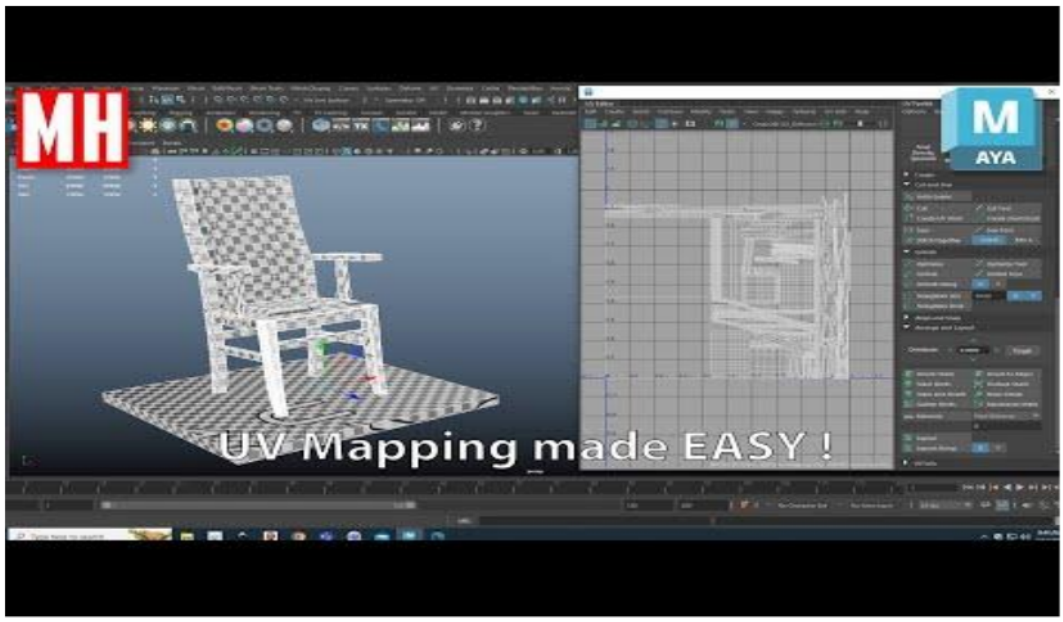
Here I used this image as a reference in my maya viewport to help me understand the main designs and shapes of a Japanese Pagoda Temple. I did not copy it one on one because I want my work to be original. Here is the image: [1]



I did also use a reference image in maya for help when creating the katana, but I forgot to save the image and I cannot show it here since I do not have it.

Here are the YouTube videos that helped me understand UV unwrapping and how to UV unwrap, without this help I most likely wouldn't have been able to finish the models: [2] [3]

https://www.youtube.com/watch?v=217vrUjR_dU

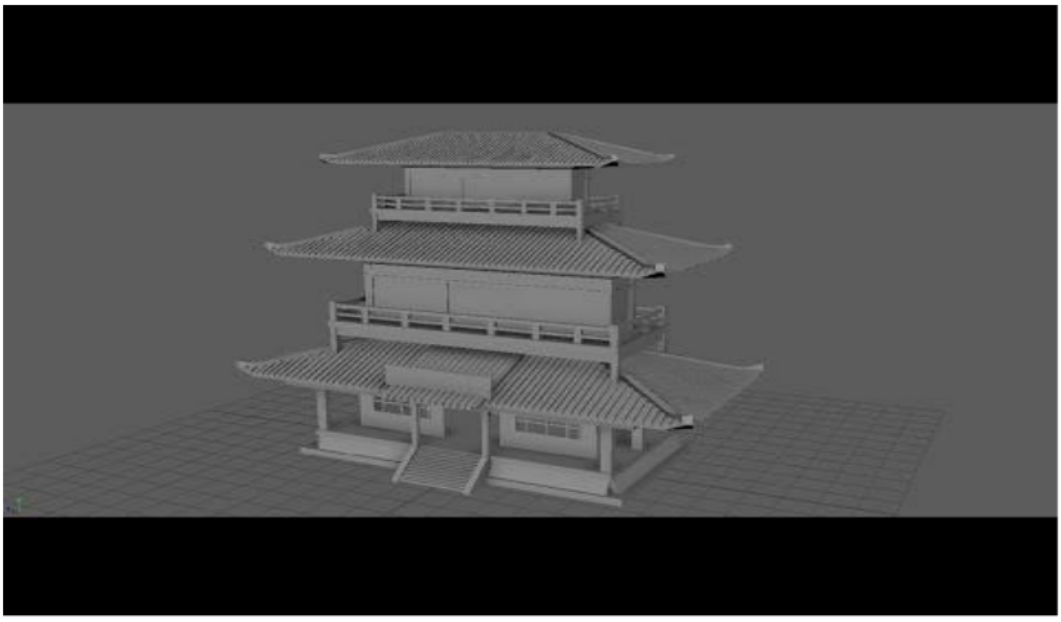


https://www.youtube.com/watch?v=TWH6-F0KRQA



Below is the video that inspired me to create a Japanese Temple in maya. I thought that I could do this, so I did it: [4]

https://www.youtube.com/watch?v=_hrkIIx19Q4&t=22s



As you can see, he has created his model in a comparable way to what I have done.

Below I researched how to isolate an object in maya to make it easier to UV unwrap a complex object: [5]

https://help.autodesk.com/view/MAYACRE/ENU/?guid=GUID-C885C0EA-A412-4528-B387-11BF093A45CC

Below I learnt how to add multiple textures to the same object in Adobe Substance Painter: [6]

https://www.youtube.com/watch?v=n-hDakDNklc



Below I learnt how to Export my texture maps from substance painter and implement them onto my objects in maya: [7]

https://www.youtube.com/watch?v=-cKtZP3bxRg



My Bibliography and IEEE referencing:

[1] *'ancienthauntedjapanesedojo'* (no date) *Playground*. Available at: https://playground.com/search?q=ancient%2Bhaunted%2Bjapanese%2Bdojo (Accessed: 06 May 2024).

[2] *UV mapping in maya 2023 made easy. my process explained* (2023) *YouTube*. Available at: https://www.youtube.com/watch?v=217vrUjR_dU (Accessed: 06 May 2024).

[3] *Maya 2019.2: Quick Unwrapping Complex Objects* (2019) *YouTube*. Available at: https://www.youtube.com/watch?v=TWH6-F0KRQA (Accessed: 06 May 2024).

[4] *Temple time lapse build - autodesk maya* (2022) *YouTube*. Available at: https://www.youtube.com/watch?v=_hrkIIx19Q4&t=22s (Accessed: 06 May 2024).

[5] (No date) *Help*. Available at: https://help.autodesk.com/view/MAYACRE/ENU/?guid=GUID-C885C0EA-A412-4528-B387-11BF093A45CC (Accessed: 06 May 2024).

[6] *Texturing different parts of the same model in substance painter* (2018) *YouTube*. Available at: https://www.youtube.com/watch?v=n-hDakDNklc (Accessed: 06 May 2024).

[7] *Exporting textures from substance 3D painter to Maya Arnold* (2022) *YouTube*. Available at: https://www.youtube.com/watch?v=-cKtZP3bxRg (Accessed: 06 May 2024).

Jared Nickson - 3d Diorama and Presentation

GRADEMARK REPORT

FINAL GRADE

51 /100

GENERAL COMMENTS

1. Engagement with Literature Skills (50%)

Research has been evidenced in the work and though there are some references, this feels a little light. Stating that you have not used references for assets is not ideal. University work should always be informed by research and this is an important process for self development as well.

Do not be concerned with being original as modelling an existing design of building in itself wouldn't necessarily be considered original. What's more important than originality is whether the tasks are completed effectively – and research/reference images help a lot with this.

Forgetting to save references or research only results in less marks being awarded as the proof is not evident to assessment staff. In future, save all parts of the process as it is useful to have this information, and the assessment brief does state that a presentation is due – so it was implied from the beginning that this information would be needed.

2. Knowledge and Understanding Skills (48%)

A diorama has been submitted showing a good understanding on 3D modelling processes.

UVs could be improved with aligning the UV shells so they're tidier and aligned to either the vertical or horizontal axis –

the lecture notes on Moodle have covered this process.

The presentation of the work may need to be reconsidered as a recording of a word document is not the most engaging way to present your work to an audience.

3. Cognitive and Intellectual Skills (51%)

Practising the UV process is a good element to include as it shows critical thinking skills and showing initiative to improve.
Hopefully this has been a useful experience and should pay off in the long
term.

Texture boundaries are likely distorted because of the spacing of the UV maps, some of which look as though they are automatically
unwrapped using the Auto UV tool. Without refining the layout you will find
that Normal Maps will create 'bleeding' which causes distortion on the final
texture. Have a look at the lecture materials on Moodle as this shows how to
use the Layout tool to avoid this.

4. Practical Application Skills (53%)

Documenting the issues experienced and gradual stages of the model is good to see – though due to the way in which the presentation
has been recorded it does not use much of the screen space. By using a
different presentation method such as a slideshow you'd be able to make more
use of the space on screen to show the work you are producing (or areas in
which you have experienced difficulties).

The Diorama contains some interesting models with a lot of detail, though the UV process could be

optimised. No evidence of Unreal Engine engagement is present in the work, which is a shame as the lighting and composition of UE5 is better than Maya's equivalent. We are also using UE5 next year so it is an opportunity to familiarise yourself with the software.

5. Transferable Skills for Life and Professional Practice (52%)

The presentation appears to be a narration of a report – this is not really the best way to present the work. Consider using
Powerpoint or a similar tool to present a more visually-based account of the
work, as the current submission would be more effective as a written document.

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