

Assignment 1 - Urban Scene

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Conceptual Research

Japanese alley/market at night

- Probably more based on a market as an alley would feature cars and bikes (too detailed?)
- Cramped, narrow streets, more of a 'sprawling' map.
- Bright neon signs/large billboards
- Items:
 - Traffic cones, billboards, crates
 - Signs, billboards, neon letters
 - Lanterns (skinny + round ones?)
- Make up for open shops w empty storefronts / closed shoji screens

Inspiration



Yakuza 0



Persona 5

More stylised, colourful approach. Uses bright lights and colours.



Japanese market [[source](#)]

Colourful and artistic, cluttered storefronts.



Japanese market [[source](#)]

Repetitive market with tons of lanterns.

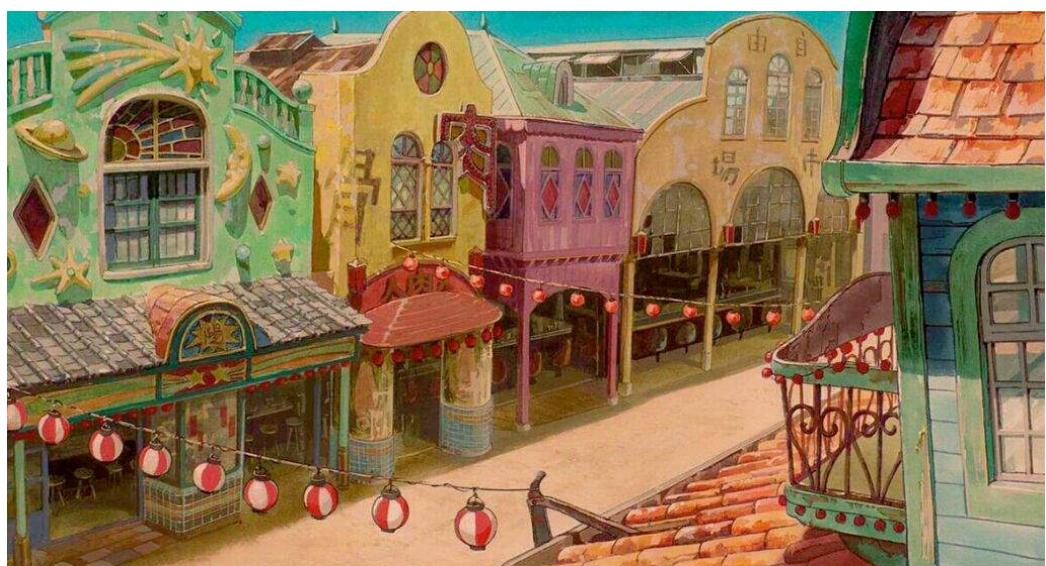


Market & stalls [[source](#)]

Colour inspiration, accurate depiction of Japanese alleys.
However also includes foliage which is unrelated to this assignment.

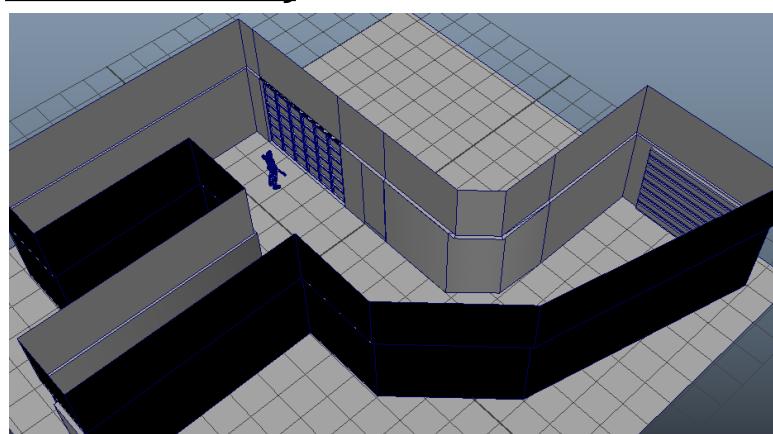


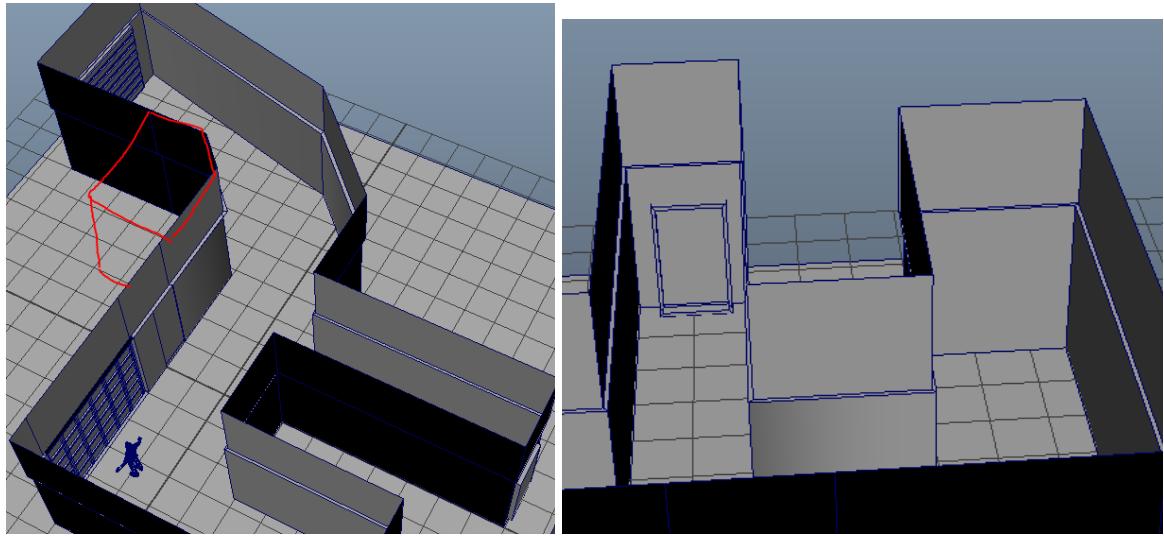
Japanese Market [[source](#)]
Crowded, claustrophobic atmosphere. Uses warm colours.



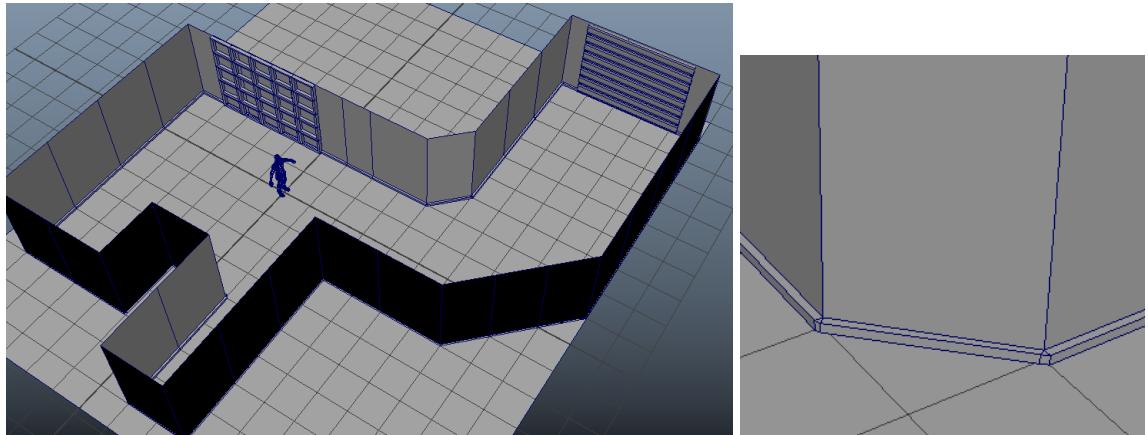
Spirited Away
Stylised colour inspiration

Process - Modelling

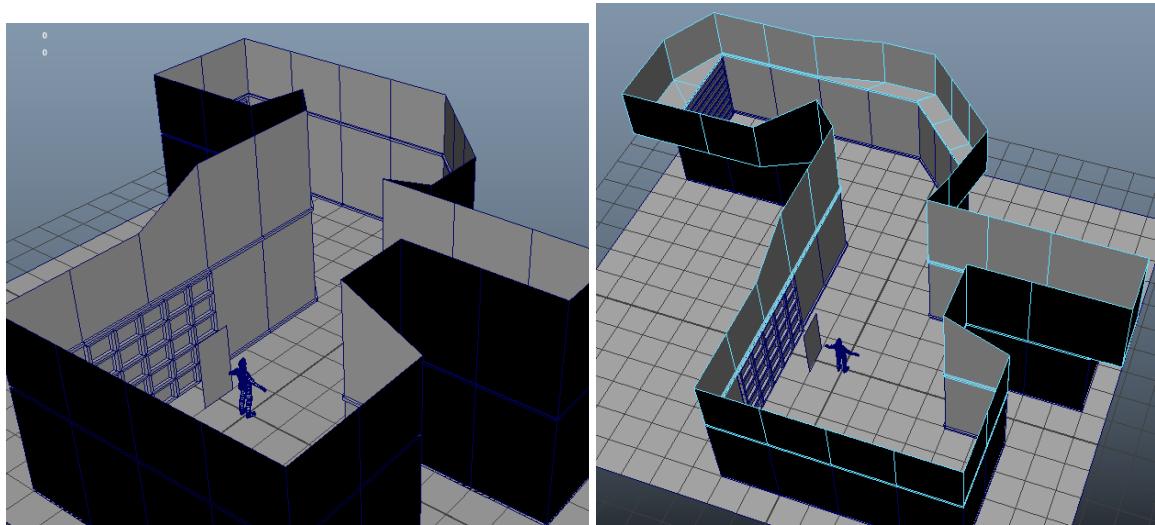




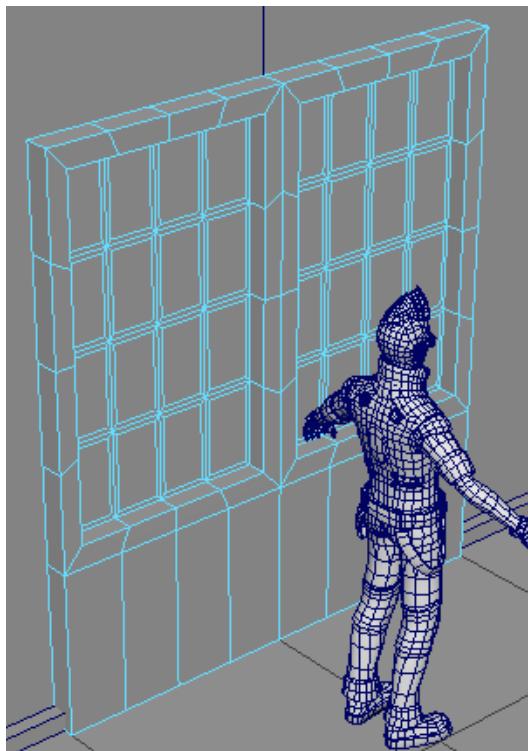
I started by making a greybox for my alleyway, making an L-shaped path, with a skinny corridor to a door, and a curved path towards a shutter door. Originally I had wanted the space marked in red to open up into a ramen shop, but because of time constraints and unnecessarily adding extra work, I decided against it.



Putting the greybox on a reference layer, I used it as a base and built around it, using a 2 block wide wall as my modular pieces, and added a small curb detail at the bottom of the wall. I also shortened the two alleyways, to condense my space.



To create a second layer, I duplicated the walls of the first, combined and merged them into a single mesh, and altered the heights of the walls to create diversity in height. I also pushed certain walls back, to allow for some implied depth.

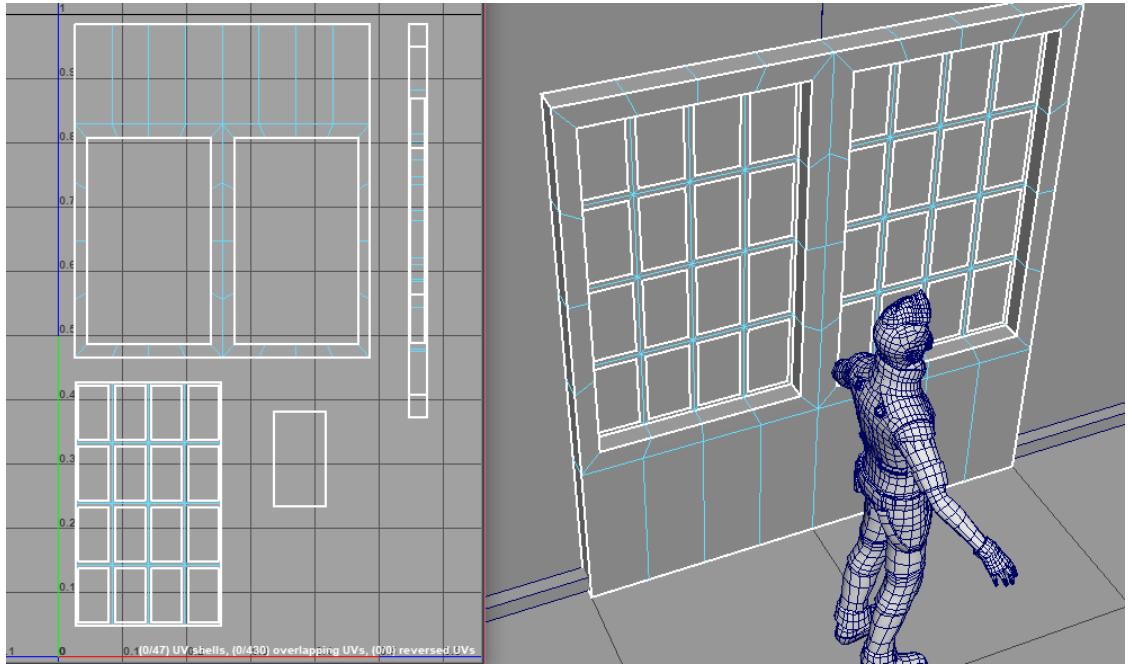


[\[source\]](#)

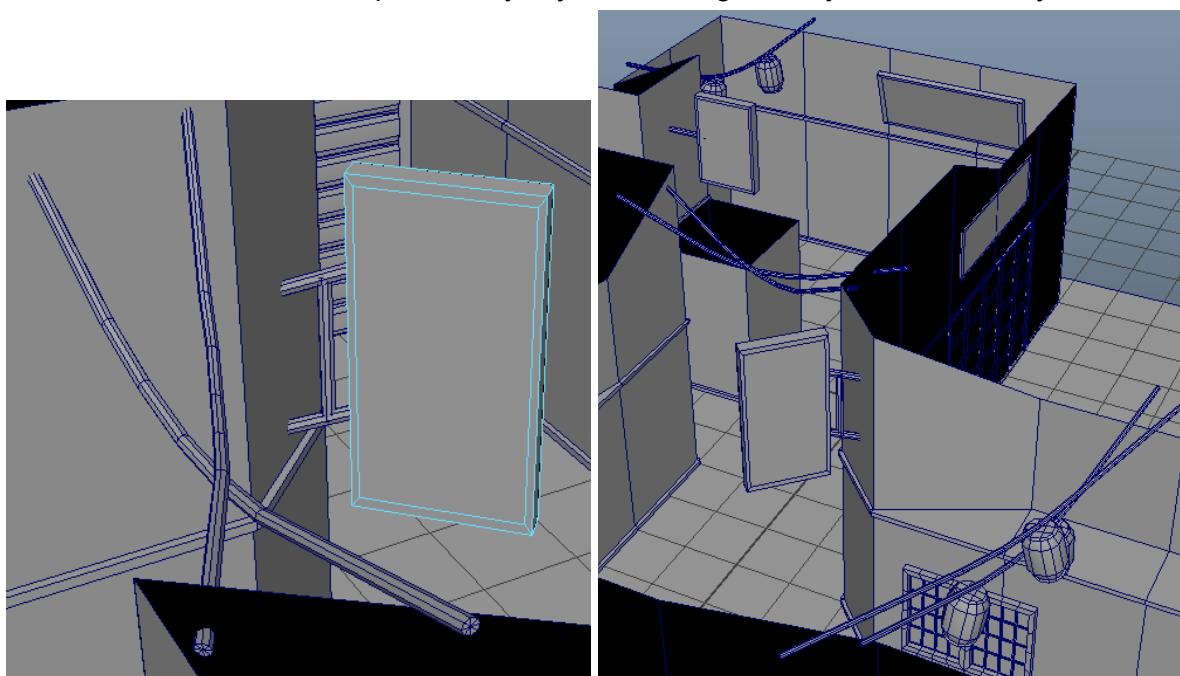
I thought I could have two types of screen doors, so I modelled a smaller screen door in a



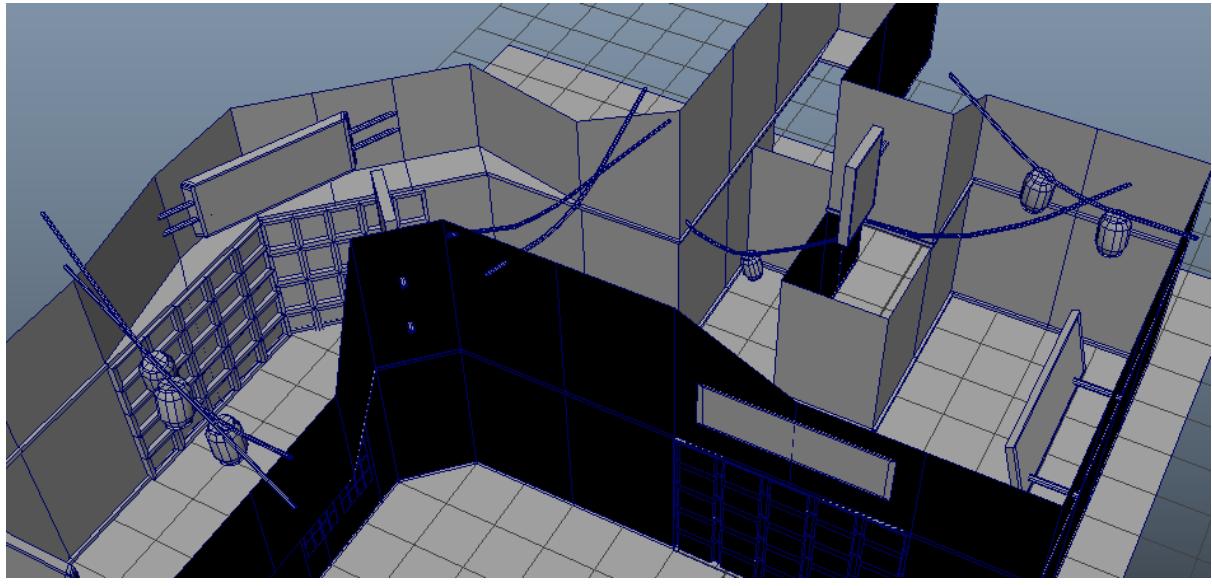
slightly different style, using Ethan as a reference for size.



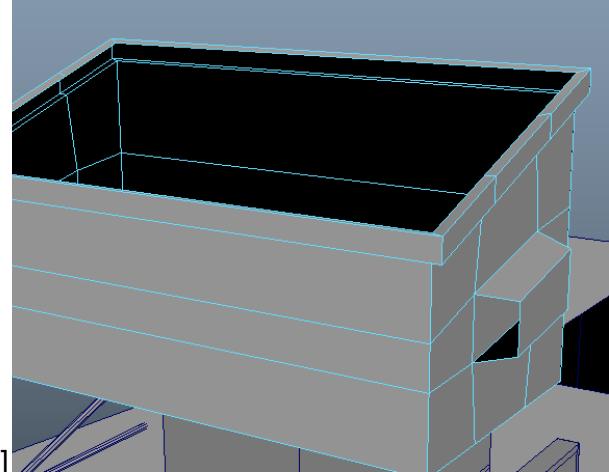
Next I assembled the UV maps of many objects, starting with my alternative shoji screen.



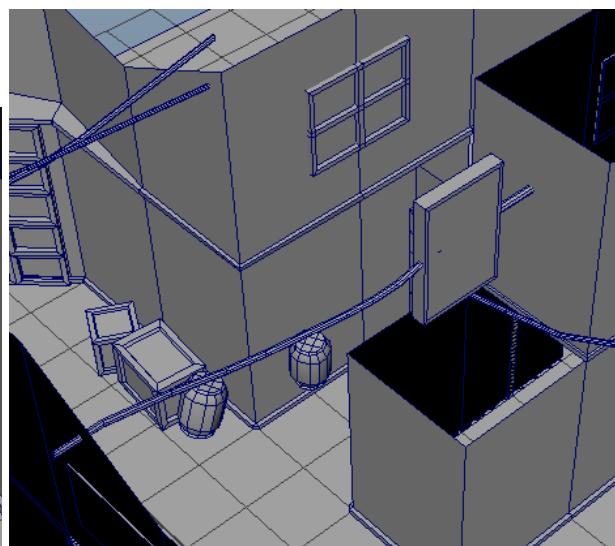
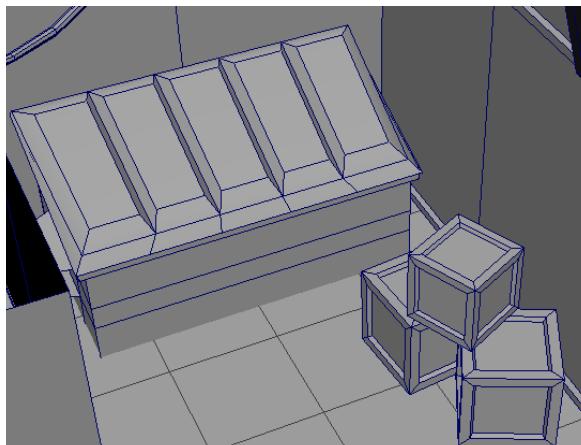
I started to add additional items into my scene, starting with draped wires, which are just thin cylinders, using soft select to give them a curve. I also made cylindrical lanterns, which I hung off the wires. Using a thin rectangle, extruded inwards for the UV (to separate the billboard metal vs. the print), I made a simple sign, which I replicated, reshaped and rotated to fill my scene.



Populating my scene with repeating items, to try and achieve a claustrophobic feeling.
I also made an alternative sign, with rounded corners to use as header for shops.

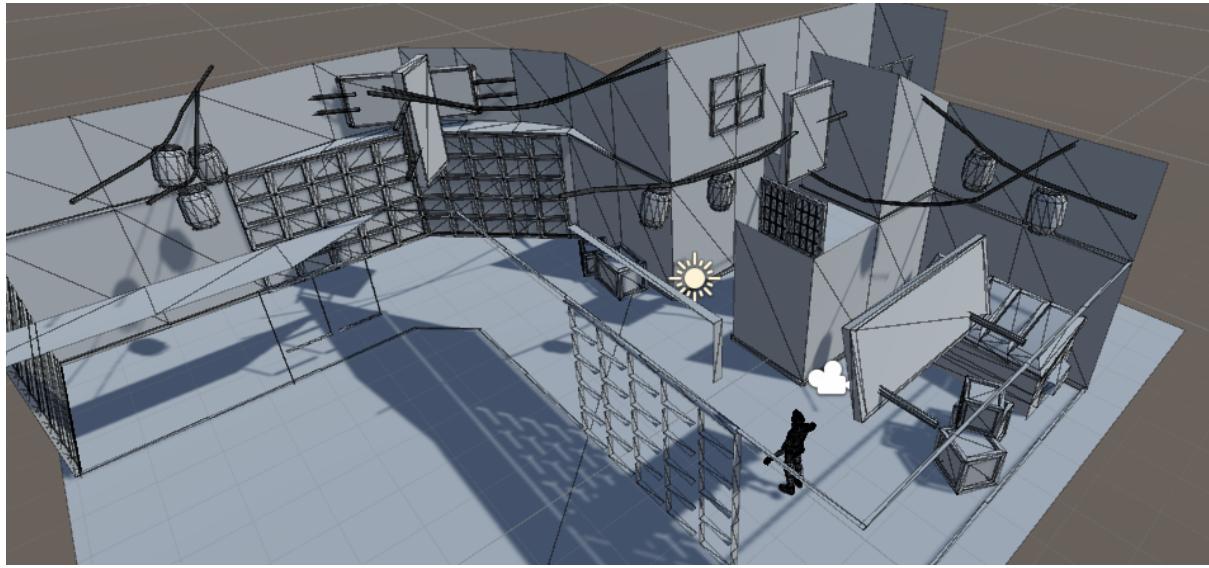


Using this image, I tried to model a bin, removing the bottom wheels to simplify it.
For the backwards face of the handle, I used reverse to flip the black face.



Using my finished bin, and these simple crates, I scattered these throughout my scene, and made windows to put into my narrow alleyway, to imply that these are apartment blocks.

I also duplicated a few more lanterns and wires to fill up the sky space.



Bringing my scene into Unity, I used this to check if the ends of any of my wires were showing, and look for issues with my geometry. I found a few small gaps between the modular wall pieces, and a few floating wires.

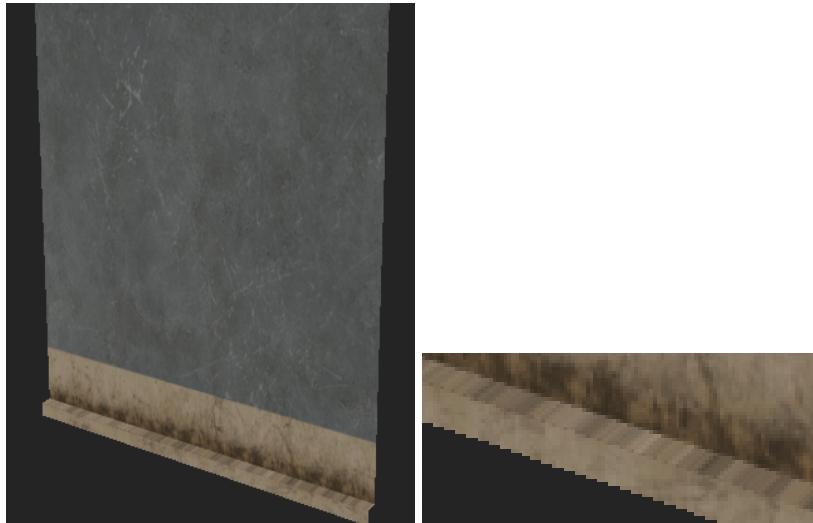


I fixed this issue simply by intersecting the wires with the walls.

Process - Texturing

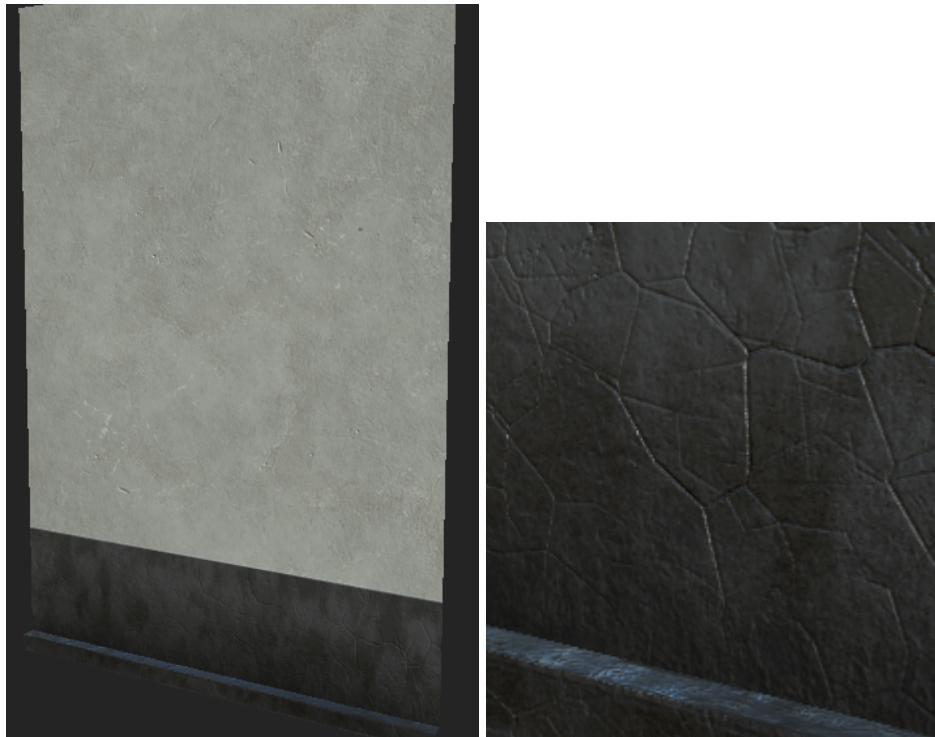


I started by texturing my screen doors, using a wood preset for a base. I went through and altered the roughness, to make it less shiny, reduced the height and changed the colour. For the paper screen, I used the Fabric Suit Vintage Material, scaling it to be much smaller, and once again going changing the roughness and removing the height of the material. Using a mask layer, I used the 'Cement 1' brush and brushed on dirt and grime towards the bottom and corners of the door. I did the same with the paper screens.

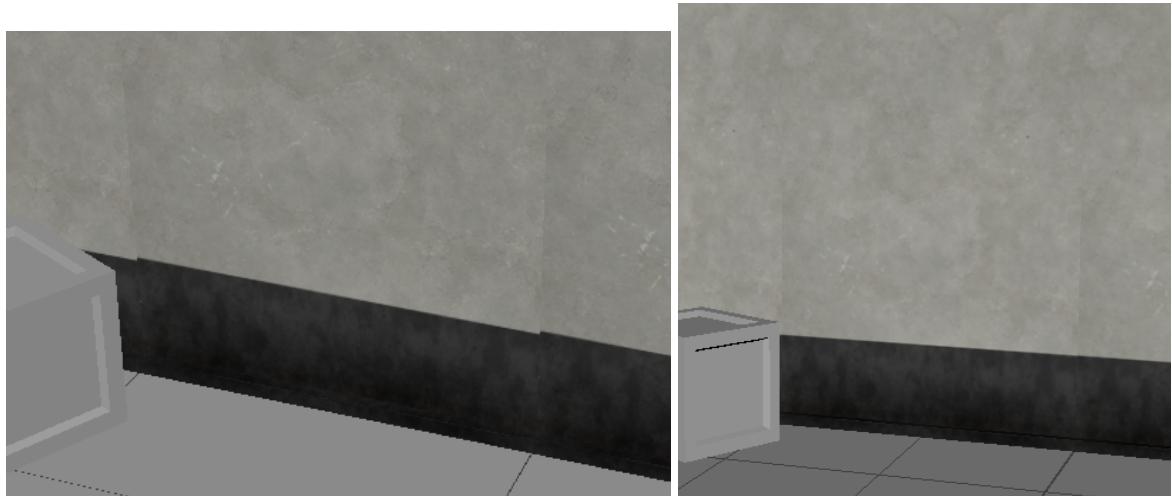


Next I began on my wall pieces, using a mask layer to create a small rim of stone, using the Creature Teeth material as a base. For the main wall, I used Concrete Simple.

When making it, I realised that (as pictured above) I forgot to UV map the walls, making the top face of my wall's rim stretch and pull at the texture.



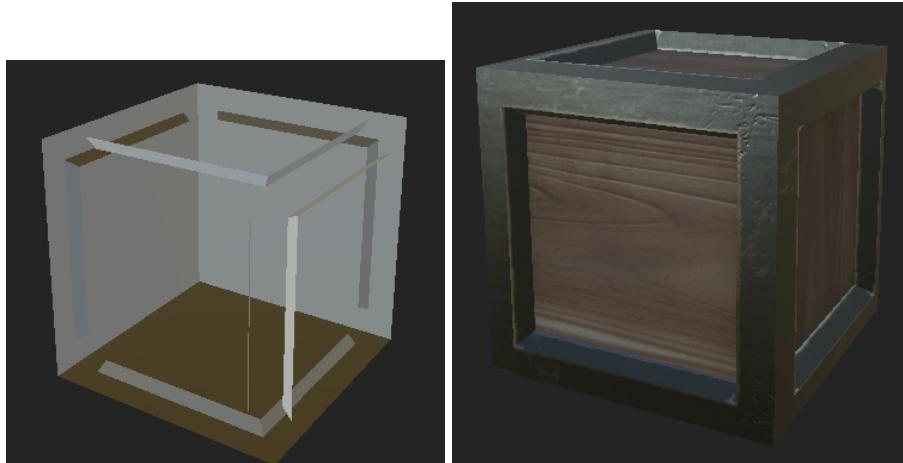
After fixing the UV maps, I realised that all the other copies of my walls would be broken, as they had the unfixed UV map. I used [this guide](#) to fix all the other copies of my wall, and finished its texture. Using a height layer I added these crack patterns at the bottom to make them look more like stones, and added small nicks and scratches in the concrete.



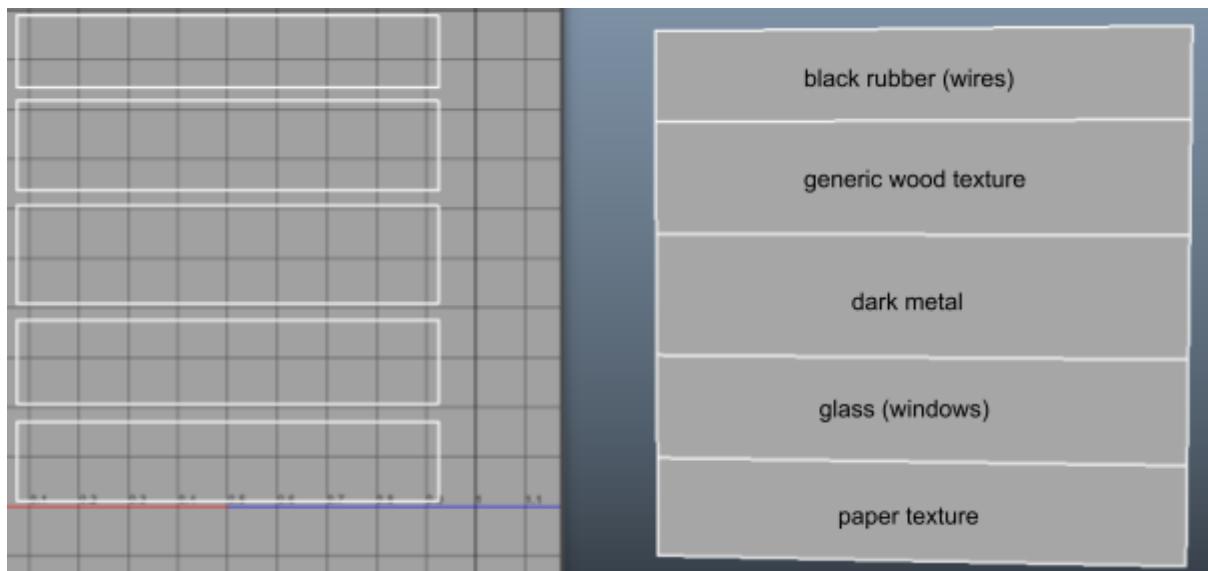
Dragging my materials back into Maya, a huge issue is that the stone areas at the bottom don't line up properly, despite me using straight lines.

To fix this I essentially just eyeballed it in Substance Painter, erasing and drawing on the mask layer to try and get my mask straight. This isn't perfect, but I think it's acceptable.

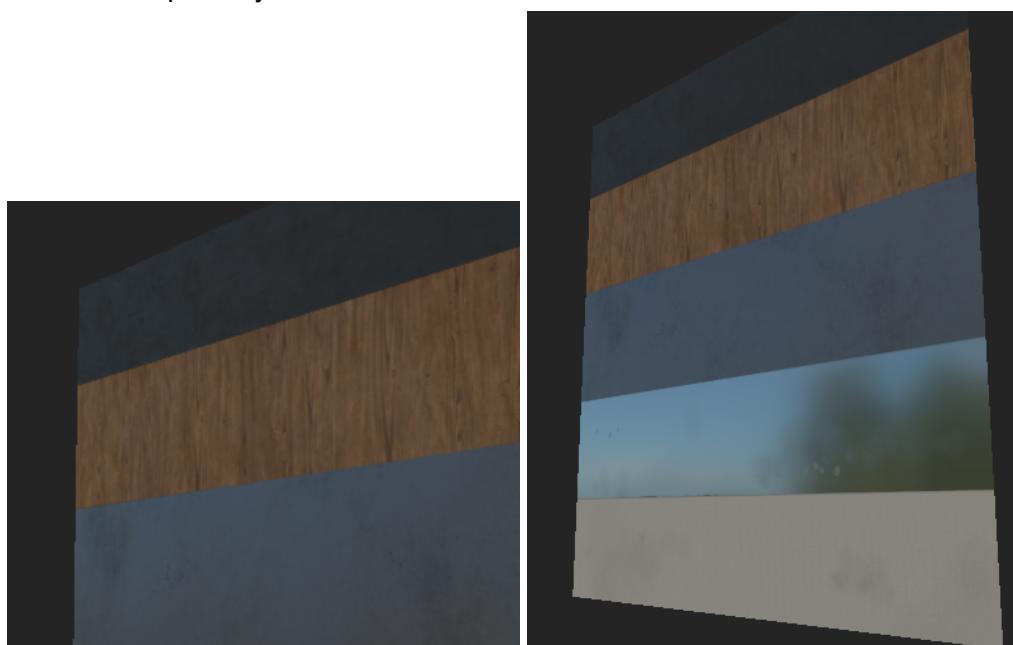
In regards to the seam of the wall, I attempted to make my walls into a tileable/repeating image, but according to [this forum](#), it requires a setup of a 3x3 grid.



Next when I imported my crate, I found that it was displaying backwards. I followed all the advice [in this forum](#), but nothing worked. I also tried to Mesh display > Reverse but this didn't work either. In the end I just made another crate, and imported it into Substance fine.



Next I began to plan my trim sheet, making 5 more ‘generic’ materials I could apply to smaller / simpler objects.



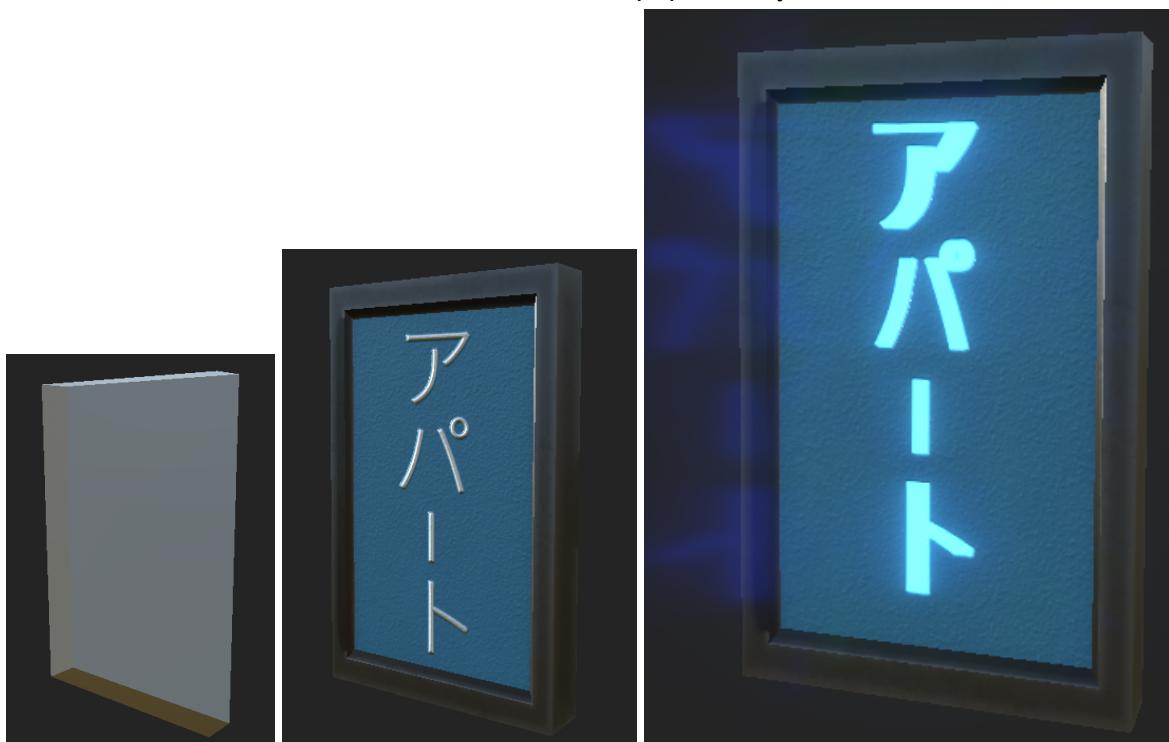
I started making all my materials, starting from the top. The first was a rough and matte rubber texture, in dark gray. Next I used the Nordic Wood smart material as a base, and altered it to my liking, adding scratches and patches of dirt on top for detail. I did a similar process for the metal.

For the ‘glass’, I used a mirror material, and reduced the roughness a lot to make it look like frosted glass, and prevent the viewer from actually seeing inside. I used a fingerprint brush and a cement brush to add scuffs and dirt marks across the surface.

Lastly was the paper texture, this was a fabric material which I removed the ‘folds’ layer of, altered the scale and all layers to make it look more like paper.



I began using my trim sheet throughout my scene, using it for the wires, windows, and the metal bars holding up my signs. I also converted the metal and wood from my trim sheet into a smart material, and later did the same with the paper of my screen door.



My signs had the same issue as the crates, so once again I just remade them. I used the metal I had saved as a smart material as the frame, and used a cement material as a base, reducing the roughness a lot for the blue.

To create my text I used a font alpha, but was unfortunately limited to one brush for Japanese text. Initially I was going to use the second image, but decided to add my emissions in substance. I followed [this tutorial](#) to make my text glow, and dragged the font alpha to make the text more bold and modern looking.



I used the wood and paper I had made, but altered both to fit my lantern more. I made the entire paper bit red, as I thought it would provide more colour to my scene, and drew the kanji of 'Welcome' using a textured brush to mimic calligraphy, and raised the height and roughness of this brush, as I wanted to show it was painted on top with some kind of rubber/matted material.



I continued working on the signs, next making my storage sign using my premade metal, and a low height to write storage into the metal. This is probably the simplest sign I made, and I may come back to it if I have time to make it more detailed,



Next I sketched out a ramen bowl design I wanted to use, and then drew it onto an emission layer. I also hand wrote 'ramen' in katakana as I thought it would match the hand drawn ramen drawing on the other side.

My lines are not as straight as they could be as I had to draw using a mouse, and couldn't find a stabiliser anywhere in Substance Painter.



Again I sketched out my design, I wanted to create an ad for a makeup product, so I drew an anime style girl pointing to her face. I thought this would be too hard to replicate freehand, so I imported the image as a texture to trace over in another layer.



I used an emission layer to draw her, and placed some commercial text about the BB cream next to her, and included sentences like ‘hides dark circles!’, etc.

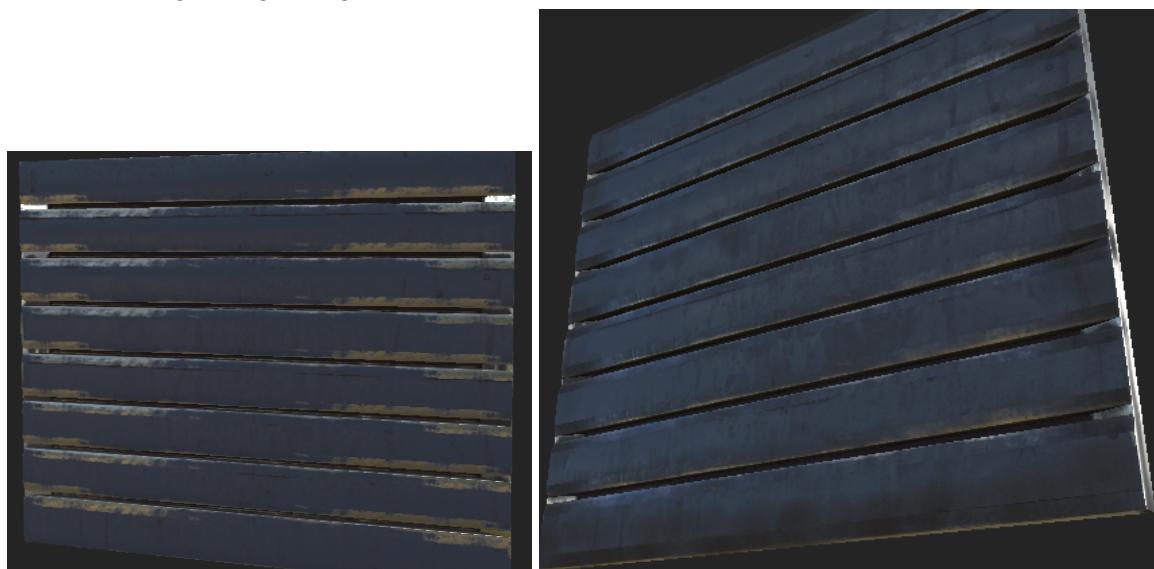


Next I thought I should make a sign that was not illuminated, so I thought a traditional tea house would suit this design. Underneath is the year it was established.

For the text I used an angled calligraphy brush, and altered the roughness to provide contrast in between the paper and the text.



Next I made an izakaya sign (a Japanese bar). Since this shop is across from the dumpster, I thought it would suit a more run down and messy sign, so I crudely drew out the text, and added some glowing triangles in the corner for contrast.

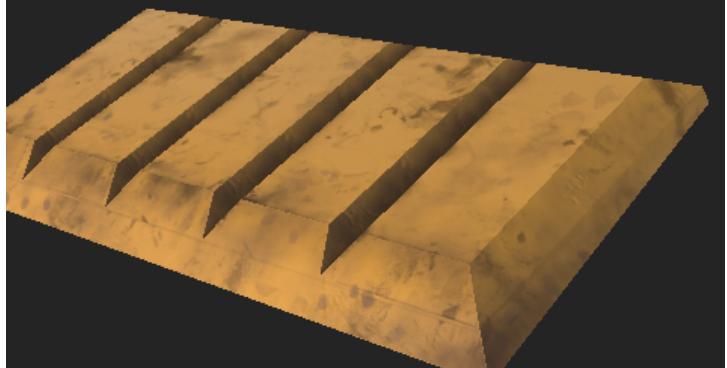
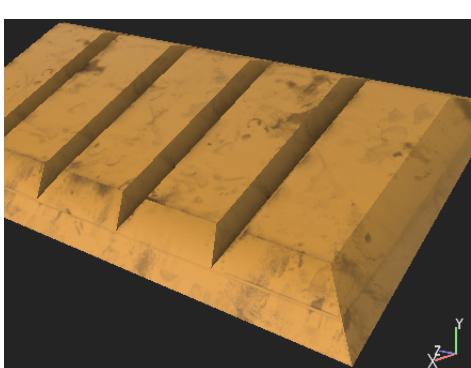


Next I used a metal smart material as a base for my screen door, and altered it to reduce the amount of exposed metal, and to add more random grime and texture.

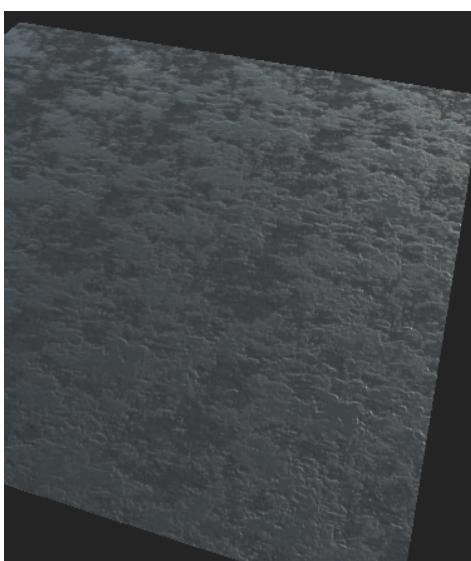
I used a low height with a cloudy brush to add texture to the door, especially near the bottom where it would most likely be hit or damaged.



Using the same reference picture for texture, I began texturing the metal of my bin. I added a lot of grit and dirt on the metal, especially near the top. I also added a lot of roughness to make the bin look older and kinda worn out.

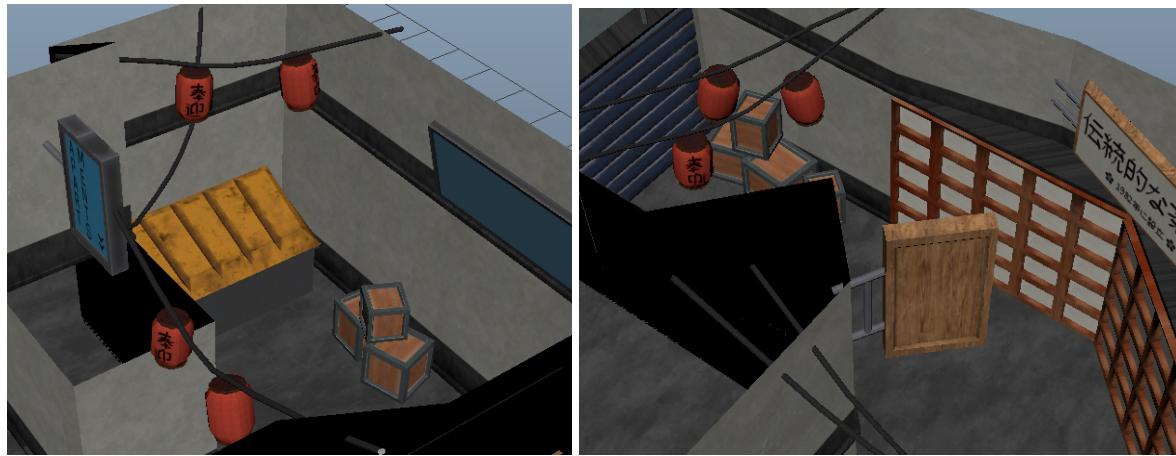


Using the same 'rundown' approach as the metal, I used a matted plastic material, and added a lot of dirt and grime, and fingerprints near what would be the opening of the bin. I also thought against using blue, as the sign near this bin was blue, and I thought I could add some new colour by using yellow.

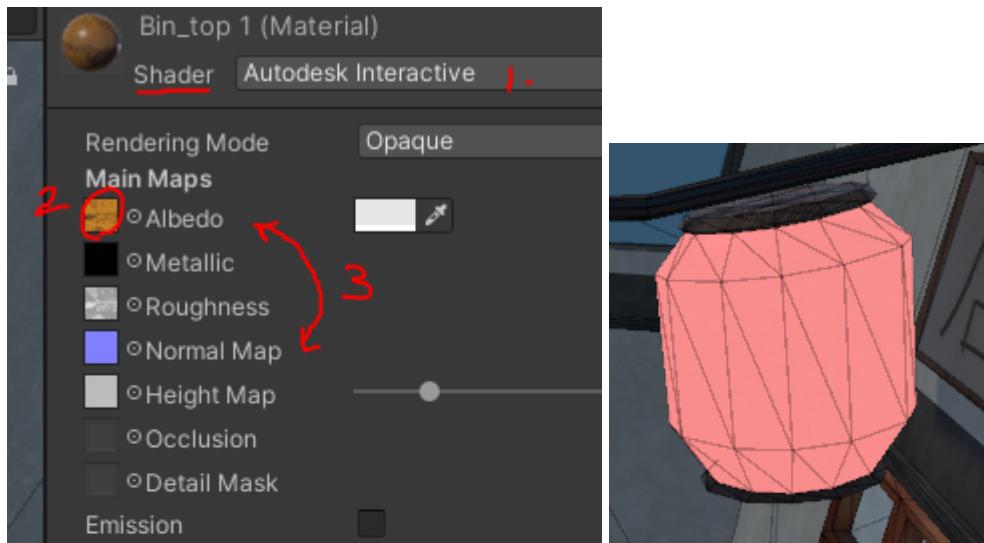


For the floor, I used the monster teeth material as a base, but altered it to make it more matted, and look more like stones to match the bottom rims of my walls. I used a height layer and added a large hole, small footprints and general wear and tear on the floor.

Process - Unity Build



In Maya I finally textured all items, and then imported the mesh into Unity.



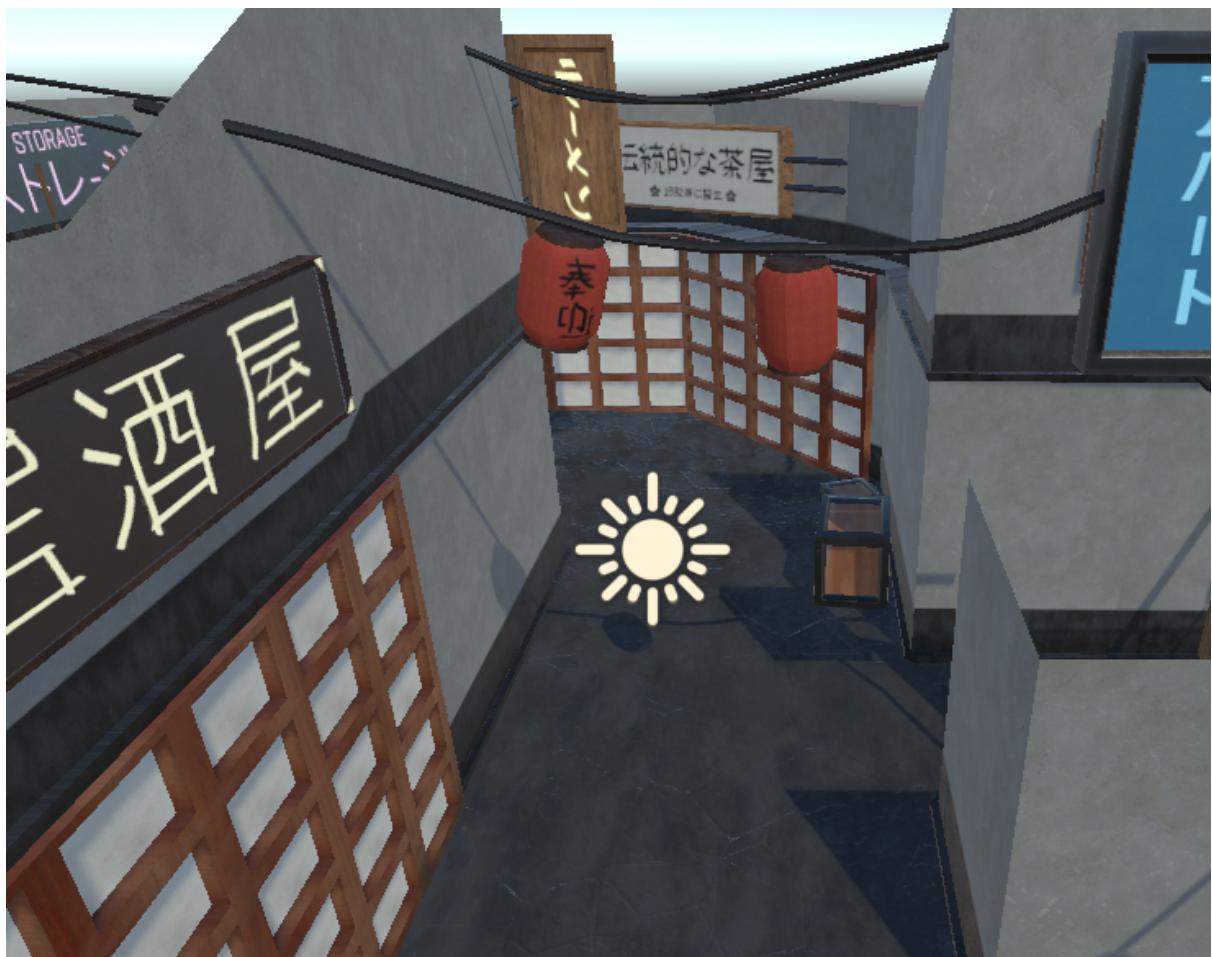
Importing my scene into Unity, I followed the week 4 tutorial steps of:

1. Changing the shader to Autodesk Interactive
2. Turning off sRGB for everything except the Albedo map.
3. Increasing the Aniso level to 8 for the Albedo and Normal map.

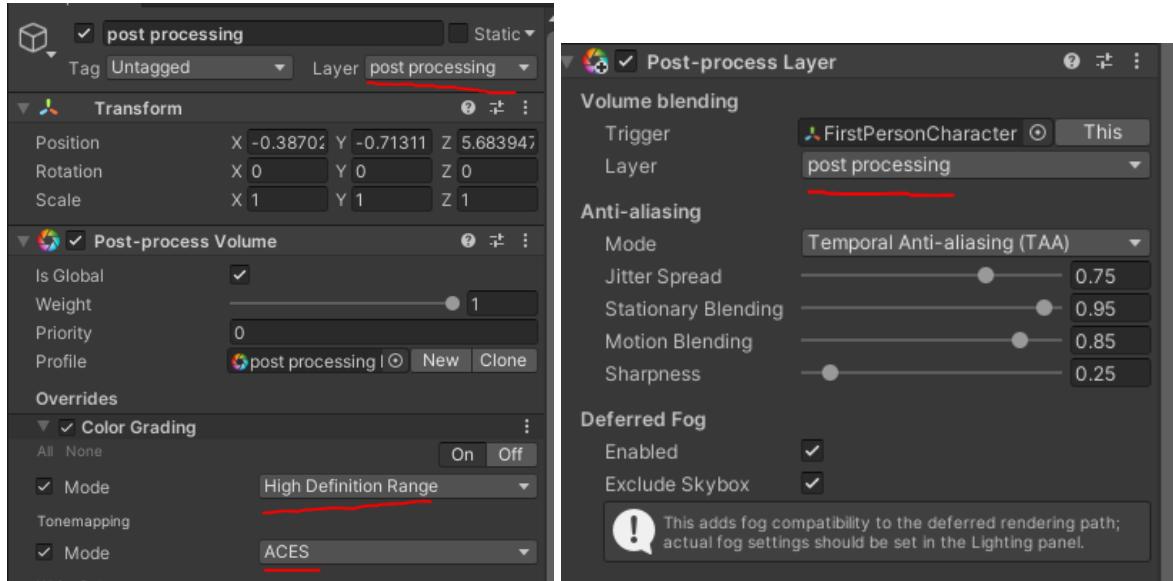
I realised after this that my emission layers weren't really working, they just lightened the design on the emission layer (eg. my lantern), and didn't glow at all. So I temporarily unticked all emissions until I could figure out how to fix it.



I began by following the above steps for my bin, then applying them to the crates and so on. However while I was doing this, when I imported my ramen sign, I realised the design was completely backwards. I tried to re import my textures, and followed the steps of [this forum](#), but neither worked. Ultimately I decided I'd rather have a working (but backwards) texture rather than one that is broken but the right way around.



After finally importing and setting up all my materials properly, I began to work on the lighting of my scene. I used the week 4 tutorial notes, and followed all of the steps about post processing and lighting.



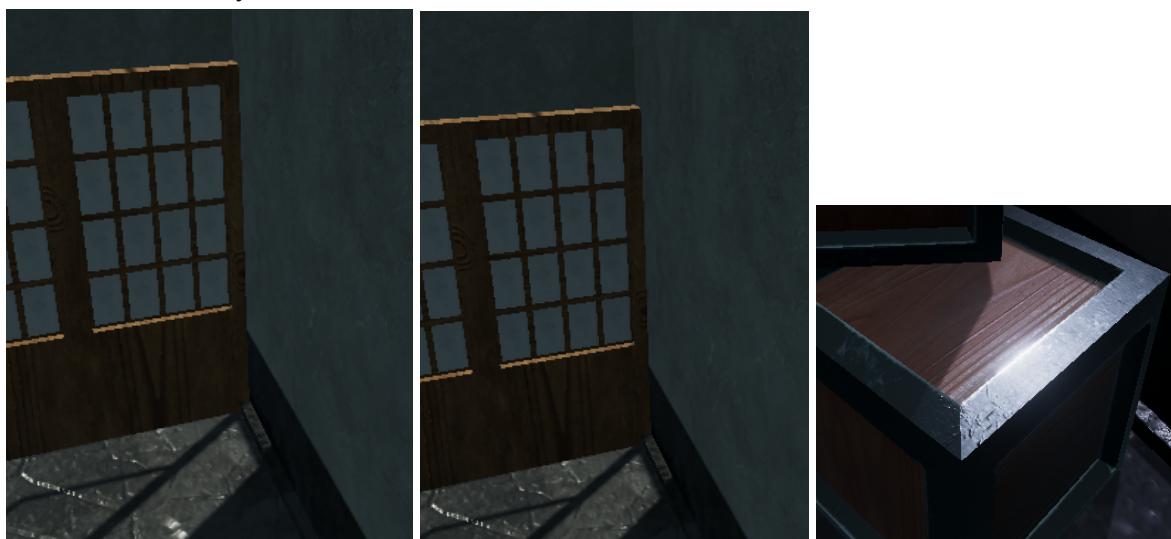
I began by adding post processing effects onto my scene, creating a new post processing layer and applying this to the new gameobject and the 'FirstPersonCharacter' camera.



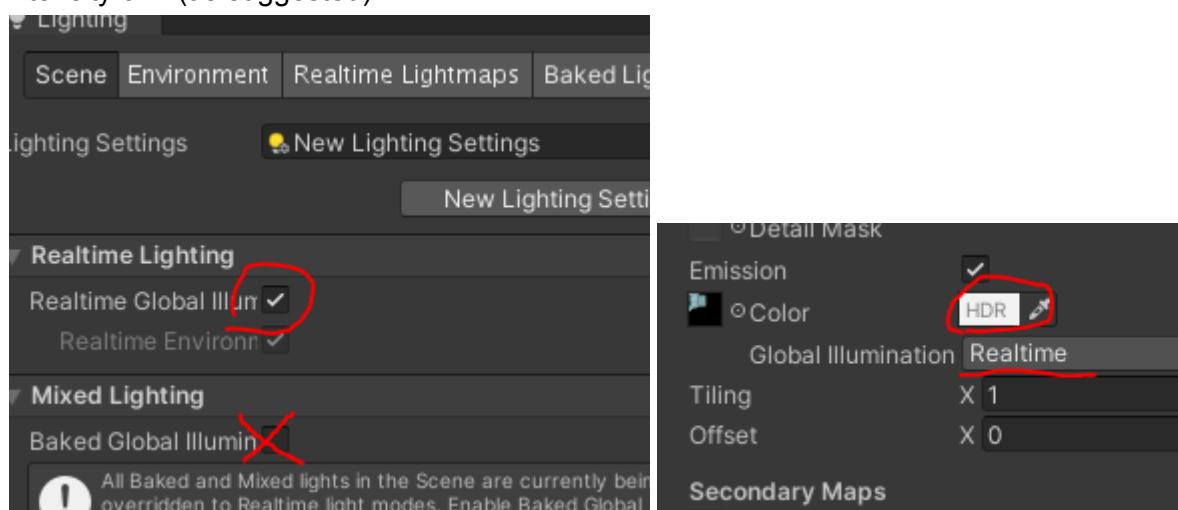
For my custom skybox I used the sky overcast image. I originally used the night sky picture, but this made my scene almost entirely black and I didn't want to rely on the directional light for lighting, so I used this instead. This also gives my scene a cool tint.



I set up slight fog, and reflection probes for my 3 windows. However because of how dark my scene is, and how matted I made my window material, I can't really tell if this improved the reflection of my windows.



Adding slight AO to deepen the shadows. I kept this value low as by this point my scene was already very dark and I didn't want to darken it too much. I also added bloom with an intensity of 1 (as suggested).



Following the tutorial notes about nighttime lighting, I first created new lighting, turned on realtime global illumination, and turned off baked global illumination.

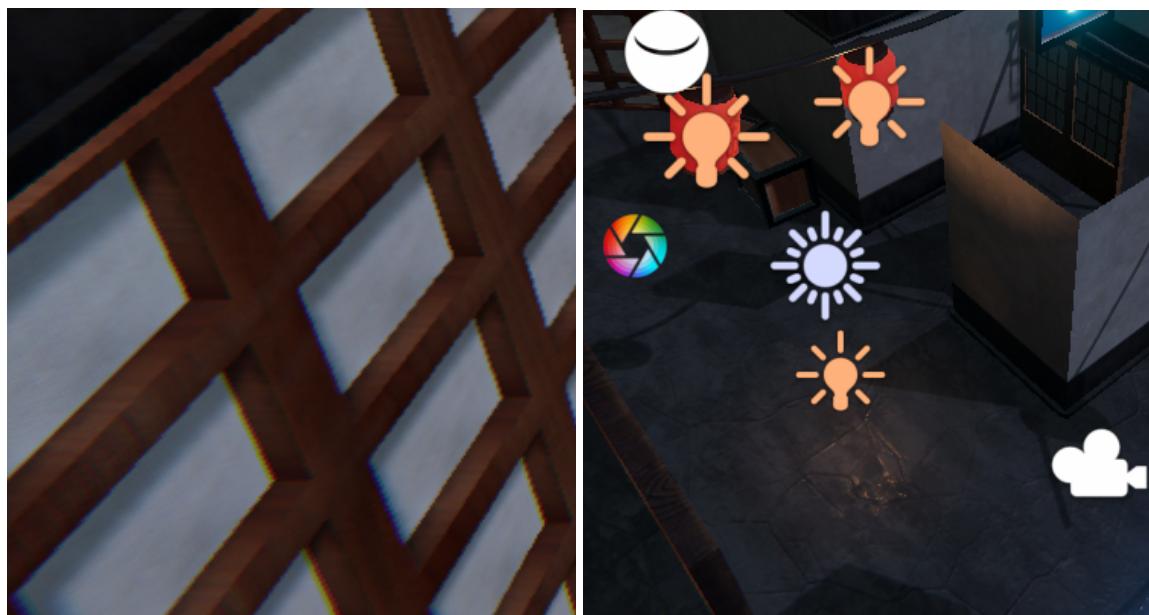
Next I went through all my emissive materials and turned the emission maps to realtime global illumination instead of baked, and changed the HDR colour to white.

After this I regenerated my lighting for a second time.



After digging through forums I finally realised that the emission intensity slider was at the bottom of the colour picker, so I went through all my emissive signs and gave them fun colours, with a high intensity to contrast heavily against my dark scene.

I also tweaked my directional light, giving it a slight purple hue to make my scene more cool in colour, and decreased its intensity by 0.1.



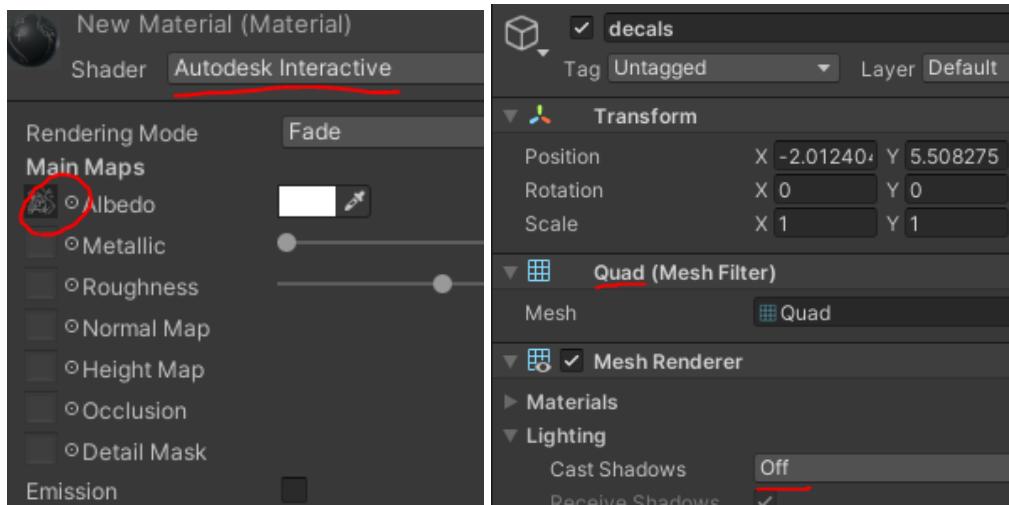
Next I added a chromatic aberration layer on my camera, with a super low intensity for the style. I also placed point lights on every lantern in my scene, to fix the high emissions on its

texture which hid my design. I also placed weak point lights beneath the clusters of lanterns, as I wanted some light to reflect on the tiles, but the lanterns were too far away to reach.



I decided to supply only one source of light to the bundles of lanterns, as I wanted to add some hanging lights to brighten up my apartment alley, and the shutter door in front of the storage shop. I didn't want to have too many light sources in one scene.

Next I wanted to start adding my decals, so I created a placeholder as I wanted to import images for my posters.



To create a decal, I followed the steps in the tutorial notes, creating a new material, and changing it to Autodesk Interactive and selecting my image as the Albedo map.

I used GameObject > Quad, turned cast shadows off, and applied the material to the quad.

Decals:

- Izakaya menu
- Concert poster
- Dirt (2 types)



[\[source\]](#)

I started by making a concert poster, using this Beatles poster as reference, using 2 colours and bold font. I sketched out my own version, before translating it into Japanese, and refining my sketch.



After drawing my final lines, I decided to add a subtle gradient in the background, and started filling in colours, using black in different opacities. Finally I overlaid these layers with a dark blue, to match the poster. I also duplicated the text layer to add a drop shadow.



居酒屋 メニュー

Next I wanted to make a menu for my izakaya, and used the above images as reference. I created a slightly yellow tinged, more square shaped menu, and used a subtle radial gradient to make the menu look more aged.

edamame

japanese salad

tofu salad

agedashi

teriyaki tofu

grilled squid

食物	
枝豆	¥200
日本のサラダ	¥450
豆腐サラダ	¥500
揚げ出し豆腐	¥450
照り焼き豆腐	¥500
イカのグリル	¥650

Yakitori

meat skewer
teriyaki chicken
miso steak

肉料理

焼き鳥	¥450
肉串	¥500
照り焼きチキン	¥500
味噌ステーキ	¥600

Next I began filling the menu with text, I've mainly kept these screenshots as reference when I was trying to give it an appropriate price.

udon
chicken udon
beef udon
tempura udon
ramen
pork ramen
vegetable ramen
cold soba

麺料理	
うどん	¥500
鶏うどん	¥600
牛うどん	¥650
天ぷらうどん	¥700
拉麺	¥500
ポークラーメン	¥650
野菜ラーメン	¥500
冷たいそば	¥400

green tea
green tea iced
genmaicha
ramune
pepsi
sprite
beer
sake
rice wine

居酒屋 メニュー

食物

枝豆	¥200
日本のサラダ	¥450
豆腐サラダ	¥500
揚げ出し豆腐	¥450
照り焼き豆腐	¥500
イカのグリル	¥650
肉料理	
焼き鳥	¥450
肉串	¥500
照り焼きチキン	¥500
味噌ステーキ	¥600

麺料理

うどん	¥500
鶏うどん	¥600
牛うどん	¥650
天ぷらうどん	¥700
拉麺	¥500

飲み物

緑茶	¥300
緑茶アイス	¥350
玄米茶	¥300
ラムネ	¥450
ペプシ	¥400
スプライト	¥400
ビール	¥600
日本酒	¥700
お酒	¥800

居酒屋 メニュー

食物

枝豆 <i>あいしい</i>	¥200
日本のサラダ	¥450
豆腐サラダ	¥500
揚げ出し豆腐	¥450
照り焼き豆腐	¥500
イカのグリル	¥650
肉料理	
焼き鳥	¥450
肉串	¥500
照り焼きチキン	¥500
味噌ステーキ	¥600

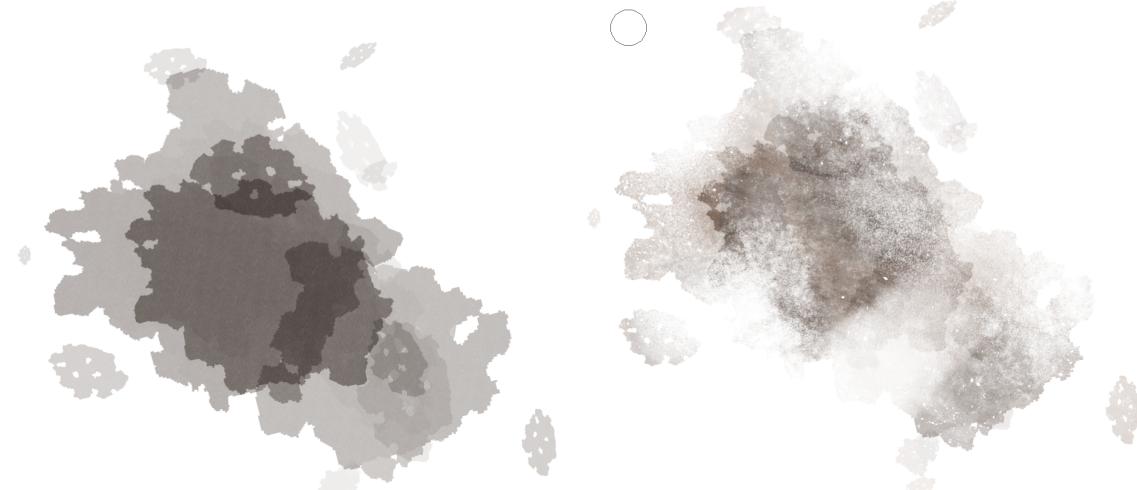
麺料理

うどん	¥500
鶏うどん	¥600
牛うどん	¥650
天ぷらうどん	¥700
拉麺	¥500

飲み物

緑茶	¥300
緑茶アイス	¥350
玄米茶	¥300
ラムネ	¥450
ペプシ	¥400
スプライト	¥400
ビール	¥600
日本酒	¥700
お酒	¥800

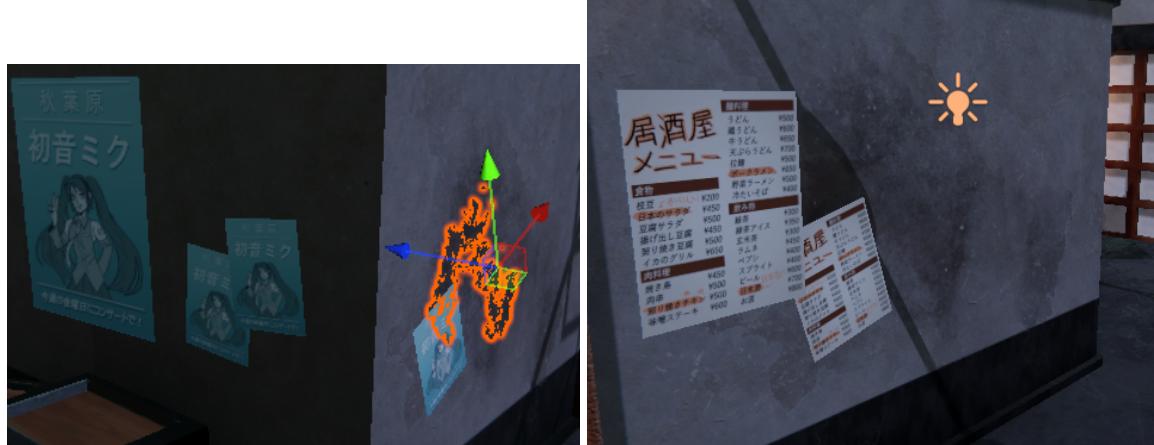
I continued filling it with text until it was completely full, then went to add some handwritten elements. I changed the logo to a handwritten font as I thought it would suit the messiness of my izakaya sign, and ‘highlighted’ recommended dishes, adding comments such as ‘delicious!’ and ‘made in Japan!’.



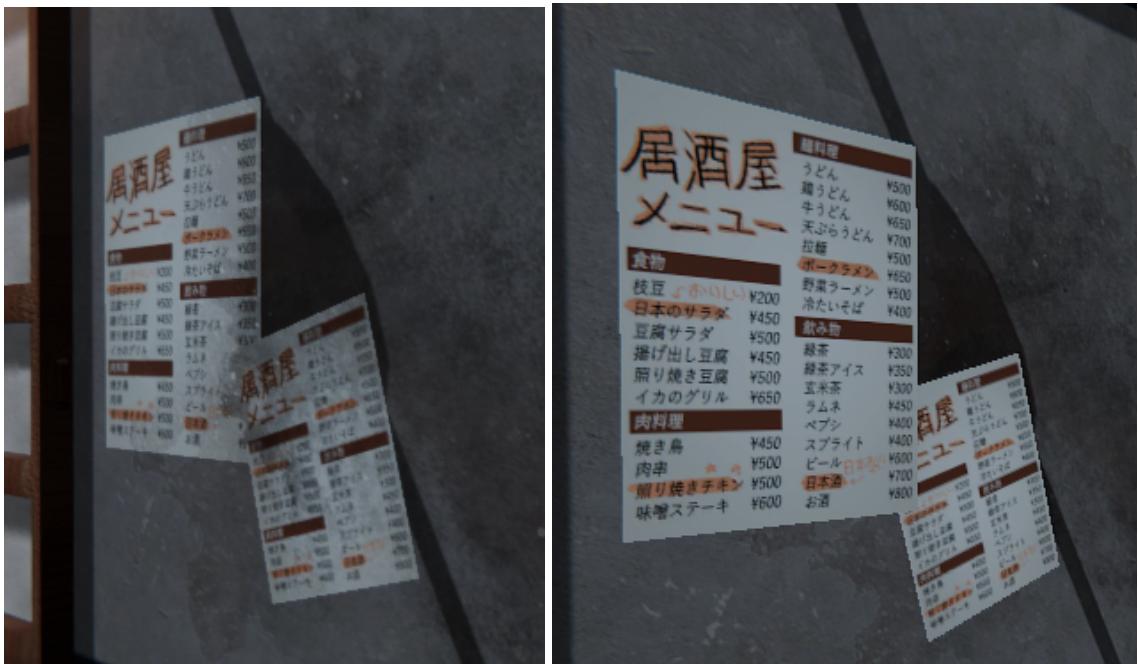
Next I created some dirt textures, starting with this watercolour brush. I used a mixture of textured brushes, two pastel pencils, splattered paint brushes, and a rough eraser to create this cloudy dirt pattern. I thought this looked similar to water damage stains.



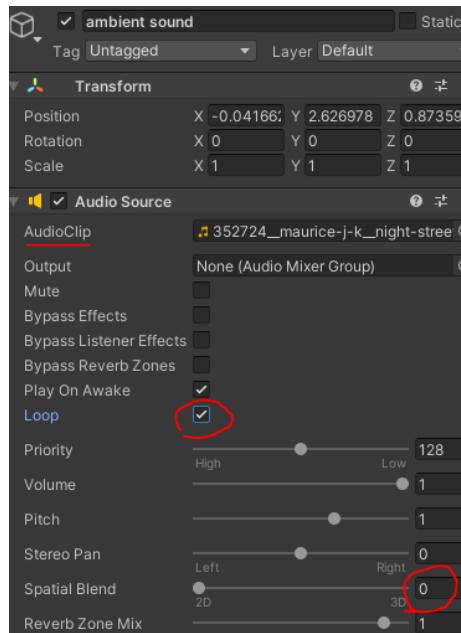
Next I wanted to make a more standard ‘dirty’ decal, so I started with an airbrush, and erased spaces in between for white space. I used the brushes mentioned above to create this dirty pattern, and used the pastel brush a lot more for this to create a more gritty look.



I began to place the decals into my scene, using the steps I used above, and duplicating them, rotating and resizing them to add variation. I wanted the dirt to go over several posters, to age them, but when I did this the layered decals would constantly flicker over each other, which was extremely distracting when walking around.

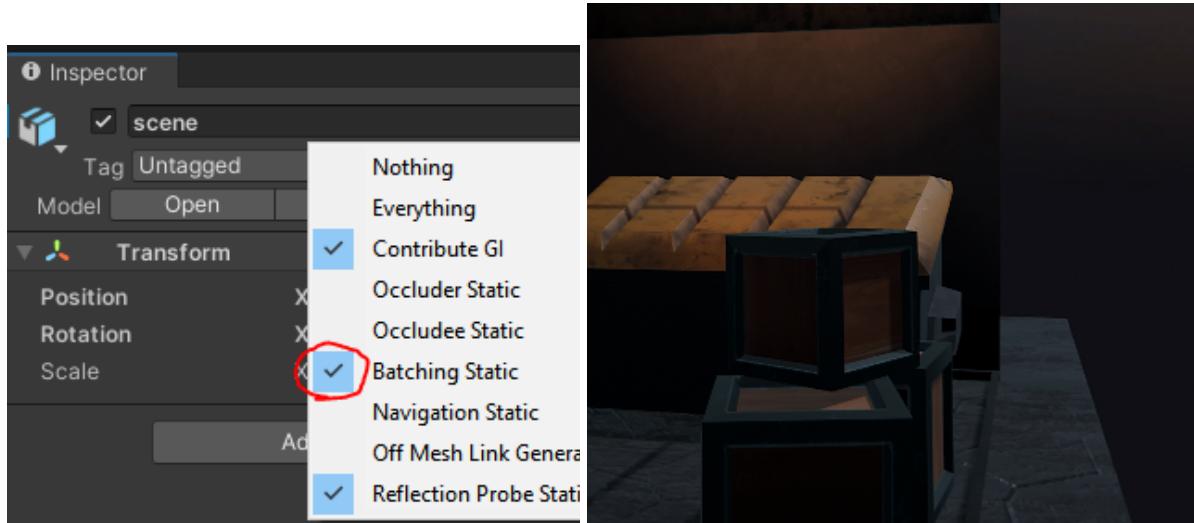


By bringing the dirt decal further in front of the menu it stopped the flickering, but the layers would switch order. The above screenshot is the same scene from different angles, the first image the dirt goes over the poster (as desired), while in the second the menu is in the front.



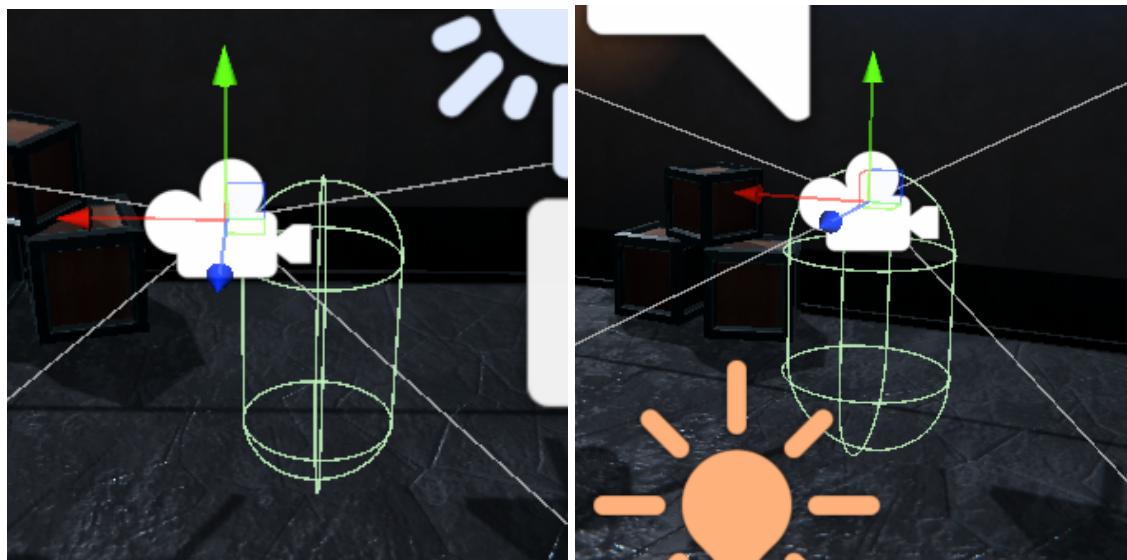
I decided to choose [this audio](#) for my ambient sound, as my scene is set during the night. I like that this audio is quite subdued, but provides the sound of a street. I also changed the volume to 0.8, as I wanted the commotion to sound distant.

At this stage I realised that the skybox I had chosen didn't make sense with my night scene, as it was quite bright and very blue. So I changed my skybox back to the night sky, and brightened the directional light to prevent it from being too dark.

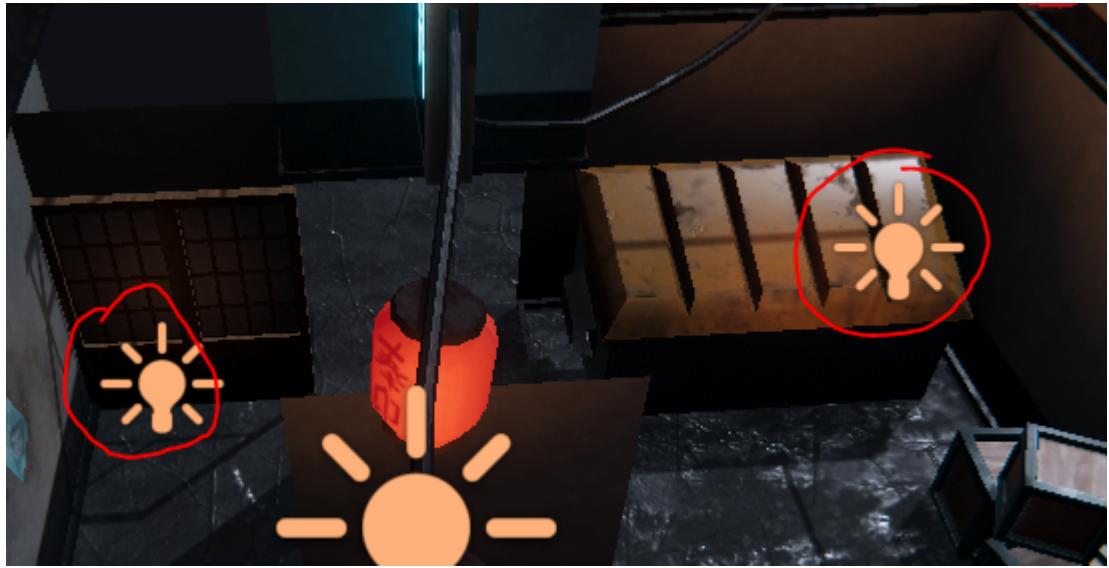


Next I followed the tutorial notes about optimisation, and turned on batching static for the frame rate. One last thing to fix is the player camera, which is able to phase through some walls for some reason. Googling this problem returns a lot of suggestions to run lines of code, which I want to avoid doing due to my unfamiliarity.

I tried to regenerate the colliders of my mesh, but this didn't work either.



I realised at this point that the camera inside the player character was offset, and this was why even though the character would bump into items, the camera would go above it. So I just realigned the camera, and also turned off the ability for the viewer to jump, as they were able to parkour from the crates to the bin, and see the empty faces of my second floor.



I added a subtle light in the apartment alley of my scene, as it was way too dark in there and lacked any light sources. I also adjusted the light reflection of the lanterns over the bin, as I wanted to show my metal material more, which was completely obstructed by the bin lid.



I also realised the shadows were a bit too strong, especially since my scene was so dark and the light sources were all quite high up (lanterns, signs). So I reduced the shadows of the directional light from $0.7 \rightarrow 0.5$, and I think this looks a lot better.



For my final touches, I added more dirt decals on walls that were empty, and rearranged the concert posters so they weren't so clustered in one area. I also adjusted the directional light and gave it a stronger blue hue, to make my scene look more colourful.

Final Screenshots

