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University of Wales
Trinity Saint David

Academic And Professional Development (ACCA4039)
Production Diary

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Abstract

In this assignment, the task was to produce an iterative design document in a diary format chronicling the creation of various 3D models as provided as the task in a separate module using the Autodesk Maya software. The various models are:

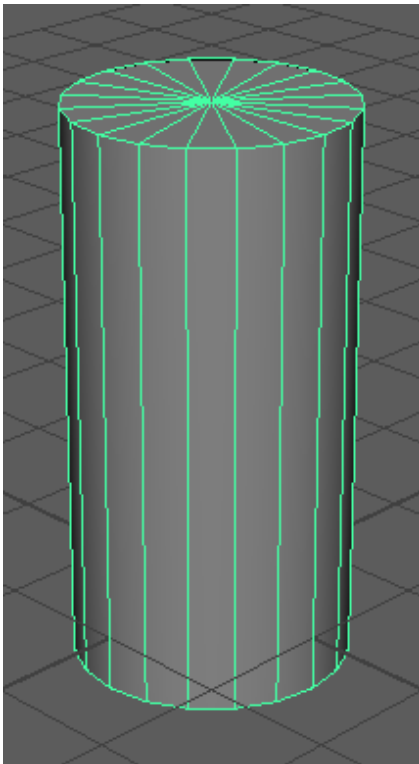
- Drink can
- Dumpster
- Teacup and saucer
- Lamp Post
- House

In diary format, dated timestamps provide a summary of the production of the above listed models as they become fleshed out including how each model has been sculpted using the available tools within Maya, how each technique was applied in model creation, issues that have been encountered during production and what solutions were utilised in order to ensure efficiency.

Also featured are images that support the diary by providing visual insight into the construction of the above models in an iterative flow.

The diary also touches upon issues that stretches beyond the boundaries of the assignment that hold influence over the amount of time that can be allocated to the task at hand but unfortunately disrupted the workflow process prematurely ending 3D model production and thus closing the diary in an almost incomplete format.

14/11/25 - Soda Can Model



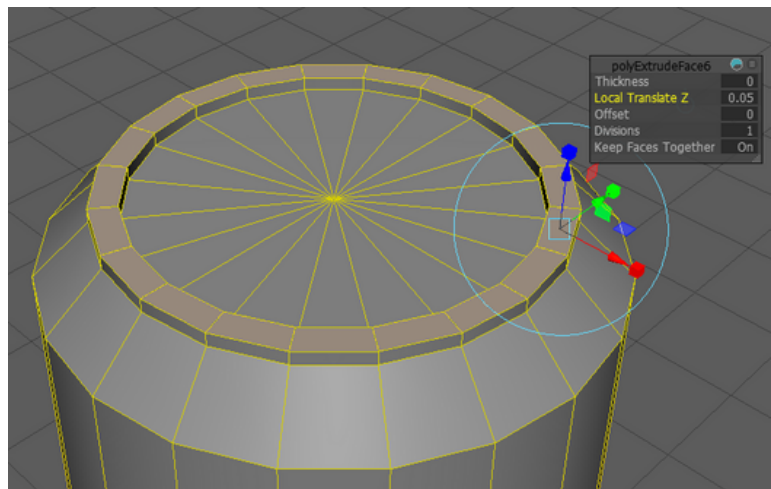
The software that will be used to produce the 3D models for both this assignment and the 3D model showcase presentation is Autodesk Maya (1), an industrial grade software used by industry for 3D modelling and animation.

Beginning with the soda can model, the primitive cylinder was first produced to serve as the basis of the soda can, as seen in figure 1a (I1). The primitive was altered by using the scale tool to reduce the height to create an object that appears similar in height to real life drink cans.

The scale tool is the first modelling method that has been identified and has been noted for its pivotal role in 3D modelling and will serve purposeful for future modelling developments in both professional & personal projects.

(I1 - Figure 1a - Primitive)

Following the placement and scaling of the primitive cylinder, the top and bottom faces have had extrusions applied to produce the basic appearance of a drink can by raising the height of the faces and shrinking the edge diameter in order to produce the desired affect as seen in the adjacent figure 1b (I2). By applying this tool to achieve the sub-goal, this new shape forms the base of the finished product.



(I2 - Figure 1b - Extrusions)



(2. White Monster packaging image)



(3. Can top image)



(I3 - Figure 1c - Texturing)

In order to produce a better visual representation of the model the idea of texturing has been explored to investigate how the drink can model can be brought to life in a fast and efficient manner. The following images (2 and 3) have been designated for application to create a furnished prop for use in full environmental scenes in the future.

It has been discovered through in-class education that the lambert tool applies textures to selected faces as a 'material'. The packaging image (2) will be applied to the base faces of the cylinder for packaging and the ring pull image (3) is to be placed on the top face of the object to create the illusion that the product can be opened.

Starting with the white monster packaging (2), The base faces that surround the object were selected and had the image applied through lambert file texturing as follows:

Face select → Assign favorite material → Lambert → Choose from file

Due to issues arising during initial texturing, a prototype was created to test how to properly apply a lambert as indicated in figure 1c (I3). After developing a basic understanding the texture process has proceeded onto the main model.

Following the success of applying the first texture, the second texture, can top (3) has proved more difficult to achieve due to mistakes in the earlier iteration of the model.

In figure 1d (I4), when the second texture was applied, it produced the incomplete affect as shown, when running the UV editor it was discovered that individual textures will overlap if not created as a whole UV map. In order to remedy this the relevant faces have been selected and resized within the UV map as shown in figure 1e (I5) to “shrink wrap” around the ring pull texture (3) to give the appearance that the texture is fitted appropriately.

After bypassing this issue the mesh display has been accessed to provide a polish to the now finished model, soften edges has been applied and shaded display was activated to achieve the desired ‘smooth’ finish allowing the rough edges to flatten making the drink can model have a smooth appearance just as in real life.

Figure 1f (I6) showcases the finalized iteration for this model, fully realized.

Upon reflection of this model, several key points were identified as being crucial to successfully producing the other models.

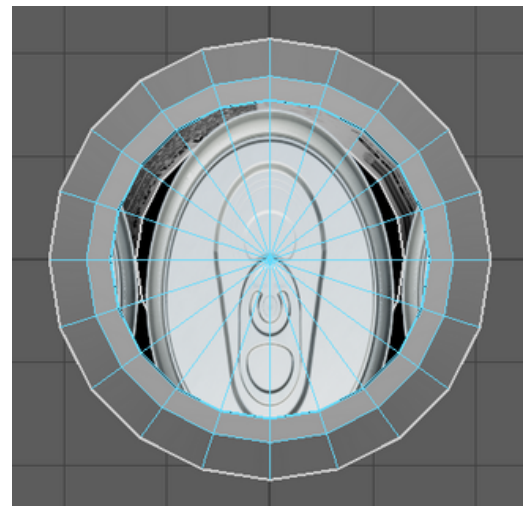
Scale - The ability to alter an object at the X, Y and Z planes to change the object’s size accordingly

Extrude - The tool that allows selected polygons on the object to expand without altering adjacent faces

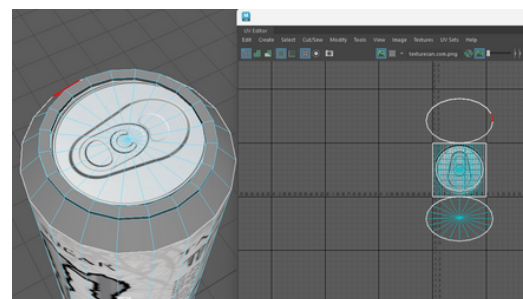
Lambert - The method that allows colors and textures to be applied to an object to visually bring the model to life

UV maps- The sub process that will lay out all object faces onto a single plane for more efficient view planning

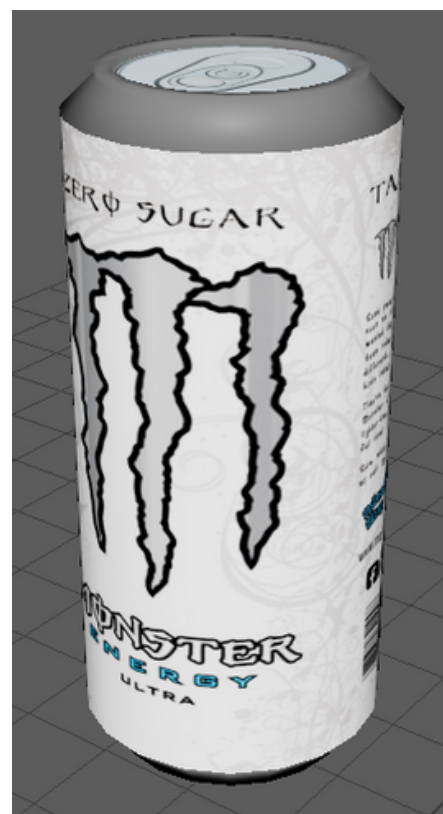
Furthermore, the issues that have been encountered throughout production of the first model have bred further research into various aspects of 3D modelling software and have lead to the development and understanding of numerous basic tools that stand as foundations of this workflow,



(I4 - Figure 1d - Issues)

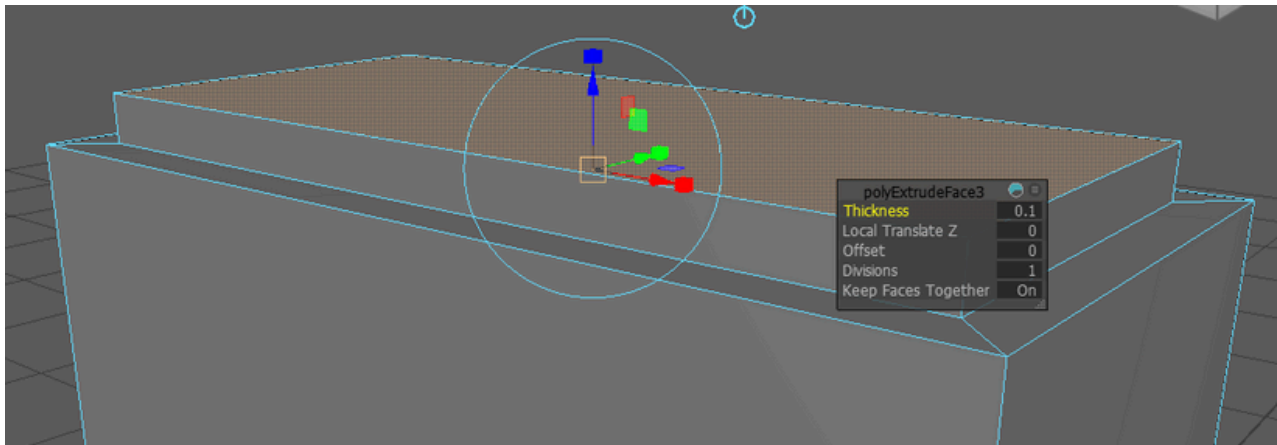


(I5 - Figure 1e - Resolution)



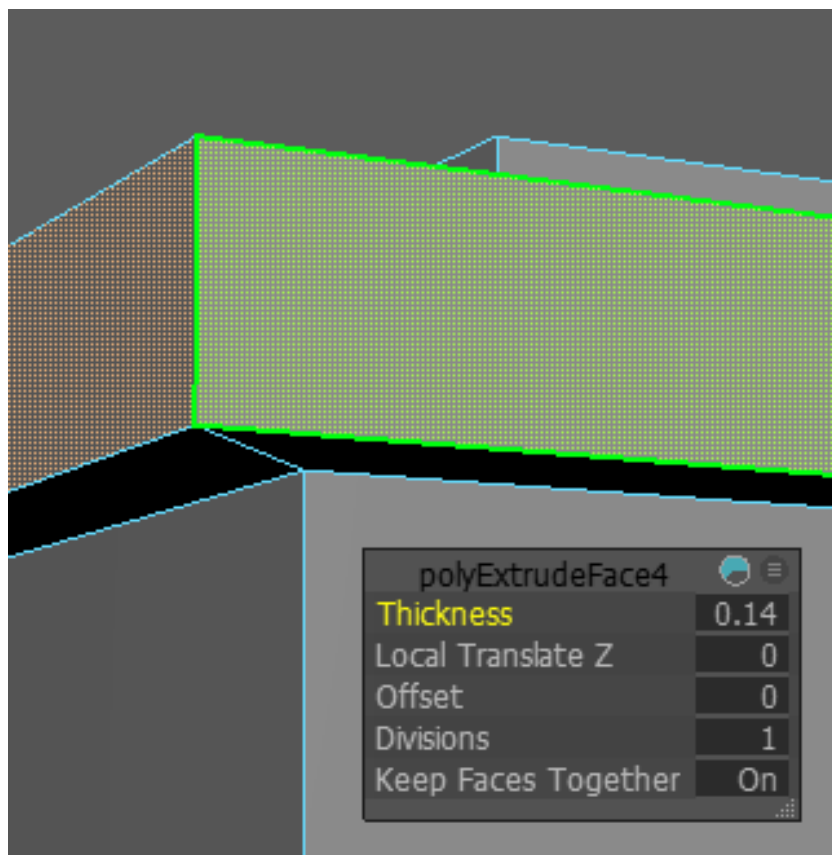
(I6 - Figure 1f - Final)

27/11/25 - First Dumpster Draft



(I7 - Figure 2a - Primitive)

The second model, the dumpster, takes a different approach to the drink can as the initial process from the primitive cube involved scaling it to be much more akin to aa dumpster and then extruding the top to sculpt the basic format of the lid as highlighted above in figure 2a (I7). After the top portion was created extrusions around the edges were created to produce the 'lip' affect found on most industry standard dumpsters as shown below in figure 2b (I8).



(I8 - Figure 2b - Lip)

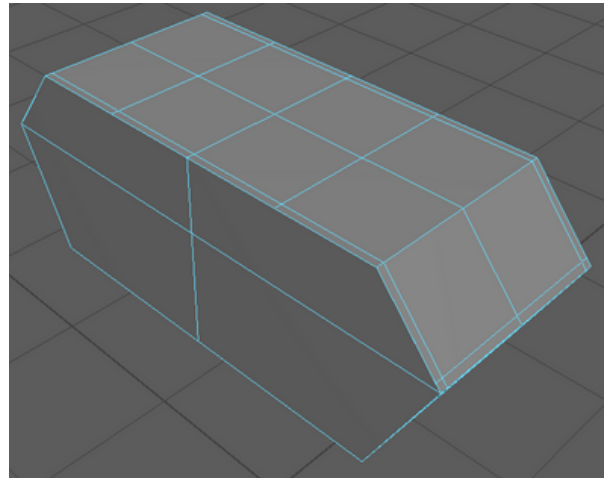
5/12/25 - Revised Dumpster Model

Due to last minute call ins to work disrupting time allocated to the project no changes were made to the previous model spoken about on 27/11/25. A decision was made to alter the model from a closeable dumpster to a construction site skip style dumpster meaning the design process for this model has to be changed accordingly.

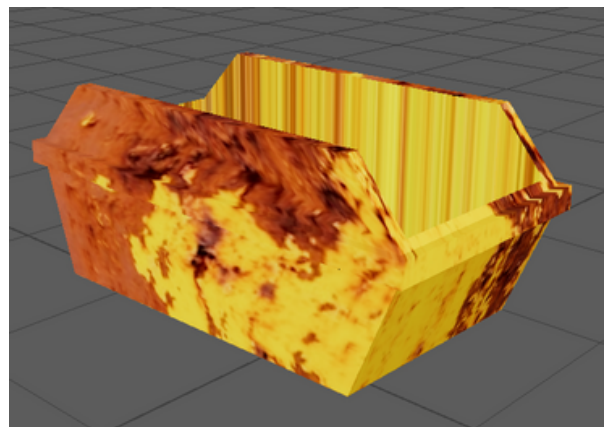
A new cube primitive was created and scaled but in comparison to the first draft, divisions were created and individual edges were dragged outwards to produce a basic shape of a skip as indicated in figure 2c (I9).

Further extrusions and edge selections were conducted in a particular sequence in order to produce an object that bears a similar resemblance to a skip. An issue arose during the extrusion of the shape as the top selected faces wouldn't extrude therefore interior edges had to be dragged into place to conform to the rest of the object, it was upon inspection that evidence of this problem was not recorded therefore it is not possible to explain how it was resolved in just words. The exterior bar was produced by inserting an edge loop along the horizontal plane and extruded.

As a finisher, the whole object has been coated with an image from freepik (4) utilizing lambert to produce the finished dumpster asset highlight in figure 2d (I10).

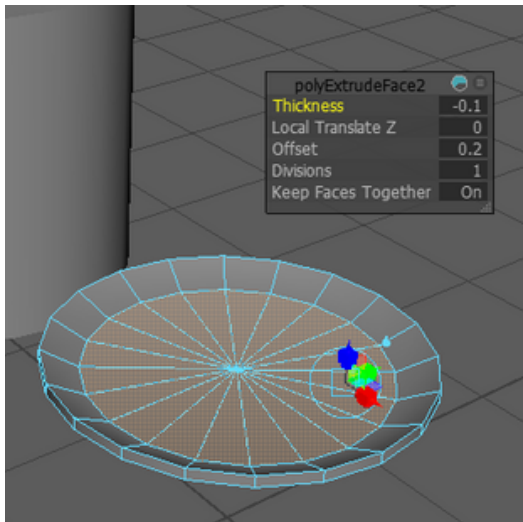


(I9 - Figure 2c - New draft)



(I10 - Figure 2d - Final)

8/12/25 - Teacup



(I11 - Figure 3a - Saucer)



(I12 - Figure 3b - Final)

The third model in the design process, the teacup follows a similar workflow to the drink can model however a couple of extra steps were added.

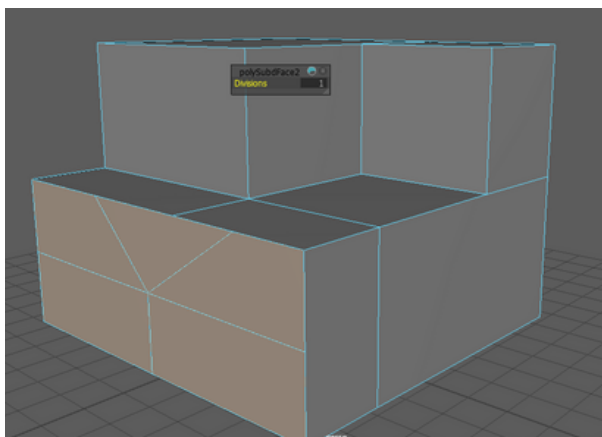
Two primitive cylinders were created, cylinder 1 as seen in figure 3a (I11) has been flattened and extruded to create a sloped affect giving the general look of a saucer.

Cylinder 2 in figure 3b (I12) has been extruded inwards to produce the mug affect and both the top and bottom of the cylinder have been beveled to create a full smooth mug texture.

Three small cylinders were produced to form the mug handle. To achieve this, two of the cylinders were rotated 90 degrees and placed at equal gaps from the third cylinder which remained upright, the cylinders were combined and had their faces removed in order to use the bridge tool to create a singular object. The blend and sub division tools within bridge allowed the smoothing of the handle corners giving a fuller look before being attached to the mug creating a realistic teacup and saucer.

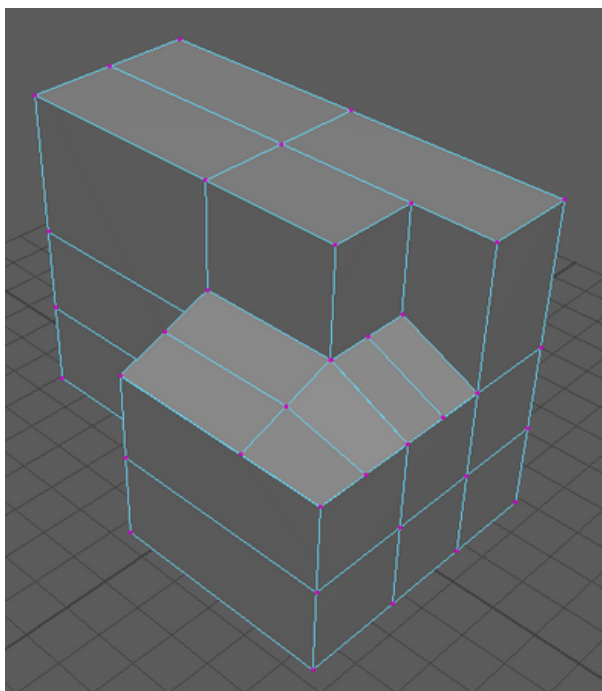
During an attempt to texture the teacup the selected faces will disappear and the texture itself does not appear in the UV map, being unable to figure out why this issue occurred a decision was made to leave the finished model untextured and instead ensured that smoothing has been best applied.

10/12/25 - House Model



(I13 - Figure 4a - Draft)

During an initial draft of the house model it was discovered that when sub-divisions were applied one of the faces will produce unfavorable edges that will make the design process exceptionally harder, to remedy this a simpler version was produced adding extra extrusions to prevent the same issue from occurring with the difference being shown in figures 4a and 4b (I13 & I14). After remedy, edge selections have been made to carefully elevate portions of the first roof layer to produce a sloped affect.



(I14 - Figure 4b - First slopet)

After the creation of the first sloped roof, the hardware that hosts the Autodesk Maya, the documentation and the Maya files began to suffer from overheating issues which meant that continuation of the house model wasn't able to be conducted within the relevant tie frame due to potential safety hazards arising from overheating.

Upon reflection, in future more bespoke technology will be utilized in order to ensure successful completion of 3D models.

Due to poor time management caused by other commitments a personal review will be conducted to identify how this can be rectified in future to allow full completion of 3D models to their best editions.

References

1. *Autodesk Maya 2026.2*, Autodesk, 2025
2. <https://www.infinitydesignzco.com/product-page/monster-energy-white-can>
3. <https://www.texturecan.com/details/351/>
4. https://www.freepik.com/premium-photo/rusted-yellow-painted-metal-abstract-texture-matal-background_1272704.htm

Self Produced Images

1. I1 - Primitive
2. I2 - Extrusions
3. I3 - Texturing
4. I4 - Issues
5. I5 - Resolution
6. I6 - Final
7. I7 - Primitive
8. I8 - Lip
9. I9 - New draft
10. I10 - Final
11. I11 - Saucer
12. I12 - Final
13. I13 - Draft
14. I14 - First Slope