**University of Petroleum and Energy Studies**

School of Computer Science

Department of Cybernetics

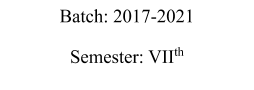


**Graphics & Animation Tools**

**Project Report**

**(Session: 2020-2021)**

Course: B. Tech with Specialization in Open Source and Open Standards



Submitted to: Submitted by:

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**Final Project**

**Design of a Society using Blender**

**Step – 1:** Open Blender -> Clear everything.

**Step – 2:** Create a blank file -> use the default cube.

**Step – 3:** Scale the default cube along X and Z axis to give cuboidal shape.

**Step – 4:** Scale the building by giving the dimensions 10mt-10mt-20mt. Move the building by G+Z upwards right above the grid.

**Step – 5:** Shift+D to make a duplicate. Scale it by giving 20mt-40mt-.2mt. Now, Press G+Z to drag the surface downwards beneath the building. Place the building above this surface.

**Step – 6:** Make a duplicate of this surface by pressing Shift+D. Give the dimensions 40mt-40mt-0.4mt. Move it by using G+Y along the y axis.

**Step – 7:** Make a duplicate of the surface by Shift+D and move to the other end using G+Y.

**Step – 8:** To give a clear understanding of objects, give the shading option to random objects.

**Step – 9:** Press 3 on keyboard to go to side view. Select the ground and deselect the building. Shift the ground in Y direction by using G+Y.

**Step – 10:** Shift+D to duplicate the building box. Dimensions of scaling are 20mt-20mt-15mt. Move the block down by G+Z. Scale it a bit to make it look like store front.

**Step – 11:** Make the duplicate of building again by Shift+D. Move it by G+Z upwards. Dimensions are 20mt-1mt-1mt. Move this to the edge of the roof to make the boundary by using G+Y.

**Step – 12:** Shift+D to make the duplicate of the boundary and move it to the opposite direction. Now, select these two boundaries, Press Shift+D to make the duplicate. Press R+Z+90 to rotate it make the whole boundary for the roof.

**Step – 13:** Now, make one more duplicate and scale it down for the roof part.

**Step – 14:** Add cube by using Shift+A and scale it down. Make a duplicate by Shift+D and move to G+Y. Make a duplicate again and rotate it using R+90. Place it above the other two cubes and scale it accordingly.

**Step – 15:** Now make a duplicate again and move downwards to complete the four boundaries of the window. Now make the duplicates of this window, and place it accordingly.

**Step – 16:** Also, add a plane add place it behind the grid of the window for the glass part of the window. Moreover, to add the cubes of the grid, Ctrl+J to join them.

**Step – 17:** To make a railing, add a cube and scale it accordingly to make a bar. Now, make a duplicate of this by Shift+D and then R+Z+90 and scale it down. Place it between the bar and move to the extreme left.

**Step – 18:** Now, make duplicate of this and place it accordingly to complete the whole railing.

**Step – 19:** Select the railing parts and Ctrl+J to combine them.

**Step – 20:** Now, add one cube and align it before the railing to make the edge of the road. Duplicate it and move it to the other end.

**Step – 21:** Now, duplicate it again and scale it accordingly to create zebra crossing part. Duplicate it and move it along X axis by using G+X to make the complete crossing.

**Step – 22:** Now, combing the boundaries of the roof and drag it down to make the base of the building.

**Step – 23:** Add cube and scale to make upper part of the bush/plant. Make a duplicate of it and scale it down to create the stem of the bush. Place it before the road. Make the duplicates of it and place it accordingly on the road.

**Step – 24:** Similarly, create the tree and duplicate it and place it accordingly.

**Step – 25:** Shift+D to duplicate the four joined boundaries of the window and move it downwards to make a door. Scale it and a cube and scale that cube to make a handle. Add a plane and place it just behind the handle of the door to make the front of the door.

**Step – 26:** Go to the right side of the building and add a cube. Scale it to make a brick and place it half way out and half way in. Duplicate it and place few bricks accordingly to give the building a look.

**Step – 27:** Repeat the above step, to make bricks for the left side of the building.

**Step – 28:** Now add a cylinder for the lamppost. Give it 6 segments. Scale it by S+Z. Add a cone and change the radius to flatten the pointed surface to make it look like lamp. Scale it by using S.

**Step – 29:** Duplicate the lamppost and move it to the opposite side too.

**Step – 30:** Add cube on the roof and cylinder to make some pipes. Make a duplicate of it and place it on the adjacent side.

**Step – 31:** Add a cone and a cylinder to make a tank. Scale it and move it a bit forward on the roof. Also duplicate the previous pipes and place it near the tank.

**Step – 32:** Colour the building accordingly by adding colours in the material property. Also, while adding colour for the window, set the roughness to 0 to create the reflection on the surface.

**Step – 33:** Now, select the whole project up till now and Shift+D to make a duplicate and place it right and left accordingly.

**Step – 34:** Moreover, select all the three buildings and duplicate then and R+Z+180 to create buildings in the opposite direction.

**Step – 35:** To render it, add a camera and light. Click 0 on the numpad to set the view. Finally, go to render and click on render the image. Save the image.

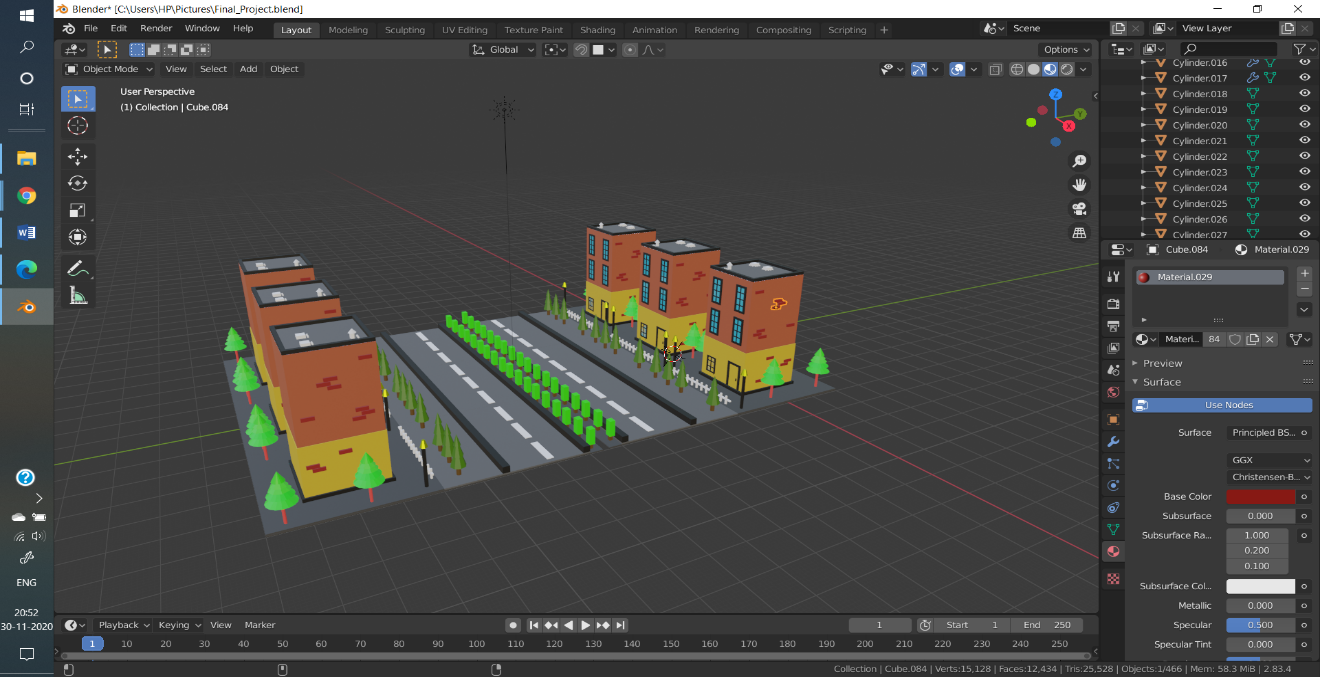
**Step – 36:** Save the .blend file to your local memory.

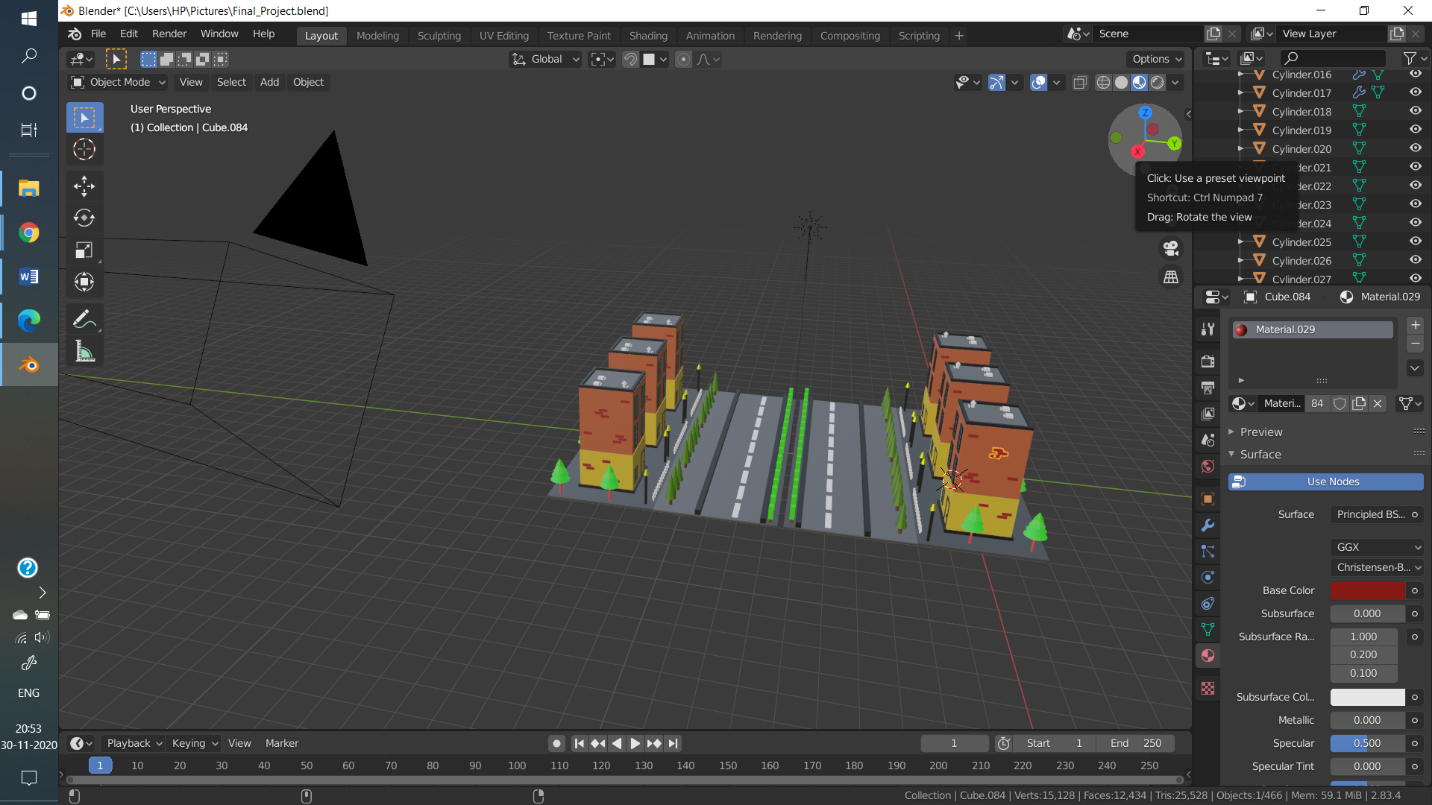
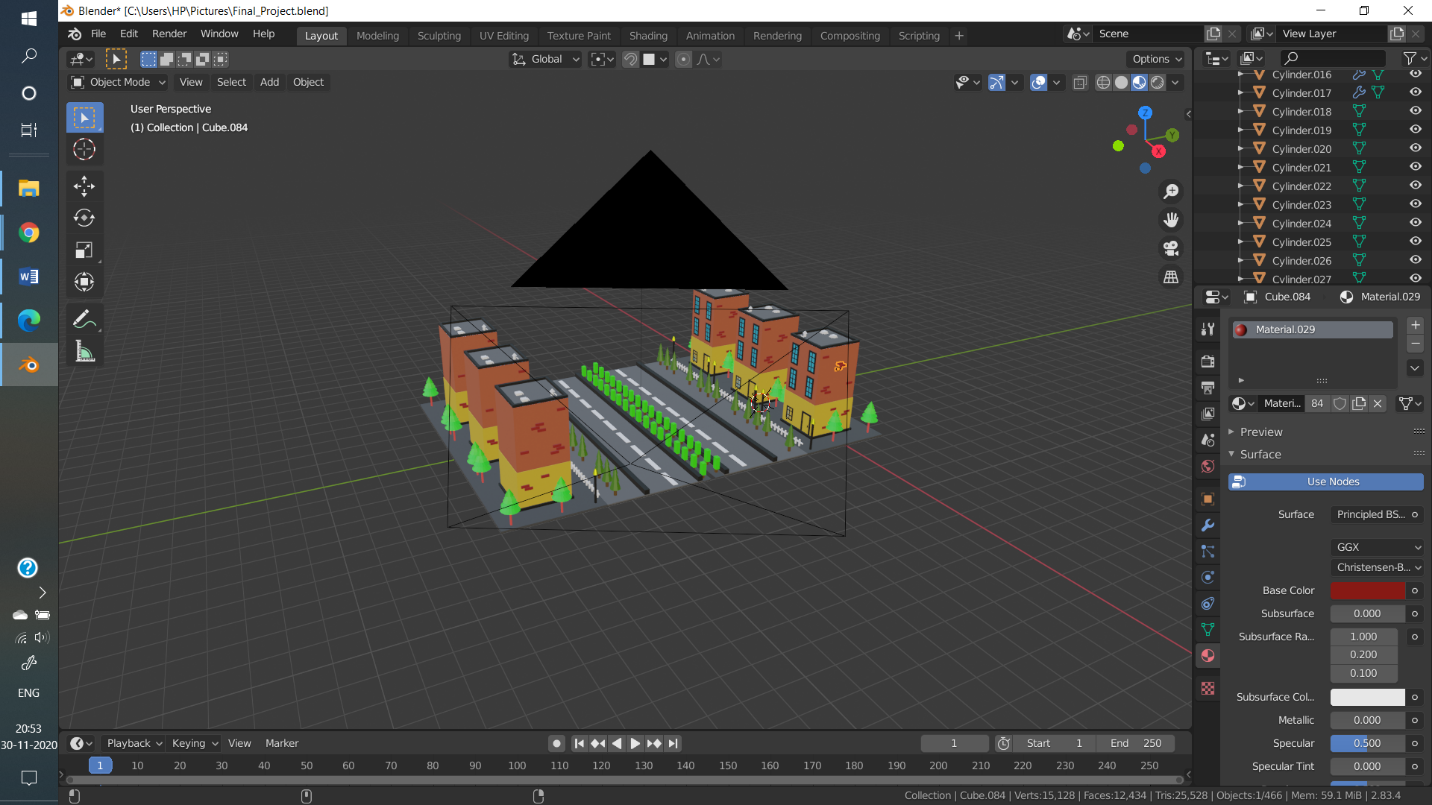
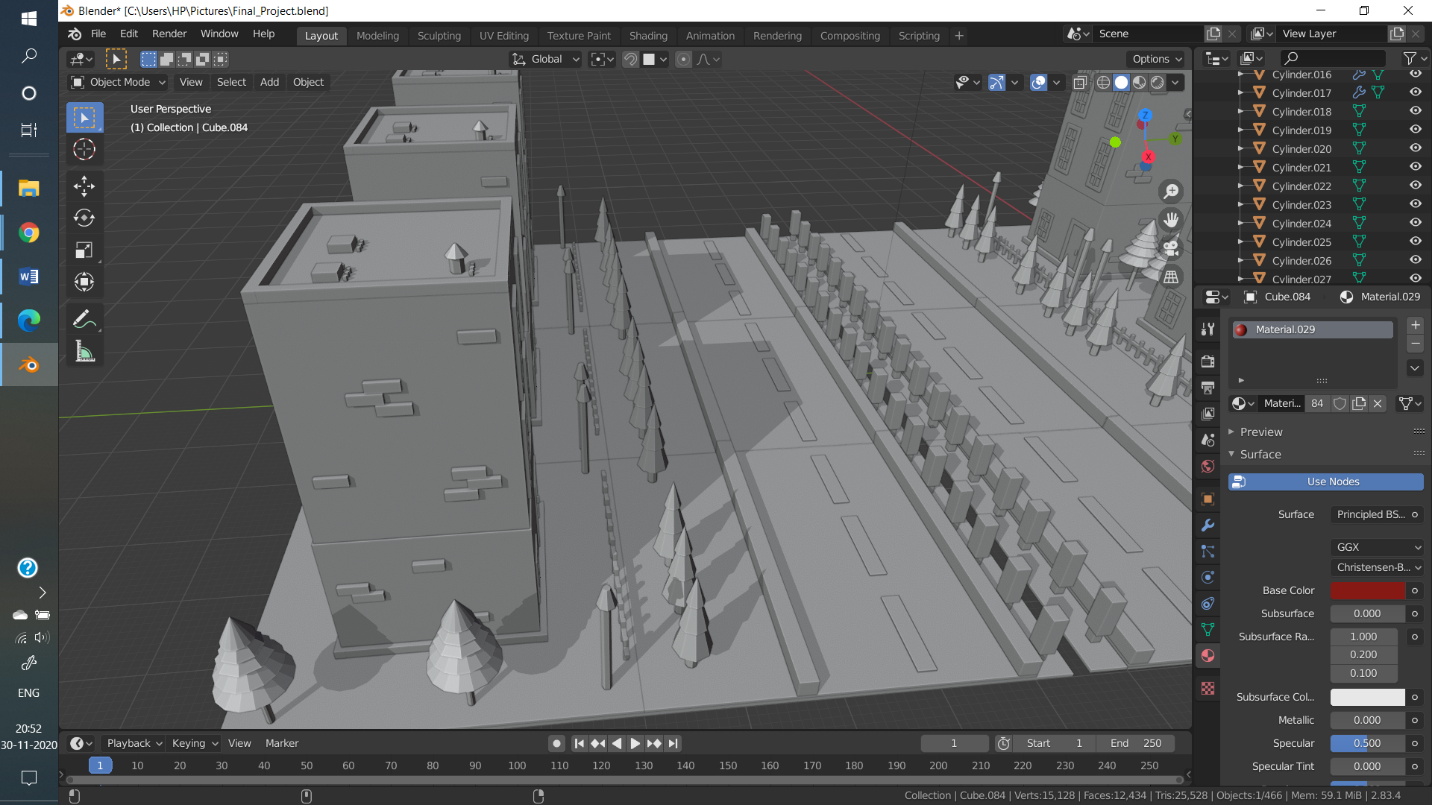
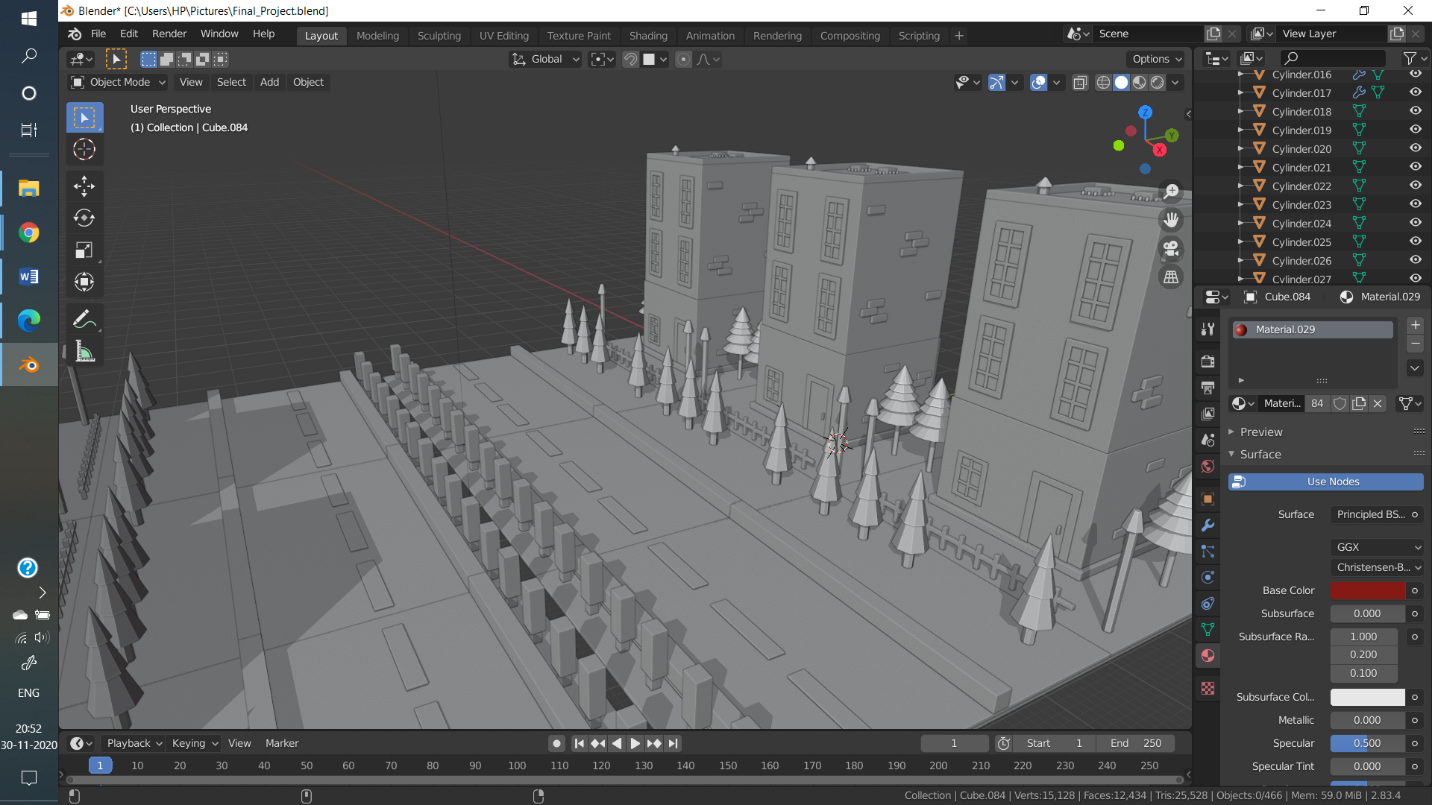
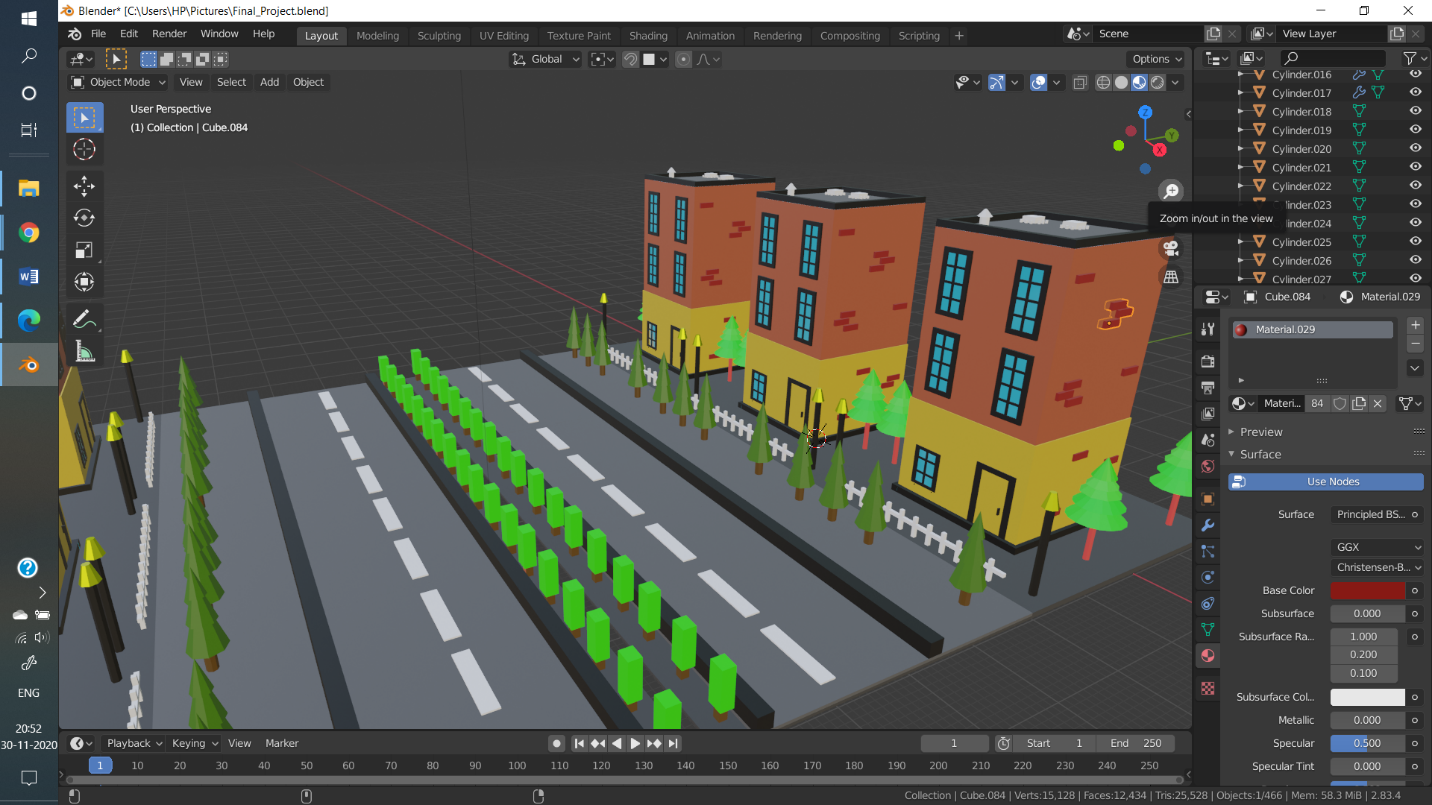
**Link:**

<https://drive.google.com/drive/folders/1uWDG-YLlvRSTdwmXQYs6Y81xjxDCxrKx?usp=sharing>

**Youtube Reference:** <https://www.youtube.com/watch?v=At9qW8ivJ4Q>

**Output:**

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