CEIT 360: Lab 6 Activities

Developing scene and lighthouse

In the current and next four lab activities, we will

- Build a landscape and lighthouse with textures,
- Add mist and 3D text to our scene,
- Create raining animation,
- Animate the water, light, and camera, and
- Render our animation in video format in Blender program.

Click here to watch the final product of the lab activities.

### Activity 1: Developing the Landscape Scene

1. Open Blender program, and save the file as name_surname_stdid_lab6_act1. While working, do not forget to save your file frequently. We will use this file in the next lab activities.

2. Divide your area into two view parts. To do this, go over the little triangle on the right-upper corner. Click it, and move your mouse leftward to divide your area.

   Switch to camera perspective in the second part by pressing **0** key or clicking View > Camera. As a result, while we are working in the first part of our area, we will see our scene in camera perspective in the second part.

You can press **T** key to close tool shelf in the second part.
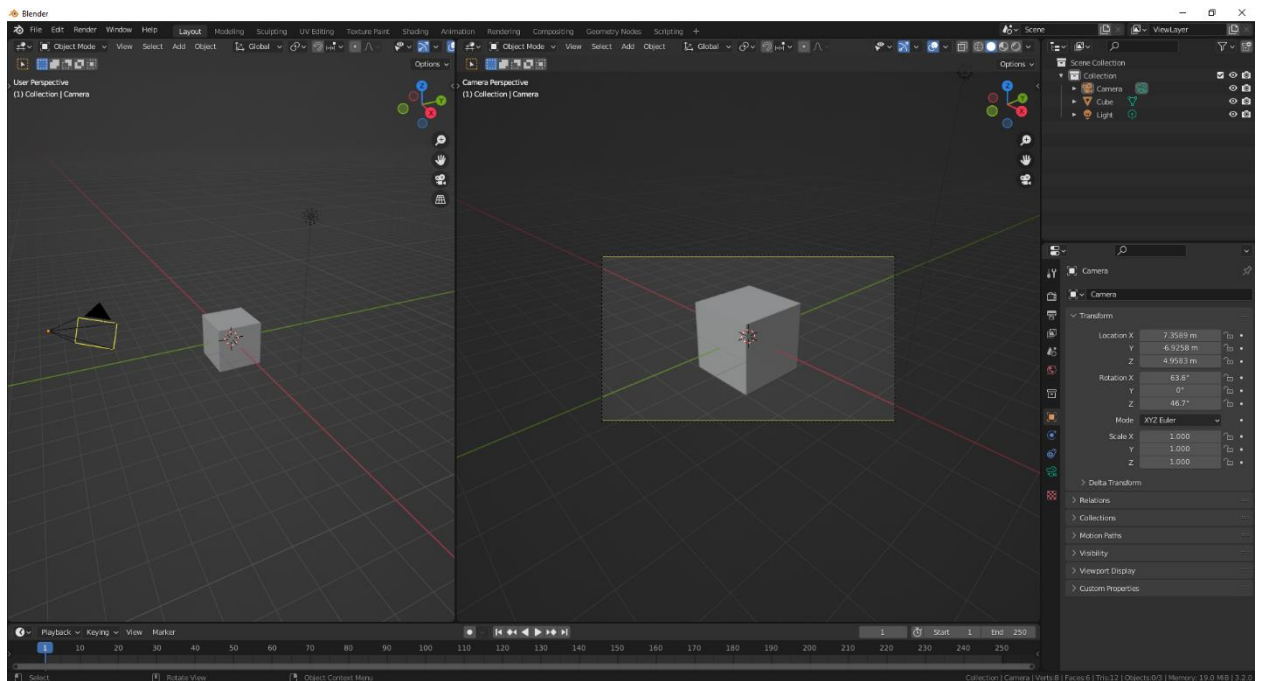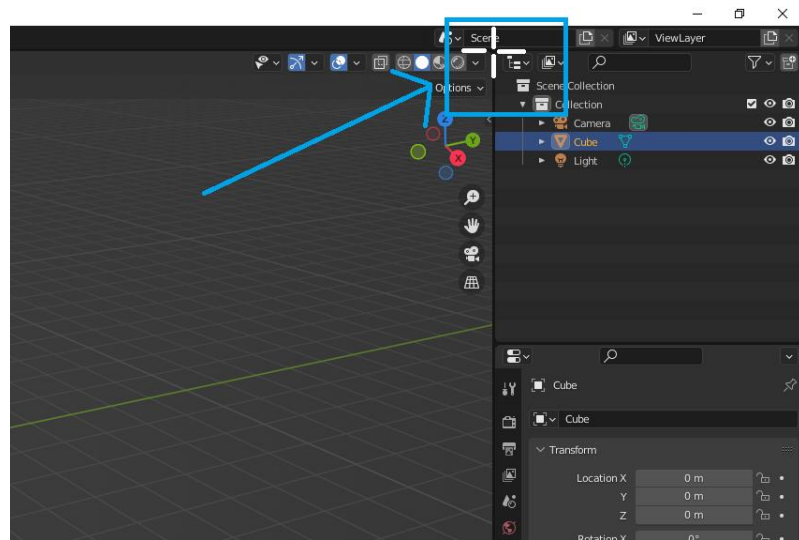
3. Be sure that the cube is selected. Then, delete the cube by pressing **X** or **Delete** key and selecting delete option.

4. Add plane mesh by clicking Add > Mesh > Plane.

5. Open transform panel by either pressing **N** key or clicking small **<** icon on the right.
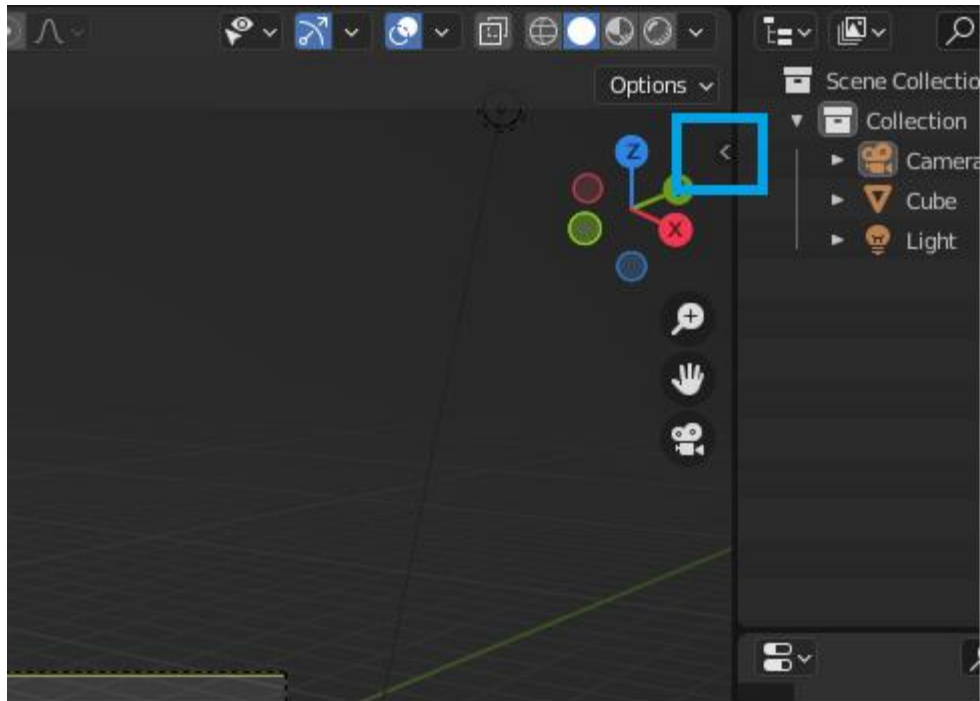
Change the scale of the plane to increase its size. X and Y scale values should be 10. Then, you can close transform panel by pressing **N** key again.
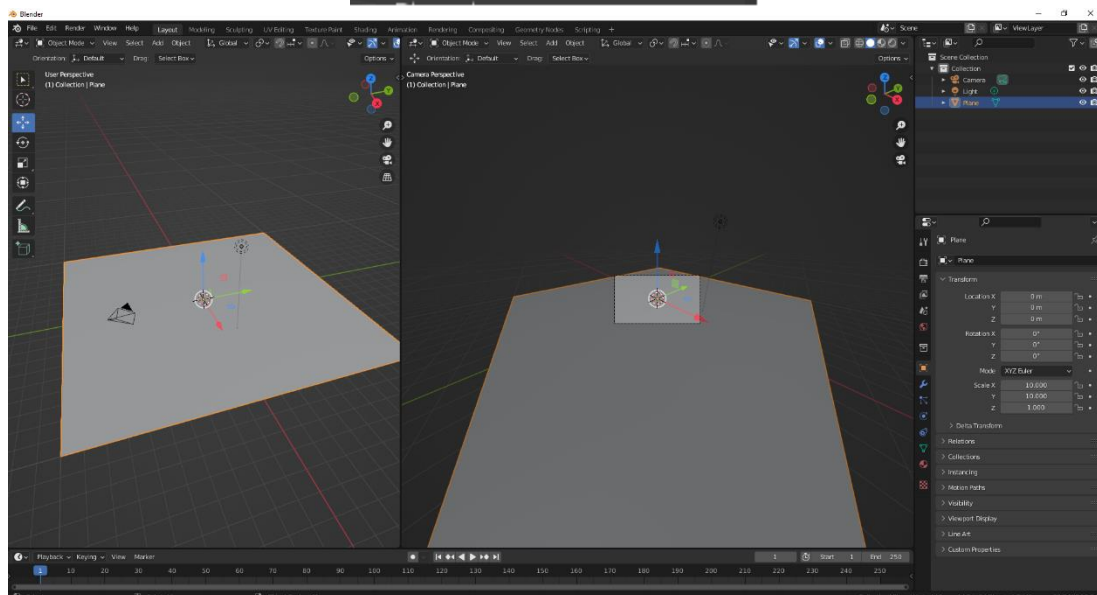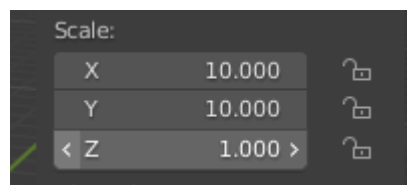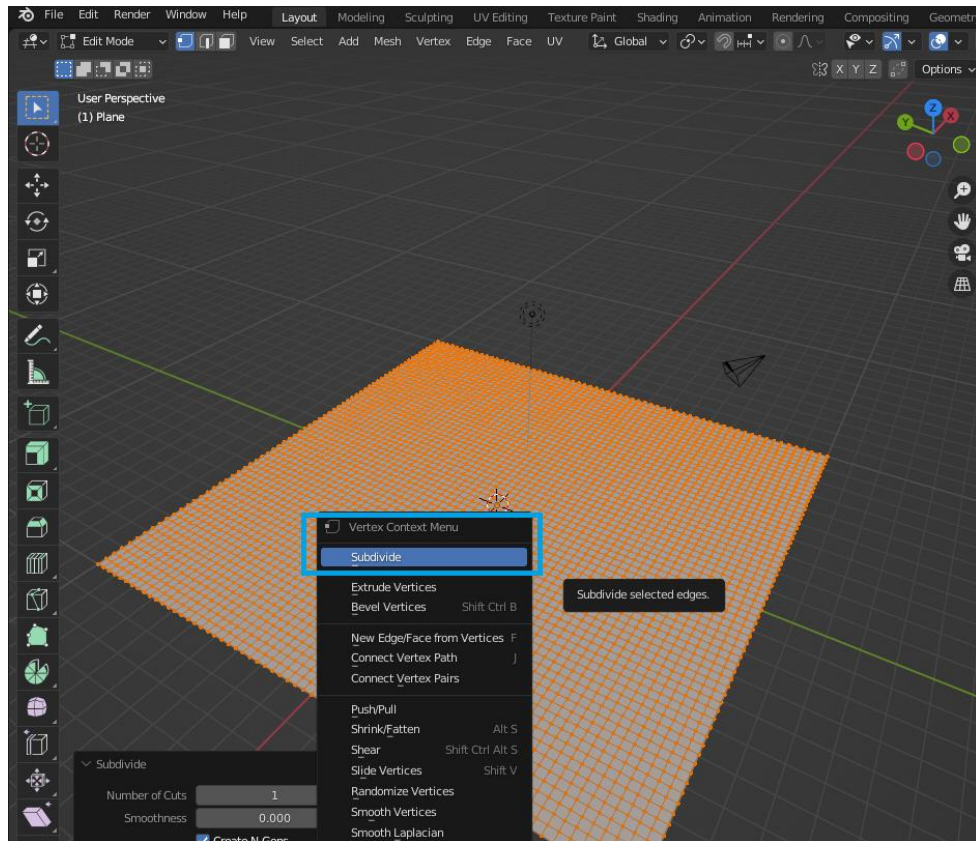
6. Now, we will go to Edit mode to modify the plane. Click Object Mode menu, and select **Edit Mode**. Or, you can press **Tab** key to switch between object and edit mode.
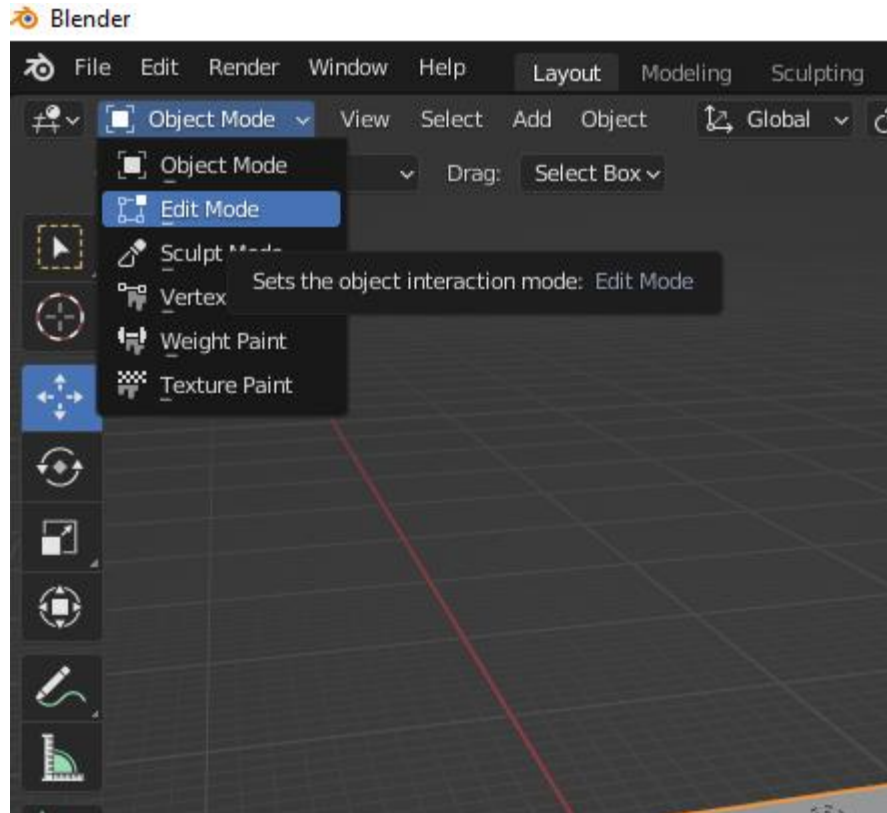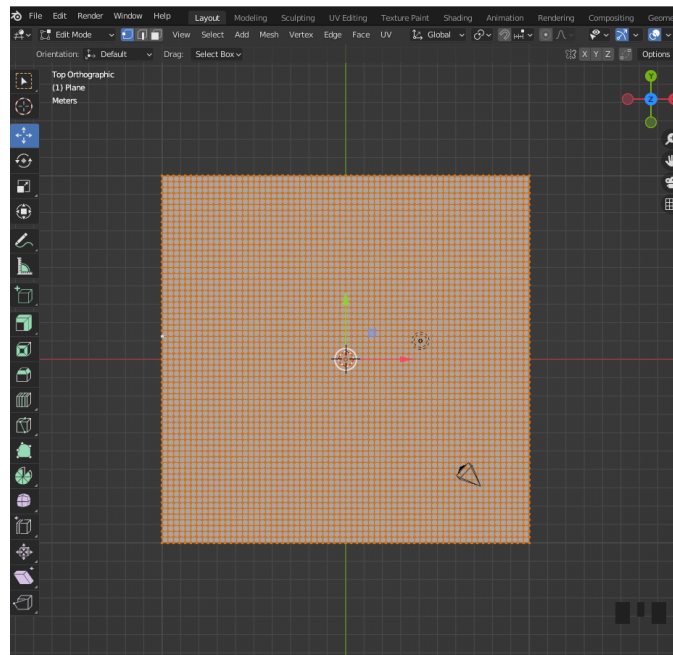

7. Make sure that all vertices are selected. If not, you can (un)select all vertices by pressing **A** key.
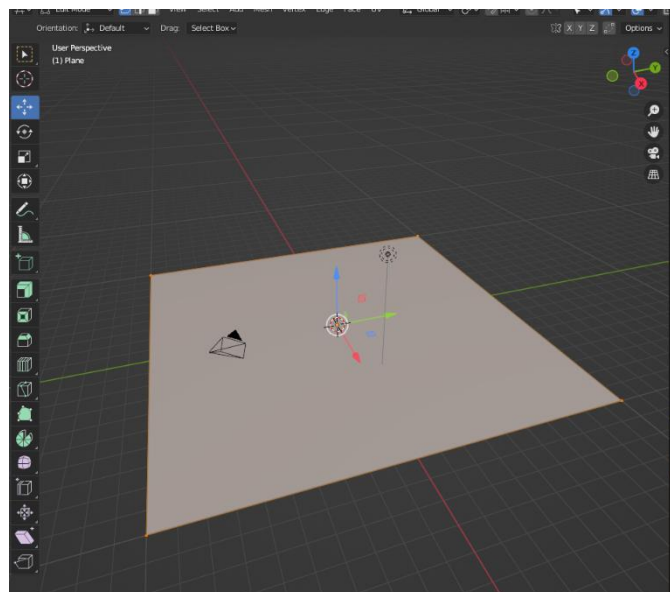
8. First right click on the plane and the click **Subdivide** button **6 times**.


9. Switch to top perspective by pressing **7** key in the numeric keypad. Then, press **5** to use orthographic projection.
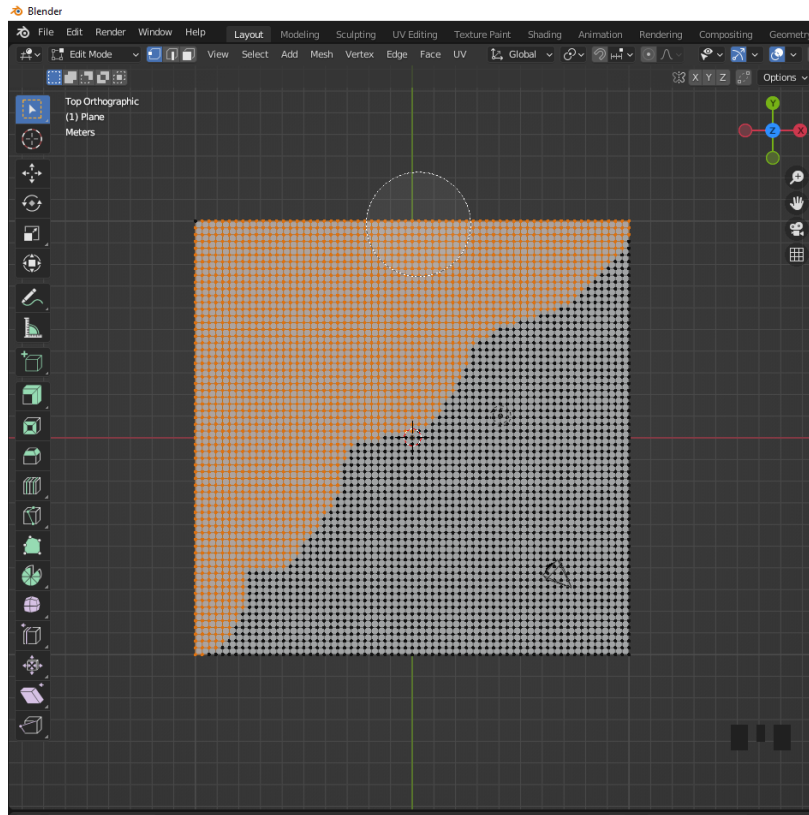
10. Press **A** to unselect all vertices. Then, press **C** to use circular selection tool. By rotating wheel of your mouse, you can adjust size the circle.

Hold down left mouse button, and select the vertices as shown below. If you select too many vertices, you can unselect them by holding down the mouse wheel.
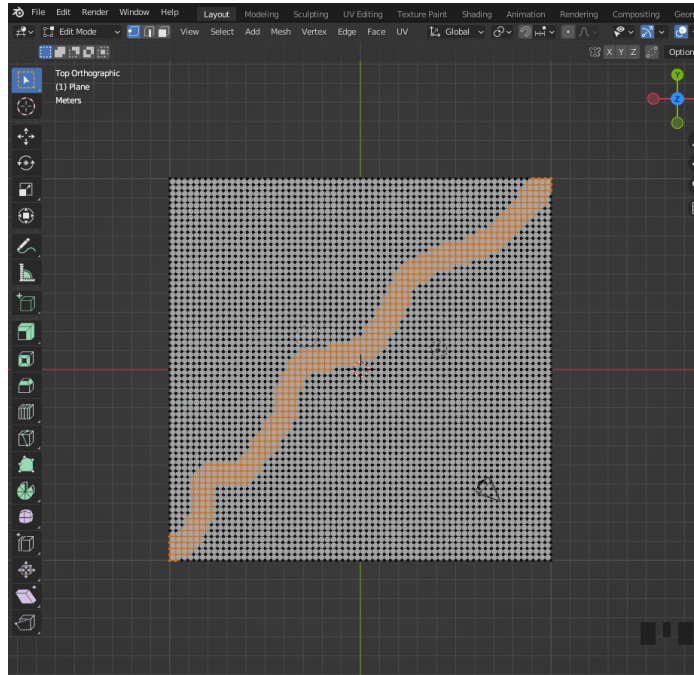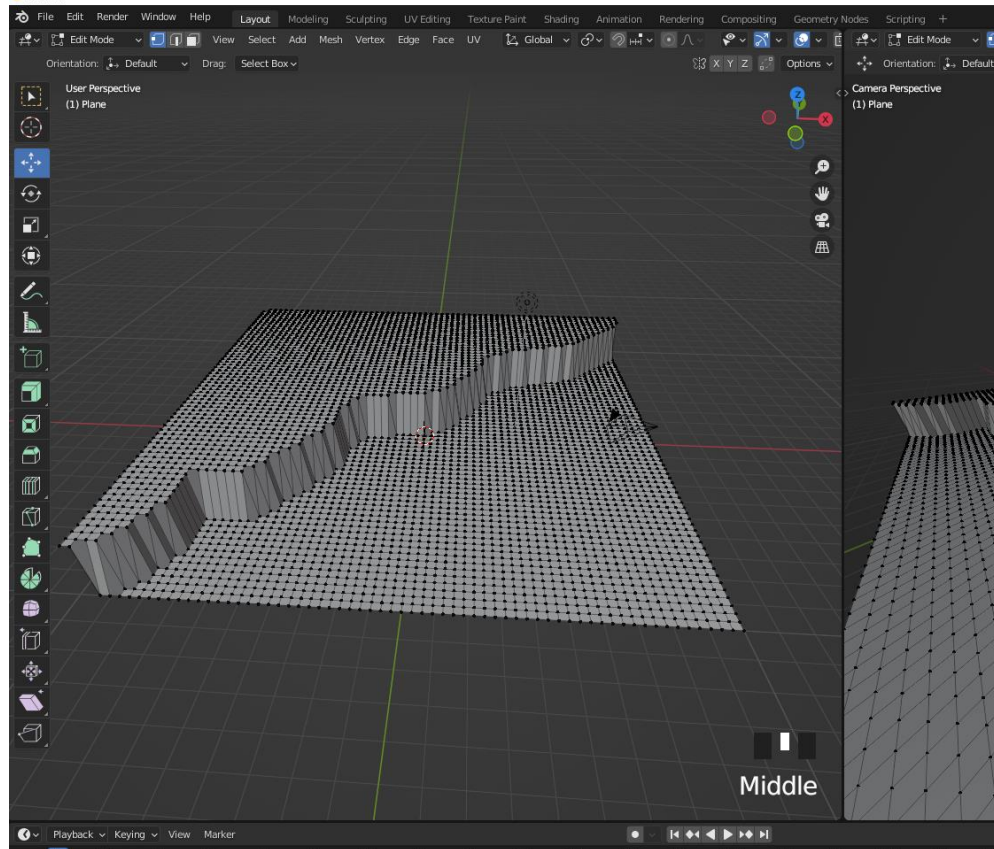
11. Switch to front view by pressing **1** in the numeric key pad. Then, click on Z axis on the plane, and move it upward in two Blender units. Or, press G key to grab and move the selected part, and then press **Z** key to move it in only z direction.
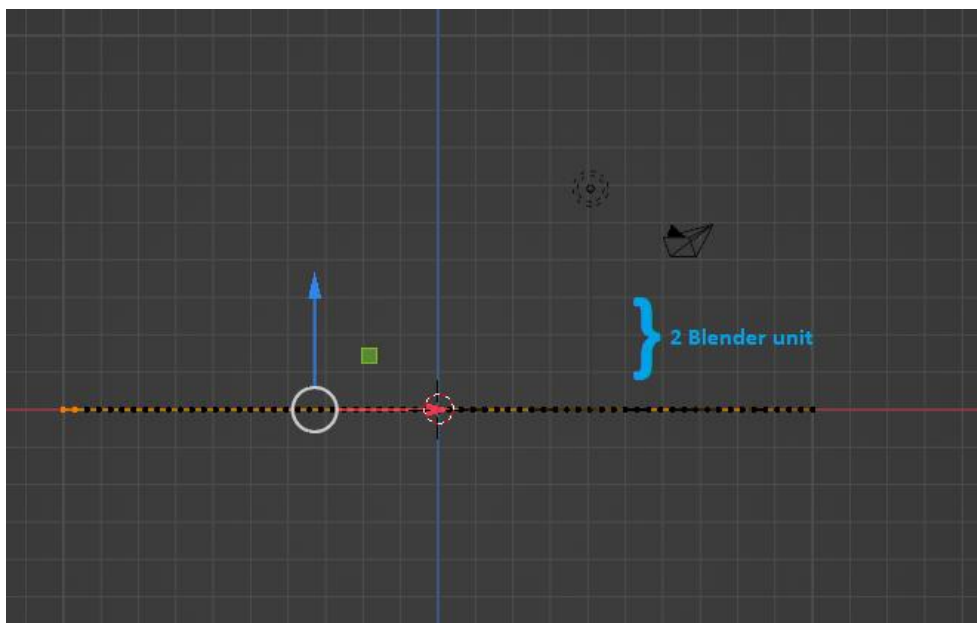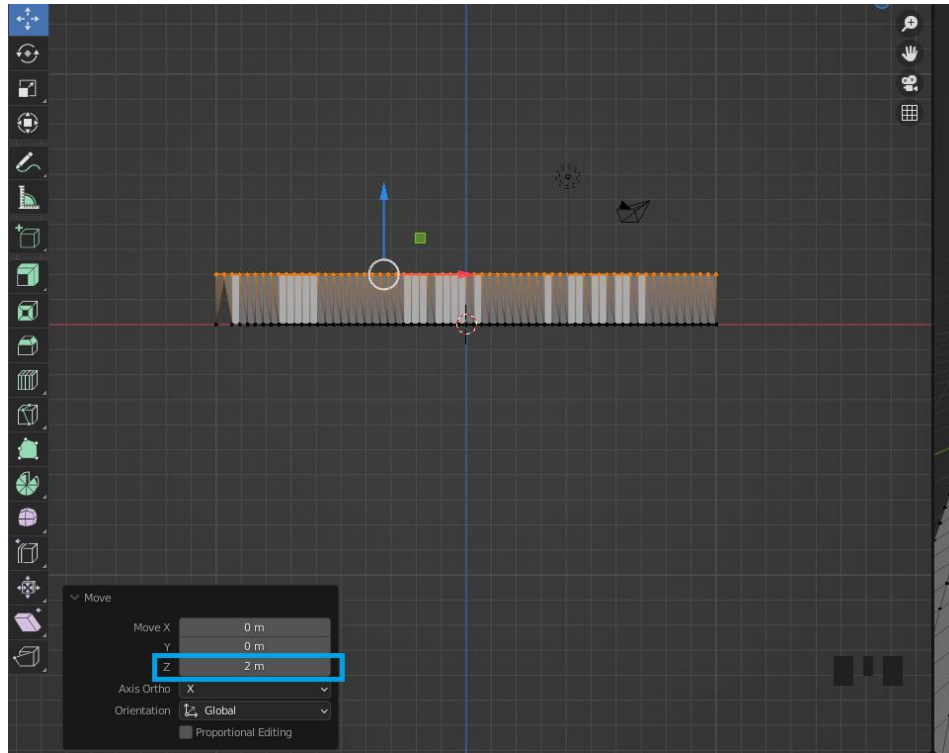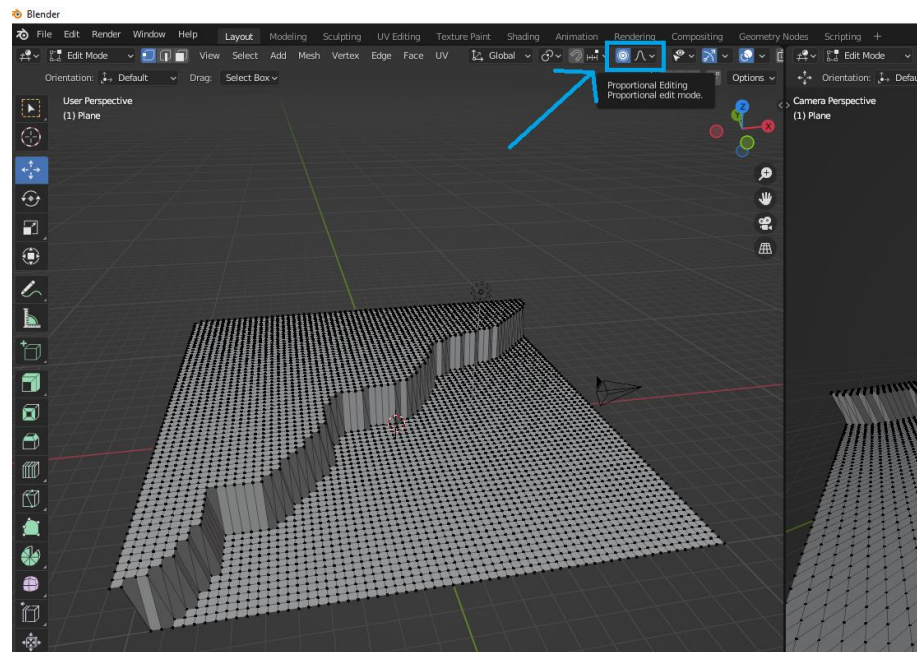
Holding down the mouse wheel and moving your mouse, you can look at your plane from different user perspectives.

12. Now, we will make fine adjustments to the plane or landscape so that cliff edges can look more random.

Click **Enable** button of **Proportional Editing** menu.

13. Select a vertice in cliff edges by right clicking on it, and adjust its Z location. You can click on Z axis on the vertice, and move it upward or downward to adjust its Z location.

Continue to adjust cliff edges by moving single or multiple vertices upward or downward.
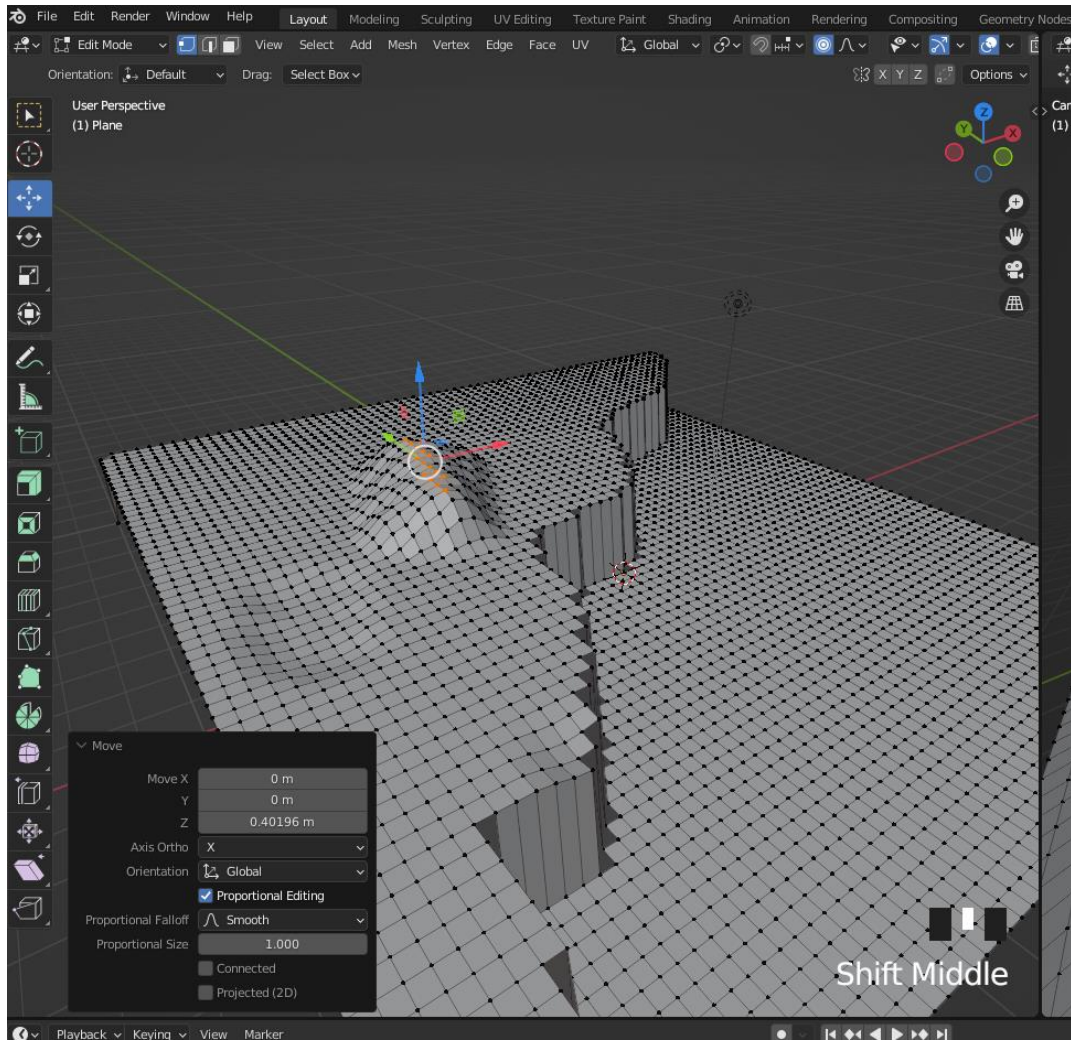
14. In addition, you can create some hills in your landscape. Press **C** for circular selection. Make the circle too small by rotating the mouse wheel. Then, select some vertices as shown below. Finally, move them upward. You can continue to adjust vertices in the hill or landscape.
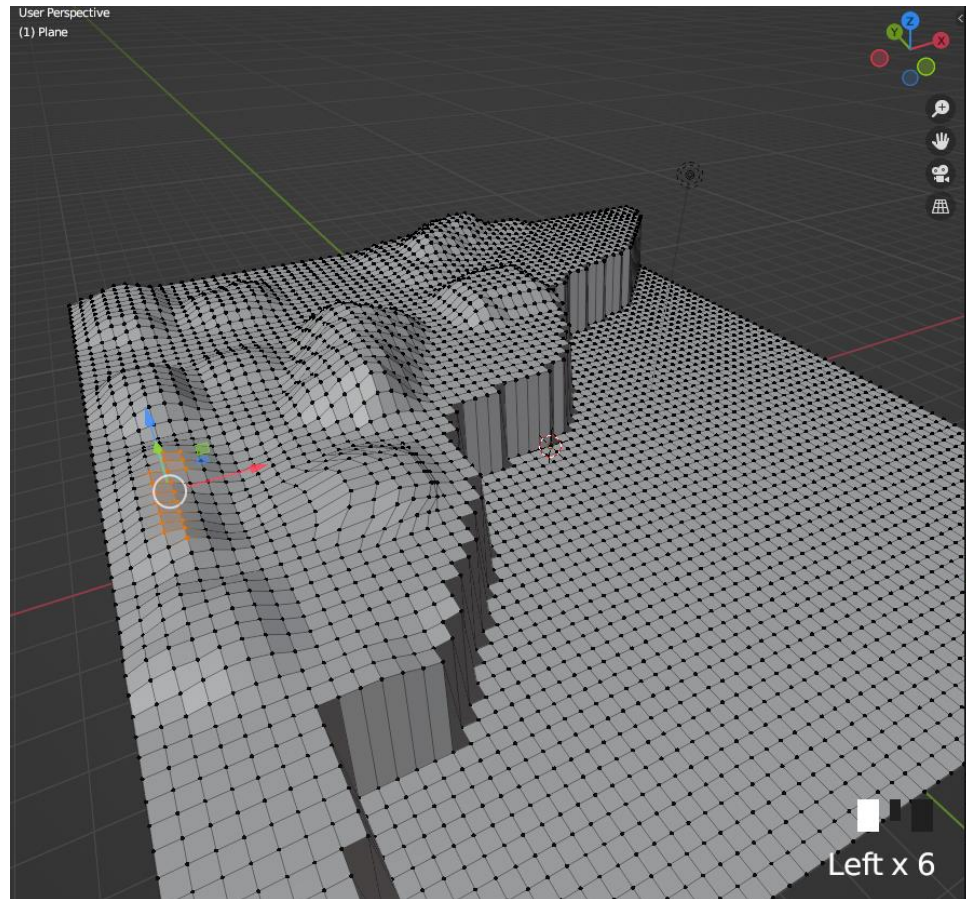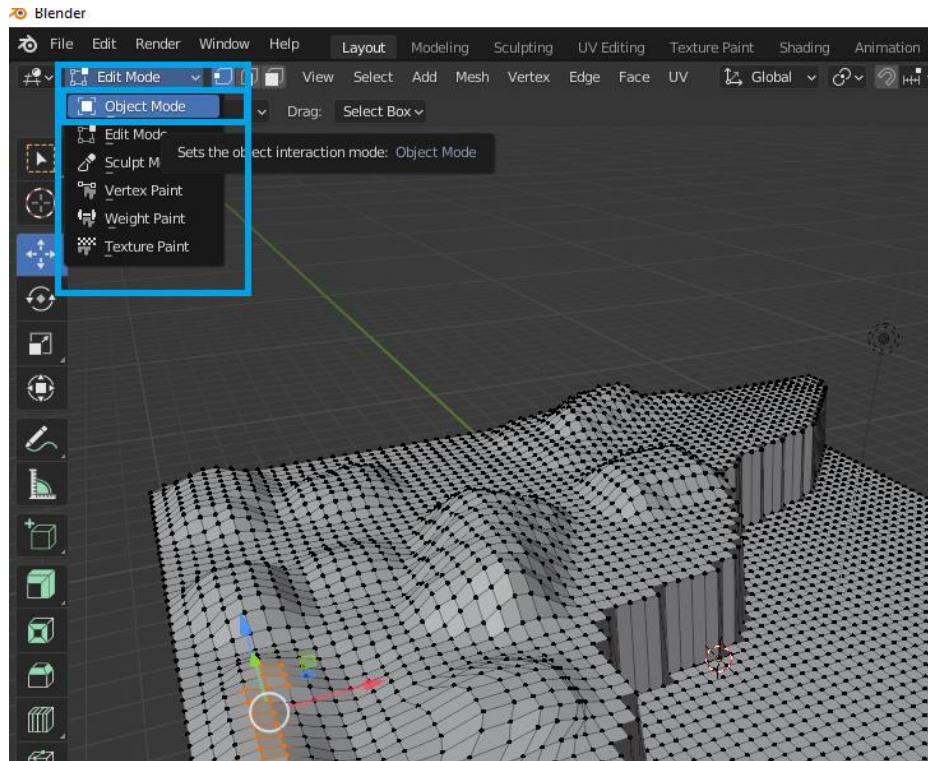
15. We have selected vertices to create hills. You can also select edges and faces of the lighthouse by using the buttons highlighted below.
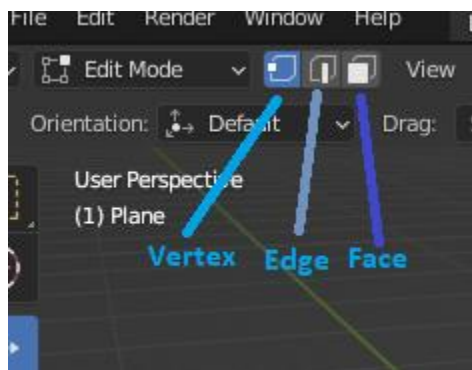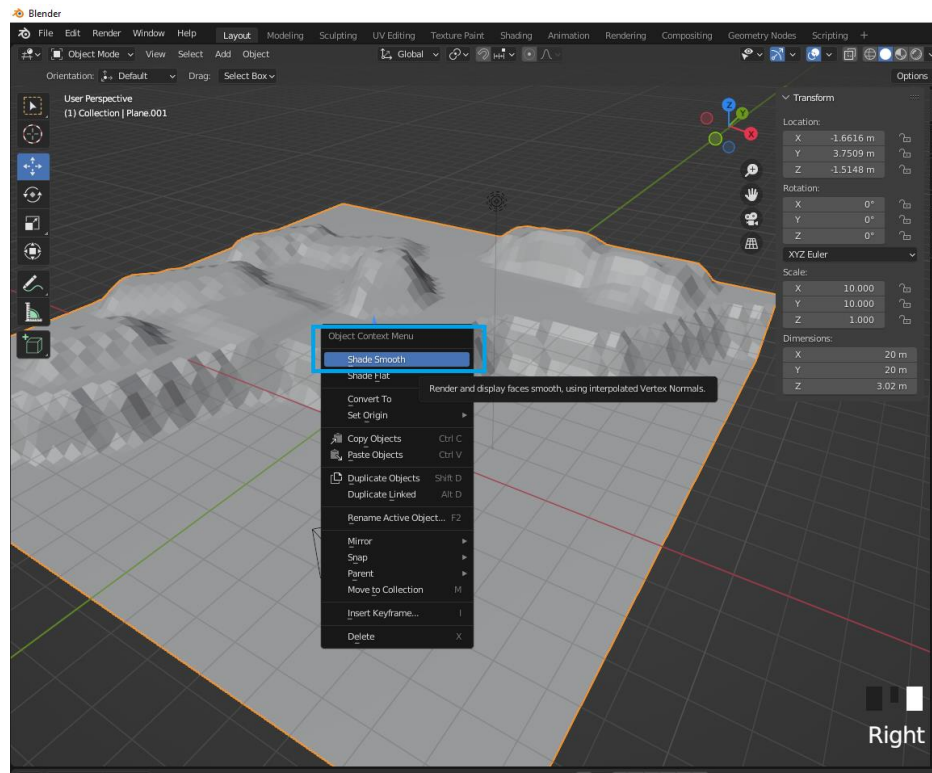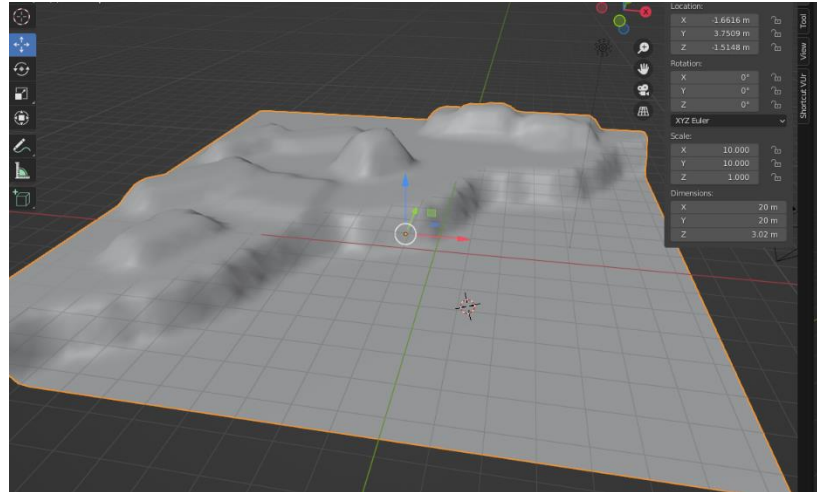

16. Go back to Object Mode. Save your file.

17. The landscape has an angular shape. Select the plane and then click the right mouse button. Click **Smooth** button to have a landscape look much better.

18. Now, we will adjust the place of the camera. It will focus on the specific object in the scene. To do this, firstly, click **Add > Empty > Plain Axes**. Empty objects are not shown in the rendered image or video. Then, bring the plain axes to the cliff edge.
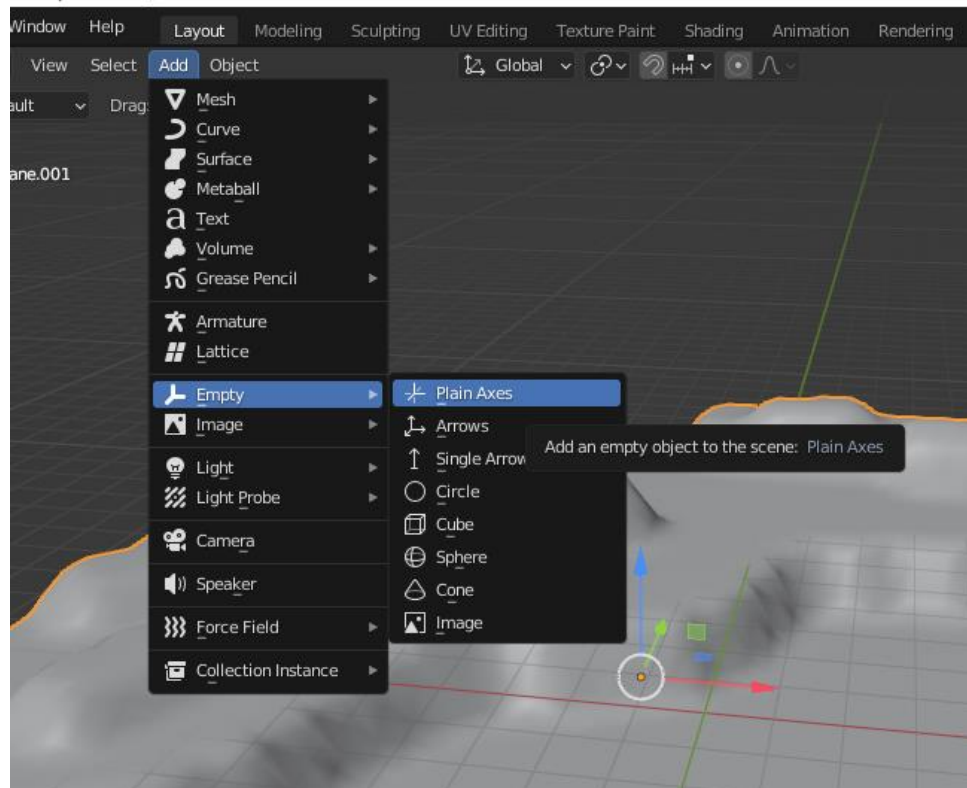
19. Now, we will add a tracking constraint to the camera so that it can always focus on the empty object. Right-click on the camera to select it at first. Then, both press Shift key and right click on the plain axes. Both objects will be highlighted. Add object constraint from object constraint properties menu and then select empty object.
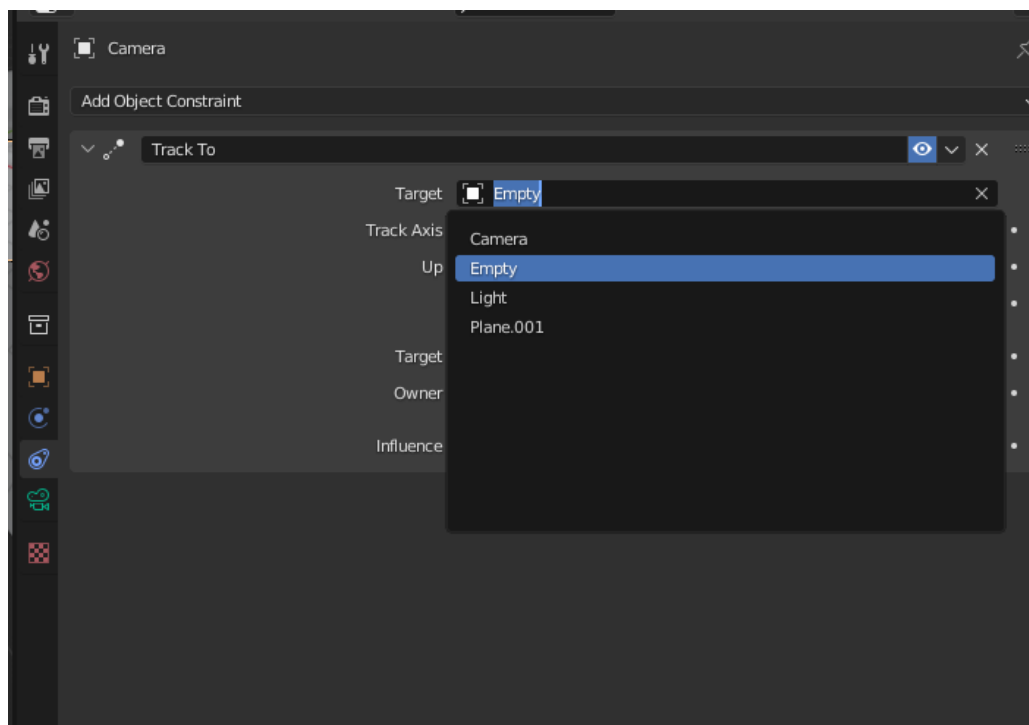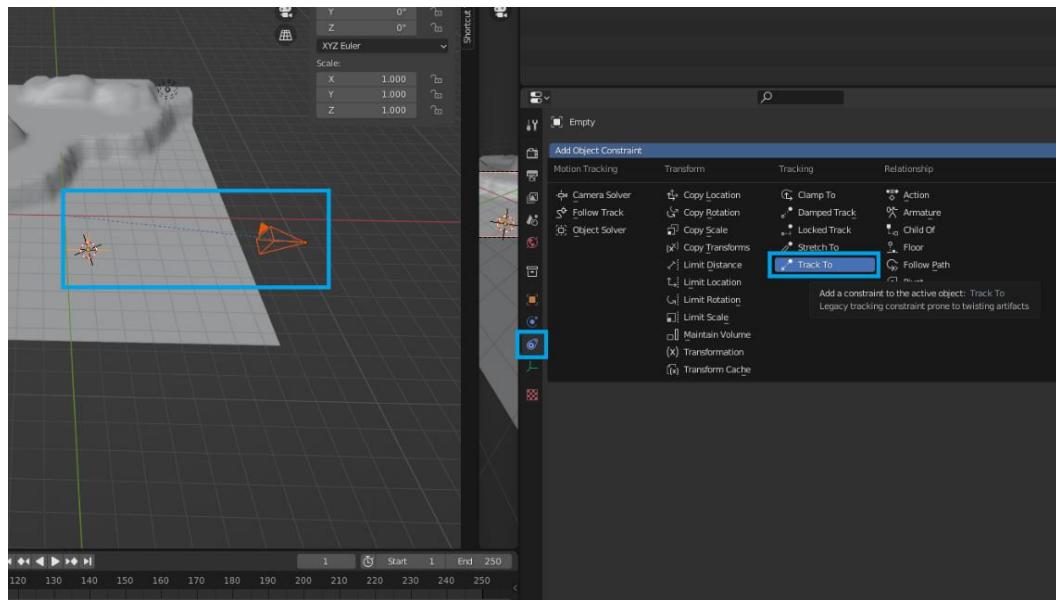
20. Now, move the camera to a place where you can see the big portion of the landscape. You can use **G** key or axes on the camera to move it. Try to put the camera into a low place so that it looks as if we are viewing the shore line from a boat .

Look at your scene from top, front, right, and left perspectives. In the camera perspective, you should not see edges of the landscape.
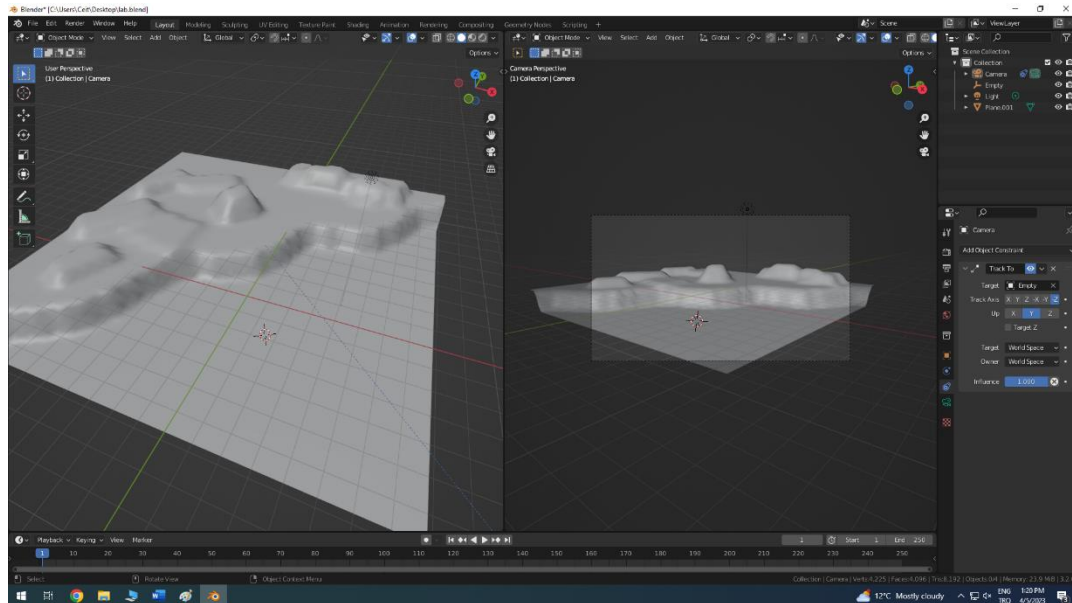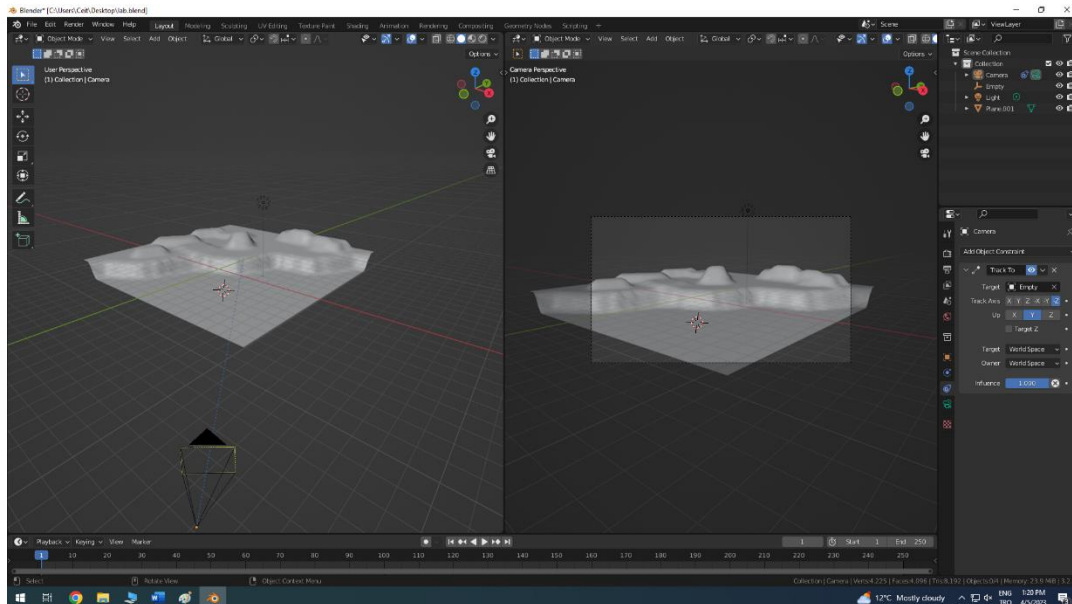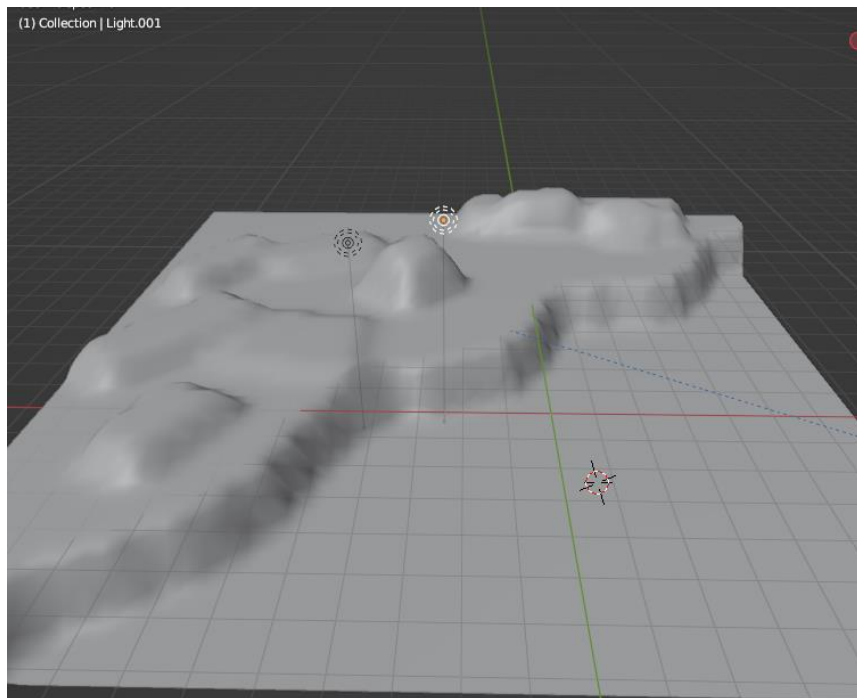
21. Press **F12** to render your scene and see the picture.

Press **Esc** to go back to 3D scene. You can continue to edit your landscape.
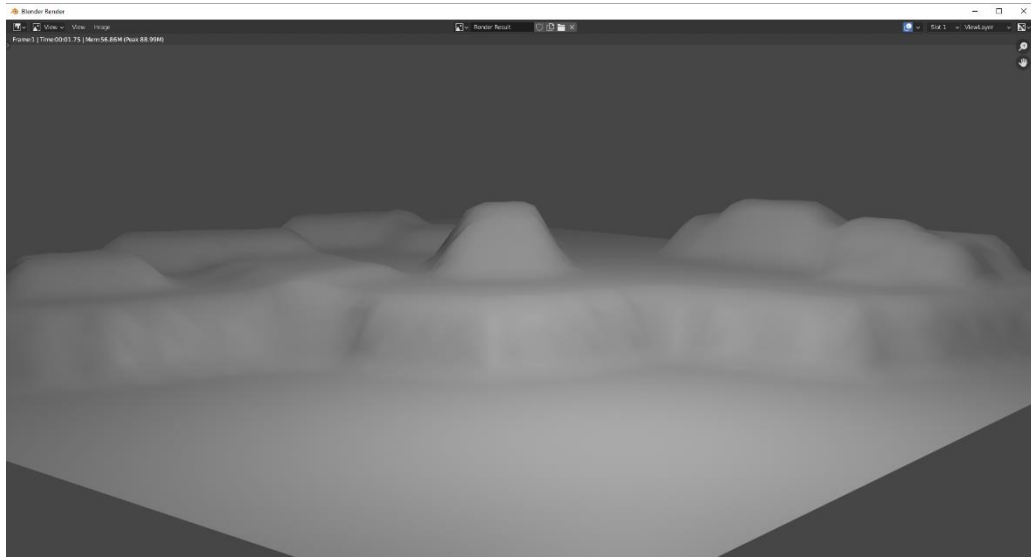

22. If your rendered image is dark, duplicate your light source. To do this, select the point light source. Press Shift + D. Then, move the duplicated light source to the dark area.


23. Save your file. You have completed the first version of the landscape. 😊

1. Open a new file, save it as name_surname_stdid_lab6_act2.

2. Delete the existing cube

3. Add a circle mesh. You can press **Shift + A** to open Add menu. Then, select Mesh > Circle.

4. The circle will consist of 32 vertices, and it will be filled. Also, its radius will be 1 Blender unit. To have such circle, use **Add Circle** part under the tool shelf. Please, do not forget to make Fill Type **Triangle Fan**.
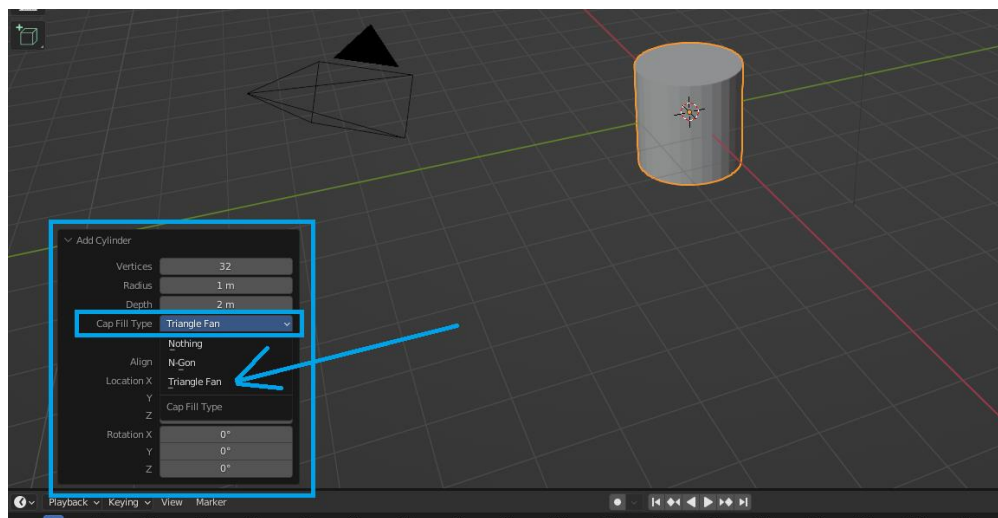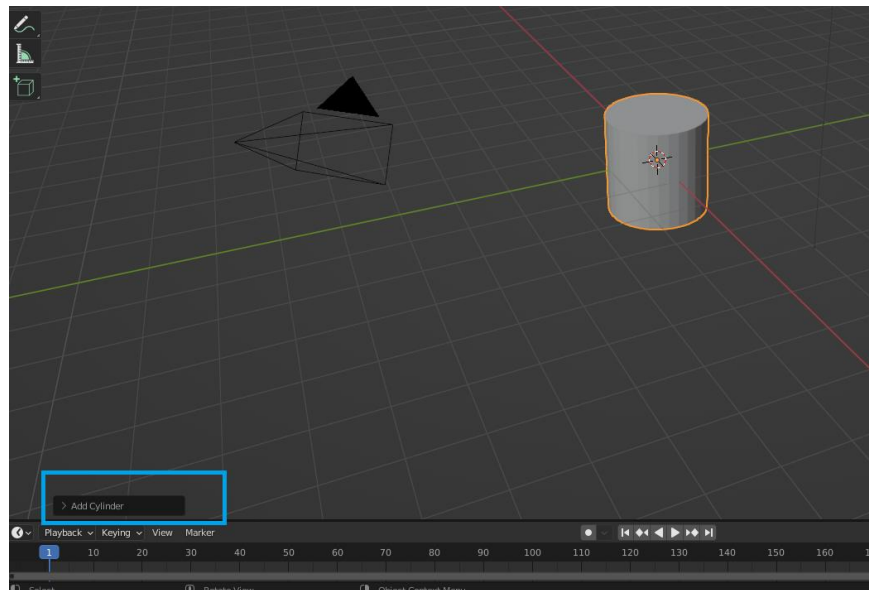
5. Switch to **Edit** mode. (You can switch typing **TAB**)

6. Select top view (**7** key). Be sure that all vertices are selected.
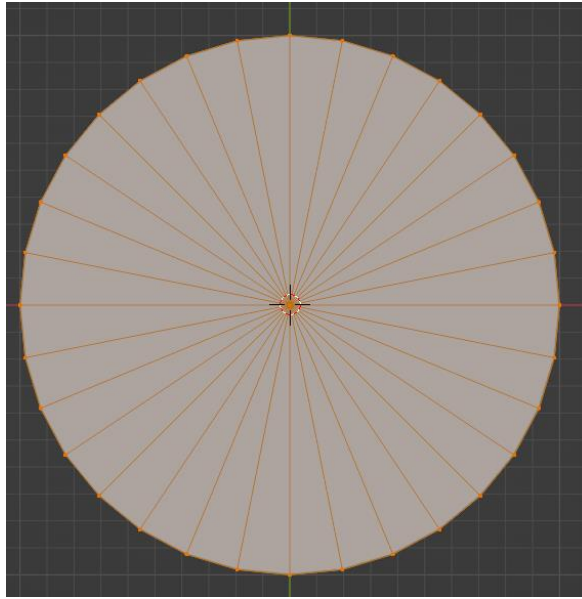
7. Switch to front view (**1** key) and orthographic projection (**5** key). You can move your scene downward by holding down both Shift key and the mouse wheel.
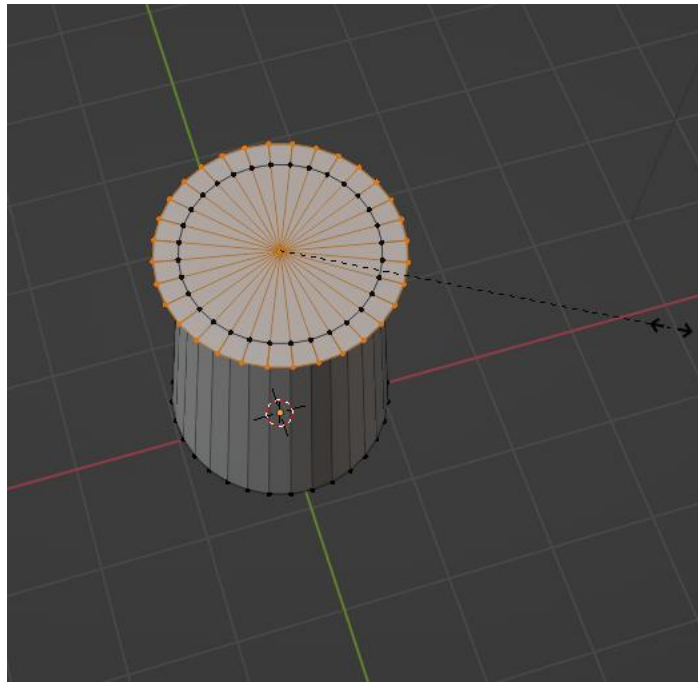
    Press **E** key and then move your mouse upward to extrude the circle in z-axis direction. Height of the extruded part will be 3 Blender units. When you complete to extrude it, you can press left mouse button.


3 blender unit
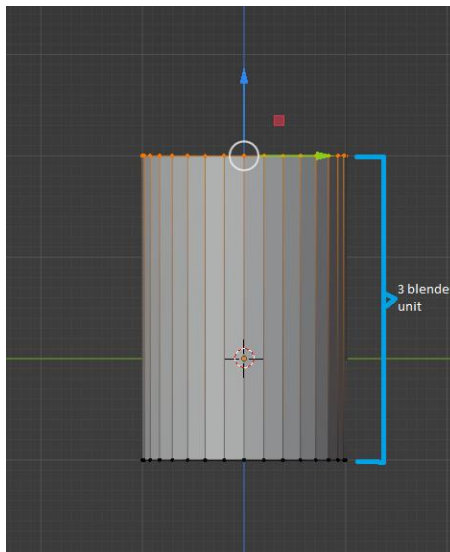
8. Press **S** key to scale top face. Then, move your mouse inward to narrow the top face. When you complete to narrow it, you can press left mouse button.
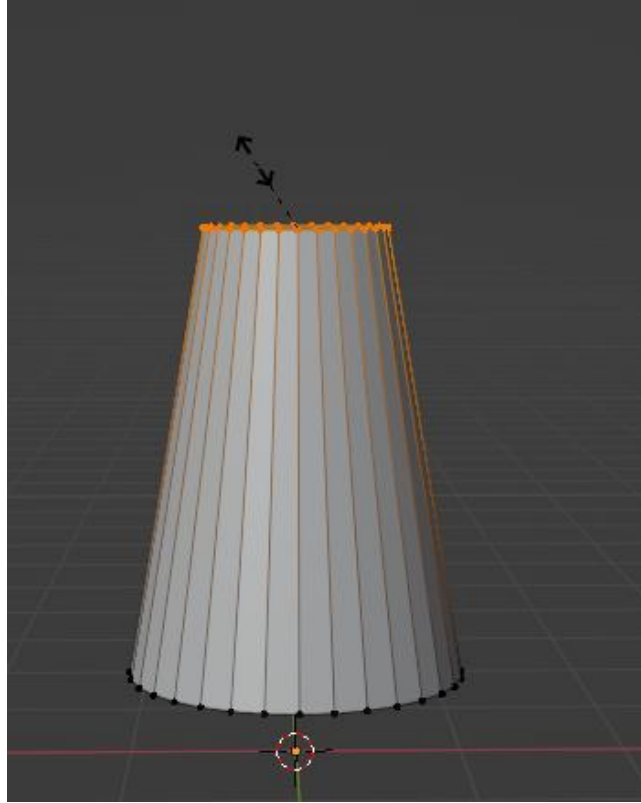
9. Now, we will build a small walkway of the lighthouse. Press **E** key to extrude again, and then press **S** key to adjust scale of the extruded part. Move your mouse outward to create base of the walkway. When you complete it, you can press left mouse button.
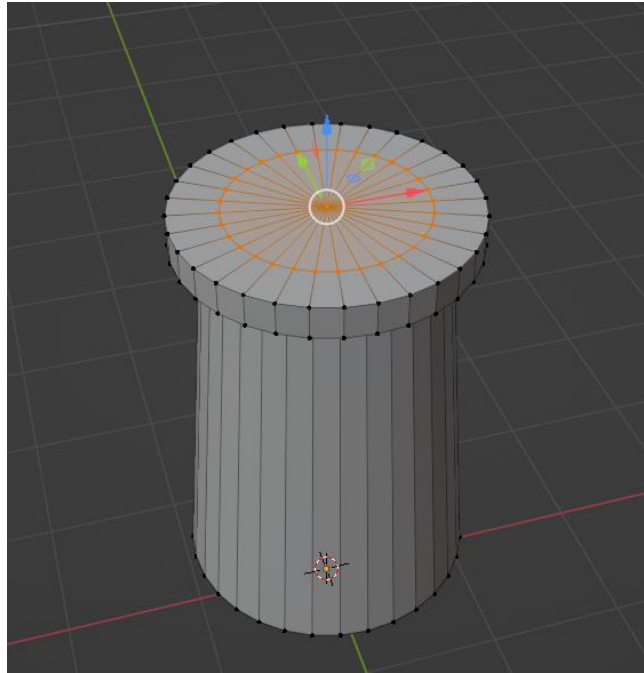
10. Press **E** key. Then, move your mouse upward to extrude the base in z-axis direction. Finally, press left mouse button.
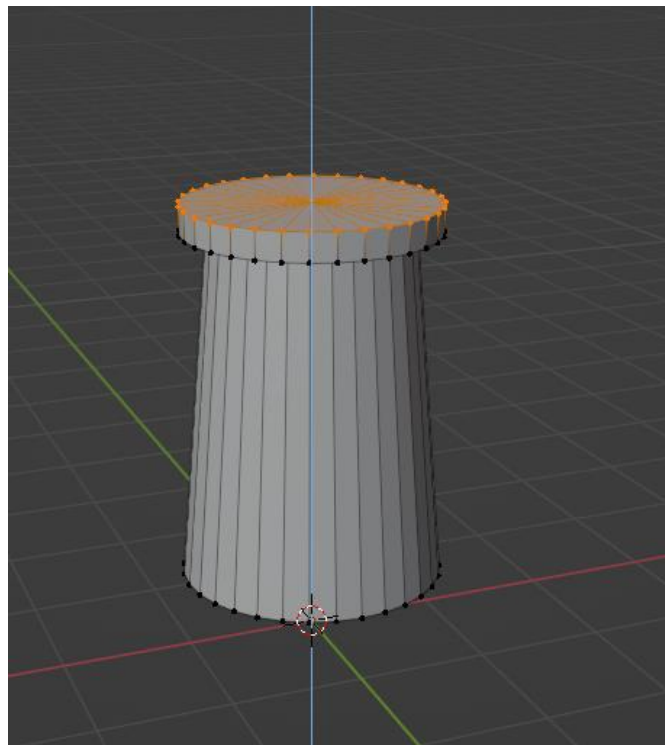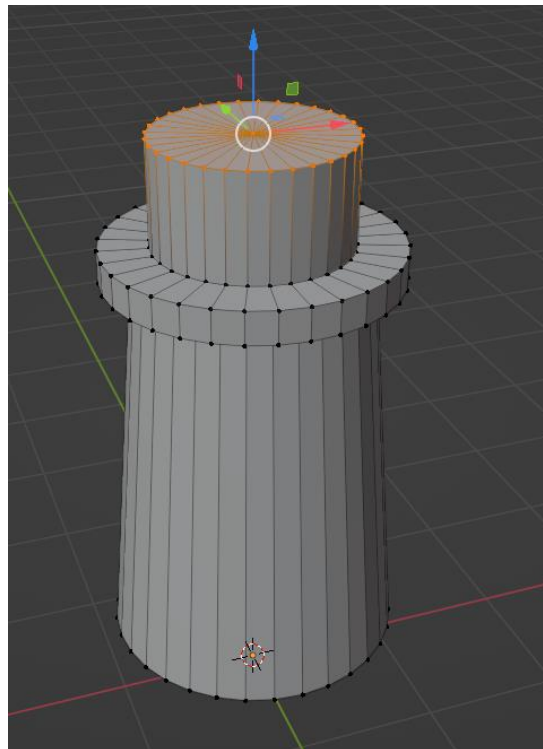
11. Now, we will create wall of the walkway. Press **E** key. Then press **S** key to adjust scale of the extruded part. Move your mouse inward towards the walkway. When you complete it, you can press left mouse button.


12. Press **E**, and then move your mouse upward to extrude it in z-axis direction. Afterwards, press left mouse button.

13. Press **E** key to extrude again, and then press **S** key to adjust scale of the extruded part. Move your mouse outward to create roof of the lighthouse. When you complete it, you can press left mouse button.
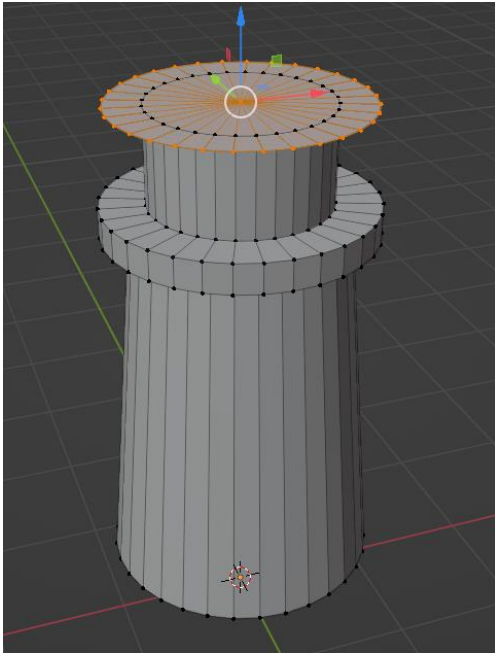

14. Press **E**, and then move your mouse upward to extrude it in z-axis direction. Afterwards, press left mouse button.
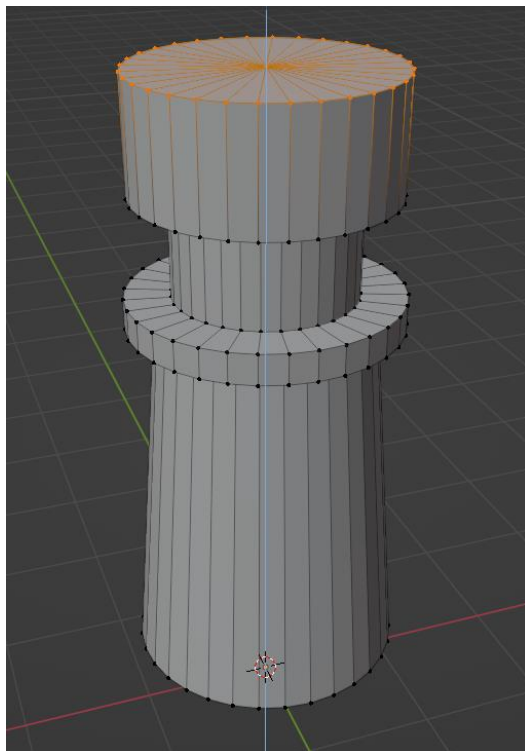
15. Now, we will merge the vertices at the top face of the lighthouse to have a roof shape. Go to tool shelf. Press **M** and then click **> At Center**. As a result, we will have one vertice instead 32. **Do not forget save your file.**
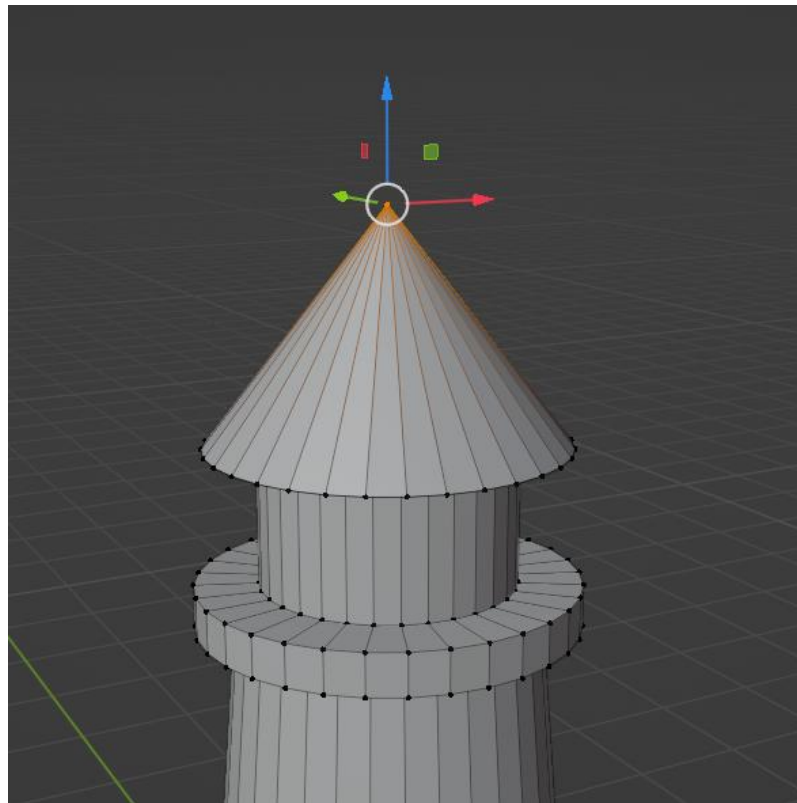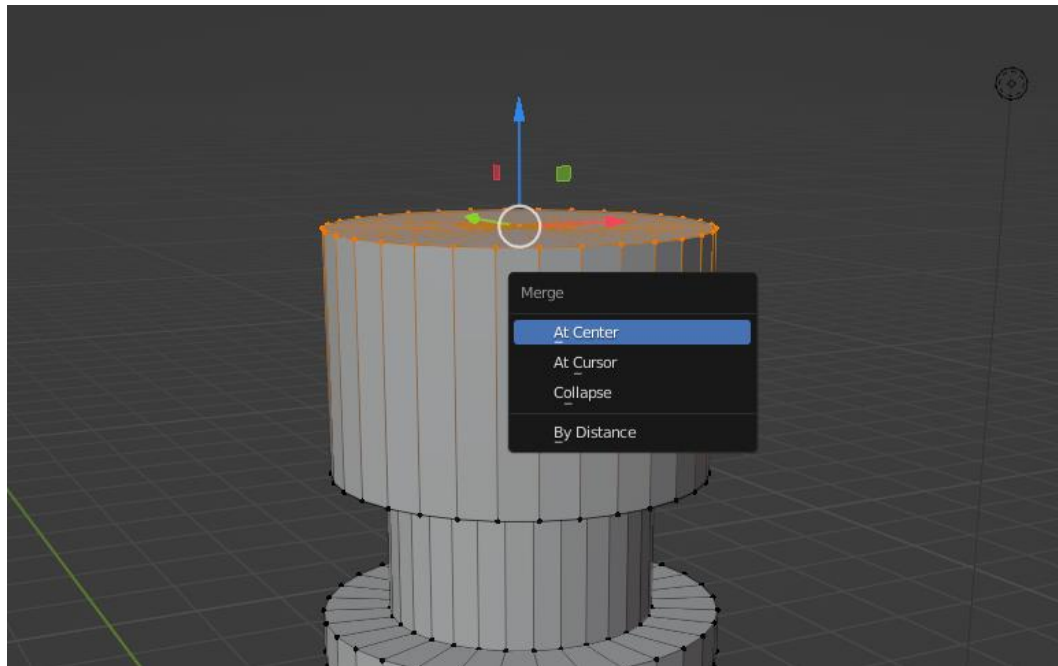
16. Go back to Object mode. Divide your area into two view parts. The second part will be in camera perspective as we did in the first activity. Move your camera to a location that displays the lighthouse thoroughly.
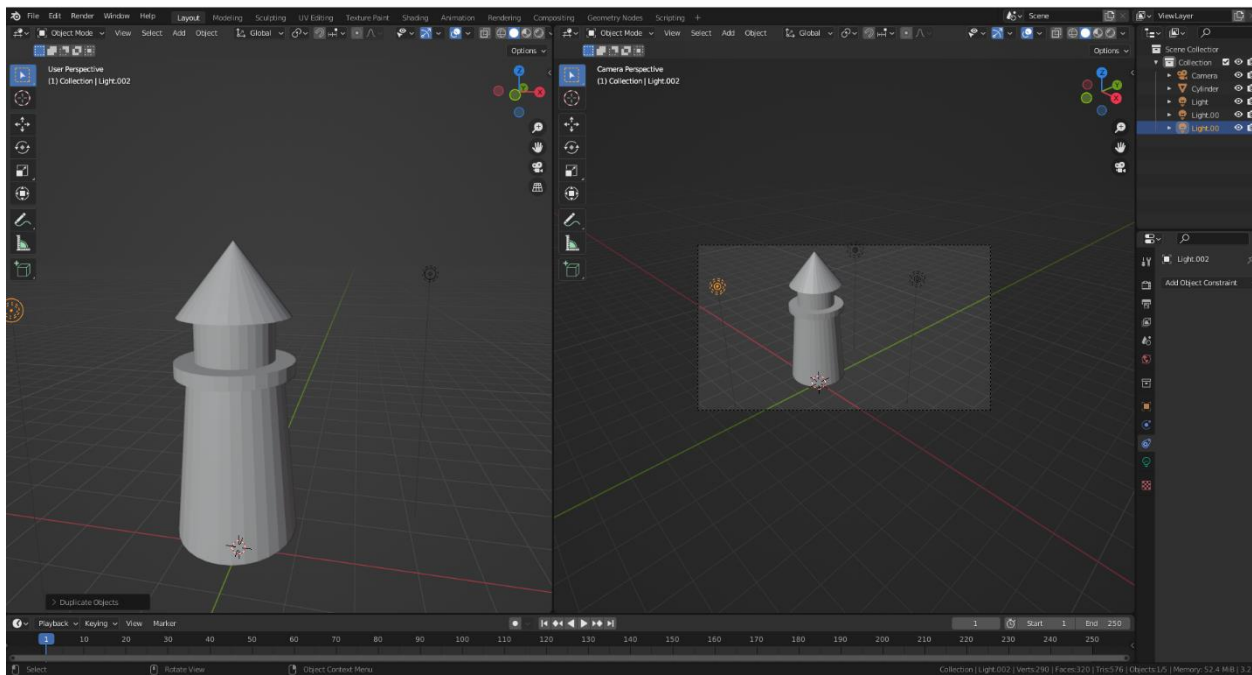

17. Press **F12** to render an image. The lighthouse looks good, but angular. Press **Esc** to go back to 3D view.

Click **Shade Smooth** button from the menu that opens after right-clicking on the object. Then, press F12 again to see how it looks. Afterwards, press Esc.
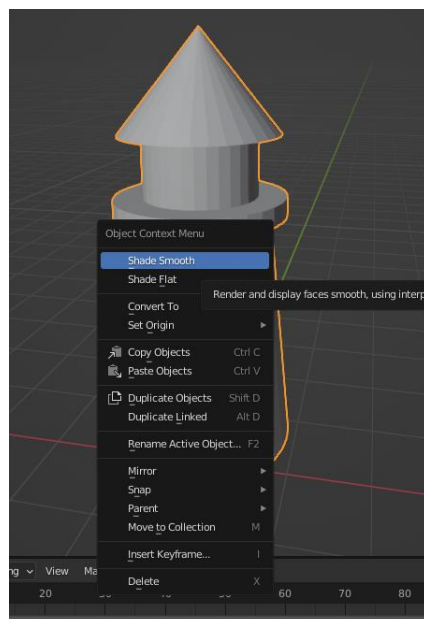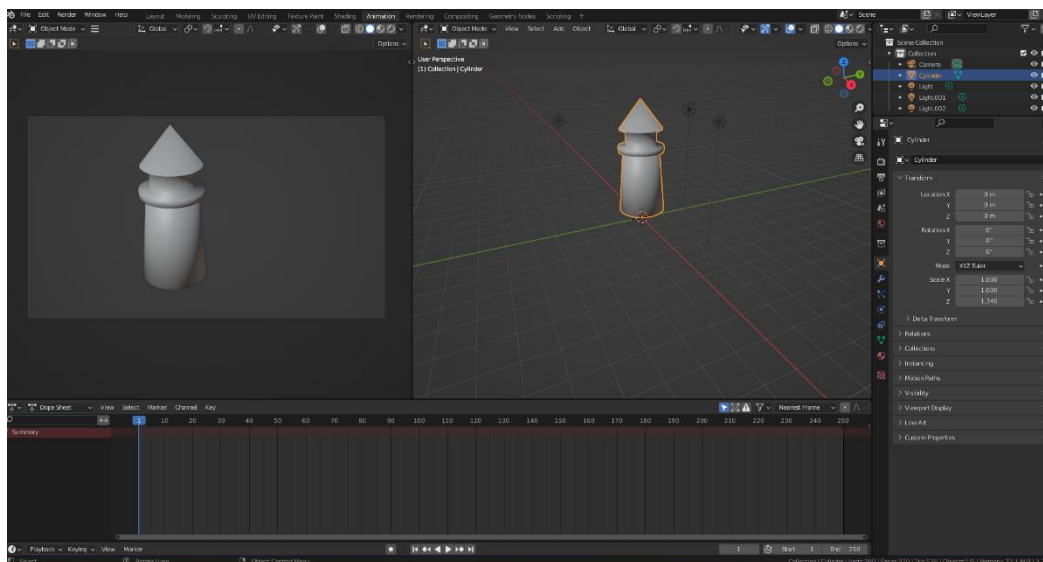
18. Some edges in the lighthouse need to stay sharp. However, all edges are smooth now.

Click **Data** icon on the right panel. Enable **Auto Smooth** in Data panel. The default value is 30 degrees. It means that the edges above 30 degrees will not be smoothed.
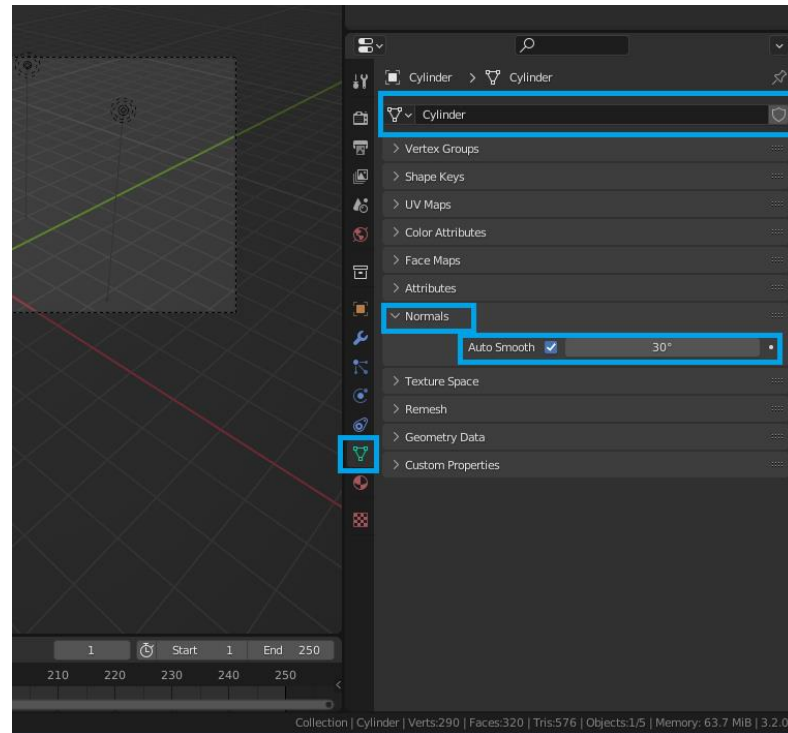
19. Press F12 to see new looking of the lighthouse. Save your file.

20. The second activity has been completed. Upload two activity files in .blend format to ODTUClass.