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-

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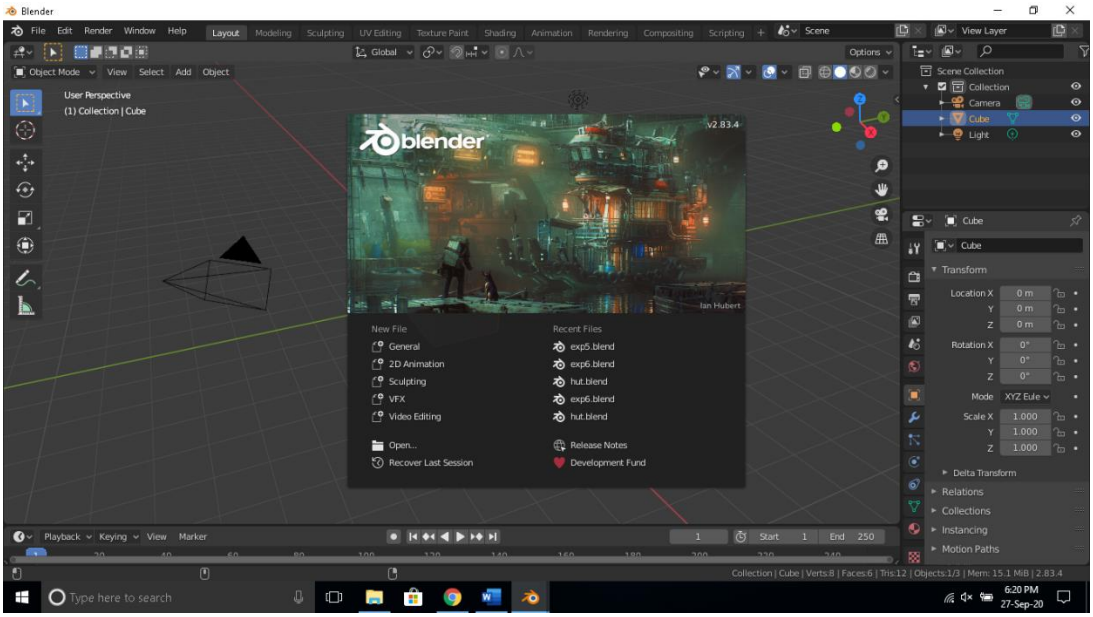
Objective- The main aim of this project is to create a 3d animated model of the solar system using blender.

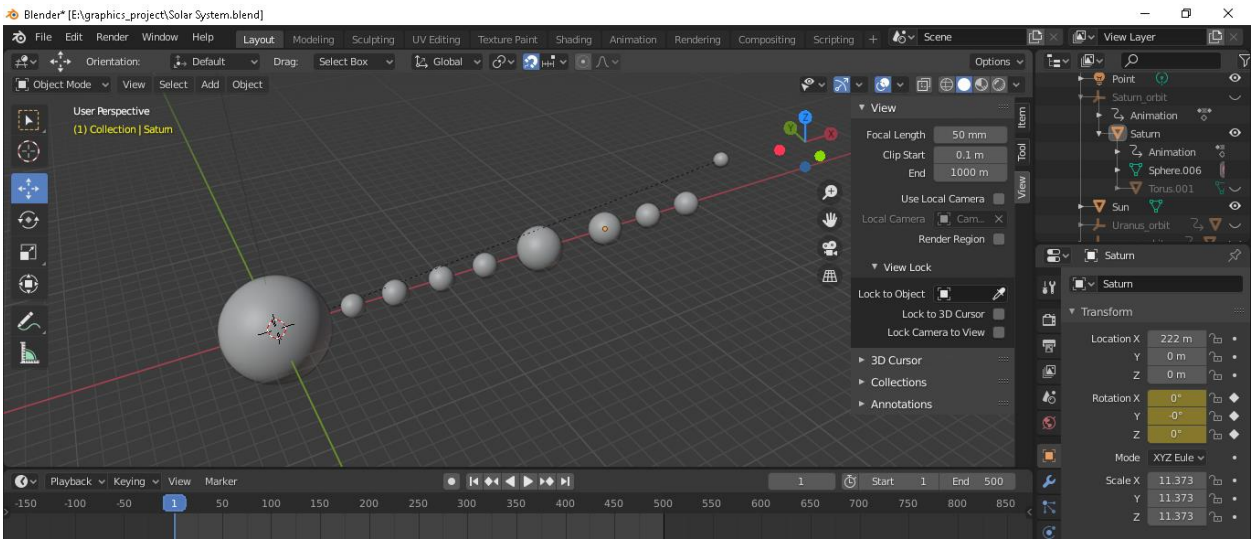
Steps-

1. Open blender and select new file type as general.

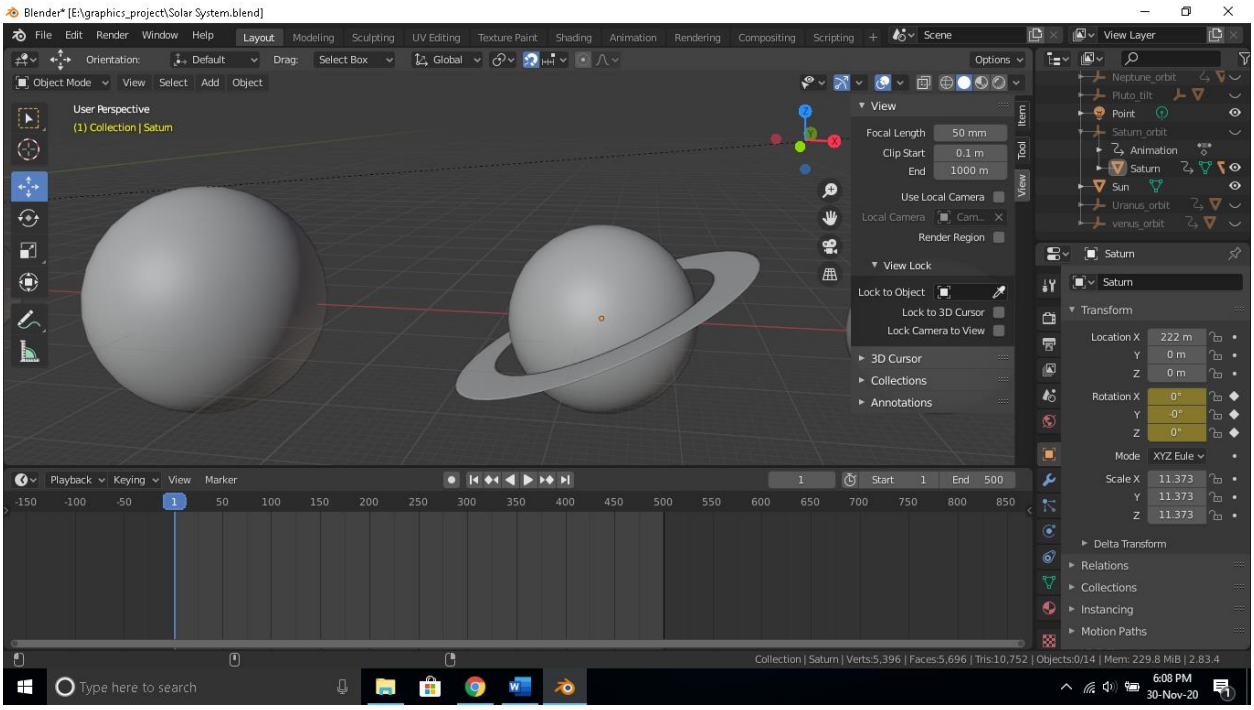


2.Add a UV sphere mesh scale it appropriately and name it “sun”.

3.Add similar 9 more UV sphere meshes to add the eight planets and Pluto, scale the planets relative to sun.

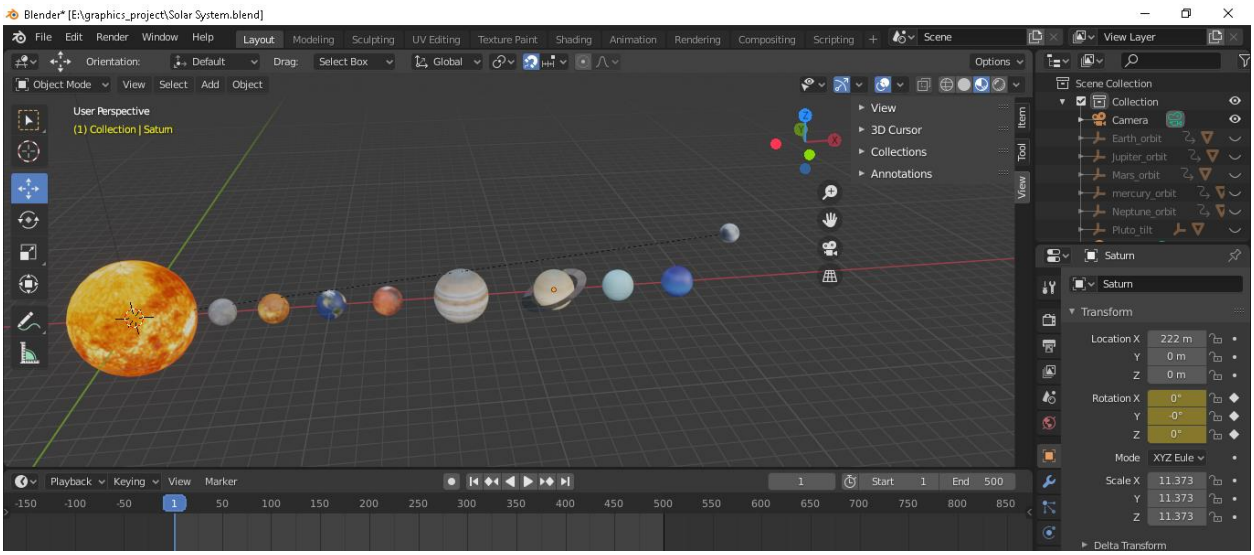


4. For Saturn's rings, select the UV sphere of Saturn and press shift+s and select cursor to selected to snap the 3d cursor to Saturn's position and add a torus mesh. In the add torus menu adjust the major radius to increase the radius of the loop and adjust the minor radius to change the thickness of the loop. Flatten the torus and rotate the rings about a single plane to give an inclination to the rings.



5.Also select the rings and press shift and select the main sphere for Saturn and press ctrl +P and select object (keep transform) option.

6.Add the textures for the sun and the planets using material properties and turn the sun into an emission surface so that light doesn't affect the sun while rendering.



7.Now align all the planets along a single axis and put the sun at the origin so that all the meshes are in a single line.

8.Select mercury and press I to bring up insert keyframe menu and select locrotscale option and press n to bring up transform menu and go to 500th frame and set an appropriate z value in rotation section and press I when you over it.

9. Repeat step 8 for all the remaining planets to give each one a rotation animation.

10.Add an Empty plane axes at the world origin where sun is located and name it mercury_orbit.

11. Now select mercury and press shift and select mercury_orbit so that it is active object and press ctrl+p and choose Object(keep transform) option from set parent to menu.Now in the outliner mercury will appear under mercury_orbit.

12.Select mercury_orbit and press I to bring up insert keyframe menu and select locrotscale option and press N to bring up transform menu and go to 500th frame and set an appropriate z value in rotation section and press I when you over it this will give the revolution animation for planet mercury.

13. Repeat step10,11 and 12 for all the remaining planets to give each one a rotation animation, for Pluto just set the axis at an angle.

14.Add a space background image and render the animation video.