Indian Institute of Technology Jodhpur
CSl7450: Computer Graphics
Programming Assignment 2

Due Date: February 07, 2021, Max Marks: 15

Instructions:

- Make a group of two students.
- Clearly mention the contribution of each group member in the readme file.
- Prepare a readme file mentioning how to run your code.
- Zip all your codes and files in a single file and name it with the roll number of both the students. Fragmented files will not be considered for evaluation.
- Copying from the Internet and your classmates is strictly prohibited. If found, you will be awarded -10 marks for the assignment.

1. Consider any one of the meshes and the corresponding camera location from the below table. Transform the object w.r.t. the camera coordinate system. Find oriented normal for each triangle. Determine the coordinates of the view frustum such that all the triangles lie in the view frustum. Perform the normalized device coordinate transformation (use inbuilt function for this purpose). Now, use the back-face culling algorithm to remove the invisible triangles. Place a light source at the locations specified in the below table. Use the Phong shading algorithm with highlights to find the intensity of at each pixel. Now, use any of the triangle rsterization algorithm to render the object. Determine the window and viewport sizes accordingly. Compare your results with the results obtained by using inbuilt functions to perform these steps.

Model Name	Camera Location	Light Source Location	Camera Frame
Cat01	$(-50, -60, 10)$	$(-50, -60, 160)$	Axis Aligned
Wolf02	$(-70, 30, 60)$	$(-70, 30, 60)$	Axis Aligned
Gorilla05	$(-60, -120, 10)$	$(-60, -120, 80)$	Axis Aligned
Michael18	$(-60, -120, 10)$	$(-60, -120, 100)$	Axis Aligned