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1.Program structure:

Files in ./lab2 are codes to display model.

Files in ./lab2/Data is data of model vertex.

Files in ./lab2/Head is head file(.h).

File in ./lab2/Source is source files(.cpp) for head files.

Main.cpp include main function.

2.Explain every file:

matrix.h is the code of my own Matrix class. The routines of my Matrix class include set value of a matrix, add two matrixes and multiply two matrixes.

Most code of vec3.h comes from project CG1\_LAB1. It defines vertex class. I overload one vec3’s operator \*, to define vec3 \* Matrix and vec3\*vec3.

operation.h contains operations needed during program. Xproduct2d is to calculate the cross product of two vectors. Distance2d is to calculate the distance between two points. MultiMatrix can calculate the result of two matrixes. Random can return a float number which is between 0 and 1.

parameter.h contains global parameters, such as number of items, locations of files containing items’ points, directions of items and so on.

projection.h is the code of my own two functions using different parameters to approach perspective.

camera.h is the code of Camera Class. This class support to apply view transformation, which makes it looks like there is a camera look around.

Using 0, 1, 2 can choose one item to control. 0 is to control the car, 1 is to control the shuttle and 2 is to control the cow.

Graphic.h contains some structures used for scan conversation such as edge structure.

4. the function that I have achieved

Back face has been removed. (written in Model.BackFaceRemove() routine)

Scan conversation has been added. (written in Model.Scanconversation() routine)

Phong shading, grouraund shading and constant shading are add.(written in Model.Scancovversation routine)

There is no perspective in this image because of the difficulty computing reverse matrix.