CS380

Programming Assignment #3
Due Apr. 24 (Fri.) (before 11:59pm)

Rep. TA: Inkyu An, Mincheul Kang (cs380ta@gmail.com)
Objective: Understand how to perform transformations in terms of viewing space.
Developing environment: TA will test your code in **Visual Studio 2017** in Microsoft **Windows**.
Provided materials: Two header files(.h), two source files(.cpp), two modeling files(.obj), one sample binary(.exe)
Procedure:
1) Implement this assignment from the result of PA#2.
2) Provide two key maps, "m" and "v" to differential transformations defined in the modeling space and viewing space.
    a. All the transformations implemented in PA#2 are now performed after you type "m".
    b. If you type "v", all the transformations (, which will be described in 3) and 4) in this spec.) are performed in the * viewing space *.
3) Provide translation function along x, y, z directions in the viewing space.
    a. The amount of translations is determined by the mouse movement.
    b. If you type "x" or "y", the cow model translates in the * viewing x-y space *; the cow should follow the mouse cursor pointer.
    c. If you type "z", then the cow model translates along the z-direction in the * viewing space *.
4) Rotate the cow around the x-axis in the viewing space when you type "r". The center of the rotation is at the center of the modeling space.
    a. The rotation amount is computed based on the mouse movement.

Deliveries:
1) Binary (*.exe) and source codes (SimpleScene.cpp) of your solutions.
2) A report (*.pdf) that specifies the files you made/changed.
    (The report should contain the following 3 images.)
    a. Attach two images of cow translation in the viewing x-y, z space, respectively.
    b. Attach one images of rotating cow around the x-axis in the viewing space.
3) Submit your work in KLMS. You should submit *.zip file that contains your binary (*.exe), source codes (SimpleScene.cpp), and your report (*.pdf).

Scoring criteria (30 pts):
1) Mode change ("m": modeling space, "v": viewing space) (2 pts)
2) Translation
    a) cow translation in the viewing x-y, z space (9 pts)
    b) toggle "x", "y", or "z" (5 pts)
3) Rotation
    a) cow rotation around the x-axis in viewing space (9 pts)
    b) toggle key "r" (5 pts)

❖ Compile error will get 0 point.
❖ Implementation outside of implementing area is not allowed.
❖ Use variables presented in "(Project 2, 3) Variables".
❖ There are two areas for implementation. Please search "(Project 2, 3)".
❖ Name the zip file to studentID_PA3.zip (e.g., 20201234_PA3.zip).

Policies:
1. Everyone must turn in their own assignment. You can collaborate with others, but any work that you turn in should be your own.
2. Do not edit any other files than "SimpleScene.cpp".
3. If your zip file name does not match the format (i.e., studentID_PA3.zip), we will deduct your score by 2 points.