

# Comp380

Programming Assignment #3

Due Apr.-14 (Fri.) (before 11:59pm)

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**Objective:** Understand how to perform transformations in terms of viewing space.

**Developing environment:** TA will test your code in Visual Studio 2015 (MSVC 14.0) in Microsoft Windows.

## Requirements:

- 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 (15 pts)
  - 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. (15 pts)
  - a. The rotation amount is computed based on the mouse movement.

## Deliveries:

- 1) Binary (\*.exe) and source codes (\*.cpp) of your solutions.
- 2) A report (\*.pdf) that specifies the files you made/changed.
- 3) Submit your work in KLMS. You should submit \*.zip file that contains your binary (\*.exe), source codes (\*.cpp), and your report (\*.pdf).

**Policies:** Everyone must turn in their own assignment. You can collaborate with others, but any work that you turn in should be your own.