Assignment 1 – Transformation Detail Instruction

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ICL/ITRI

Goal

- Interact with five model (independently)
- Control the camera
- Implement transformation, viewing, and projection matrices (MVP)
- Switch between 5 models
- Finish all the TODO in main.cpp and vertex shader

Assignment 1

- Announce date: 2020/04/15
- Deadline: 2020/05/06 23:59 (UTC+8)
- Late work will be penalized by 20/week.
- Hand in your homework by FTP in the following format:
  - Student ID (create one folder)
    - studentID_HW1.zip
    - studentID_HW1_Report.pdf

FTP

- Use FileZilla to upload your assignment
- Server: cgv.cs.nthu.edu.tw
- Account: cg2020
- Password: 2020cg
- Folder: Assignment 1
- To upload a new version, create a new one with _v2, for example: 123456789_HW1_v2.zip

Key Mapping

- **Please follow the spec bellow, or you would not get the score of item.**
- **You must make sure your key mapping is exactly same to ours.**
- **Z/X: switch the model**
- **O: switch to Orthogonal projection**
- **P: switch to NDC Perspective projection**
- **T: switch to translation mode**
- **S: switch to scale mode**
- **R: switch to rotation mode**

Key Mapping

- **E: switch to translate eye position mode**
- **C: switch to translate viewing center position mode**
- **U: switch to translate camera up vector position mode**
- **I: print information**
  - **Translation Matrix, Rotation Matrix, Scaling Matrix, Viewing Matrix, Projection Matrix**

Key Mapping

- If you switch mode by T, S, R, E, C, and U
- Apply change on Z axis when scroll the wheel
- Apply change on X axis when mouse drag horizontally
- Apply change on Y axis when mouse drag vertically
- Only rotation should apply X axis when mouse drag vertically, and Y axis when mouse drag horizontally

Report

- **Some screen shot**
- **Description of your program control instructions**
- **Other special things you have done**

Grading Policy

Item	Score
Correctly render model in Orthogonal projection	10%
Correctly render model in NDC perspective	15%
Translation, Rotation, Scaling models	30%
Camera Control, render quad	30%
Switch models (5 models in Line 565 of main.cpp)	5%
Print information	5%
Report	5%
Total	100%