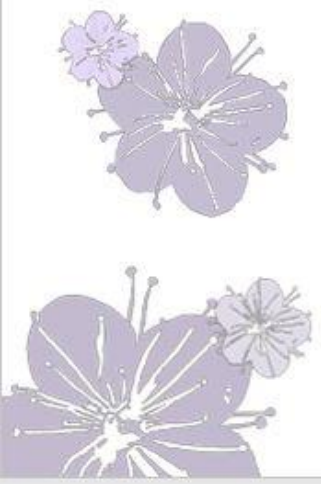
OpenGL HW1

CS 550000 Computer Graphics

April 25, 2018

CGV Lab, NTHUCS

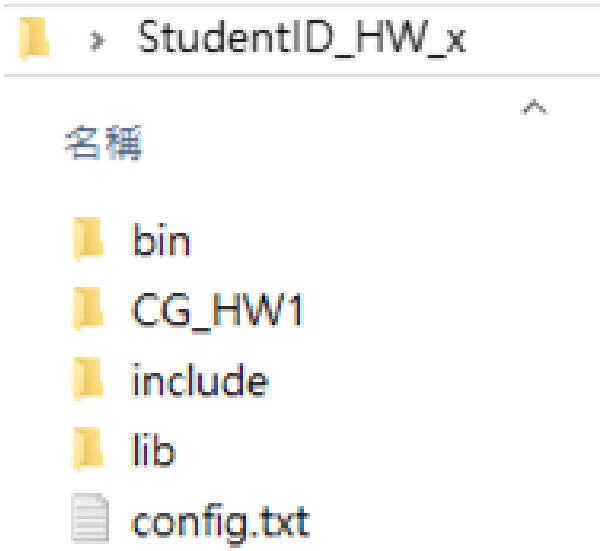


Outline

- How to submit your homework
- Goal
- Grading principle
- Keyboard & Mouse

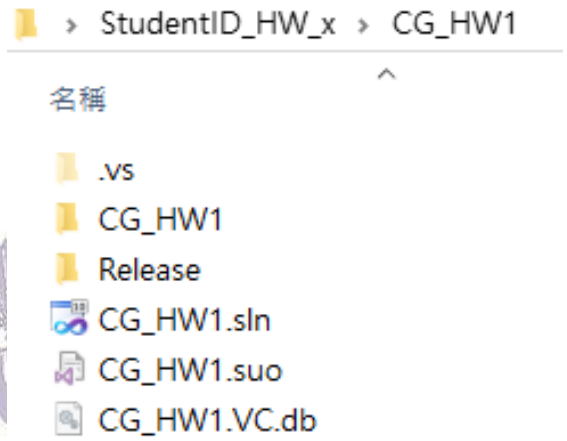
How to submit your homework

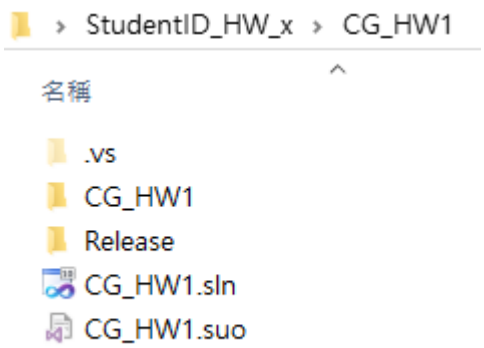
- Check your folder structure
  - Folder name: StudentID_HW_x



How to submit your homework

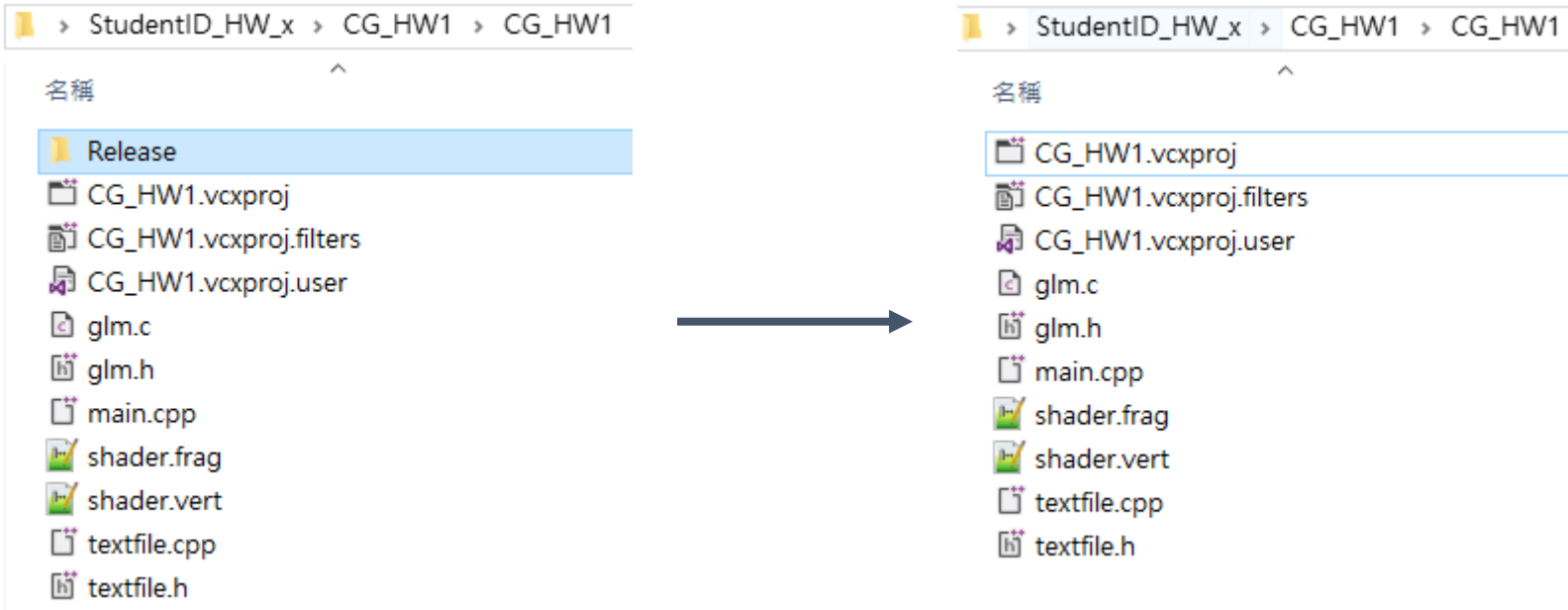
- In StudentID_HW_x\CG_HW1
  - Delete CG_HW1.VC.db





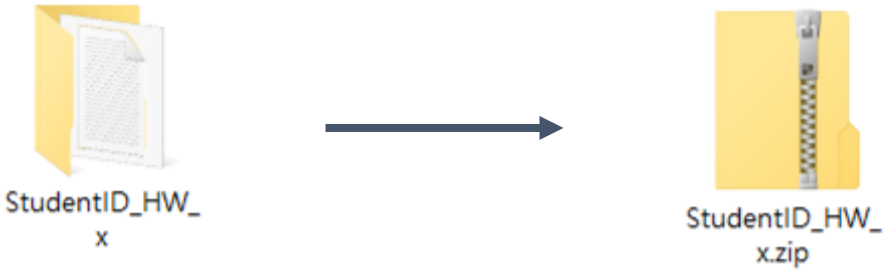
How to submit your homework

- In StudentID_HW_x\CG_HW1\CG_HW1
  - Delete Release



How to submit your homework

- Zip StudentID_HW_x -> StudentID_HW_x .zip
- Please make sure your zip file **DOES NOT** contain the folder of ColorModels



How to submit your homework

- Submit zip to iLMS
- iLMS homework page
  - Title: HW1_yourStudentID_name

Goal

- Practice
  - Model
    - Geometrical transformation – translation, scaling, rotation
  - Camera(eye)
    - Viewing transformation
    - Projection – orthogonal and perspective projection

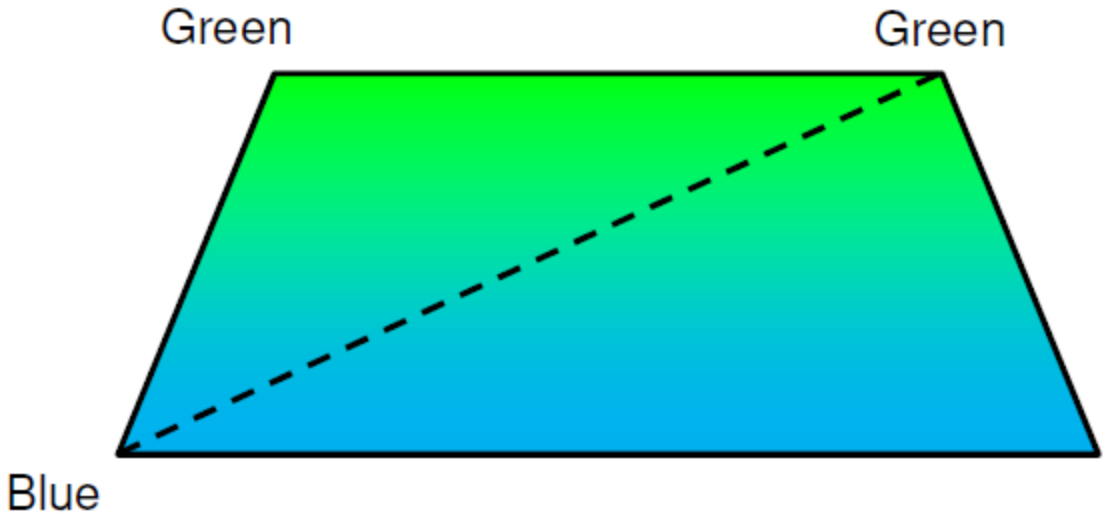
Goal

- Avatar model
  - Model vertices should be Normalization
  - Take Geometrical transformation

Avatar model

Goal

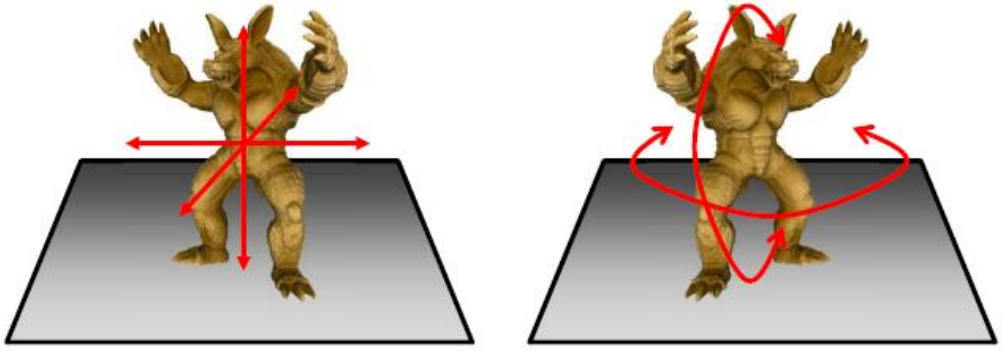
- Base floor
  - Display it with the color you like
  - Don’t change when adjusting avatar’s geometrical matrix
  - Share same viewing and projection matrix



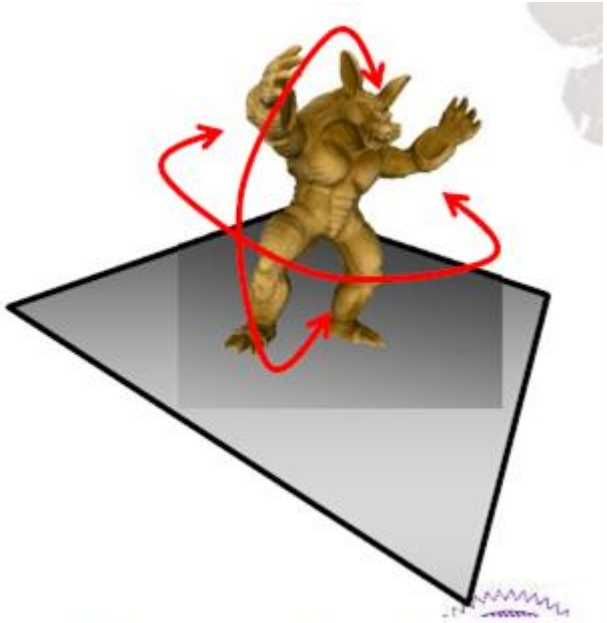
Goal

- Camera (eye)
  - Take Viewing transformation and Projection matrix
  - Set default viewing direction
    - From Z-positive to origin

Goal



Geometrical Transformation



Viewing Transformation

Grading principle

Total score: 100

Transformation (70%)
- Implement MVP matrices
- Geometrical transformation: 30%
- Viewing transformation: 20%
- Projection transformation: 20%

Control (10%)
- Keyboard & Mouse

Report (20%)
- Explain your work

Keyboard & Mouse

X, Y, Z values Increase / Decrease

X: The mouse drags horizontally
Y: The mouse drags vertically
Z: The mouse scroll wheel

Keyboard & Mouse

Geometrical transformation

- Key T : translation
- Key R : rotation
- Key S : scaling

Viewing transformation

- Key C : center
- Key E : eye

Keyboard & Mouse

Change Projection Matrix by
- Key O : orthogonal
- Key P : perspective

Change avatar model by
- Key Z / X

Print all matrix value by
- Key I