Computer Graphics Homework2 Report

110062401 李浩榮

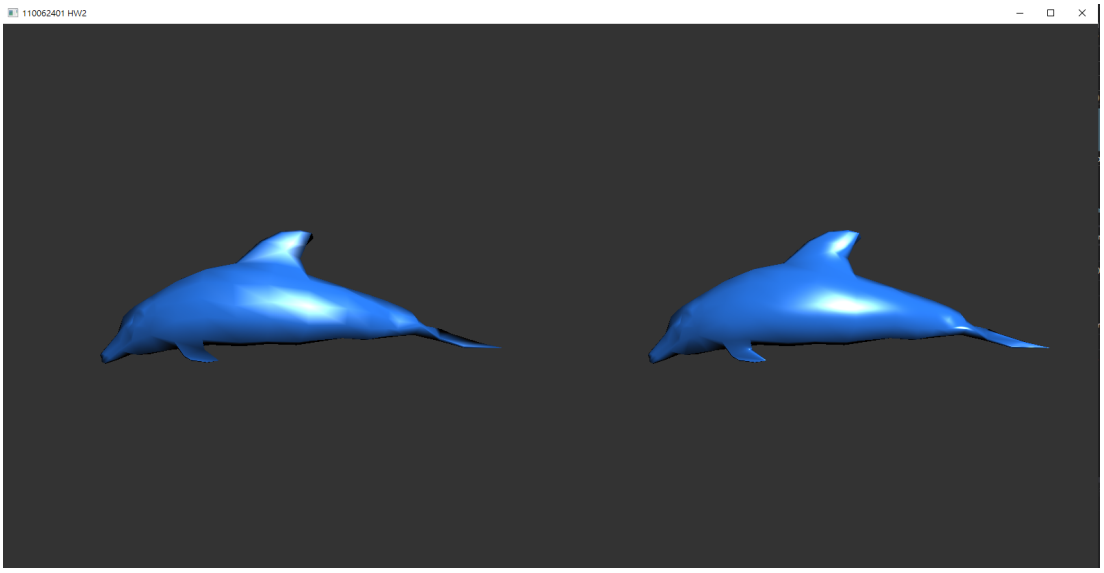
Assignment Requirements and Key Mapping

- Z / X : Switch the model
- T : Switch to translation mode
- S : Switch to scale mode
- R : Switch to rotation mode
- L : Switch between directional / point / spot light
- K : Switch to light editing mode
- J : Switch to shininess editing mode

Screenshot for each key actions

- **Default**

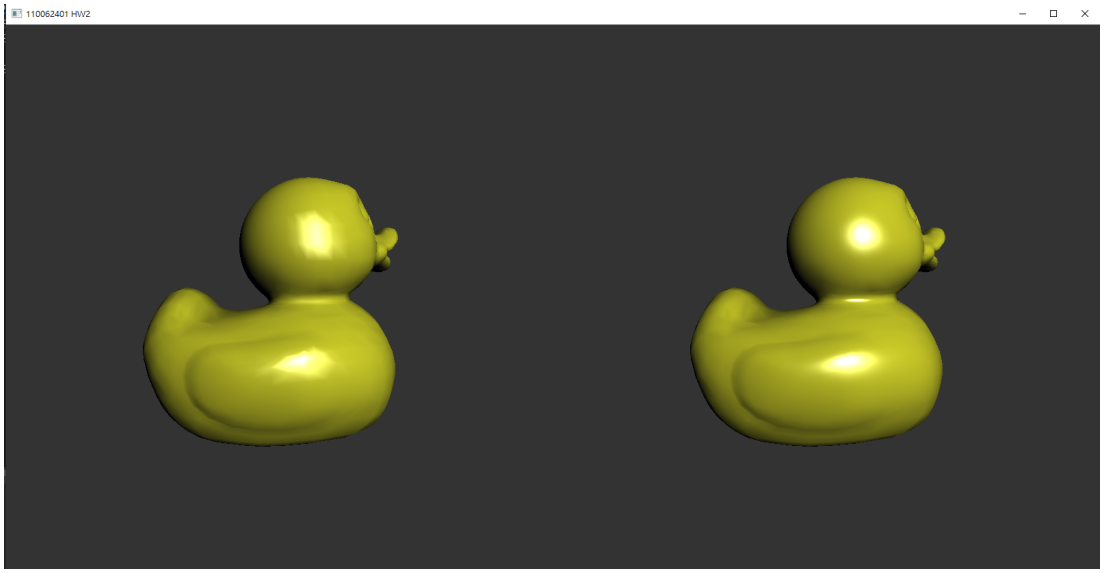
  Here we show the per-pixel lightning and per-vertex lightning side-by-side in window viewport by setting them in RenderScene() with left start point(0,0) and right start point (WINDOW_WIDTH, 0) (This is the default condition of model and place before giving any instruction.)

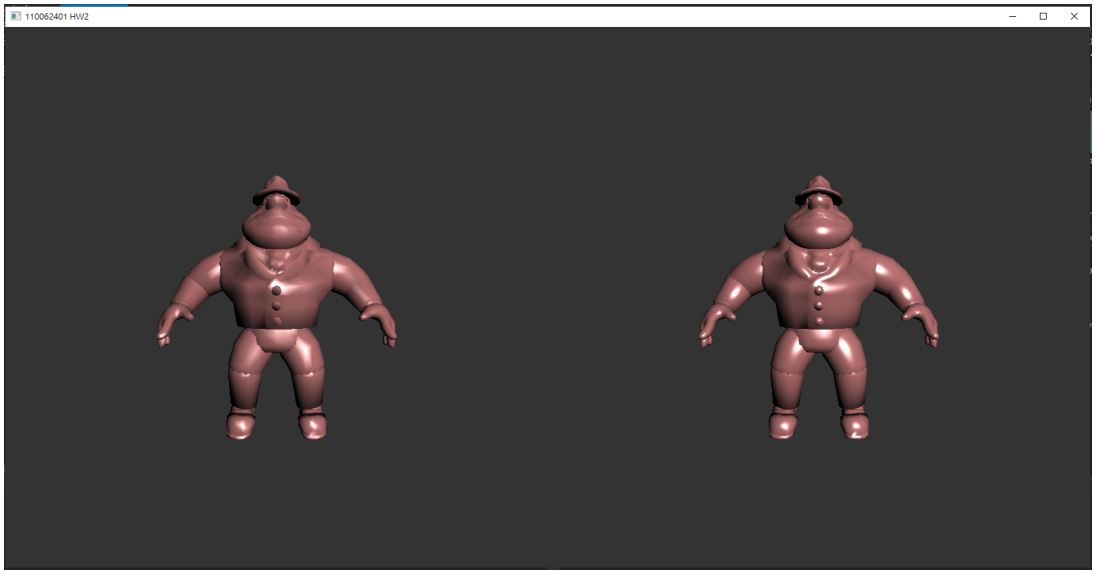


- **Z / X (Switch the model)**

  (Using the Z key and X key to switch another different model from the 5 selected models.

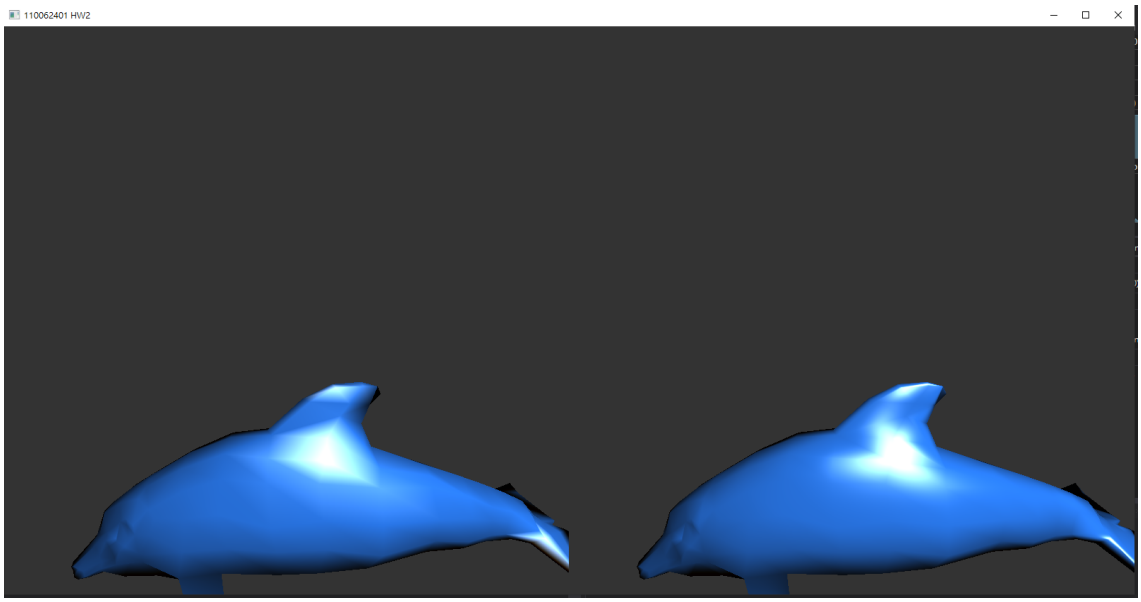
  Implemented with for loops to access selected models.)

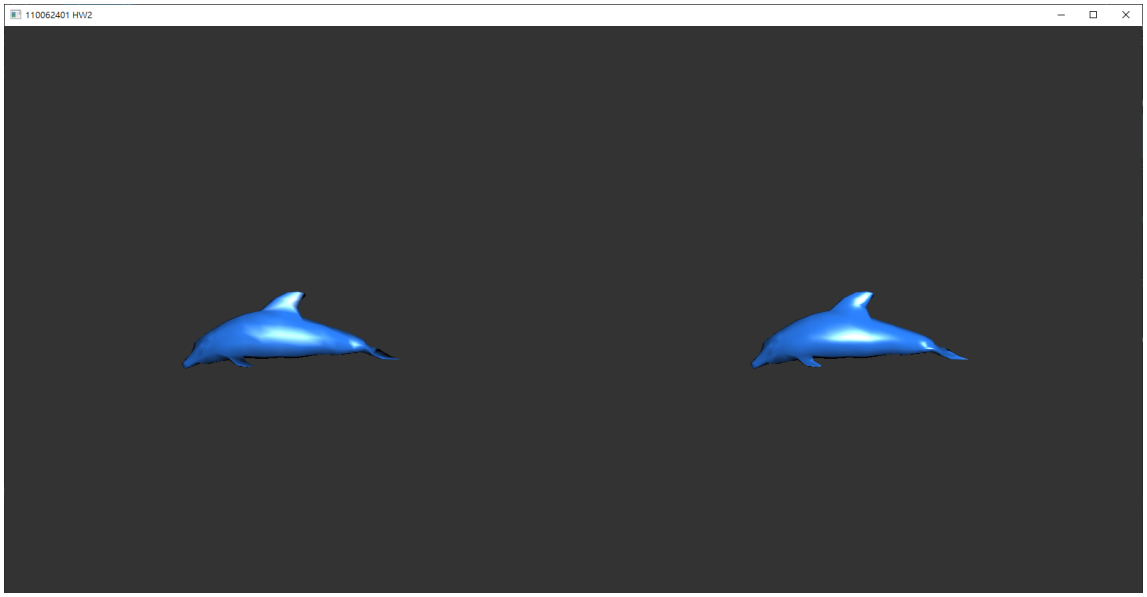




- **T (Switch to translation mode)**

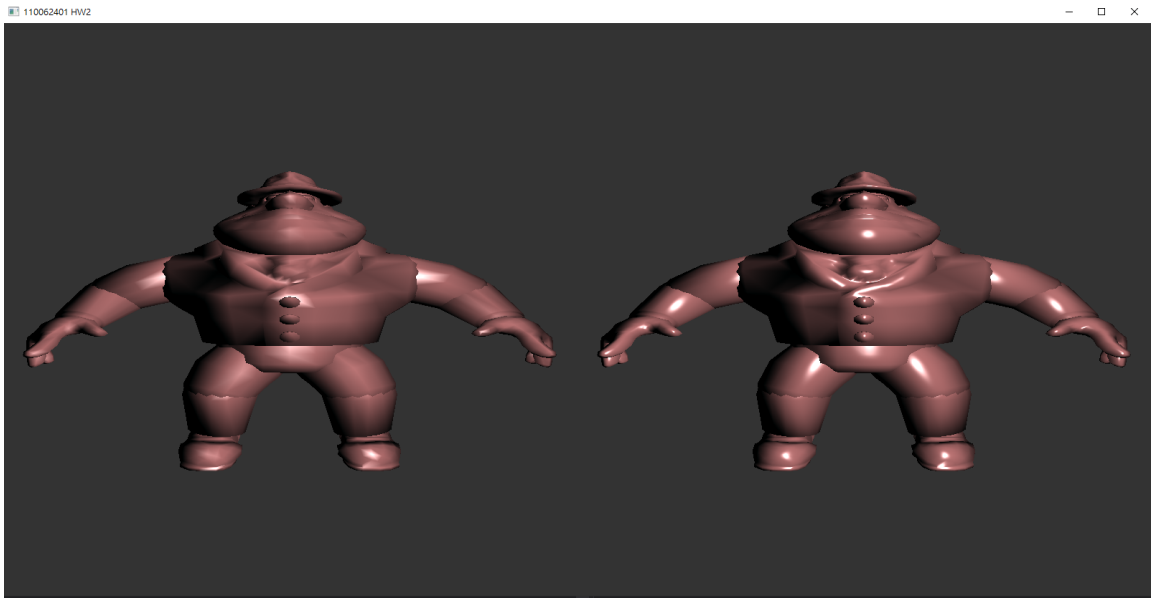
  (Using the T key to switch to translation mode, we can move the model through our mouse click or mouse scroll with any axis, the plane is not going to be translated, only the model can translate. Once the mouse is clicked and drag to new position, new x and y will updated to models.position.x or .y or .z)

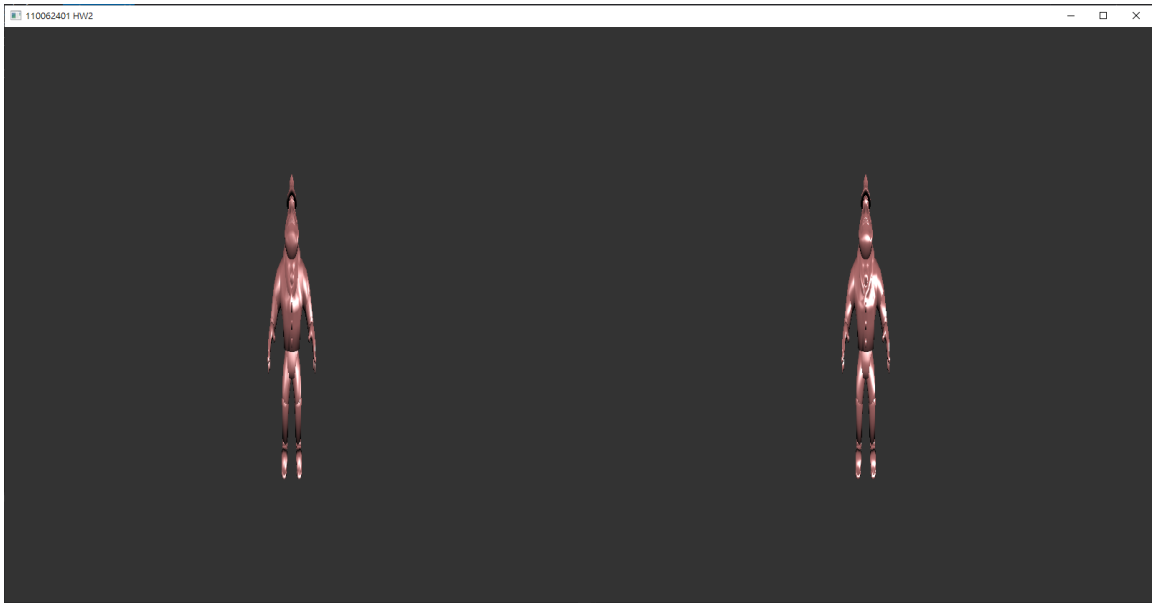




- **S (Switch to scale mode)**

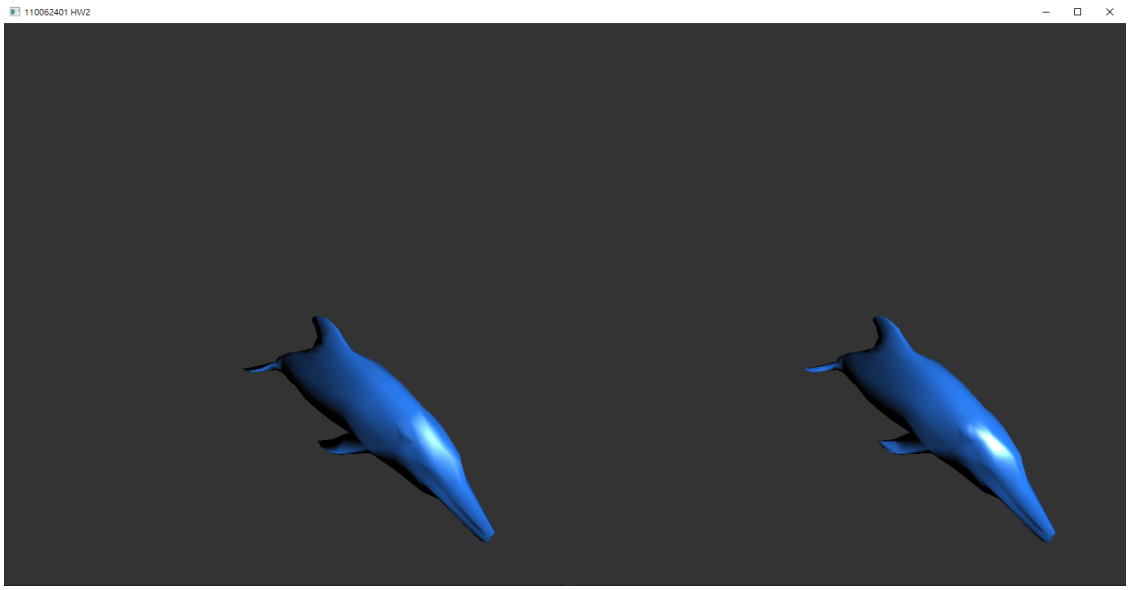
  (Using the S key to switch to scaling mode, same as translation, only the model can be rescaled.)

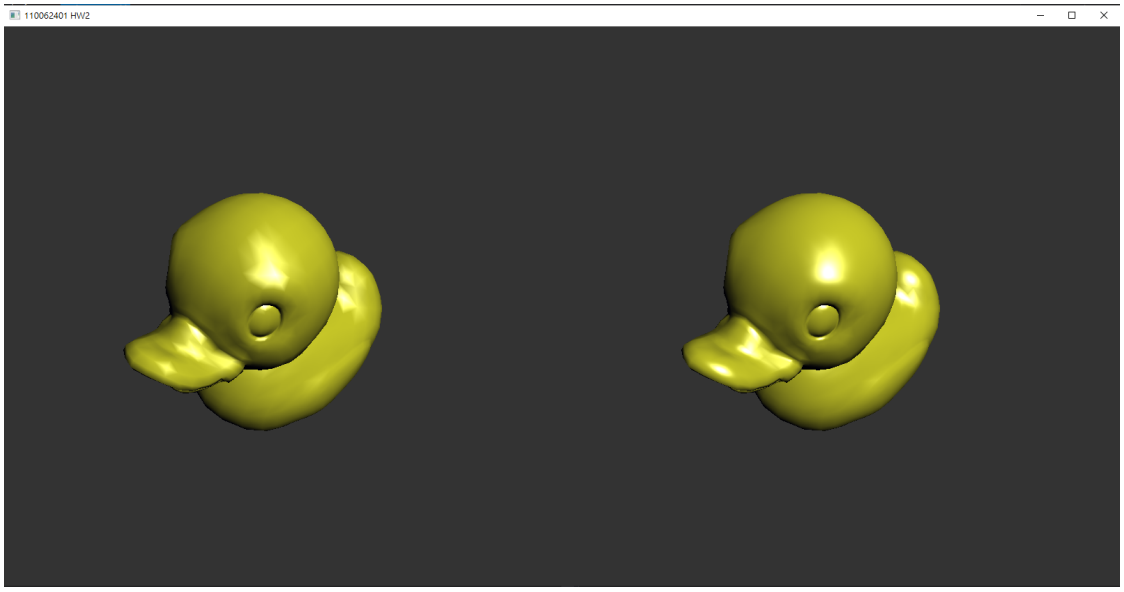




- **R (Switch to rotation mode)**

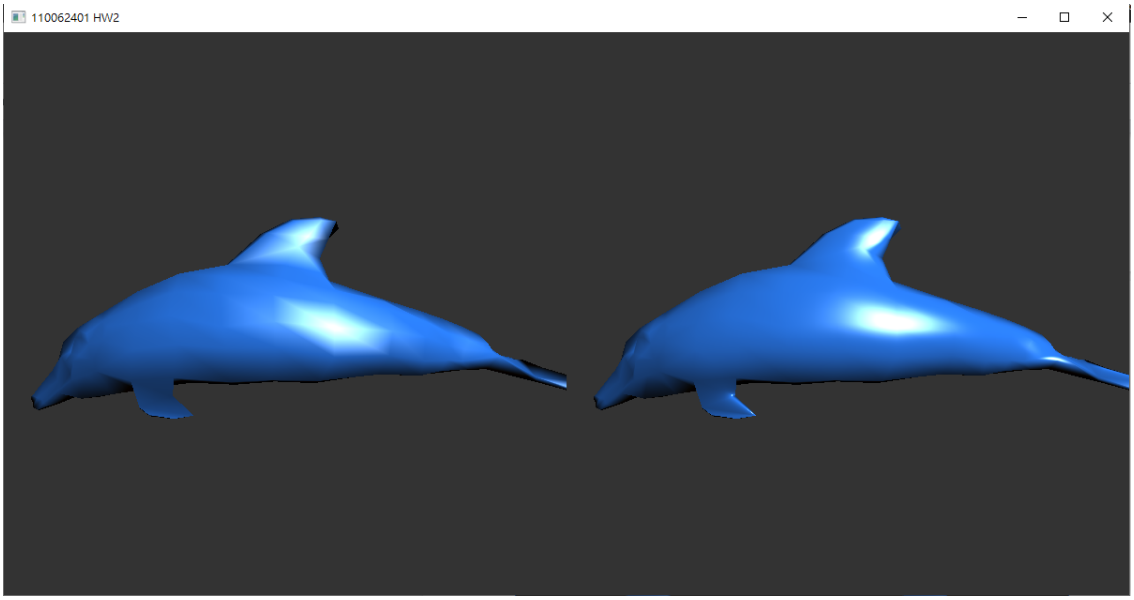
  (Using the R key to switch to rotation mode, only rotate the model, you can try to rotate it in x-axis or y-axis ways. Multiply the original matrix with the different axis matrix with sin(val) or cos(val) to calculate a new form of model.)



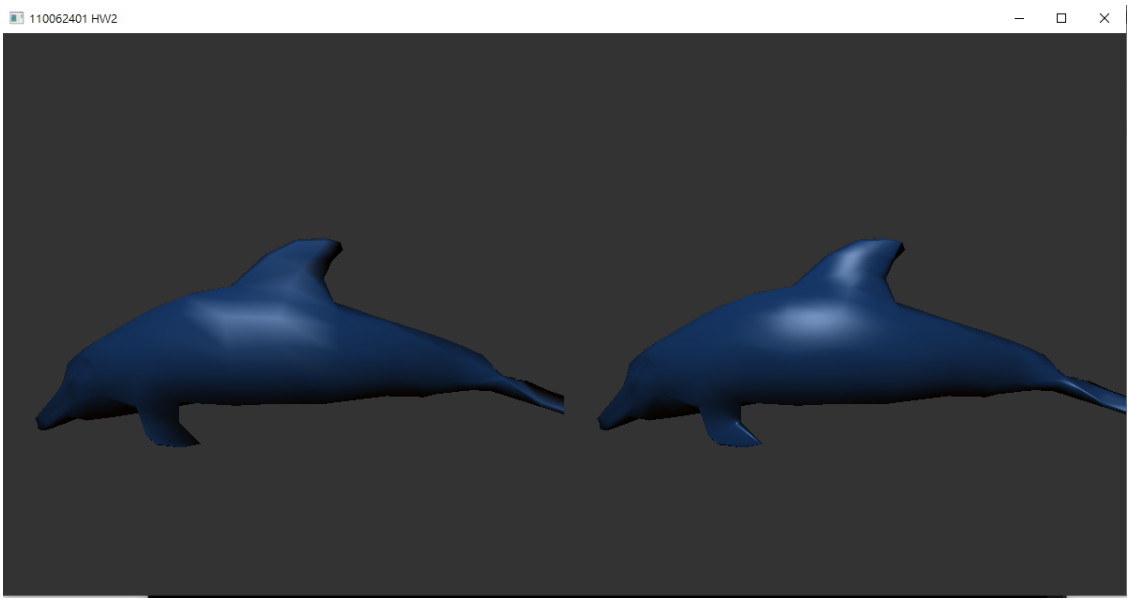


- **L (Switch between directional / point / spot light)**

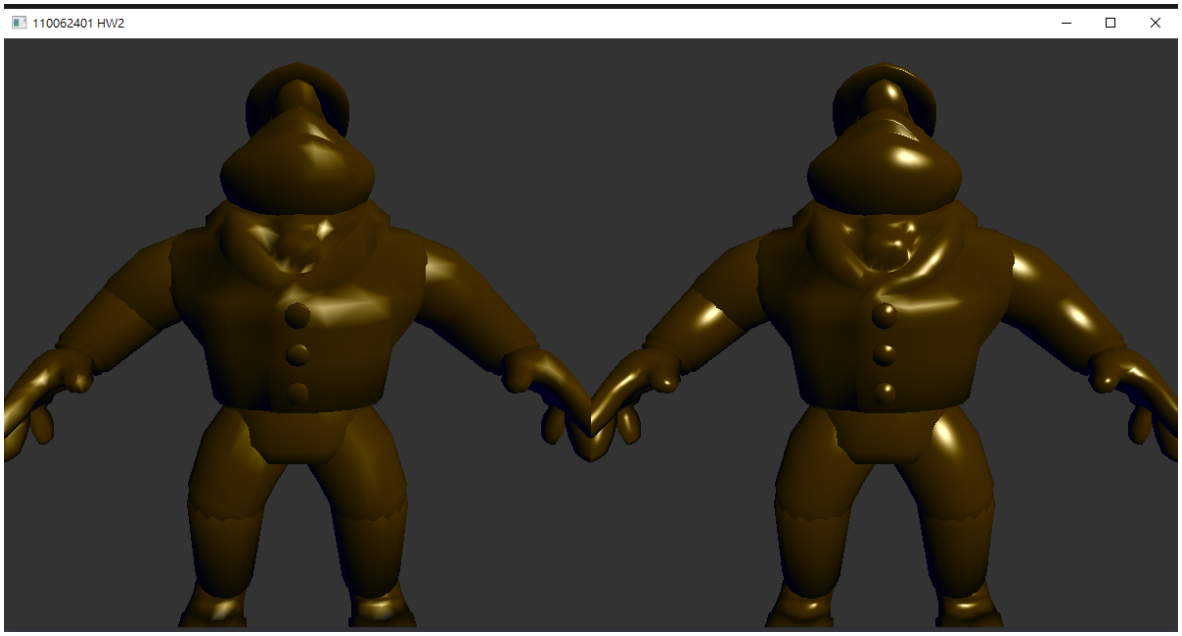
  Directional Light (in default)

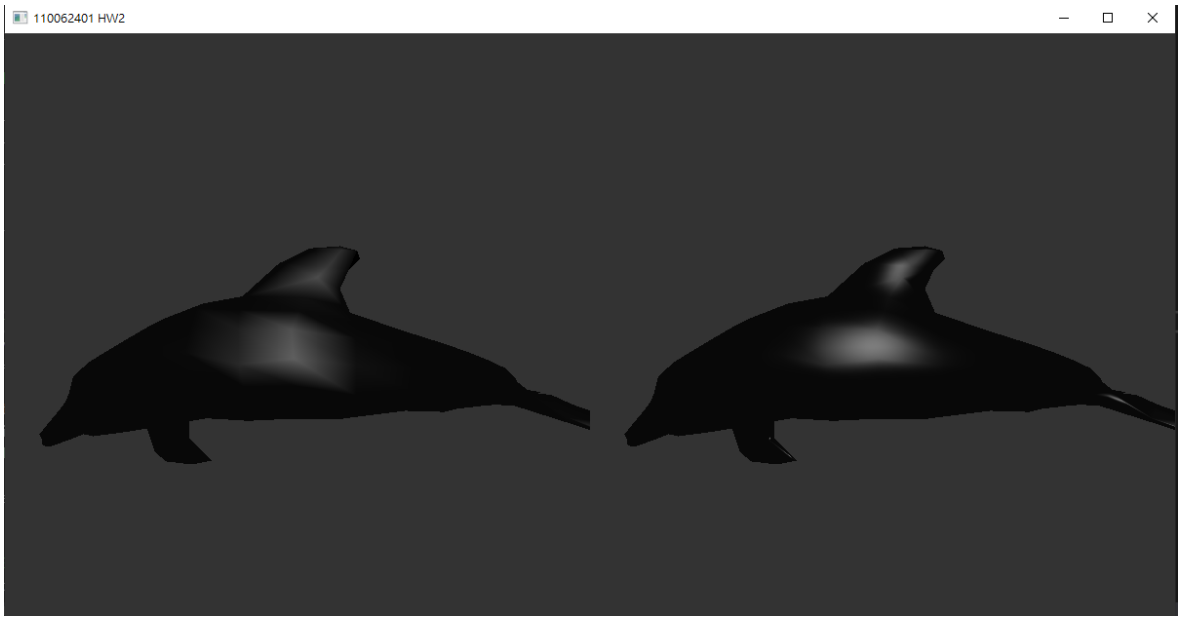


Point Light

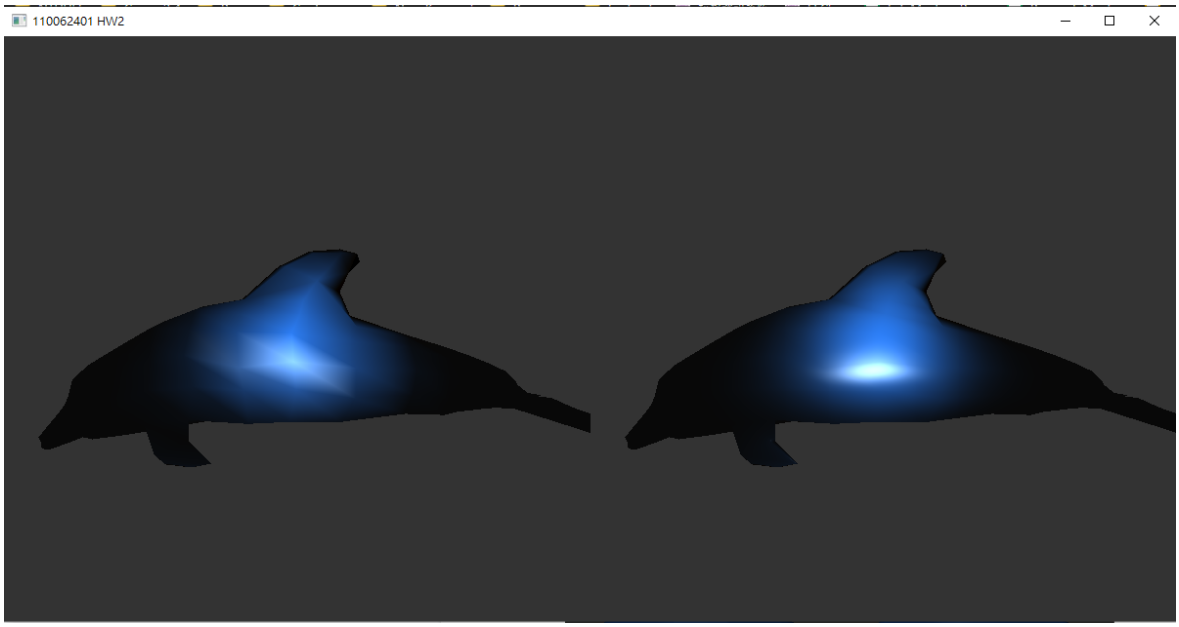


For point light and directional light, you can change the intensity of the light source by scrolling the mouse wheel.

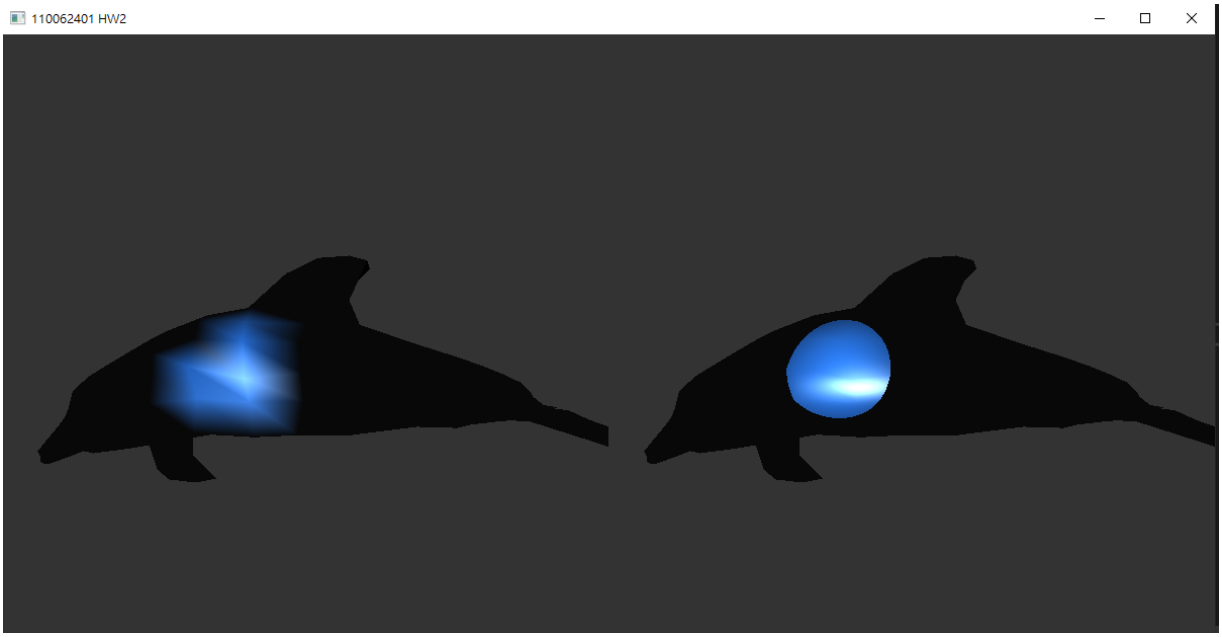




Spot Light

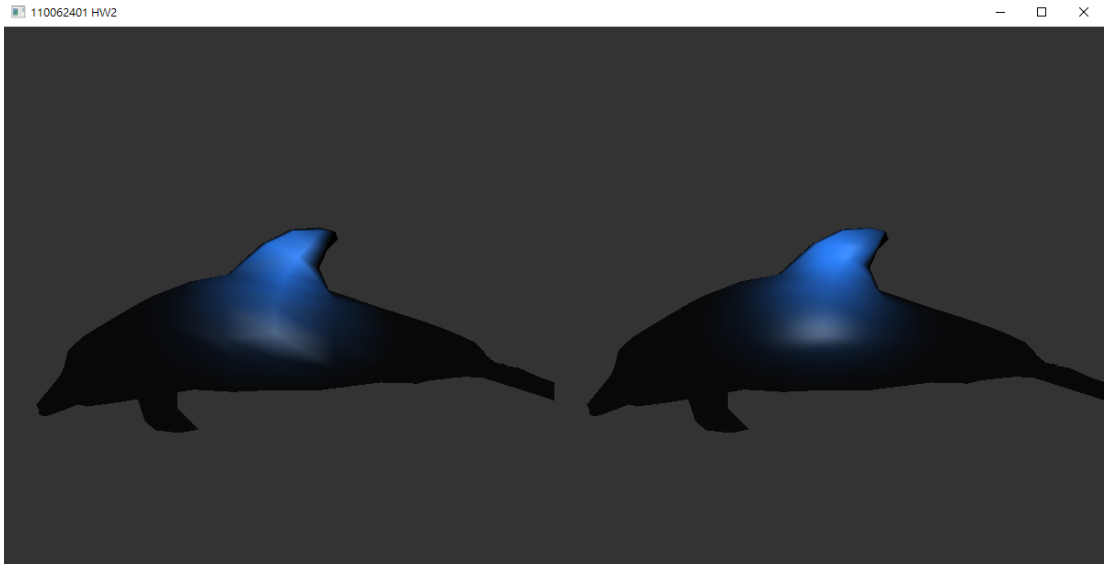


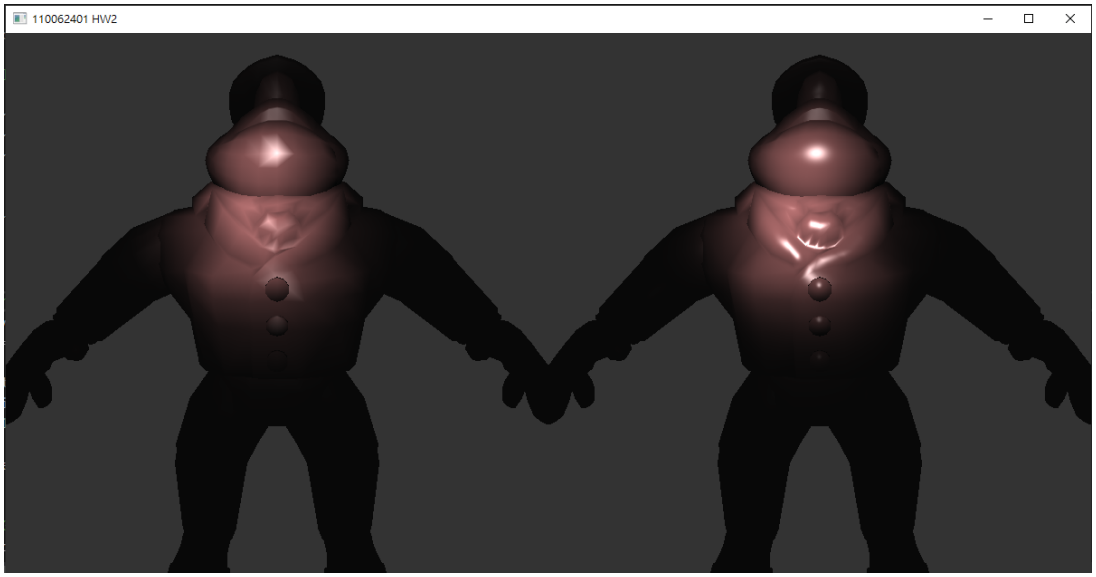
For the spot light source, you can change the cutoff angle of spot light by scrolling the mouse wheel.



- **K (Switch to light editing mode)**

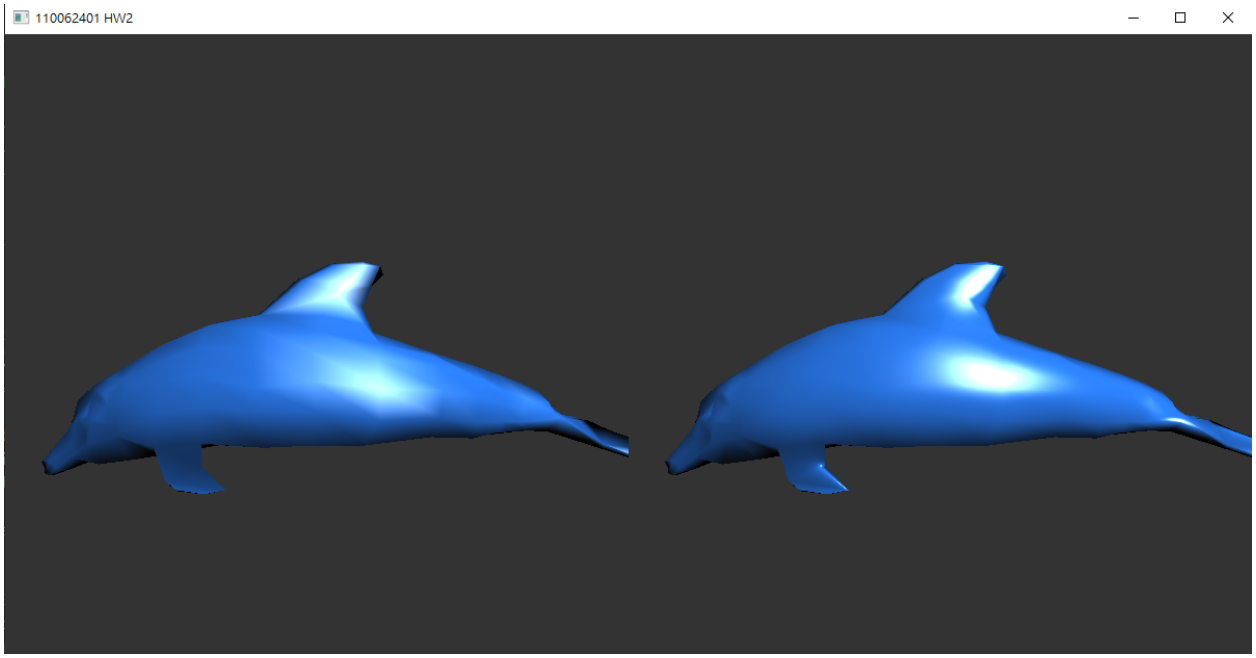
  After switching the light source type, press K for switch into the light editing mode, e.g. move the light source by the mouse left click and drag in vertically or horizontally.





- **J (Switch to shininess editing mode)**

  Press J to change the brightness(shininess) of the light source into extreme light exposure or not that shine. And the shininess is applied to all models.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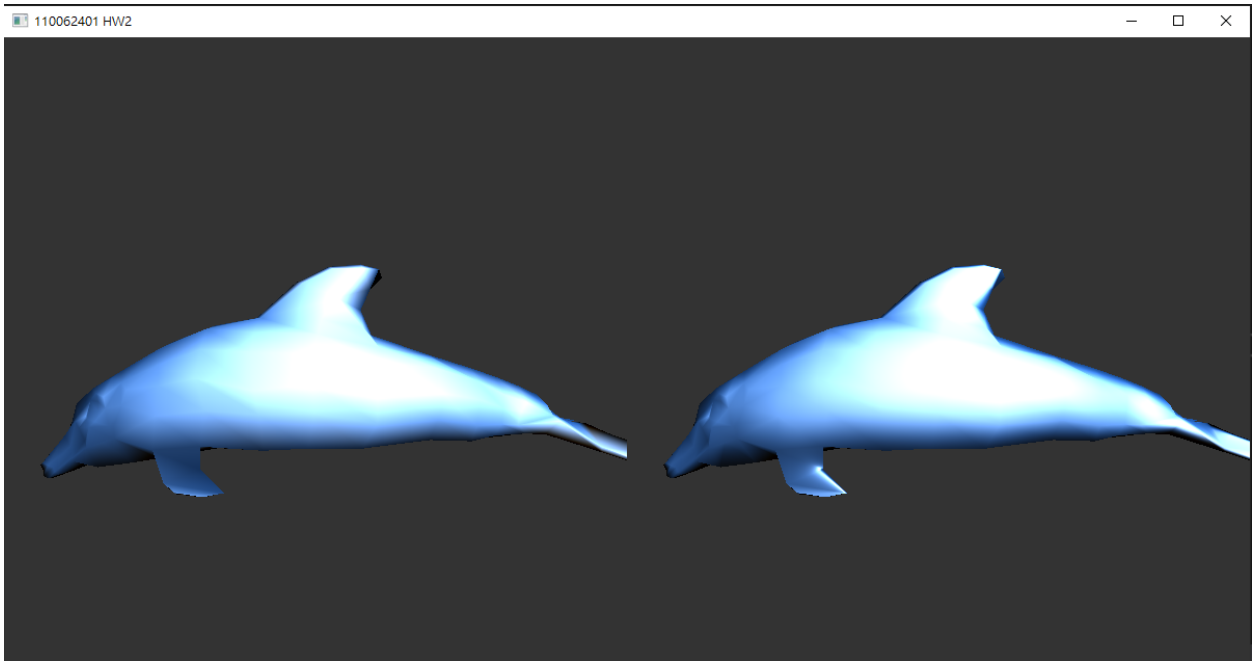
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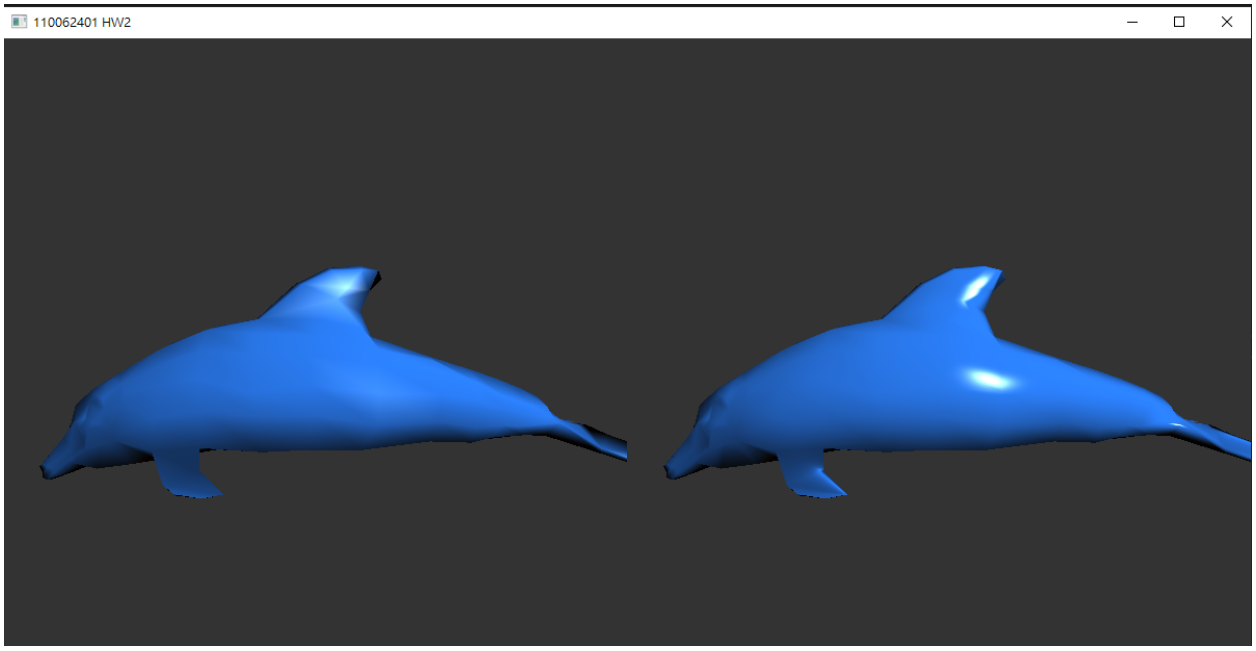
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