

Introduction to Computer Graphics

Assignment 2 - Lighting

1. The Result of the Program



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

- ◆ If you switch mode by T, S, R
- ◆ 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

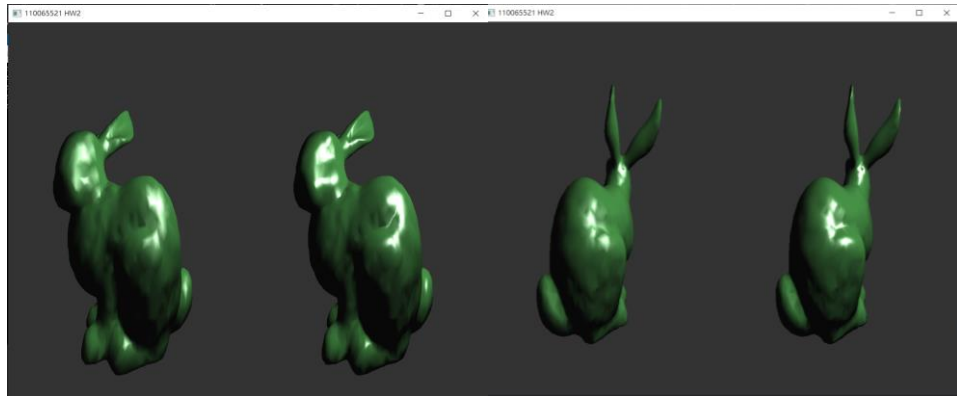
- ◆ If you switch mode by K
- ◆ Apply change on **X** axis of light's position when mouse **drag horizontally**
- ◆ Apply change on **Y** axis of light's position when mouse **drag vertically**
- ◆ Apply change on **diffuse intensity for directional or point light, cutoff angle for spot light** when scroll the wheel

- ◆ If you switch mode by J
- ◆ Apply change on **shininess** when scroll the wheel
- ◆ The **shininess** is applied to all models.

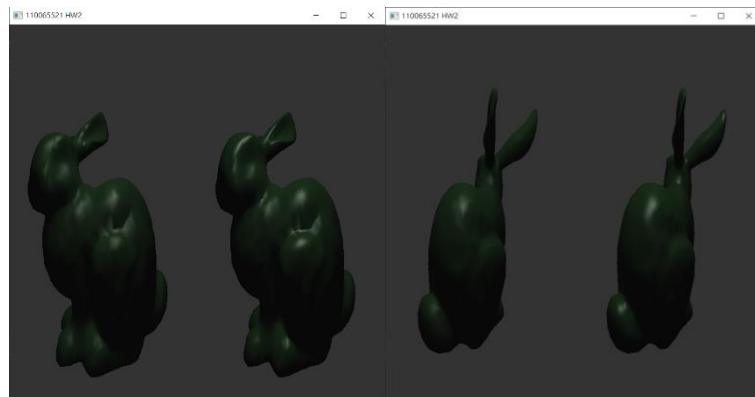
- ◆ Press A, D, F to turn on/off ambient, diffuse, or specular

2. Results

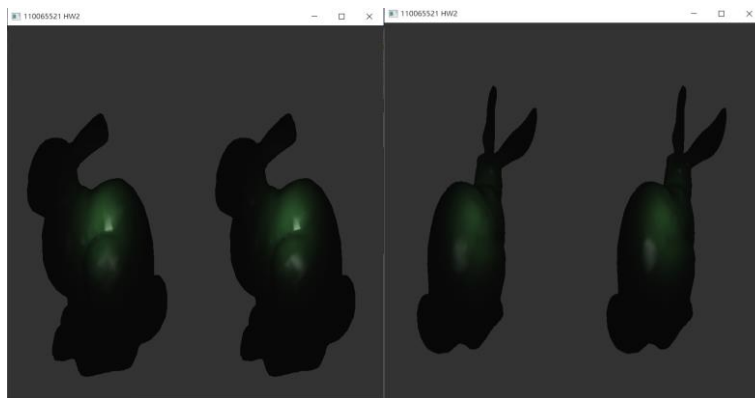
- Directional light (20%)



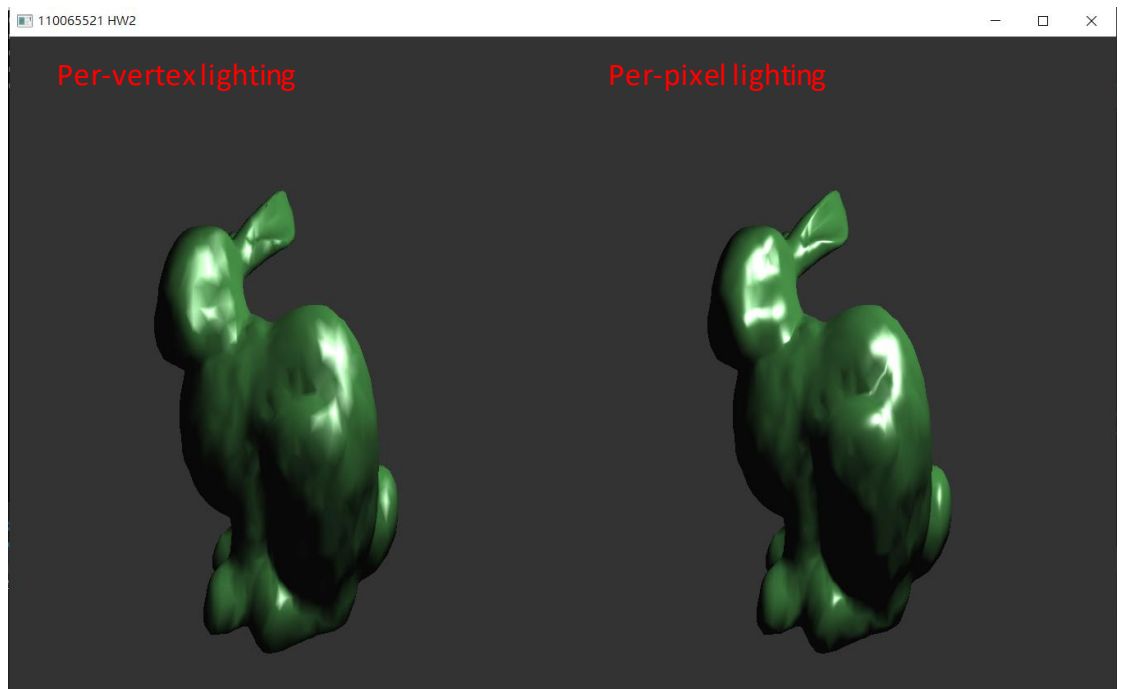
- Point light (20%)



- Spot light (20%)



- Per-pixel lighting / Per-vertex lighting (15%)

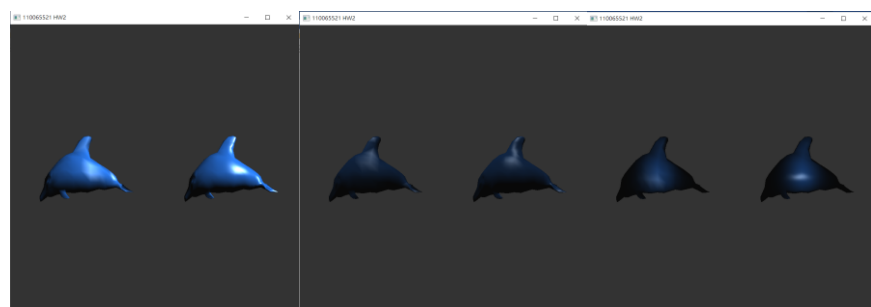
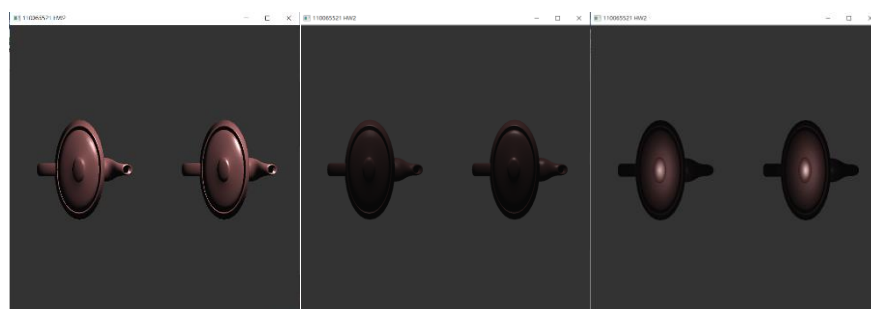
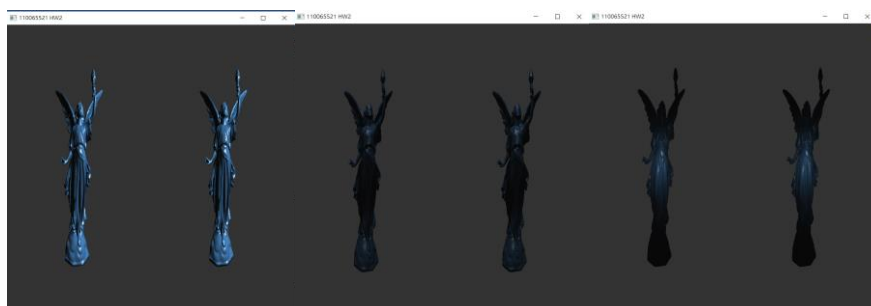
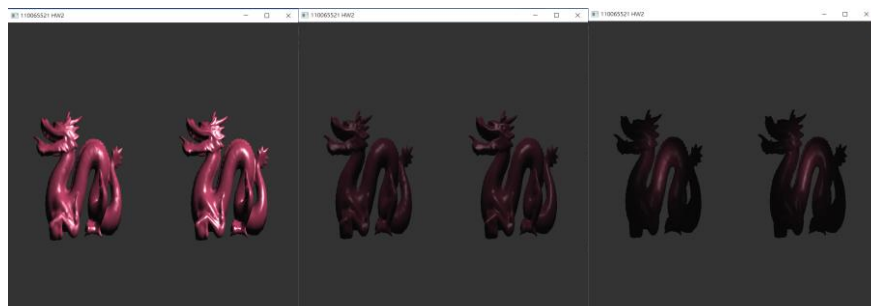
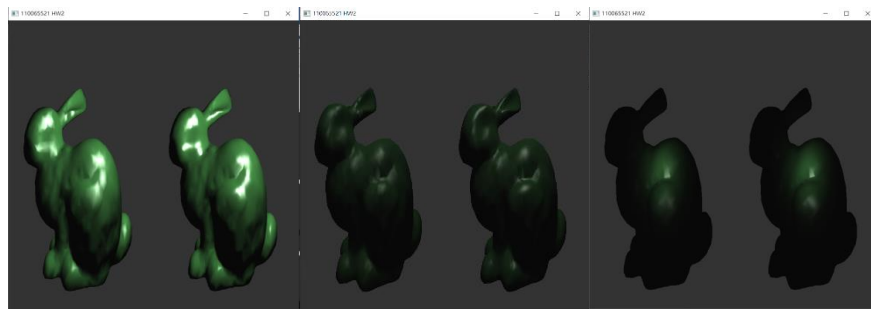


- Side-by-side viewport (5%)

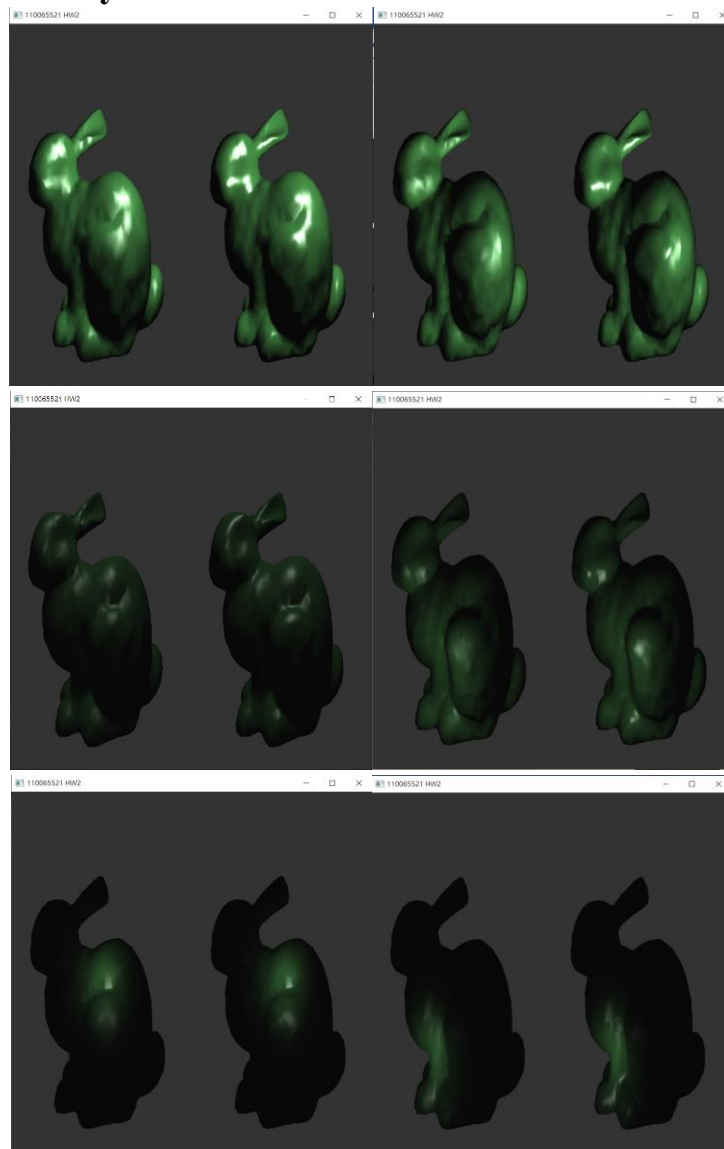


- Switch lights & models (5%)

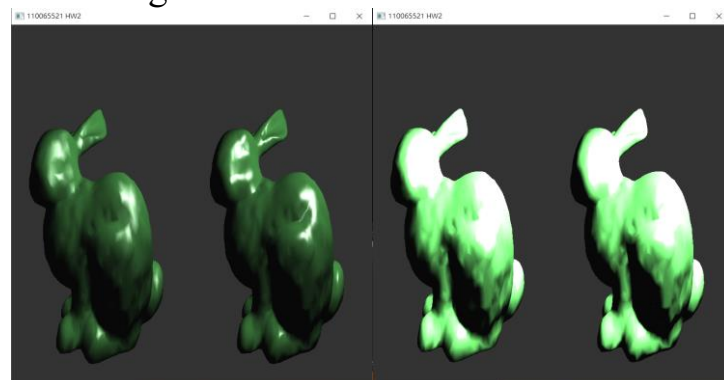
To switch model, we can press Z/X., and to switch light, we can press L.



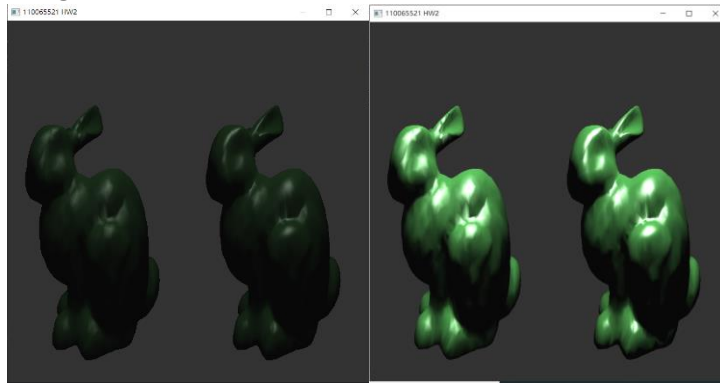
- Dynamic light position, diffuse intensity, cutoff, shininess (10%)
 - **Dynamic Light position**
To dynamic change light position, we can **press K and drag mouse to x/y axis**.



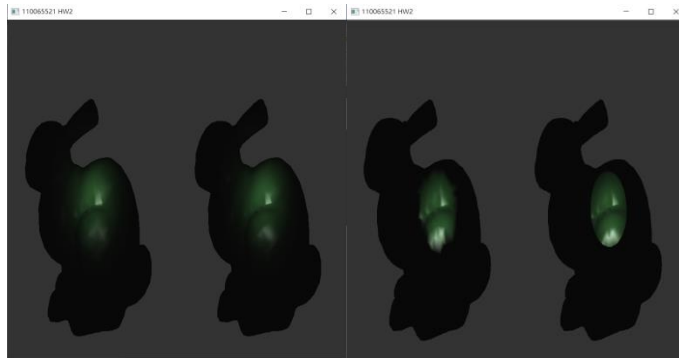
- **Dynamic diffuse intensity of directional light and point light**
 - ◆ **Directional light**



◆ Point light



- Dynamic changing **cutoff angle** of spot light
To dynamic change cutoff, we can **press K and scroll the wheel**.



- Dynamic **shininess**
To achieve dynamic shininess, we can **press J and scroll the wheel**.

