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# Computer Graphics HW1

## 1. Usage:

1.1. Show help menu: press “shift + h” to show the help menu.

1.2. Switch model: press “shift + s” to switch to the next model.

1.3. Switch frame mode: press “shift + c” to switch between wireframe/solid mode.

2. Normalization method: First, I calculate the center of the bounding box of the model by collecting the maximum and minimum values about each axis(i.e. X, Y, Z axis), and then take the average of them respectively. Since I got the center coordinate of the bounding box, I then move the model to be centered at the origin by subtracting the center of the bounding box from each original coordinate. Finally, since I have the model centered at the origin and have the max and min values about each axis, I divide each coordinate by the half of the maximum value among the height, width, and length of the bounding box to make every coordinate between  $[-1, 1]$ .

## 3. Problems I met and efforts I have done:

3.1. Switch between models: I eventually find a way to prevent program from memory leakage(i.e. shutting down) when reloading the model, which is setting a flag to stop drawing when reloading model.

3.2. Switch between wireframe/solid mode: I find the function: `glPolygonMode` to fix this problem.

3.3. I kept forgetting to traverse the OBJ->vertices from index 3.

## 4. Screenshots:



