CS/SE 3GC3 Lab 3 – Graded Exercises

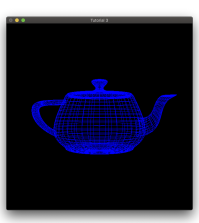
1 Exercises

Please read the following before starting:

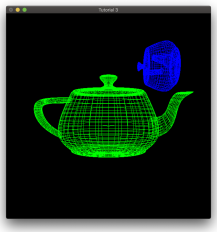
- These exercises are graded.
- You must push your work to your GitLab repo by the end of the tutorial.
- You will **not** have any more time to work on these exercises after the tutorial is over. I.e., we will only mark the contents of your GitLab repo as they are at the end of the tutorial.
- You cannot access the Internet.
- You can reference your exercises from labs.

1. The boilerplate code in `graded.cc` includes a boilerplate `handleKeyboard` function which you should pay special attention to. Pressing 0 resets the look at vectors to the default view. Do not change this.
2. (**6 marks**) There are two teapots rendered in the boilerplate.
   (a) (**3 marks**) Aim the camera directly at the blue teapot when the user presses 1. The result should look like Figure 1a.
   (b) (**3 marks**) Aim the camera directly at the green teapot when the user presses 2. The result should look like Figure 1b.
   (c) You should aim the camera by changing the look at vectors (`eye`, `lookAt`, `up`) in the `handleKeyboard` function. The boilerplate already will re-render and call `gluLookAt` after doing this. It is ultimately the call to `gluLookAt` which "aims" the camera. You should only add/change code below a `Write your code here!` comment.
   (d) Do **not** change the transformations of the teapots. Automatic 0 for doing so.
   (e) In both cases, the camera should be 5 units "in front of" the teapot (so that the teapot appears to be the correct size).

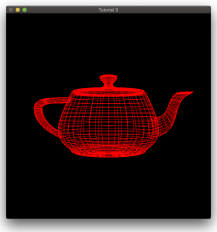
3. (**2 marks**) Pressing 3 changes the look at vectors. You should render a third **red** teapot of size `1.0` in a transformation such that pressing 3 looks at the teapot in the correct orientation. Do not change the look at vectors given in the boilerplate when pressing 3. The result should look like Figure 1c.



(a) After pressing 1



(b) After pressing 2



(c) After pressing 3

4. Make sure you push and commit your changes! Check the GitLab website to ensure you pushed successfully.

5. Please ensure your TA has all copies of test before you leave the lab room.