

# Project 03: Soda Can

## DIRECTIONS

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For this homework assignment you will be making a basic soda can that has labelling of the user's choosing. The soda can should be a cylinder with two truncated cones as the ends so that it looks fairly like a soda can. Don't worry about all the beveling at the ends of the can just use 1 cylinder and 2 truncated cones. You must programmatically create these objects. They must use indexed vertices. The `render` function must do minimal work. Culling must be used.

The can must be highly reflective like a normal aluminum can would be. The scene must have some light source so the specular-ness of the can can be seen. The label you use is applied as a texture on the cylinder and sides of the top truncated cone but is not applied on the very top or bottom of the can or the bottom truncated cone. These parts are simply a solid shiny silver color.

You must provide the option of 3 different can labels to the user via a drop-down menu. The textures for these three labels must all be loaded onto the GPU at the very beginning so that switching is instant. No loading of images occur after `init` is finished.

The files given to you already have the standard movement handlers which you should use and the base lighting. There are several TODO comments in places where you definitely need to add code, however you likely will need to add code outside of these. The provided tools include several additional functions that we have been adding in class such to load textures. Their arguments are slightly different so review them.

## GRADING

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For full credit, be sure to follow the directions above. There are 75 pts and they are broken down as follows:

- 10 pts for code formatting (although really bad code may go negative here)
- 5 pts for providing appropriate lighting
- 15 pts for creating the cylinder programmatically with indexed arrays
- 15 pts for creating the truncated cones programmatically with indexed arrays
- 15 pts for properly applying the labelling to the can
- 15 pts for switching the can label to 3 different choices and pre-loading all of the textures

## GUIDANCE

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Recommended order of working on this project so that you don't get overwhelmed or intimidated:

- Create just a cylinder
- Add in lighting and make sure all of the mouse handlers work
- Add in truncated cones
- Add in a single texture
- Add in the other textures and the drop-down menu
- Check your code and make sure it follows all of the directions