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1. **Project Title**
   Merry Christmas

2. **Project Description**
   There will be a single scene depicting a snow globe with a Christmas tree and presents inside. It is snowing inside the snow globe.

3. **Topics Used**
   3.1 Object and Camera Transformation

   3.2 Complex Drawing
   The scene will require a Christmas tree, snow globe stand, and a snow globe made of glass.

Figure 1: Snow globe with Christmas tree

4. **Interactivity**
   The user can move around the scene to see the snow globe from all angles.

5. **Advanced Features**
   5.1 Snow Simulation
   This project will simulate continuous snowing inside the snow globe.

   5.2 Collision Detection
   This feature will be applied to the snowflakes as it falls to the bottom of the snow globe. The snowflakes should not fall further if it comes into contact with something before the bottom of the globe.

5.3 Glass

This feature will be achieved with a custom GL shader code.

6. Potential Addons

6.1 Reflection and Refraction with Glass

The glass that makes up the snow globe will reflect and refract light sources shining into the globe.

6.2 Shadows

Lights in the scene will cast shadows on the snow globe and the Christmas tree inside the snow globe

6.3 More Interactivity

6.2.1 Christmas Tree

Users can interact with the Christmas tree by clicking on the ornaments.

6.2.2 Presents

Clicking on the presents will open them to reveal something festive.