Exercises of Lab #4

The zip file of `Files4Lab4.zip` contains one video clip `lab4video.mp4` that illustrates the expected result after completing the lab exercises.

1. Within your package `codes**280`, create two new java files `Lab4Shapes**.java` and `Lab4**.java`, where `**` is your initials.

2. Code your `Lab4**.java` file to create two additional components and complete the virtual world, together with the objects of Lab #3, of a simulated wind turbine by modeling the base with a square box and the rotor blades with a sphere and a thin box. The two shapes need to be defined in `Lab4Shapes**.java` as derived classes of the abstract super class, and both of them use the same appearance definition in the Common's file but in different colors. In addition, the `primflags` need to include `Primitive.GENERATE_NORMALS` for lighting and `Primitive.GENERATE_TEXTURE_COORDS` for texture mapping.

   (a) The rotor blades consist of a `Red` sphere in a radius of `0.06` and a `Magenta` box in the dimension of `0.01`×`0.06`×`0.5` in the X-, Y-, and Z-axis directions respectively. As illustrated in the figures below, the centers of the sphere and the box aligns with the nacelle's center (Lab #3). The box-shaped blades touch the sphere-shaped rotor, while the latter has only half visible as the other half is hidden inside the long end of the nacelle.

   (b) The base is in the dimension of `0.05`×`0.04`×`0.05` in the X-, Y-, and Z-axis directions respectively, with its top surface touching the bottom of the cylinder-shaped tower. In addition, the base is half transparent and its surface is wrapped with an image of your choice.

   (c) Identify your work by updating the string label and make your program easy to comprehend by adding adequate amount of comments.

3. Locate the folder that contains all files of your project `Comp2800`; produce a zip file of your project folder; and submit it online before due.