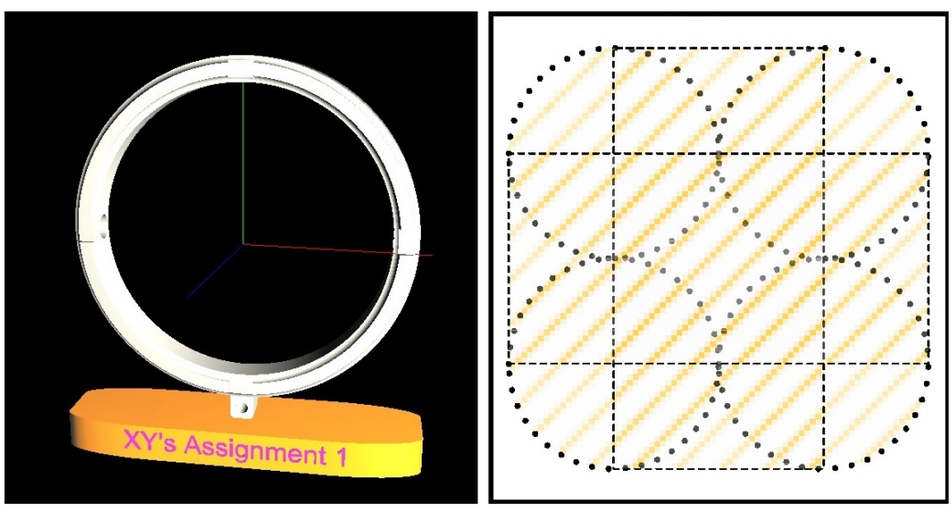
Assignment #1

The zip file of `Files4A1.zip` contains an object file `Ring1.obj`, a scene graph `SceneGraphA1.jpg`, and one video clip `a1video.mp4` that illustrates the expected result of this assignment.

1. Within package `codes**280`, create a file `Assignment1**.java`, where `**` is your initials.
2. Use `SceneGraphA1.jpg` as guidance and code your Java file to create a structure as shown in the left figure below, with the three-axis frame from Lab #1 included for spatial reference.
   (a) Save `Ring1.obj` in a new directory, e.g., `objects` or `images`, in your `codes**280` package and load it as an external object by attaching it to the scene as illustrated by the branch in green color.
   (b) The substructure (in the color of dark and light brown) illustrates how to create the base with primitive objects [1], all of which use the same appearance defined in the common's file (Lab #1) with the primflags set to `Primitive.GENERATE_NORMALS` and color to `Magenta`.
   - Create a cylinder with radius set to `0.5`, height to `0.2`, and resolution in both X and Y dimensions to `30`.
   - Use `ShareGroup` to share the cylinder and place it with four `TransformGroup`s at the locations as illustrated with dotted lines in the right figure below.
   - Fill in the gaps with two boxes, with `Width`×`Length`×`Height` being `1.0`×`2.0`×`0.2` as illustrated with dashed lines in the right figure below.
   - Scale the compound based with a `TransformGroup` to `1/4` in the Z dimension while keep the other two dimensions unchanged.
   - Adjust the base's `TransformGroup` to make the base's top overlapping slightly with the bottom of the ring-shaped object.

   (c) As illustrated in red color, use a `TransformGroup` to add a string label onto the front surface of the base, which is the side in which the surface of the ring is not flat. The string needs to identify your work with your initials and can be in any color of your choice.
   (d) 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.



[1] Students who cannot produce the base in the exact shape may substitute with a single box in the right dimensions, resulting in a loss of 40 out of 50 marks for the compound base object.