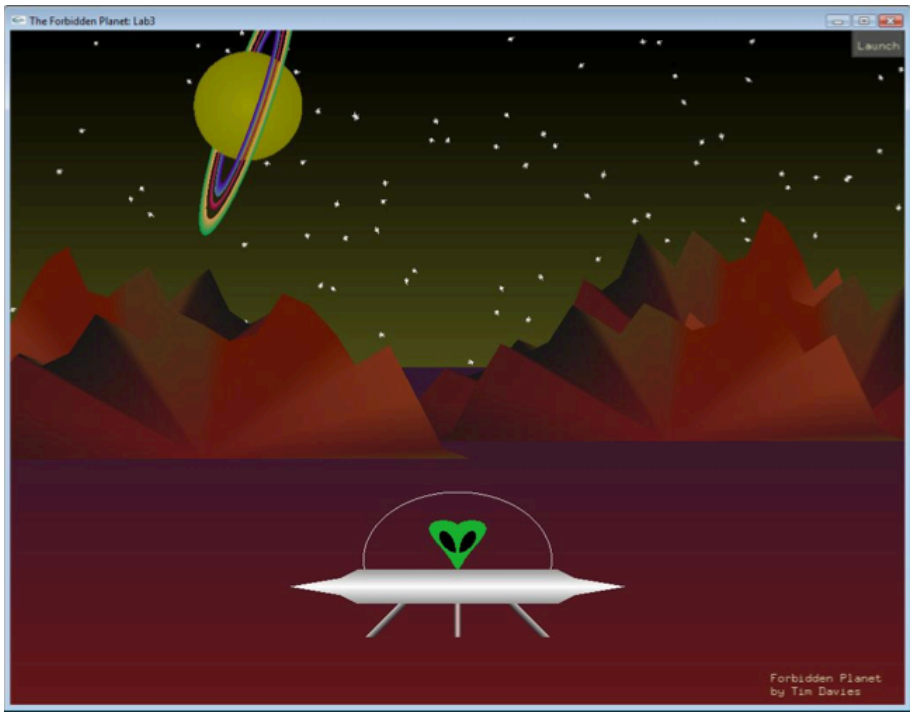
Computer Graphics CSCI 4250/5250
Project 3 (Due: Midnight Sunday, Oct 28th 2012)

Write a program to produce a "Forbidden Planet" (see the picture below for a suggestion for how it might appear). The picture is changed as follows:

- There is a "ground" and "sky". There are stars in the sky.
- There are "objects" on the ground – might be mountains, trees, etc.
- A planet is generated using a basic circle that is placed at the desired location and filled. The rings around the planet are circles (unfilled) that have been rotated (Hint: draw one half of the rings first, then draw the filled planet on top, then draw the rest of the rings).
- Your alien and spaceship is drawn as if it was resting on the ground.
- Text should appear at the bottom identifying you as the programmer and that is a picture of the "Forbidden planet".
- There is a "Launch"/"Reset" button in the upper right corner.
- Display lists should be used for efficiency.



Interactions in the picture include:

- A first click of the "Launch" button should cause the spaceship to "blastoff". The spaceship should lift its landing gear as it moves off the ground. It continues moving straight up, then turns, and "goes off into the planet" until it can no longer be seen. Essentially the "straight up" movement will be achieved by using a translation and redraw. The "turns" movement will be achieved by a rotation. The "goes off into the planet" will be achieved by scales (making the ship smaller) and translates.
- Once the spaceship is launched, the upper right corner button changes to have text "Reset". A click of the "Reset" button should restore the picture to its original shape. The button goes back to "Launch", and another click should cause a blastoff, etc..
- Terminate the program by pressing escape.

The code to draw the alien and the spaceship can be downloaded from the course web site. You will need to design and draw the scene, the planet and make the spaceship "blastoff". Make sure the stars are actually drawn in the form of a star, i.e., not just a point, and then translated and scaled to appear in the sky. You are encouraged to design your own rocks, mountains, and trees using basic OpenGL polygons and smooth shading. Create simpler sections of the objects using display lists, and use transformations to form more complex structures based on the simpler sections.

Name your program spaceship.cpp.

Instruction to turn in the program:

- login to PeerSpace (peerspace.cs.mtsu.edu) using your pipeline username and the class account password;
- click on **Tools|Assignments** to submit your softcopy. Check to make sure the file is submitted by checking the **status** of submission.