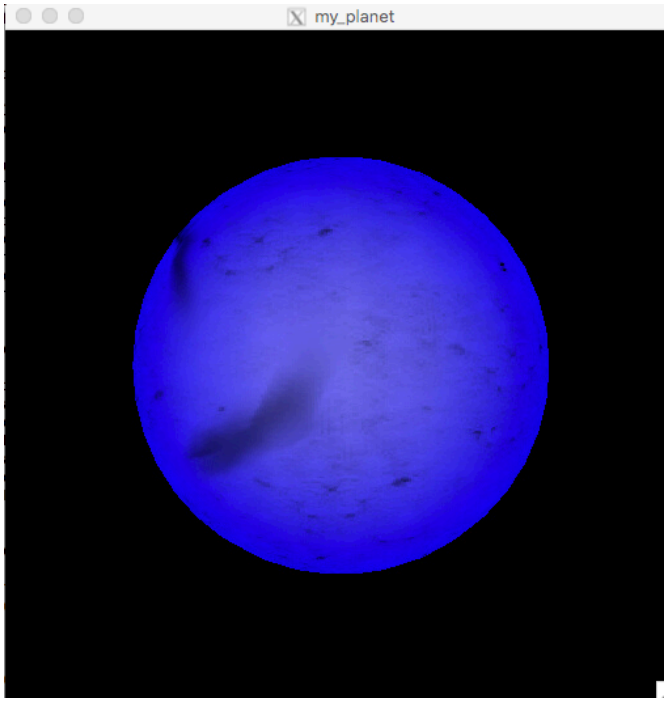
Assignment #4: Rotating Planet

Create a rotating planet as shown below in OpenGL. Implement it with features like transformations, lights, materials, textures, and etc.



Requirements:

1. Draw the planet by creating a quadrics object with gluNewQuadric(), specifying the texturing is desired with gluQuadricTexture(), and drawing a sphere with radius=5, slices=20, and stacks=20, centered around the origin with gluSphere():

   ```
   GLUquadric *quad = gluNewQuadric();
   gluQuadricTexture(quad, 1);
   gluSphere(quad, 5, 20, 20);
   ```

2. Set up the perspective projection, camera, and transform the planet so that it is located at the center of the screen facing to your eyes.
3. Load scuff.ppm as the source of your texture image to texture mapping the planet. (scuff.ppm is available under /scratch1/jin6/cpsc4780/19_OpenGL_Texture)
4. Set the background color to black, and the ambient light to blue to make the planet looks like blue in a black space. Set the specular light to highlight the center area of the surface which is facing you.

5. Rotating the planet by registering the timer callback function "rotate" to be triggered in at least 25 milliseconds in main():
   glutTimerFunc(25, update, 0);

   and the update function is given below:

```
void update(int value)
{
   rotate+=2.0f;
   if(rotate>360.f)
   {
      rotate-=360;
   }
   glutPostRedisplay();
   glutTimerFunc(25,update,0);
}
```

6. No keyboard or mouse interaction is required, but you are welcome to play with it for fun.
7. Feel free to refer to the sample codes in class, such as planet.c, lightedCube_texture.c, and etc. to accomplish your assignment.