Ray Tracer Program

Please Read:

1. Some feature takes a long time to produce (i.e. soft-shadow, anti-alias) even in a low resolution(320x240) due to ray sampling, so we added some flags so that you can turn on/off the features, we strongly recommend NOT turning on more than TWO features at the same time.
2. To run the code after making file, type the command like below in terminal:

./raytracer [width height] [-s -g -e -a -d -t]

   2.1. where **-s** for soft-shadow, **-g** for glossy reflection, **-e** for environment mapping, **-a** for anti-alias, **-d** for depth of field and **-t** for texture mapping.

   2.2. if no resolution specified, image size is set by 320x240 by default.

   2.3. the output images are saved under the folder 'results'.

- the code, and the file structure of the submission:

./raytracer all files contained originally in the starter code

/results

/partA

/soft-shadow

/anti-alias

/Depth-of-Field

/environment-mapping

/glossy

/origin

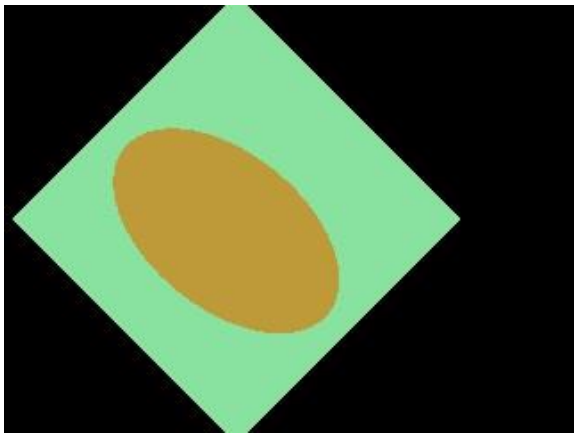
/textures

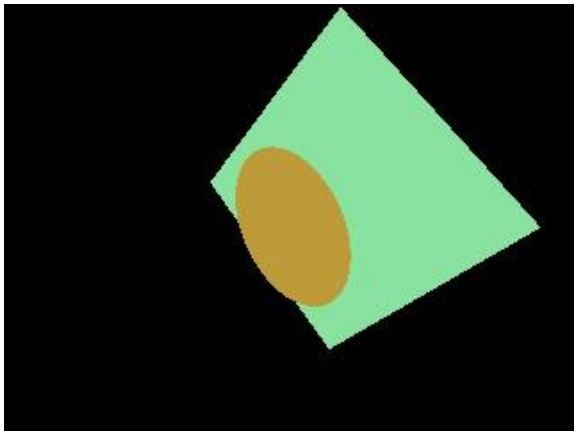
images needed for environment mapping

- features implemented & external resources:

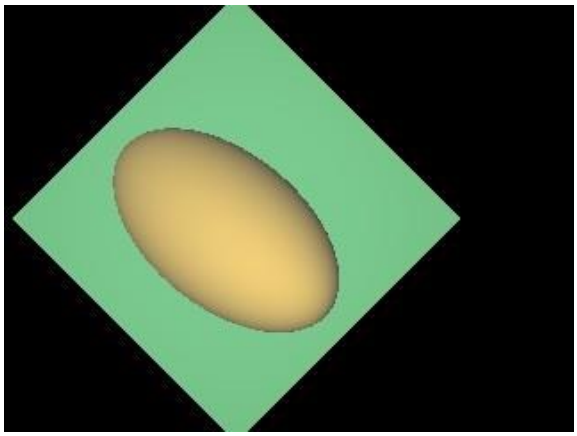
Part A:

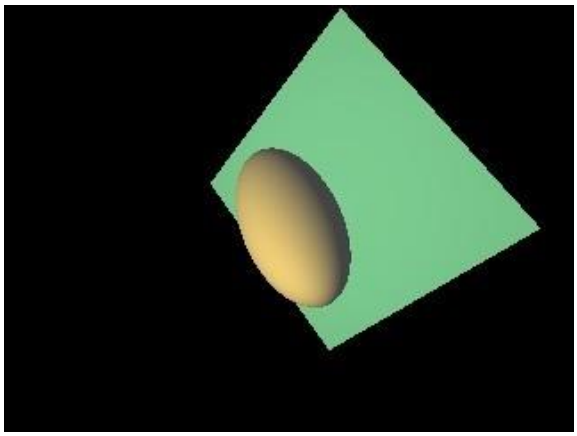
sig1 sig2



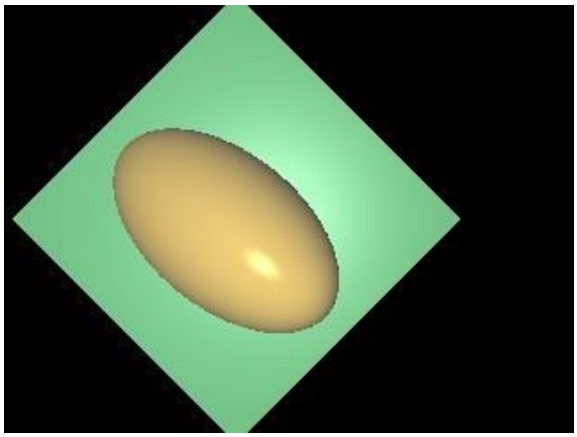


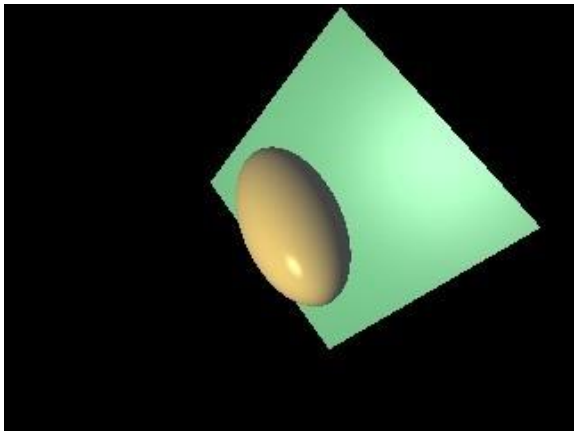
diffuse1 diffuse2





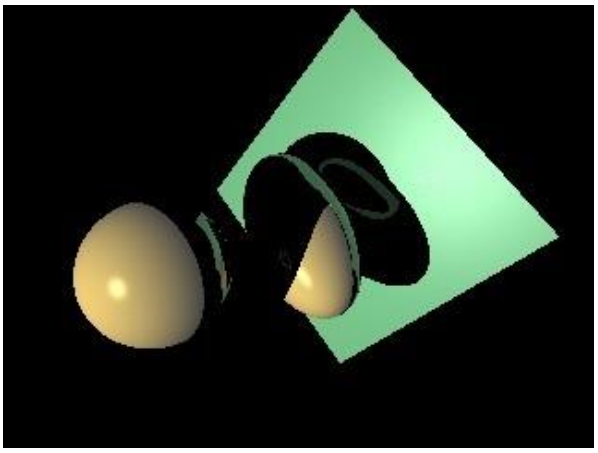
phong1 phong2



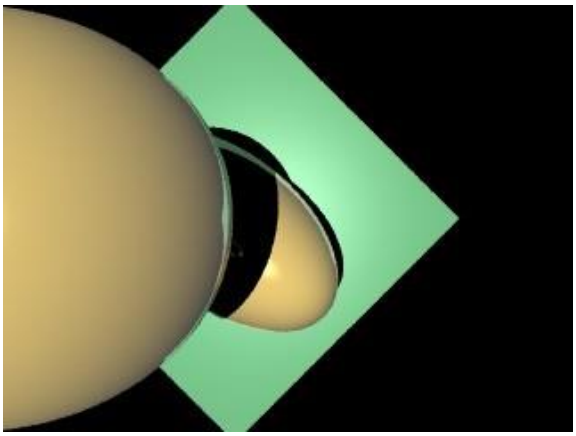


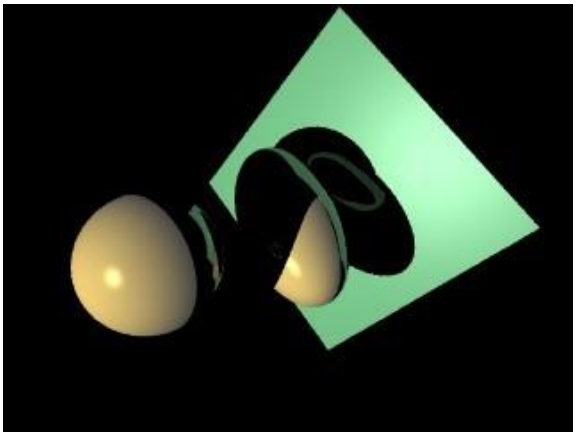
Part B:

0. Advanced ray-tracing: (recursive ray tracing and hard shadows) by typing *./raytracer*

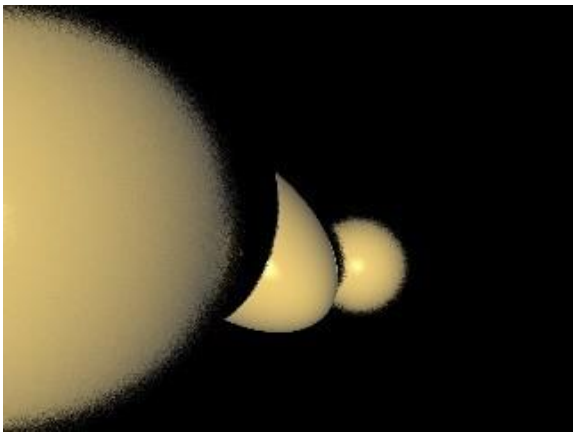


1. Anti-aliasing: *./raytracer -a*

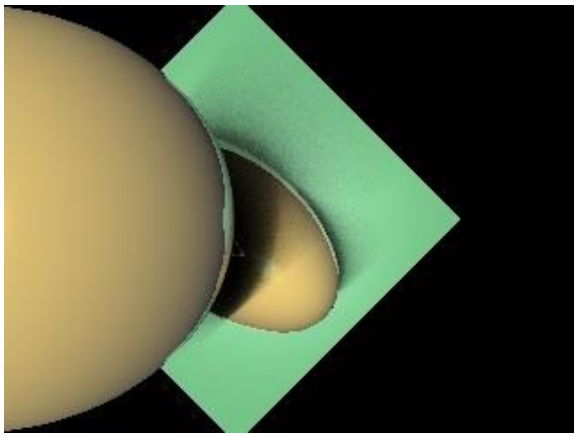


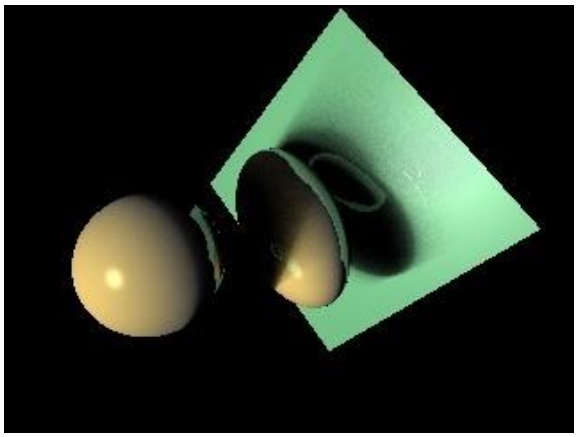


2. Depth of filed: *./raytracer -d*

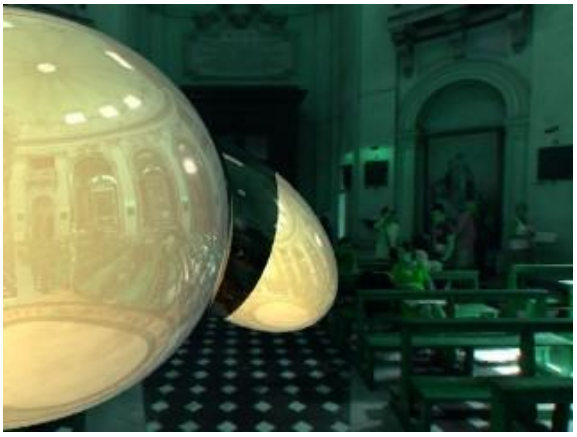


3. soft shadows: *./raytracer -s*





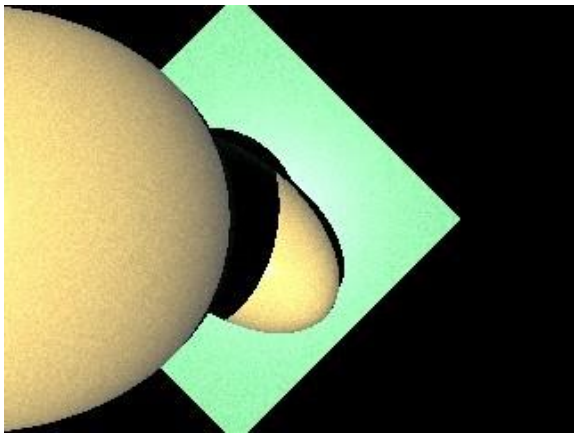
4. Environment mapping: *./raytracer -e*

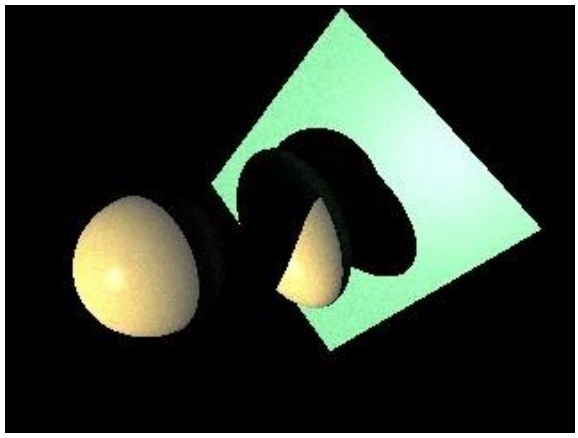
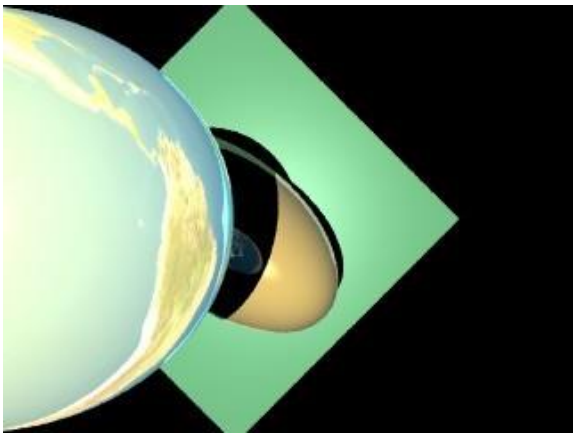
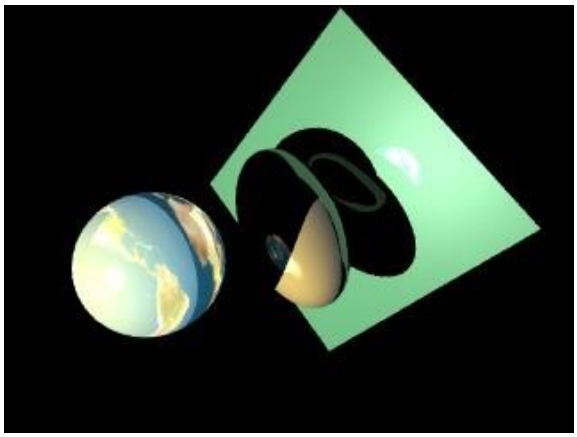


Note: in order to produce environment mapping, we used the environment images from the Internet.

5. Glossy reflection: *./raytracer -g*

(surface the objects becomes rough)





6. Texture mapping: *./raytracer -t*