

## Assignment Description

**Part (a) due: Sun Sep 4, 23:59:59 IST**

You will write a raytracer in this assignment. This is also your proverbial trial by fire, your initiation rights, your first claim as a graphics professional -- raytracers are the bread and butter of high quality rendering. Good luck!

**IMPORTANT:** To complete this project, you need to read the PDF instructions. Without it this assignment will be extremely hard! Please save yourself and us the trouble and read it fully. Also refer to the background reading if necessary.

## Instructions

Find the instructions for this assignment in PDF [here](#).

You need to complete all the functions whose body contains **IMPLEMENT\_ME**. Note that while these functions will trigger errors if you call them without replacing them with your own code, not all of them are called by the default skeleton code. This means you may miss some parts that you have to work on. Hence, please search for all instances of **IMPLEMENT\_ME** and make sure you've addressed each one (except the ones in the Triangle class, those are for 3(b))!

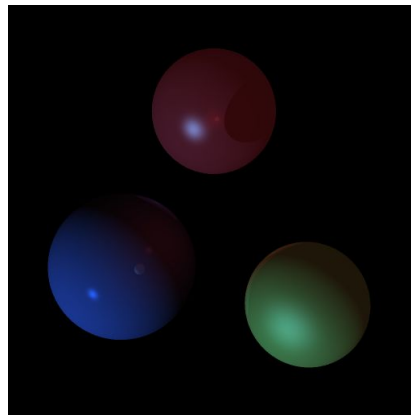
## Skeleton Code

[Download here](#).

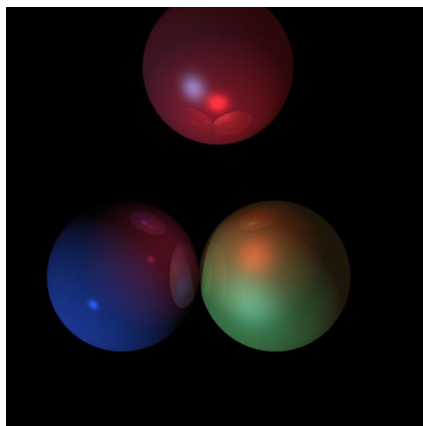
## Results

We require you to correctly render scene{1..5}.scd. Note that there're more .scd files than we require you to render. Those are for A3(b), to be posted later below. Here are the 5 raytraced images you will be generating:

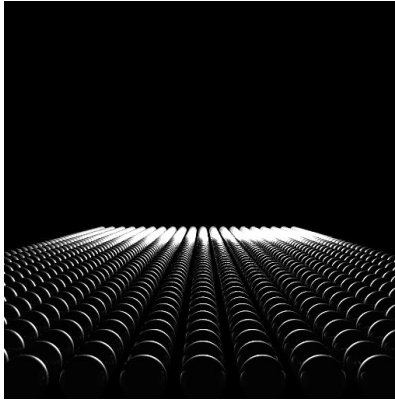
Scene 1: (3 primitives)



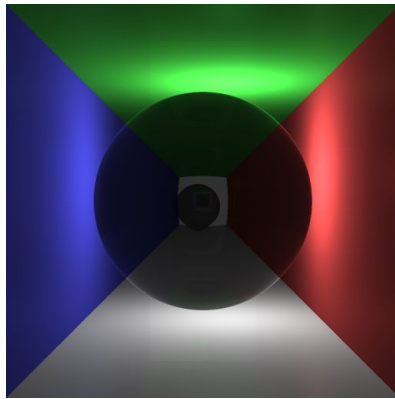
Scene 2: (3 primitives)



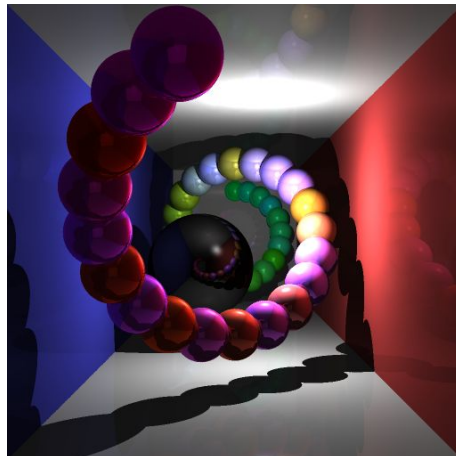
Scene 3: (1000 primitives, takes time to render)



Scene 4: (5 primitives)



Scene 5: (47 primitives)

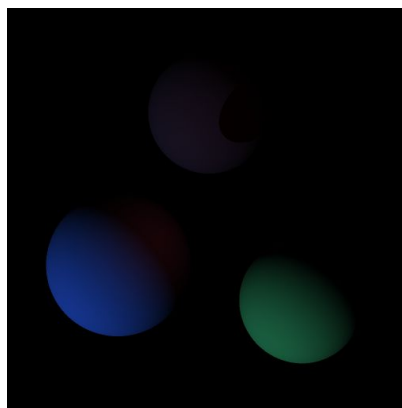


---

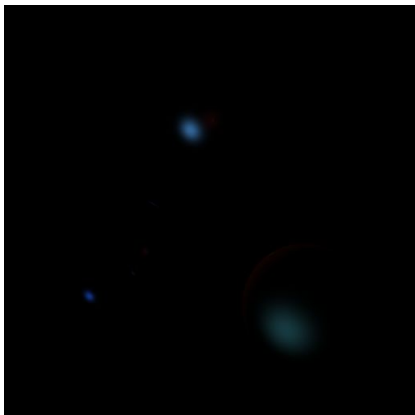
Here is a breakdown of the different lighting effects inside Scene 1:



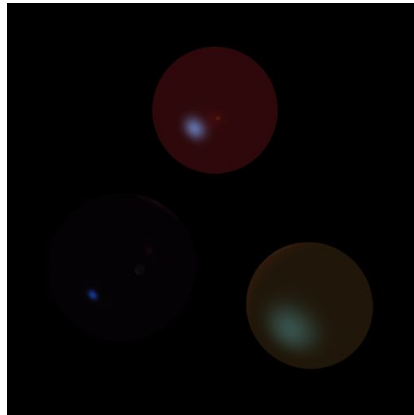
Ambient Component Only



Lambertian Component Only



Specular Component Only



Ambient and Specular

### Submission Instructions

You need to submit just your source code. Do a "make clean", zip your `src` folder, and upload it on [Moodle](#). Do not upload anything else, not even a Readme. Do not change any of the function signatures in the skeleton code (we will test them automatically), though you can add new functions/classes as needed.

### Acknowledgements

The inspiration for the structure of this project, and sections of the source code, came from Niels Joubert and James Andrews' framework for Berkeley's CS184 Intro to Graphics course.