# Overview

The scene rendered by the ray tracer shows a room with a solid red box and 3 spheres. A piece of artwork showing a house on a hill is displayed on the back wall of the room. One of the spheres shows refractivity, another transparency and the last a procedurally generated pattern. The scene is lit by a single spotlight pointing towards the box from above the camera.

# How to run

Extract the contents of the project and open the extracted folder such that the file “run\_csse\_lab” is visible.

**Linux mint (Lab computers)**

Running the bash script “run\_csse\_lab” will build and run the raytracer

**Windows 10**

.sln file?

# Basic Features

**Scene Arrangement.** As mentioned in the overview, the scene contains a number of spheres, planes, and a box (also constructed of planes).

**Transparency** is shown by the right sphere. It is made partially transparent with a green tint. While the sphere is the only transparent object in the scene, any SceneObject can have transparency enabled.

**Shadows** are seen throughout the scene. The intensity of the shadows cast by the sphere are proportional to the transparency coefficient of the sphere. Shadows of transparent objects can compound to create darker shadows. All shadows are limited by a minimum scene brightness.

**Compound Object**. The scene contains a box constructed from 6 planes. The box is constructed such that many unique boxes can be added to the scene.

**Chequered Floor.** The floor plane of the scene shows a chequered yellow and green pattern. Each square section is 5 units deep and wide.