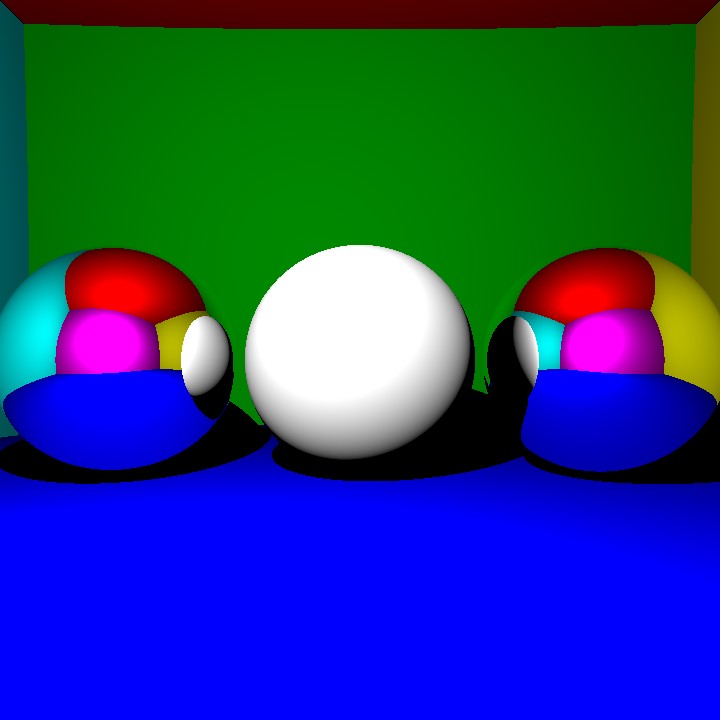
Carolina Lopes | CSE306 | Spring 2020

Ray-tracer

CSE306



*Disclaimer: Basis of code up to and including reflection were copied fully from Guillaume Loranchet. This was in order to aid me since I did not have a strong knowledge of C++ and was struggling to begin. All work from refraction onwards is my own. I have strongly commented the code in order to show my understanding. In addition images below produced by Guillaume Loranchet have a deeper description to show my understanding.*

|  |  |
| --- | --- |
| Mirror – reflection | |
| *A close up of a green field  Description automatically generated* | Image produced by Guillaume LORANCHET |
| *A close up of a ball  Description automatically generated* | Image produced by Guillaume LORANCHET |
| *A close up of a mans face  Description automatically generated* | Image produced by Guillaume LORANCHET |
| *A picture containing purple, sitting, ball, green  Description automatically generated* | Image produced by Guillaume LORANCHET |
| A picture containing sitting, light, ball, drawing  Description automatically generated | Light Intensity 105  Time to render: |
| A picture containing graphics, drawing  Description automatically generated | Light intensity 2.1010 |
| Transparency – refraction | |
| A picture containing light, ball, drawing  Description automatically generated | Transparency without code to impede rays from entering the sphere |
| A picture containing light, drawing  Description automatically generated | Transparency |
| Hollow Spheres | |
|  | add a hollow circle inside, no flip of normal |
|  | Sphere\_right and sphere\_right\_hollow both set to hollow |
| A picture containing drawing  Description automatically generated | max path length 2 |
| A picture containing sunglasses  Description automatically generated | max path length 10 |
| A picture containing sunglasses  Description automatically generated | Hollow sphere (RHS)  ~197 milliseconds |
| Fresnel Law | |
| A picture containing sunglasses  Description automatically generated | 88925 milliseconds |
| Indirect lighting | |