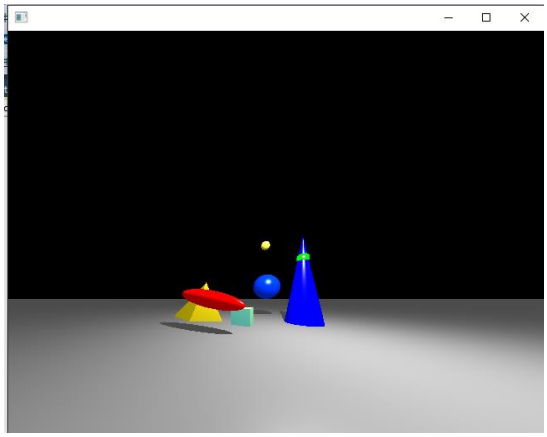
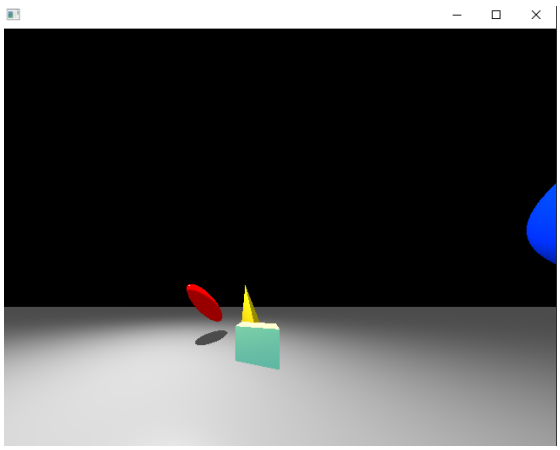
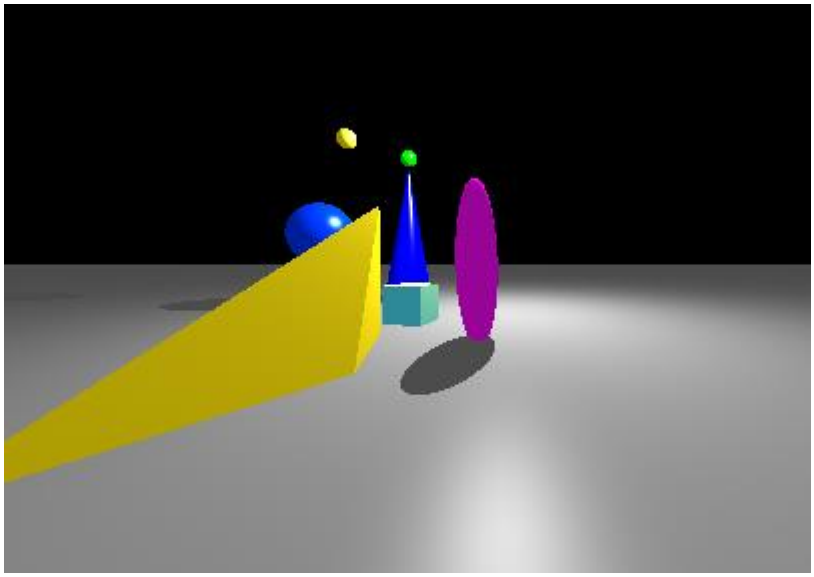
CS248 Fall 2020 Assignment2

NAME: Xingdi Zhang Email:xingdi.zhang@kaust.edu.sa

1. Features I implemented

Objects Motion	I have implement Rotation, Scale, Translate in x, y, z direction; and You can also Reset Object position. **Manual:** First of all you **need click an object on screen**, once this object is selected, it's color turns to purple, and later instruction all apply to this object. ● **Press W, A, S, D and U, J to Translate** in x, y, z direction. ● **Press X, Y, Z to Rotation** in x, y, z direction. ● **Press R to reset its postion.** ● **Press ctrl and into the scale mode, then Press X,Y,Z to Scale** in x, y, z direction.(If you want to rotate object now, you need **press ctrl to switch back to rotation control mode.**)  
Camera motion	I have implement **Rotation in pitch and yaw direction, Motion in x, y, z direction and Zoom in Operation**; and You can also Reset Camera position.

	Manual: ● **Press UP, DOWN, LEFT, RIGHT and PAGE_UP, PAGE_DOWN to Translate** Camera in x, y, z direction. ● **Press F1 and into the Camera rotation mode, then Press W, A, S, D to rotate** in **pitch and yaw direction**.(If you want to control object motion now, you need press F1 to switch back to object motion control mode.) ● **Scroll your mouse to zoom in or out** ● Click right button of mouse to reset(also can stop animation).
Animation	Press v to start Animation or Click right button of mouse to stop animation: ● Light Source in doing circle movement from light to right. ● A green sphere is vibrating in a "cos function" way in z direction. ● Camera is rotate around origin(0,0,0). ● A red ellipsoid at origin(0,0,0) is rotating around z axis. 
Multi-thread Acceleration	With **Multi-thread** provided by C++11,the time spend on rendering will decrease from about **1.9s/frame to about 0.8s/frame**(in debug mode) or from **0.2s/frame** to about **0.05s/frame**(In release and -O2 mode).**(on intel i5-6300HQ 4core-4 thread)**

2. about this zip file

exe folder	Store the compiled exe and DLL files
vs-studio-project folder	Store the vs-studio project
Run_simple_raytracing.exe	**Click to run the compiled program**

3. How to setup the code:

Programming Environment: Windows 10; Visual Studio 2017; OpenFrameworks v0.11.0;

There are two ways to setup the code:

1. You can open the assignment1-simple_raytracing.sln in vs-studio-project folder (If you have openframeworks with visual studio this should work).
2. Or you can create a new openframeworks project in visual studio, and add all the source files into your new project. All the source files are in the **/vs-studio-project/assignment1-simple_raytracing/src** directoty.

Date: 2020.10.11