

CS3241 Computer Graphics

Lab 2: The World is Round!

Introduction

In this assignment, you will continue to do 2D drawing in OpenGL, but with the additional components of animation. You are to create a scene of the solar system as illustrated in a sample.exe. It only serves as an example and you are by no means confined to the example. So use your creativity to create your own universe!

Instructions

For Windows users, launch “Lab2.sln” and for Mac users, launch “lab2.xcodeproj”. You can start drawing by putting your code into the function `display()` in the file `main.cpp`. A planet class has also been provided with attributes for the planet. You may use that to create the planets and moons. To draw the solar system, follow the steps below:

Step 1: Create a function to draw a disk

Step 2: Set up the planets (as many as you want)

Step 3: Set up the moons and any jumping icons that will revolve about the planets

Next, to animate the planets and any animating icons, simply update the properties in the function `idle()`. It is registered by `glutIdleFunc(idle)` in the main program, and it will be executed whenever the program has nothing to do. Therefore, you can use it to update the scene at every frame. Your animation can be pegged to the frame rate or the system time. You can use the C++ time library to obtain time information.

You also need to animate the objects in accordance to keyboard inputs. In sample.exe, press the “T” key on the keyboard to toggle to clock mode. Notice that once “T” is pressed, the planets reflect the current time and tick according to the time.

Suggested Bonus Options

1. Populate the solar system with stars that fade and glow like in sample.exe.
2. Complex orbits, such as elliptical or off-center orbits
3. Any other cool things you can think of!

Submission

1. Write a **readme.txt** file including:
 - Your matric number
 - Primitives and transformations you have used
 - Any other things the TA should know?

What you are drawing
Methods you have modified – only `display()`?
What is the coolest thing(s) in your drawing
2. Zip your **main.cpp** and **readme.txt**, **rename** it to your student number + “.zip” and submit it up to IVLE.

