**MUĞLA SITKI KOÇMAN UNIVERSITY**

**CENG 3547 INTRODUCTION TO COMPUTER GRAPHICS**

**FALL 2020-2021**

**MIDTERM ASSIGNMENT**

***zip your .c file or project and send it via DYS in time!!! If you have problems with the project size, use wetransfer and send it to my email: gizemkayar@mu.edu.tr.***

***NO JOINT WORK IS ALLOWED. LATE SUBMISSIONS ARE NOT ACCEPTED!!***

**HAND OUT: 16/11/2020**

**DUE DATE: 30/11/2020, 23.59**

**30% OF THE OVERALL POINTS OF SEMESTER**

https://www.universetoday.com/72305/order-of-the-planets-from-the-sun/

In this assignment you are expected to write an OpenGL program that will show our solar system with 8 planets orbiting around the sun, and our tiny moon orbiting around our planet. The speed of each planet should be realistic. Here is some real life information for you:

- Mercury is the fastest planet, which speeds around the sun at 47.87 km/s.
- Venus is the second fastest planet with an orbital speed of 35.02 km/s.
- Earth, speeds around the sun at a rate of 29.78 km/s.
- Mars has an orbital speed of 24.077 km/s.

For more, check: from http://planetfacts.org/orbital-speed-of-planets-in-order/

The distance of each planet to Sun should also be realistic. For instance, Mercury's closest distance is 46 milion kms, farthest is 70 million kms and average is 57 million kms. Check it here for more information: https://www.universetoday.com/15462/how-far-are-the-planets-from-the-sun/.

Be careful about the sizes, too: https://www.universetoday.com/36649/planets-in-order-of-size/

Please follow these:

- The Sun, planets and the Moon should be modelled as solid spheres.
- Your program should be interactive (either from keyboard or from Menu buttons).
    - The user should be able to:
        - enable/disable lighting and enable lighting with different colors
        - remove textures from planets or map different textures to planets