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CS 450
Final Project

Solar System

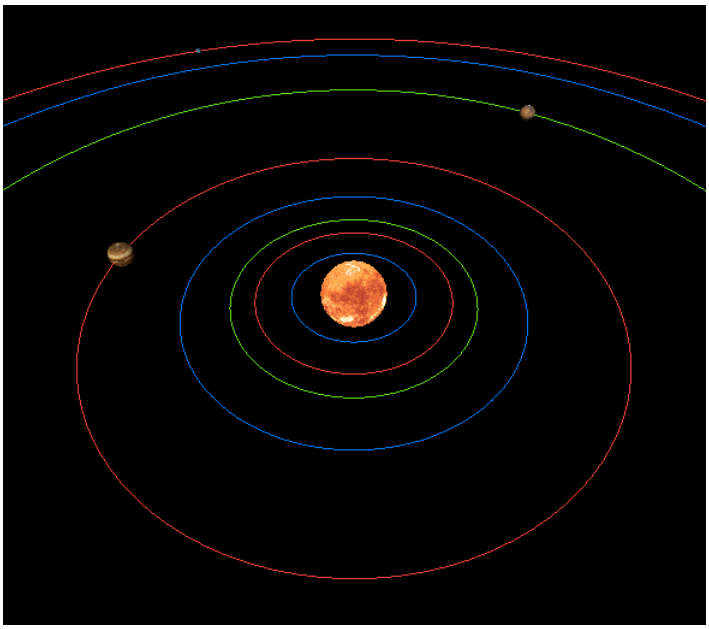
1) Final Project Proposal:

“For my final project, I am very interested in doing a solar system model! I plan on implementing everything you have outlined in the solar system section here: https://web.engr.oregonstate.edu/~mjb/cs550/Projects/fpcomments.html. I will also add at least one moon to every planet—excluding Mercury and Venus as they do not have moons.

Accurate Size Comparison Model

Another project idea I have is to do a size comparison model. The idea is to have a row of objects in order from smallest to largest. The look-at point would start with the smallest object and slowly move down the row (and outward as objects get taller) to view the differences in size to get a better understanding of just how big things are. Objects might include things like: cats/smaller animals, dogs, large animals, architecture (Empire State Building, the Colosseum, the Khalifa building, Statue of Liberty), planets, stars, and possibly black holes. I would like to incorporate as many textures as I can but texture mapping an animal or architecture seems much harder to do than a planet so I’m not sure if it’s feasible to texture map every object. I’m not even sure if this would meet the minimum requirements for the final project. I would incorporate lighting but probably not shaders/shadows.”

2) What I actually ended up doing for my final project was the solar system model!



3) I initially was going to add one moon to every planet but that was much more difficult than I thought it would be, so I ended up discarding that idea and just going with the suggested solar system project as described in the link in #1.

4) I didn’t do anything clever :(

5) I learned a lot about how massive planets are; and how absolutely massive the sun is! And the sun is only considered a MEDIUM sized star!

Link to video: https://media.oregonstate.edu/media/t/1_6txbmqc9

Here are the statistics I used for the planets. I everything is relative to Earth, meaning that for the ‘diameter reduced’ field, if the value is less than 1, it’s smaller than Earth. For ‘orbit speed’ the values smaller than 1 orbit the sun faster than Earth while the values greater than 1 orbit the sun slower than Earth.

Planets	Diameter	Diameter Reduced	Orbital Radius	Radius Reduced	Orbit Speed
Sun	864,423.2m	27.25	N/A	N/A	N/A
Mercury	3,032m	0.39	48.13 M km	24.065 (1/2)	0.24
Venus	7,580m	0.95	106.8 M km	53.4 (1/2)	0.62
Earth	7,883.2	1	146.7 M km	73.35 (1/2)	1
Mars	4,244.8m	0.53	224.5 M km	112.25 (1/2)	1.88
Jupiter	88,837.6m	11.21	745.1 M km	186.275 (1/4)	11.86
Saturn	74,890.4m	9.45	1,460 M km	365 (1/4)	29.42
Uranus	31,836m	4.01	2,940 M km	490 (1/6)	83.75
Neptune	30,926.4m	3.88	4,470 M km	558.75 (1/8)	163.72