Final Simulation Project

# Goals

To use the physics and Glowscript programming we know (plus what you learn during this project) to create a game or demonstration or to conduct a simulation research project.

To explain to me in written form what you did and what you learned from this experience.

# Parts and Criteria

## Glowscript Program (140 pts)

### Physics (100 pts)

Your program should include some of the physics that we have learned, and these must be done correctly. Include at least one of the following: forces that affect motion, torques that affect rotation, collisions that conserve momentum.

### Finesse (30 pts)

This includes everything you do to make it look quality. If it’s a game, it should be somewhat fun and understandable. If it’s a demo, it should look nice, and your setup should clearly demonstrate what it is you implemented. If it’s a research project, your code should be well-documented, so that someone else could use it to reproduce the simulations you performed, or it should have easy-to-use sliders or text boxes to modify parameters.

### New (10 pts)

To implement your program, you will probably need to include some stuff we didn’t discuss in class. This might include new physics, such as extending what we have learned to more complex cases; or it might include new coding features, such as classes, lists, or interactivity with mouse, keyboard, or sliders.

## Presentations (20 pts)

### In class presentation (20 pts)

We will present in class on Tuesday, Dec. 12, in the lab periods. You will present your project to the whole class for a few minutes and then answer questions. Afterward, we’ll have a chance to mingle and more informally share and try each other’s projects.

## Report (40 pts)

Your final report should be at least a page. For full credit, answer the following questions completely.

### What you did (20 pts)

Fully describe what it is that your program does and how you implemented it. This is mostly for me, to help me grade your project and identify what physics you implemented and what is new.

### How to use it (10 pts)

This is a guide for someone not familiar with your project how to use your program.

### What you learned (10 pts)

Reflect on what doing this project taught you. This should be more than a list of new features you learned how to program. Think about how this helped you understand physics better.

/100 Physics

/30 Finesse

/10 New

/20 Presentation

/20 What you did

/10 How to use it

/10 What you learned