EJS Session II

Goals for the session:
1. Look at how EJS automatically creates a web page with your simulation
2. Write an EJS simulation to illustrate one-dimensional accelerated motion
3. Write an EJS simulation to illustrate two-dimensional motion (projectile motion)

1-D accelerated motion (one hour)

You could start by choosing between vertical motion (free fall) or horizontal motion (such as a car accelerating along a road).

Note that you may want to start with the Spring.xml program, rather than starting completely from scratch.

Level 1 goals (everyone should achieve these):

- Define a list of relevant variables
- Put in the relevant equations and/or constraints
- Create a View that shows a movie of an object experiencing the motion
- (add your own)

Level 2 goals (most of you should achieve these):

- Add graphs to show the position, velocity, and acceleration of the object as a function of time
- Add features so that the User can interact with the simulation to change parameters (such as the value of g, or the mass of the object)
- (add your own)

Level 3 goals (probably only a few of you will achieve these tonight)

- Show the corresponding free-body diagram for the object
- Add a background picture to the simulation
- Account for air resistance
- Turn the simulation into an interactive challenge for the User, posing at least one challenge to be achieved by using your simulation
- (add your own)

<u>2-D accelerated motion (projectile motion!) (one hour)</u>

This time you may want to start with your one-dimensional motion program, rather than starting completely from scratch.

Level 1 goals (everyone should achieve these):

- Define a list of relevant variables
- Put in the relevant equations and/or constraints
- Create a View that shows a movie of an object experiencing the motion
- (add your own)

Level 2 goals (most of you should achieve these):

- Add two sets of graphs to show the position, velocity, and acceleration of the object as a function of time in both the x and y directions
- Add features so that the User can interact with the simulation to change parameters (such as the magnitude and direction of the initial velocity)
- (add your own)

Level 3 goals (probably only a few of you will achieve these tonight)

- Show the corresponding free-body diagram for the object
- Add a background picture to the simulation
- Account for air resistance
- Turn the simulation into an interactive challenge for the User, posing at least one challenge to be achieved by using your simulation
- (add your own)