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Name

Recitation Assignment # 4
Oct. 18, 2006

You may complete this in class. However, if you are unable to do so, it is expected that you complete this for recitation next time.

Where a box appears, call over Travis to check over your progress. When the sheet is complete, you will hand it in. Also, you are expected to email your final programs to Travis.

If you have any questions, please ask.

Today: **THE ROBOT!**

On the course website, we've posted a program called `prog4_starter.py`. This is a simple program to "build" a robot with two legs and a torso. Only 1 problem – the robot doesn't do anything. He falls over almost immediately. Very sad.

Note that there is no new physics and no new programming concepts today. Today is your chance to be creative.

1. Download the program from the course website into your "Contemporary" directory.

2. "Copy" the program on the command line using the following:

   ```
   cp prog4_starter.py prog4.py
   ```

   Now you have a backup program. Open up the "prog4.py" in emacs.

3. Run the program, and see what it does. **Before doing anything else, I want you to read through the code, and ask Travis if you don't understand anything.** I've put a bunch of comments in the code to help you out.

4. Now's the part where you experiment. What happens if you change the spring constants in one or more of the struts?

5. Add another part to the robot. For example, a third foot. Make sure you add an additional "strut" (spring) in the process.

6. What happens if you add a "jet"? Note that in all cases, I've set the "jet" equal to zero. Imagine you could set it to whatever vector you like. See what happens?

Now for the real assignment: Make the robot do cool things. Add parts, set the initial conditions, or set the "jets" and make him/her do at least one of the following:

- Roll

- Take at least 1 step.

- Do a trick.

The goal of this assignment is not only to practice your python but to see how creative you can be. Successful completion of the assignment will include a working robot who doesn't simply falls over and has at least 5 parts. The coolest robot in each section (as judged by your peers next week), will get extra credit – and a prize!