Lab Exercise: OS

1. Change the time step values in the *os_input.py* script. The value of Δt, unless set by the **–dt** command-line option, could be chosen as a fraction of *T*, where *T* is the typical period of the oscillations. *T* will be dominated by the period of free variables in the system, $2\pi/\sqrt{c/m}$, or the period of the forcing term, $2\pi/\omega$. Let *T* be the smallest of the two values and set $\Delta t = T/40$ if the user of the script did not apply the **–dt** option.

2. Computer work often involves a lot of temporary files, i.e., files that you need for a while, but that can be cleaned up after some days. If you let the name of all such temporary files contain the stem **tmp**, you can now and then run a clean-up script that removes the files. Write a script that takes the name of a directory tree and then removes all files (in this tree) whose names contain the string **tmp**.

3. Write a script that traverses a directory tree and returns a list contains (a) full names of the files that are larger than 1 Mb and (b) the sizes of those files in Mb unit. (i.e., list = [(1.2, 'lecture1.pdf'), (2.5, 'lecture2.pdf')]).