

# MATH198 Weekly Update

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## Abstract

Work has begun on the double-pendulum simulation, working with new frame and rotation attributes of VPython. A rudimentary method of navigation between different programs has been implemented through console input. New graphics have been implemented for quality of life improvements.

## 1 Code Progress

I began working on writing the code for the double-pendulum (to be later amended to more pendula). I started working with frames, so that the pendula may rotate with the proper dependence, however I have not yet implemented the frames in a working manner. I am currently comparing code to the examples in the repository to see how Bruce Sherwood used frames for his, so that I may better understand their implementation. I also found a simple *object.rotate()* method which will make displaying the pendulum paths much easier. In order to have a simple version of navigating through the programs, I implemented a prompt after the simulation for *kinematics.py* finishes running, asking the user which program they want to run next. Entering “bs.py” opens a new scene, makes the original *kinematics.py* scene invisible, and imports *bs.py* which is automatically loaded into the new scene; the camera is also reset to a fitting view size for *bs.py* (since *kinematics.py* runs on a much larger viewing size). Altogether, it appears as though the window seamlessly loads *bs.py*.

## 2 Plans For Next Week

Continue working on double pendulum to get a working example: study frame examples to implement them correctly and implement the math (through a Lagrangian approach). I also want to work on the bounce in *bs.py* by also looking at Bruce Sherwood’s example to see how to integrate multiple particles without slowing down run time. I also plan on updating my webpage to better reflect my project, as well as being more aesthetically pleasing.