Contents

Version 0.2

Got the dates fixed

Lab 2 Basics

Pinball

In lab 2, your code will simulate a pinball machine. It will load and launch balls one at a time onto the table. The balls will bounce off the walls and eventually gravity will take them off the bottom of the table. There will be text output as well a graphical output. Input will be from a data file and multiple data files will be made available to use.

Dates

Early by Saturday 28-Jan-2023

On time by Monday 30-Jan-2023

Late Cutoff is Tuesday 31-Jan-2023

Documents

This lab is written up as a set of document so that you can have multiple sections open as multiple tabs on your browser.

- Basics – this document
- Physics & Dimensions
- Data
- Input

- Output
- Files

No Global Variables! Code Must Compile!

Global variables is a -10 penalty. Errors or warnings in compilation means no credit for the lab, though you might get 2 points if your prototypes are there and compile cleanly.

Zip files and makefiles

Your makefile rules that build your zip file need to self-test the lab (build the lab) or the lab is **late** regardless of when it was turned in. The same set of rules that build your zip file and self-test the lab must also self-test any prototypes that you want graded. Also be sure to comment the makefile indicating what prototypes are to be graded. If a prototype no longer builds because your code base has evolved, do not self-test those and comment the targets that they are not to be graded.

Consider this fragment of a makefile that should be familiar to you:

```
#self-test what I want graded
make –C install –r lab2
make –C install –r p2
make –C install –r p4
make –C install –r p5
make –C install –r p6
```

The above lines are an example. My prototypes are named p1 to p6 but p1 and p3 no longer build so they are not listed. Since I still have 4 prototypes that build, I'm in good shape.

Submission

Effectively: Same as lab 1. Your zip file needs to contain README_LAB2, **all** the code to be graded, and a makefile sufficient to build all of the targets that are to be graded. **Those targets include lab2** and at least 4 working prototypes. Do not include any .o files or the lab2 executable. Any file you edited by hand (other than test data) probably needs to be included. Aside from header files, files generated by the compiler should not be included.

All files that you edit by hand must have your name in them.

README_LAB2 text:

THIS IS THE README FILE FOR LAB 2.

BY SUBMITTING THIS FILE TO CARMEN, I CERTIFY THAT I HAVE PERFORMED ALL
OF THE WORK TO DETERMINE THE ANSWERS FOUND WITHIN THIS FILE
MYSELF WITH NO ASSISTANCE FROM ANY PERSON OTHER THAN THE
INSTRUCTOR OF THIS COURSE OR ONE OF OUR UNDERGRADUATE GRADERS.

The readme should contain your **name**, the number of **hours** you worked on the lab, and any comments you want to add. Of particular interest are what was hard or easy about the lab or

places where programming reinforced what we went over in class.