CS410 FALL 2019 **DUE**: SEP 20, 2019

LAB ASSIGNMENT 6L

`Submit code:` **6L**

Purpose

The purpose of this assignment is to give you practice with writing while loops

Problem

The coefficient of restitution of a ball, a number between 0 and 1, specifies how much energy is conserved when the ball hits a rigid surface. A coefficient of 0.9 for instance, means a bouncing ball will rise to 90% of its previous height after each bounce.

Write a program to input a coefficient of restitution and an initial height in meters, and report how many times a ball bounces when dropped from its initial height before it rises to a height of less than 10 centimeters. Also report the total distance traveled by the ball before this point. The coefficients of restitution of a tennis ball, basketball, super ball, and softball are 0.7, 0.75, 0.9, and 0.3 respectively.

Inputs

Only one set of inputs are sufficient for program completion, meaning that you do not have to keep looping once a set of *correct* inputs have been processed. Input validation for the coefficient of restitution is needed, anything outside the range of 0 and 1 should be treated as invalid input and the user must be prompted for input again.

Sample Outputs

Shown below a sample output. Sample input & output files are also available on the Public folder.

```
Enter coefficient of restitution: 0.7
Enter initial height in meters: 8
Number of bounces: 13
Meters traveled: 44.97
```

Submission

Submit your program file using code **6L**