

Our program aims to serve as a quick check to some of the most common variables present in the projectile motion equations. The idea is that when a student is learning how to use the kinematic equations, he or she is able to check their work quickly and also be able to generate different scenarios of their own and that way be able to learn the subject more efficiently. The main difference our code has compared to other online projectile motion simulations is that we incorporated a constant force due to wind in the horizontal direction.

The variables we chose to implement are initial velocity, final velocity, initial angle of launch, initial horizontal position, initial vertical position, final vertical position, time, a constant horizontal force due to wind that can be applied either in the positive or negative direction, and mass of the body launched. Our code only works for metric units.

The entire program is composed of four files: calculations, functions, guiWindow, and main. The algorithm is structured in a way that the variation combination calculations for the variables are computed in the calculations file and by importing that calculations file to the functions file along with the guiWindow file, the main program arranges everything through a series of nested loops.