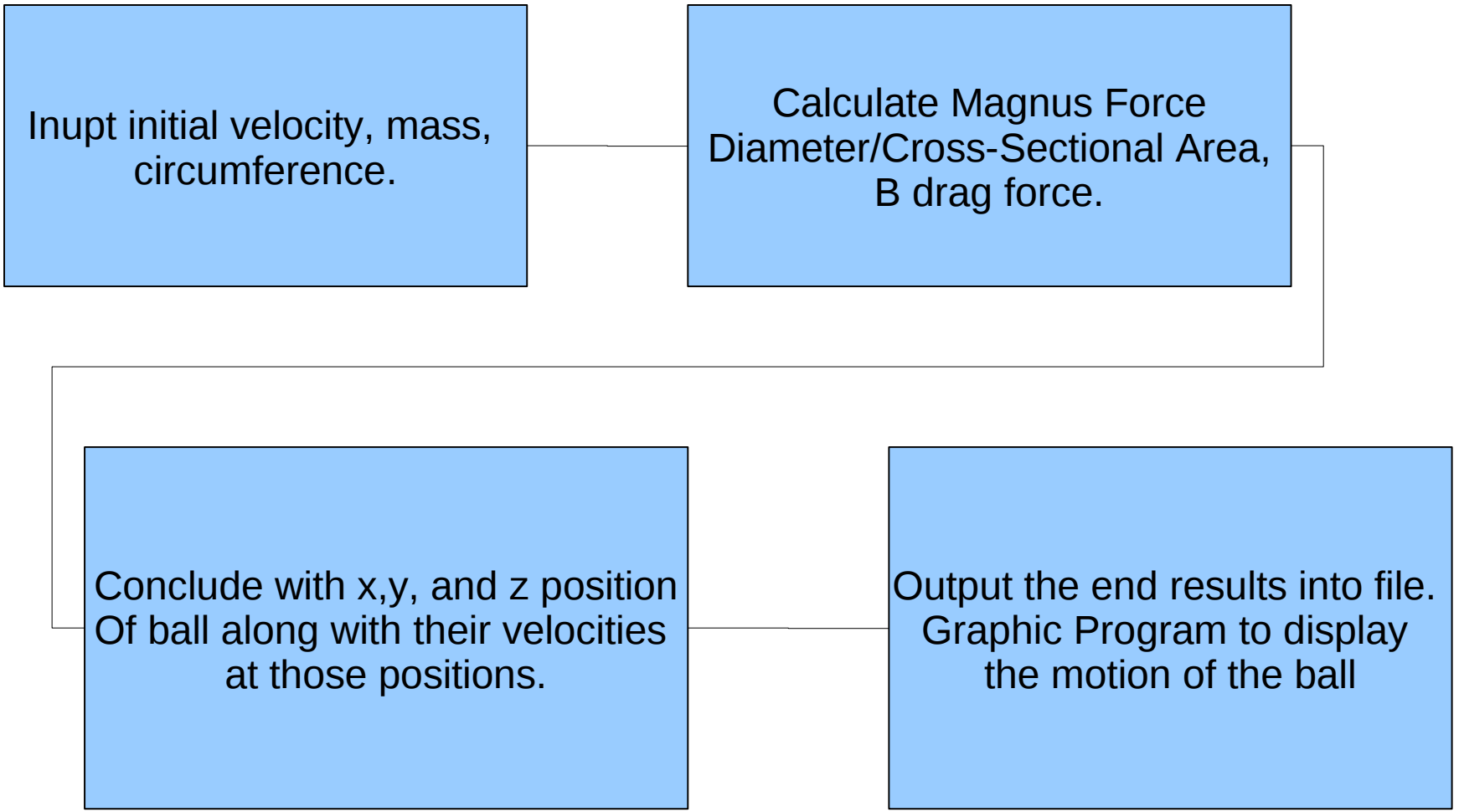
Phys 305 Final Project: Motion of Soccer Ball

Outline/Motivation

Develop a program that will calculate and display as a(n) (animated) graphic of the path of motion of a soccer ball.

Let the user to input and choose certain parameters, such as initial velocity, mass of ball, circumference of ball.

Show how motion is affected by the above parameters and other physical aspects such as drag and spin on the ball.


Inupt initial velocity, mass, circumference.
Calculate Magnus Force Diameter/Cross-Sectional Area, B drag force.
Conclude with x,y, and z position Of ball along with their velocities at those positions.
Output the end results into file. Graphic Program to display the motion of the ball

What is shown? Show the motion of ball under various conditions such as comparing the motion of a ball with drag but not spin, a ball with spin but no drag and a ball with spin and drag. Case where neither is present is similar to the baseball assignment.

Convince working? Most important aspects of project is to implement spin and drag on motion of a ball. So in order to convince the program is working correctly, Set all variables to constants (if angles needed let it be 45) and use drag and spin such that under constant conditions and variable conditions that result is predictable using standard physics.

Estimate accuracy, precision, resources? Resources, the program will be using the RK4 Method therefore resources should not be very high, only a little more than the shorter easier RK2 Method. Accuracy and precision, again using the RK4 Method we should see results similar in accuracy to the baseball assignment. It will depend however on how well the Magnus Effect is implemented.