Asteroid Class:

The Asteroid class controls the variables and member functions related to the individual obstacles falling from the top of the screen at the player. For this class, there are two position parameters, two velocity parameters, a size parameter, a state parameter, and a velocity multiplier that can be changed by the powerup class. The Asteroid class also has the following functions: Move, Draw, CheckHitPlayer, CheckOnScreen, Initialize, and Delete. The Move function alters the asteroids x and y parameters by vx and vy which are dependent on stage number and velocity multiplier. The Draw function will use GL\_POLYGONS to approximate a circle for the asteroid. The Check functions are self-explanatory, as is the delete function. The Initialize function will generate an asteroid of random size and at a random position across the top of the graphics window. The initialized asteroid should be given an initial velocity based on stage number, and the velocity multiplier.

The test code initially draws a blank graphics window. Upon different user inputs, different member functions are called and tested. Initialize is called when the user presses the space bar; this sends an asteroid of random size from a random location at the top of the screen towards the bottom center of the screen where the player would be located. As the target passes through the player, a while loop continuously checks if the asteroid hit the player and prints “hit” to the screen. Because the asteroid is supposed to disappear when going off screen, I hard coded the left arrow key as a way to visually check that the asteroid state becomes 0 when the left arrow is pressed.

Attached as well is the start of a linked list of asteroid objects with parameters and member functions defined. In principle, asteroids will be added to the list through a time based system that increases in difficulty as the stage changes and the member functions will iterate through the list and affect each asteroid. For example, the DeleteAst function iterates through the list and deletes any asteroids with state equal to 0. The test code for this class is in development.