Week 4 Report (7/7/16)

Problems Encountered

My coordinates are still calculated by pixels based on the window rather than over a normalized unit value. This affects the value of the weights (decay and distance) which also distorts the interaction between all the singularities. I will continue to reference off the original code and ask questions along the way to get this done. Hopefully after changing the ranges to unit values, the weights between the singularities and the summation of the vectors will be appropriate. Additional work will also need to be done to account for storing singularity locations and doing sample point calculations. This will be done with debugging and looking through the tool after converting to unit values for the plot points.

Second, center values of singularities are overrun during summation of vector values. This is needed to differentiate exactly where the singularities are and what they are interacting rather than being overridden by another singularity. Currently, this is noticed when more than 2 elements are added onto the vector field and the flow of the singularities overlap. I will need to preserve zero vectors for the centers of singularities. This can be done be performing test cases over singularity locations and creating zero vectors at their center location.

Conclusion/ Goals for Next Week

Singularity center points were corrected. X and Y coordinates were inverted after calculating vector values and so they needed to be switched back.

Functionality will be added with included interface to reset the vector field. This can be done by resetting vector values and releases elements stored.

Gaussian function will be applied to the vector field to smooth out and approximate the vector values between the singularities.

I will be working with Java OpenGL (JOGL) to add image based flow visualization to further represent the vector field. I will reference the example C program from online to base off what to code. Texture based flow will make the vector field more interactive because the vectors will be continuous which better visualizes the interaction between singularities.