CIS 410/510: Project #4
Due Jan 30th, 2020 (which means submitted by 6am on Jan 31st, 2020)
Worth 7% of your grade

Assignment:

1) Download skeleton file proj4.cxx and data file proj4_data.vtk and put them in a new directory.
2) Re-use your CMakeLists.txt from the last project.
3) Compile the program and run the program. It will generate incorrect output.
4) You will need to implement three functions to make it generate the correct output (search for "IMPLEMENT ME")
    a. You should evaluate them in the following order:
        i. EvaluateVectorFieldAtLocation
            1. Note that the first print statements test this routine. (You can be testing this one before proceeding.)
        ii. AdvectWithEulerStep
        iii. CalculateArcLength
            1. Note that the second print statements use this routine. If they match my output, you almost certainly did "AdvectWithEulerStep" correctly.
5) Update your source code and a screenshot of your output to Canvas when it is working. The screenshot should include the text output and visual output. The correct text and visual outputs are provided.
    a. If you are submitting incorrect answers, please reference this in your submission.
    b. Please keep in mind that incorrect answers are likely to receive <50%. I would rather have a correct answer late than an incorrect answer on time.

Note: we have discussed vector fields that change over time. This is called "unsteady state" flow and is what occurs in the real world. We also discussed the notion of "steady state" flow … vector fields that don't change over time. For this assignment, we will use steady state flow. From the implementation perspective, it means you can drop the time component when doing velocity interpolation.