

CIS 410/510: Project #2

Due January 18th, 2022

(which means submitted by 6am on January 19th, 2022)

Worth 5% of your grade

Assignment:

- 1) Download skeleton file proj2.cxx and file data_proj2.vtk and put them in a new directory.
- 2) Re-use your from CMakeLists.txt ... copy it to a new directory and rename "proj1" to be "proj2".
- 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. I would recommend you implement them in the following order:
 - i. AreaForCell
 - ii. CountNumberOfCellsWithinThreshold
 - iii. EvaluateFieldAtLocation
- 5) Compare the output with the output I posted. Keep in mind that not all function invocations have valid arguments. GetArea returns 0 for invalid cell indices and EvaluateFieldAtLocation returns 0 for invalid locations.
- 6) The number of operations for EvaluateFieldAtLocation should be $O(N^{0.5})$. Note that if 2D mesh is 101x101, then it has 100*100 or 10000 cells. So, for $N=10000$, $O(N^{0.5})$ would mean doing $100 * C$ operations for some constant C .
- 7) Upload your source code when it is working.

If it does not produce the correct answer, then you should expect to get less than half credit. I would prefer to get working code late than non-working code on time.