Cs 478 Project Proposal

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**Topic:** Implementation of the Linear Time Algorithm for Finding the Kernel of a Star-Shaped Polygon

**Specification:** I will try to implement a program which will simulate 2-d cartesian plane and letting the user of the program determining the points the star shaped polygon will be produced as a result. Then, with the specific algorithms I will use which will be \( O(n \log n) \) time complexity, first I will construct a polygon, then, I will find the kernel area of the star-shaped polygon in \( O(n) \) time where \( n \) is the number of edges of the polygon I constructed.

I will use Java while implementation, and most-probably I will use Java-Fx to simulate the project. But in the long run I could try to implement the same project on C++ with the GLFW. And I will test the results of the algorithm (runtime) at the end of the tests, and make a graph out of it in matlab to prove the algorithmic runtime is \( O(n) \).