CS F364
Design and Analysis of Algorithms
BITS Pilani, Hyderabad Campus
Assignment -2
Due Date : 8th April 2021 (by Midnight)
Total Marks: 45 (weightage : 15%)

Objective: In this assignment, you have to implement the line fitting dynamic programming algorithm (segmented least squares algorithm) done in class.

Task 1: Implement the Segmented Least Squares Algorithm. [15]
Task 2: Implement a visualizer to show the input points and the fitted lines. [15]

For Task 1 you have to write the code in C++. For Task -2 you can choose any other language such as Python or Java Awt. Both the codes should be well documented, commented, and indented.

As part of the Documentation you will:

1. Use software called Doxygen to document your API. [3]
2. Produce HTML pages to document the test results of your implementation of the algorithm along with visualization results. Write scripts to generate your own inputs of various sizes and recording the results. Show the actual running time and memory usage of the Segmented Least Squares Algorithm for different data sets. Experiment with different penalty values and do an analysis based on penalty value. [12]

General Instructions:

1. This assignment will be done with the same group as in Assignment-1.
2. Zip your file to be submitted to **id1_csf364_a2.gz** . Only thing to be submitted is the code and relevant documentation. No need to include test cases.
3. **You can discuss with your friends but refrain from copying the code and submitting. Also please do not use code downloaded/referred directly from internet.**
4. You have to demo the code to the instructor on a scheduled date and timing after submission. **It is important to attend the demo, as absence from demo will amount to no credit for the assignment.**
5. **Your code may be run through a plagiarism tool and if significant amount of overlap occurs then all the similar codes will get zero credit.**
6. **Any kind of copied codes will receive zero credit.**