CS F402
Computational Geometry
BITS Pilani, Hyderabad Campus
Assignment -2
Due Date : 22nd March 2018 (by Midnight)
Total Marks: 24 (weightage : 12%)

Objective: In this assignment, you have to implement all the components required to triangulate a simple polygon as discussed in class. **The code should be written such that it provides an API for others to interact with your code.** Design your code properly and add it to the convex hull algorithm code. It will be good if you write your code in C++. If you want to use any other programming language then discuss with I/C. The code should be well documented, commented, and indented.

The three algorithms you have to implement for triangulation of a simple polygon are:

1> DCEL data structure to store polygon partitioning. [6]
2> Partitioning a polygon into y-monotone polygons. [6]
3> Triangulate each y-monotone polygon. [6]

As part of the Documentation you will : [2+4]

1. Use software called Doxygen to document your API.
2. HTML pages to document the test results of your implementation of each algorithm. Make sure that you have used many data sets and data sets with large/ complicated looking simple polygons. Comment on degeneracy and robustness issues you might encounter.

General Instructions:

1. This assignment will be done in groups of max three students.
2. You need to submit your working code and HTML pages in zip file by the deadline.
3. The name of the file should be **id1_CGeom_A2.zip**.
4. The zip file should be mailed to the TA and CC it to IC rayt@hyderabad.bits-pilani.ac.in by deadline.
5. **You can discuss with your friends but refrain from copying the code and submitting. Also please do not use code downloaded from internet.**
6. 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.**
7. **Your code will be run through a plagiarism tool and if significant amount of overlap occurs then all the similar codes will get zero credit.**