CS F364
Design and Analysis of Algorithms
BITS Pilani, Hyderabad Campus
Assignment -1
Due Date : 4th March 2019 (by Midnight)
Total Marks: 42 (weightage : 14%)

Objective: In this assignment, you have to implement three convex hull algorithms. **The code should be written such that it provides an API for others to interact with your code.** Design your code properly. 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 are for finding the convex hull in two dimensions only. They are

1>	Implementing the Graham's Scan Algorithm	[6]
2>	Implementing the Jarvis March Algorithm	[6]
3>	Implementing the Kirk Patrick Seidel Algorithm	[12]
4>	Using Python/Java Awt for visualization	[6]

As part of the Documentation you will: [2 + 6]

1. Use software called Doxygen to document your API.
2. HTML pages to document the test results of your implementation of each algorithm. Try to compare the running time of three algorithms and show the advantage of one over other.

Monolithic code for the three algorithms is to be avoided and full marks will be awarded only if your code design is truly object oriented. Code Design will have 4 credit.

General Instructions:

1. This assignment will be done in groups of max three students.
2. How to submit the file will be informed later.
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.**