Assignment-2 of Algorithm Lab
4th Semester CST Dept

1. Develop a program to count all possible parenthesizations and relate it with Catalan number.

2. Formulate the polygon triangulation problem.

a) Coordinates of polygon vertices to be taken as input.
b) Euclidean distances are to be computed between vertices to obtain the side lengths.
c) Detect the diagonals and obtain the diagonal lengths.
d) Define the cost of triangulation as the perimeter of the constituent triangles.

3. Apply dynamic programming to minimize the cost of triangulation.

4. Check if greedy strategy can be applicable to the above minimization problem.

5. Formulate the minimum spanning tree problem for a complete graph.

6. Design algorithms for obtaining the minimum spanning tree:

a) by using greedy strategy on disjoint sets (Kruskal)
b) by keeping one connected component (Prim)
c) check that both return same MST for complete graph

7. Apply the algorithms on large datasets and comment on data structures.