

Data Structures:

1. Implementation of multi-dimensional structures such as matrices, triangular matrices, diagonal matrices, etc into a one dimensional array (atleast any two)
2. Min/Max Heaps (Insertion, Deletemin/Delete Max)
3. Leftist Heap (All Meldable Priority Queue operations)
4. AVL Trees (Insertion, Deletion and Search)
5. Tries for any specified alphabet (Insertion, Deletion and Search)

Application of Data Structures:

1. Finding Convex-hull using divide & conquer strategy
2. Selection of k-th smallest element using divide and conquer strategy
3. Finding connected components of a graph
4. Finding bi-connected components of a graph
5. Graph coloring using backtracking technique