AlgoLab 5

1. You have to implement max priority data structure. Compare it with array data strucure for following algorithms.

   - Write a C or a C++ program to implement Build Max Heap, Heap Maximum, Heap-Extract-Max, Heap-Increase Key and Max-Heap-Insert, Heap delete(A,i). (CLRS 138)

2. Write a C or a C++ program to implement Heap Sort.

3. An $m \times n$ Young tableau is an $m \times n$ matrix such that the entries of each row are in sorted order from left to right and entries of each column are in sorted order from top to bottom. Some of the entries of a young tableau may be infinite, which we treat as nonexistent elements. Thus, Young tableau can be used to hold $r \leq mn$ finite numbers. Write a C or a C++ program to implement Extract-Min on a nonempty m x n Young tableau that runs in $O(m + n)$ time.

   Note: Priority queue programs will be used in Huffman coding and Prims algorithm. SAVE it.