1. Write a procedure for Heap-Sort

2. Write the upward and downward build-heap algorithms for an arbitrary array of integers.

3. Write code for heapify, which assumes that the two subtrees rooted at the children of a node are heaps, and extends the heap property to include the node of reference.

4. Write a procedure to extract the minimum element from a min heap and restore the heap property among the remaining elements.

5. Write a routine to add an extra element into an existing heap. This should increase the heapsize by 1 and then incorporate the new element.

6. Write a routine for restoring the heap property when the key value at a node is altered.

7. Write code for finding the parent and child indices for a k-ary heap.

8. Write a program to build a treap from a given set of ordered pair values.

9. Write a program to build an alternating heap of n elements.