

Data Structures (IT205)
(July-November, 2012):
Assignment 3
Due: 21st September, 2012

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.