WIA2005 Algorithm Design & Analysis
Semester 2, 2016/17
Tutorial 6

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1. What are the minimum and maximum numbers of elements in a heap of height h?

2. Is the array with values [23, 17, 14, 6, 13, 10, 1, 5, 7, 12] a max-heap? What is the *A.length* and *A.heap-size* for this array?

3. Illustrate the operation of MAX-HEAPIFY on the array A = [27,17, 3, 16, 13, 10, 1, 5, 7, 12, 4, 8, 9, 0].

4. Write pseudocode for the procedure MIN-HEAPIFY(A,i), which performs the corresponding manipulation on a min- heap.

5. Write an efficient MAX-HEAPIFY that uses an iterative control construct (a loop) instead of recursion.

6. Illustrate the operation of BUILD-MAX-HEAP on the array A = [5, 3, 17, 10, 84, 19, 6, 22, 9].

7. Illustrate the operation of HEAPSORT on the array A = [5, 13, 2, 25, 7, 17, 20, 8, 4] .

8. Illustrate the operation of MAX-HEAP-INSERT(A,10) on the heap A = [15, 13, 9, 5, 12, 8, 7, 4, 0, 6, 2, 1].