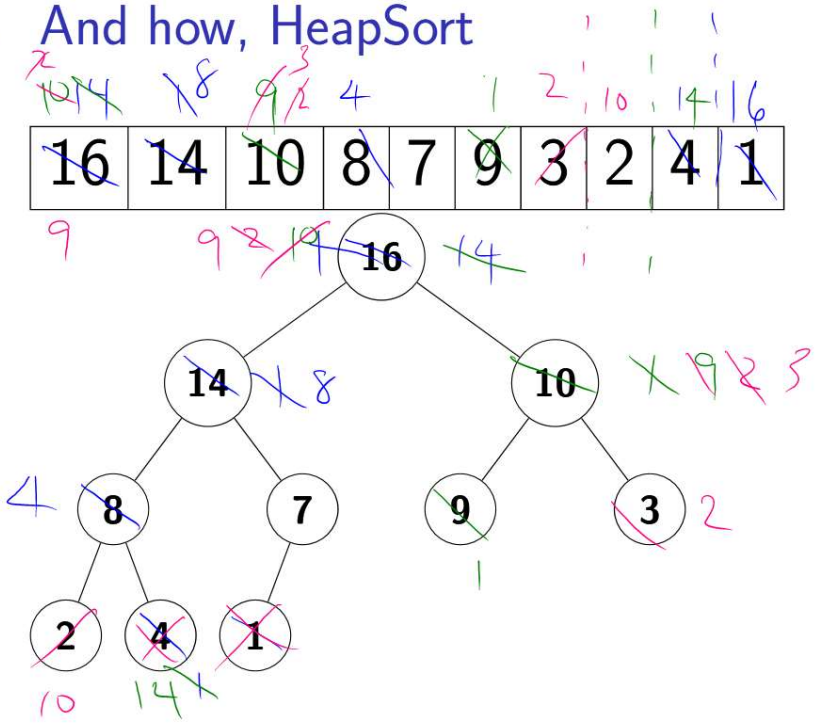
I & C SCI 46 Spring 2022
Lecture 24: Fundamentals of Sorting (continued)

2 And how, HeapSort



3 MergeSort : the Merge Step

A

List 1:

24	45	63	85

List 2:

17	31	50	96

i, j

Temp, k

17	24						

// i : start of 1st list , j : start of 2nd list

i ← 1 , j ← (n/2) + 1, K ← 1

while i ≤ n/2 and j ≤ n

if (A[i] < A[j]) { T[k] = A[i]; i++; k++; }

else { T[k] = A[j]; j++; k++; }

4 MergeSort

85	24	63	45	17	31	96	50

if n small

Insertion Sort (A[1..n])

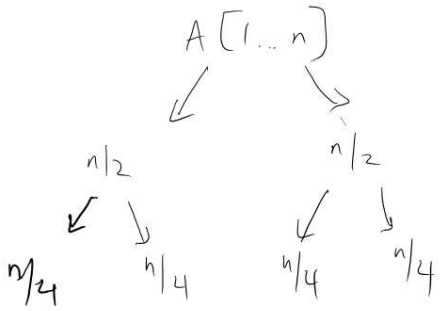
else

MergeSort (A[1 ... n/2])

MergeSort (A[(n/2)+1 ... n])

Merge as per prev slide

Running time for MergeSort



Work done here

n

n

n

⋮

log n layers

O(n log n) work