CSC 323-32: Project 2 <Heap Sort> (C++/Java)

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\*\*\*\* Algorithm steps for heap sort:

Step 1: open the input file;

1.1: read and count the number of date item in the input file

1.2: close the file

1.3: dynamically allocate the PQAry of the size count+1

1.4: initallize PQAry[0] to 0

Step 2: call buildPQAry

Step 3: call deletePQAry

\*\*\*\* Algorithm steps for buildHeap:

Step 1: open the input file for the second time

Step 2: data <-- get a data item from the input file

Step 3: insertOneDataItem (data)

3.1: bubbleUp

Step 4: printPQAry (print the content of PQAry up to the first 10 items of the PQAry to \*out1file\*

Step 5: repeat step 2 - 4 while input file is NOT empty

Step 6: close the input file

\*\*\*\* Algorithm steps for deleteRoot:

Step 1: open the output file

Step 2: deleteRoot

2.1: print the root to \*outfile2\*

2.2: bubbleDown

Step 3: printPQAry (print the content of PQAry up to the first 10 items of the PQAryto \*outfile1\*

Step 4: repeat step 2 and 3 while PQAry is NOT empty

Step 5: close the two output files

INPUT

23

82 12 53

9 39 2 13

30

61

21

45

18 19 42

53 4 93 34 8 36 37

10 11

7 8

5 10 20

OUTPUT

23

23 82

12 82 23

12 53 23 82

9 12 23 82 53

9 12 23 82 53 39

2 12 9 82 53 39 23

2 12 9 13 53 39 23 82

2 12 9 13 53 39 23 82 30

2 12 9 13 53 39 23 82 30 61

2 12 9 13 21 39 23 82 30 61

2 12 9 13 21 39 23 82 30 61

2 12 9 13 21 18 23 82 30 61

2 12 9 13 21 18 19 82 30 61

2 12 9 13 21 18 19 82 30 61

2 12 9 13 21 18 19 53 30 61

2 4 9 12 21 18 19 13 30 61

2 4 9 12 21 18 19 13 30 61

2 4 9 12 21 18 19 13 30 61

2 4 9 12 8 18 19 13 30 21

2 4 9 12 8 18 19 13 30 21

2 4 9 12 8 18 19 13 30 21

2 4 9 12 8 18 19 13 30 21

2 4 9 12 8 11 19 13 30 21

2 4 7 12 8 9 19 13 30 21

2 4 7 12 8 8 19 13 30 21

2 4 5 12 8 7 19 13 30 21

2 4 5 12 8 7 10 13 30 21

2 4 5 12 8 7 10 13 30 21

4 8 5 12 10 7 10 13 30 21

5 8 7 12 10 8 10 13 30 21

7 8 8 12 10 9 10 13 30 21

8 10 8 12 20 9 10 13 30 21

8 10 9 12 20 11 10 13 30 21

9 10 10 12 20 11 19 13 30 21

10 12 10 13 20 11 19 39 30 21

10 12 11 13 20 18 19 39 30 21

11 12 18 13 20 23 19 39 30 21

12 13 18 30 20 23 19 39 34 21

13 20 18 30 21 23 19 39 34 61

18 20 19 30 21 23 42 39 34 61

19 20 23 30 21 36 42 39 34 61

20 21 23 30 37 36 42 39 34 61

21 30 23 34 37 36 42 39 93 61

23 30 36 34 37 45 42 39 93 61

30 34 36 39 37 45 42 53 93 61

34 37 36 39 53 45 42 53 93 61

36 37 42 39 53 45 82 53 93 61

37 39 42 53 53 45 82 61 93

39 53 42 53 93 45 82 61

42 53 45 53 93 61 82

45 53 82 53 93 61

53 53 82 61 93

53 93 82 61

61 93 82

82 93

93

2 4 5 7 8 8 9 10 10 11 12 13 18 19 20 21 23 30 34 36 37 39 42 45 53 53 61 82 93