

HW9
(deadline : 2019/12/19)

手寫題：

2. Make a heap out of the following data read from the keyboard:

23 7 92 6 12 14 40 44 20 21

4. Apply the reheap down algorithm to the partial heap structure shown in Figure 9-20.

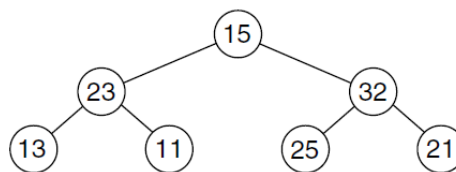


FIGURE 9-20 Partial Heap for Exercise 4

6. Apply the delete operation to the heap in Figure 9-21. Repair the heap after the deletion.

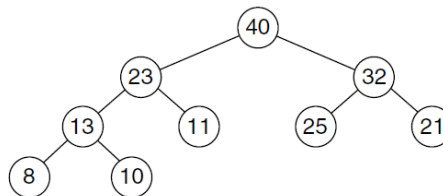


FIGURE 9-21 Heap for Exercises 5, 6, and 7

14. Show the resulting heap after 33, 22, and 8 are added to the following heap:

50 30 40 20 10 25 35 10 5

程式題：

30. Modify Project 29 to determine the efficiency of the reheap up and reheap down algorithms only. Again, analyze the data and prepare a short report of your conclusions regarding their efficiency.

29. Our study of tree algorithmics has shown that most tree structures are quite efficient. Let's examine the efficiency of heaps. Modify the heap ADT developed in Section 9.3 to determine the complexity of building a heap. For this program measure efficiency as the number of data moves necessary to build the heap.

To determine a pattern, run your program with arrays filled with random numbers. Use five different array sizes: 100, 200, 500, 1000, and 2000. Then analyze the heuristics developed in these runs and determine which big-O notation best applies. Prepare a short report of your findings with appropriate tables and graphs.

(第 29 題不用寫，僅為第 30 題參考用)