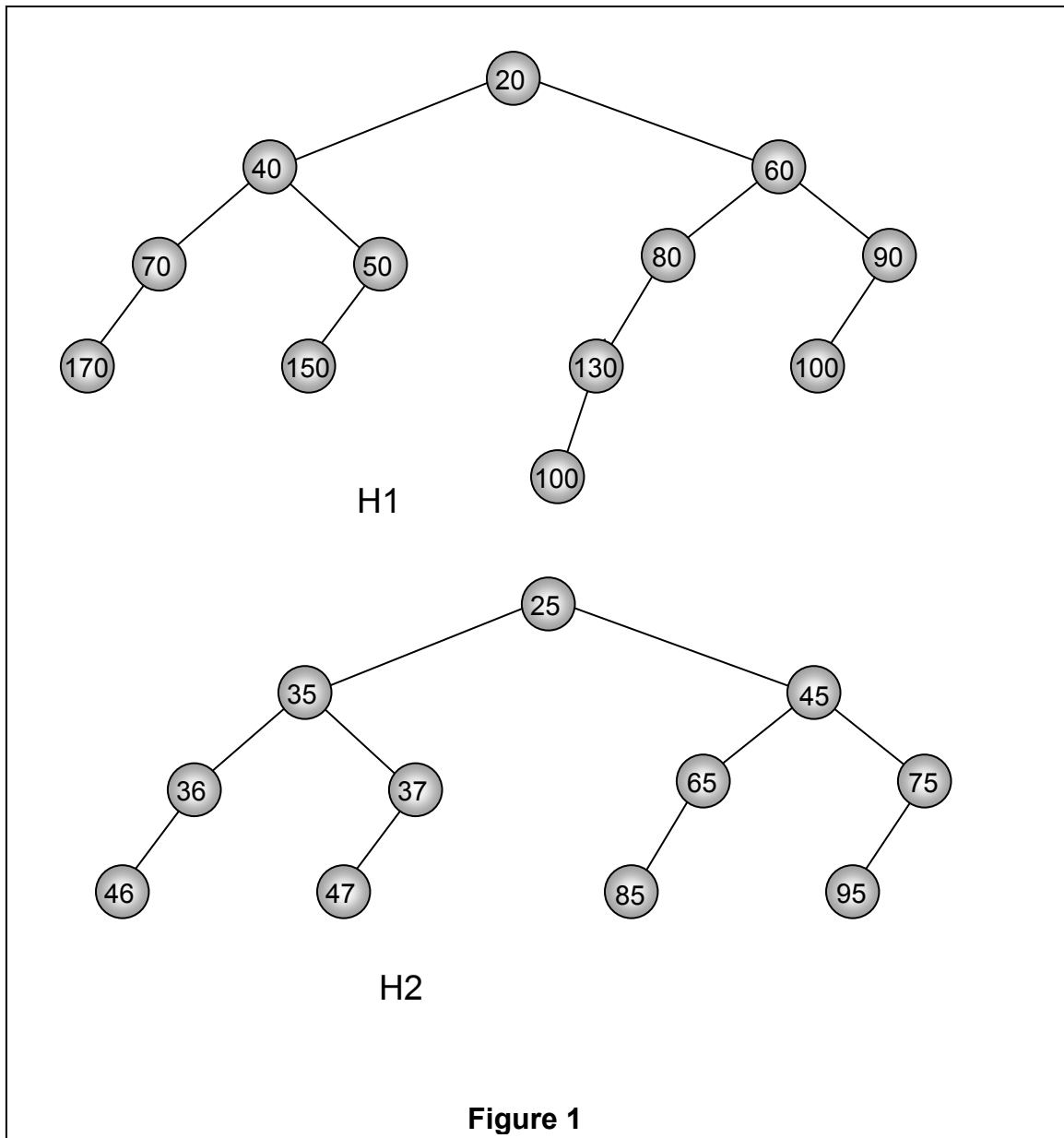# CS 202 – Fundamental Structures of Computer Science
## Section 1, Spring 2003
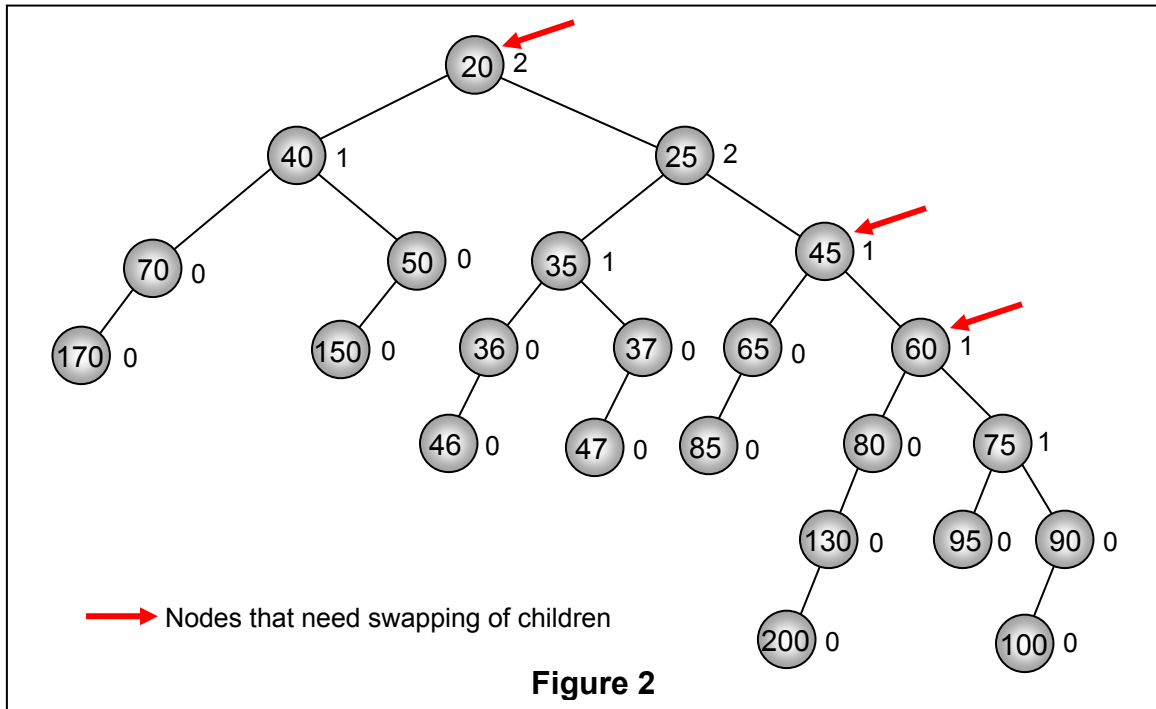# Quiz #3 Solution
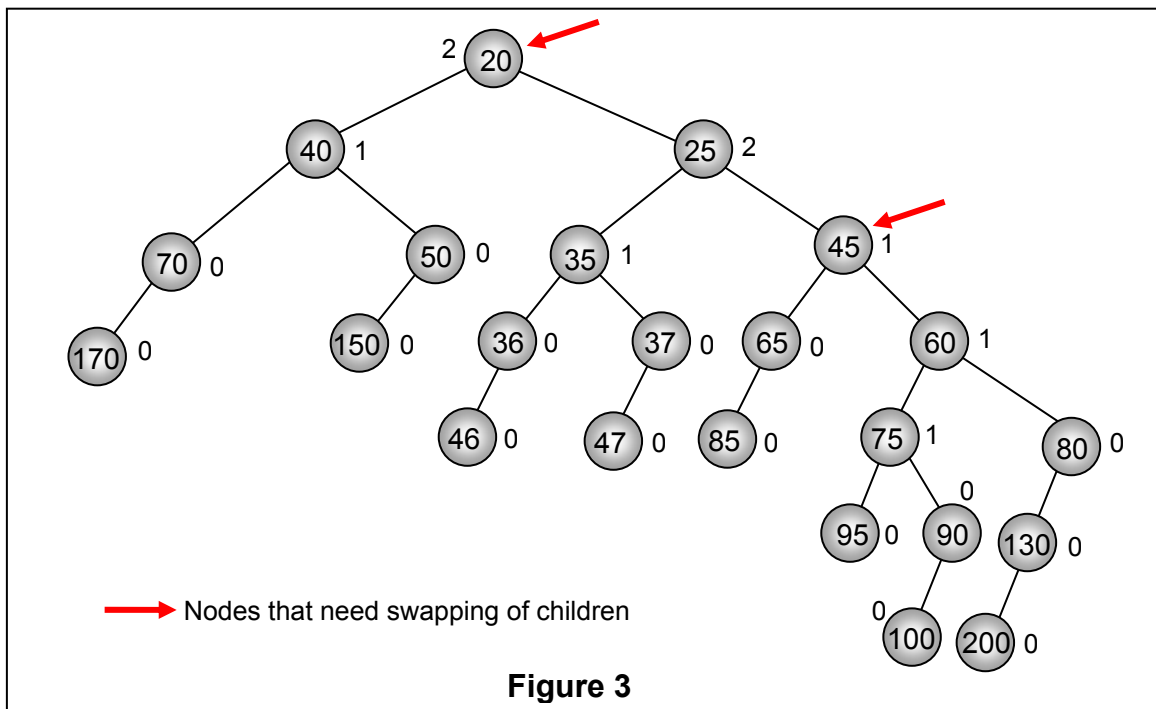
*Question:*



**Figure 1**

Given the two leftist heaps above, merge them and obtain a new leftist heap. Draw the new heap.

### *Answer:*

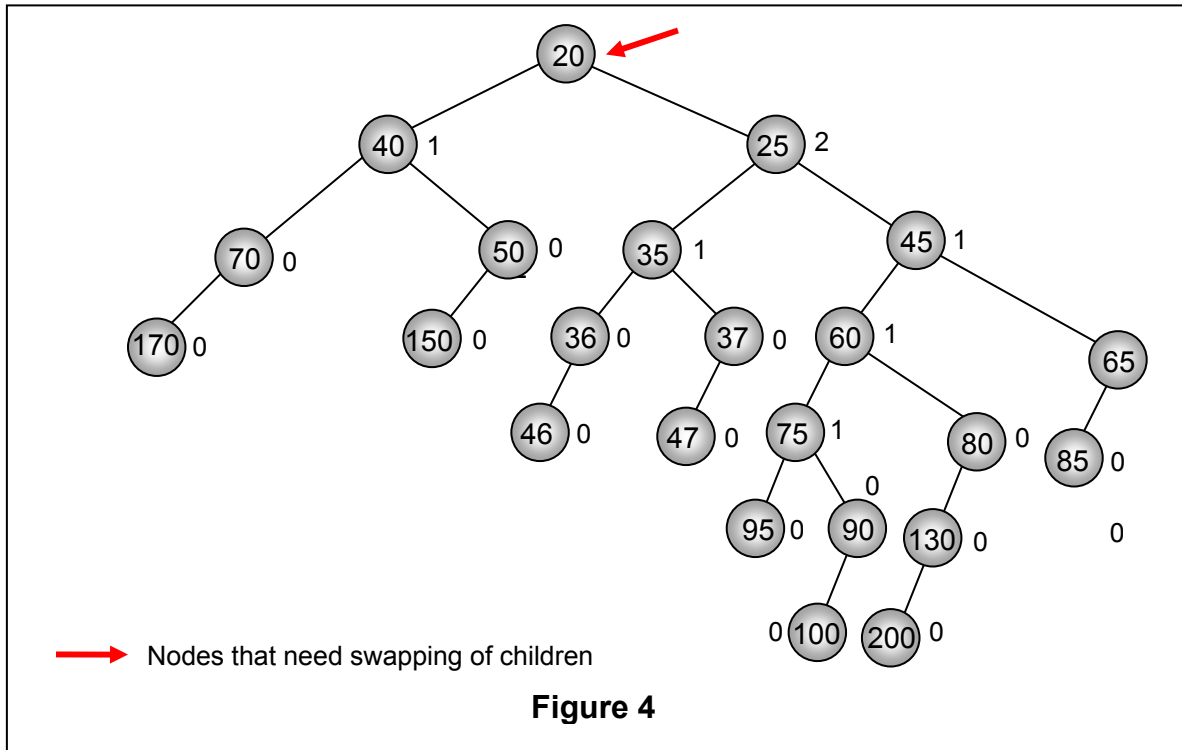After merging the right paths of H1 and H2 in sorted order, we obtain the following heap in Figure 2. Children of some nodes need to swapped, since those nodes violate the leftist heap property.

**Figure 2**

Nodes that need swapping of children

After swapping children of node 60, we obtain the heap in Figure 3.

**Figure 3**

Nodes that need swapping of children

After swapping the children of node 45, we obtain the heap in Figure 4.



→ Nodes that need swapping of children

**Figure 4**

After swapping children of node 20, we obtain the heap in Figure 5. This is the answer.



**Figure 5**