3.4 Studio
Sorting Algoriths Practice
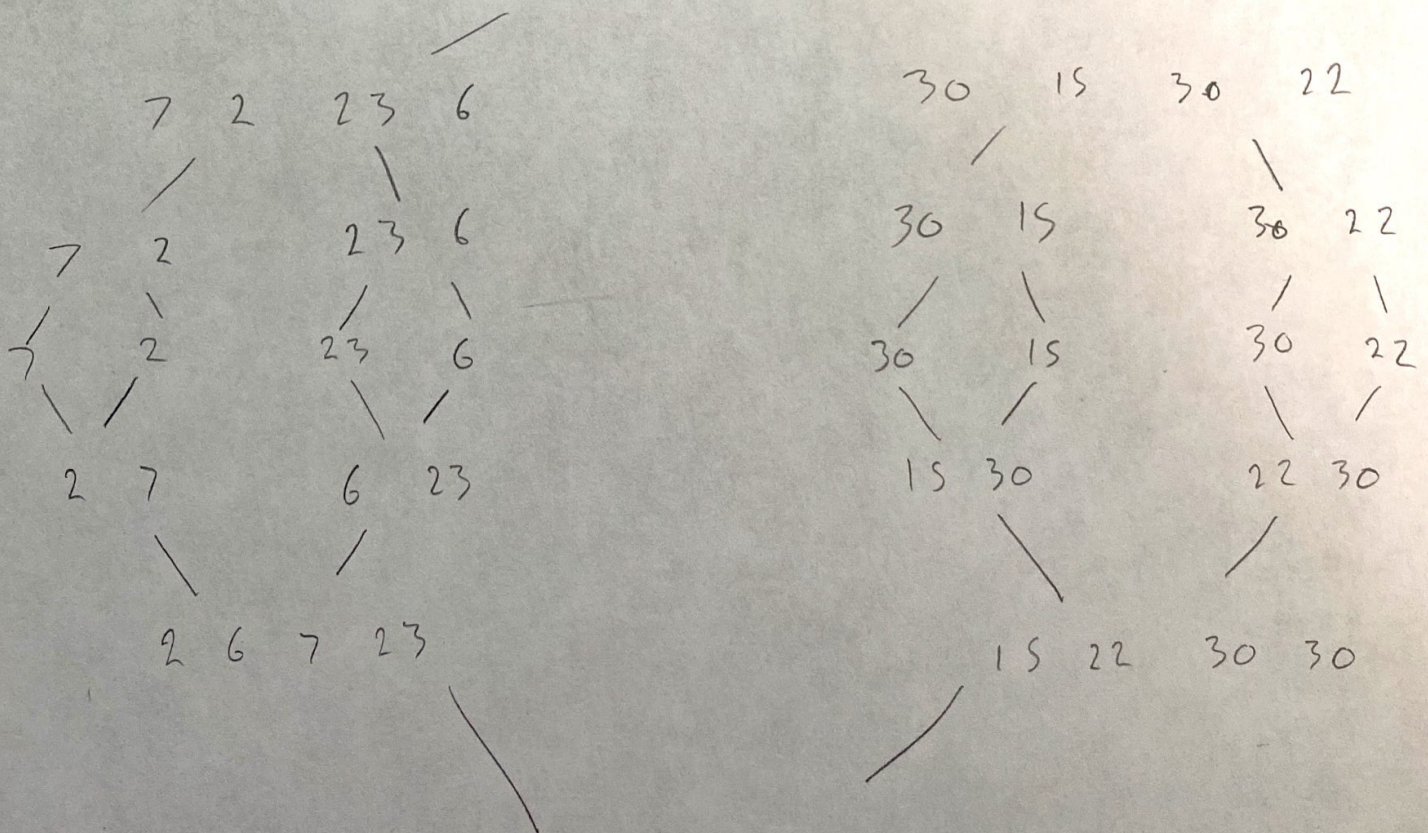
$$(7, 2, 23, 6, 30, 15, 30, 22)$$

Write out steps for bubble sort and Merge sort.

Bubble Sort:

$(7, 2, 23, 6, 30, 15, 30, 22) \rightarrow (2, 7, 23, 6, 30, 15, 30, 22) \rightarrow (2, 7, 6, 23, 30, 15, 30, 22)$

$\rightarrow (2, 7, 6, 23, 15, 30, 30, 22) \rightarrow (2, 7, 6, 23, 15, 30, 22, 30)$ Back to beginning $(2, 6, 7, 23, 15, 30, 22, 30)$

$\rightarrow (2, 6, 7, 15, 23, 30, 22, 30) \rightarrow (2, 6, 7, 15, 23, 22, 30, 30)$ Back to beginning $(2, 6, 7, 15, 22, 23, 30, 30)$

$\rightarrow$ One more pass is necessary because there was a move in the last iteration.

```
        7   2   23   6   30   15   30   22
              /                   /
    7  2  23  6          30   15    30    22
      /     \              /        \
     7   2  23  6        30   15    30    22
      \    /    \         /    \     /    \
      7   2   23  6      30    15   30    22
       \  /    \  /       \    /     \    /
       2  7    6  23      15   30    22   30
         \    /              \       /
         2 6 7 23            15 22  30 30
              \                 /

        (2, 6, 7, 15, 22, 23, 30, 30)
```