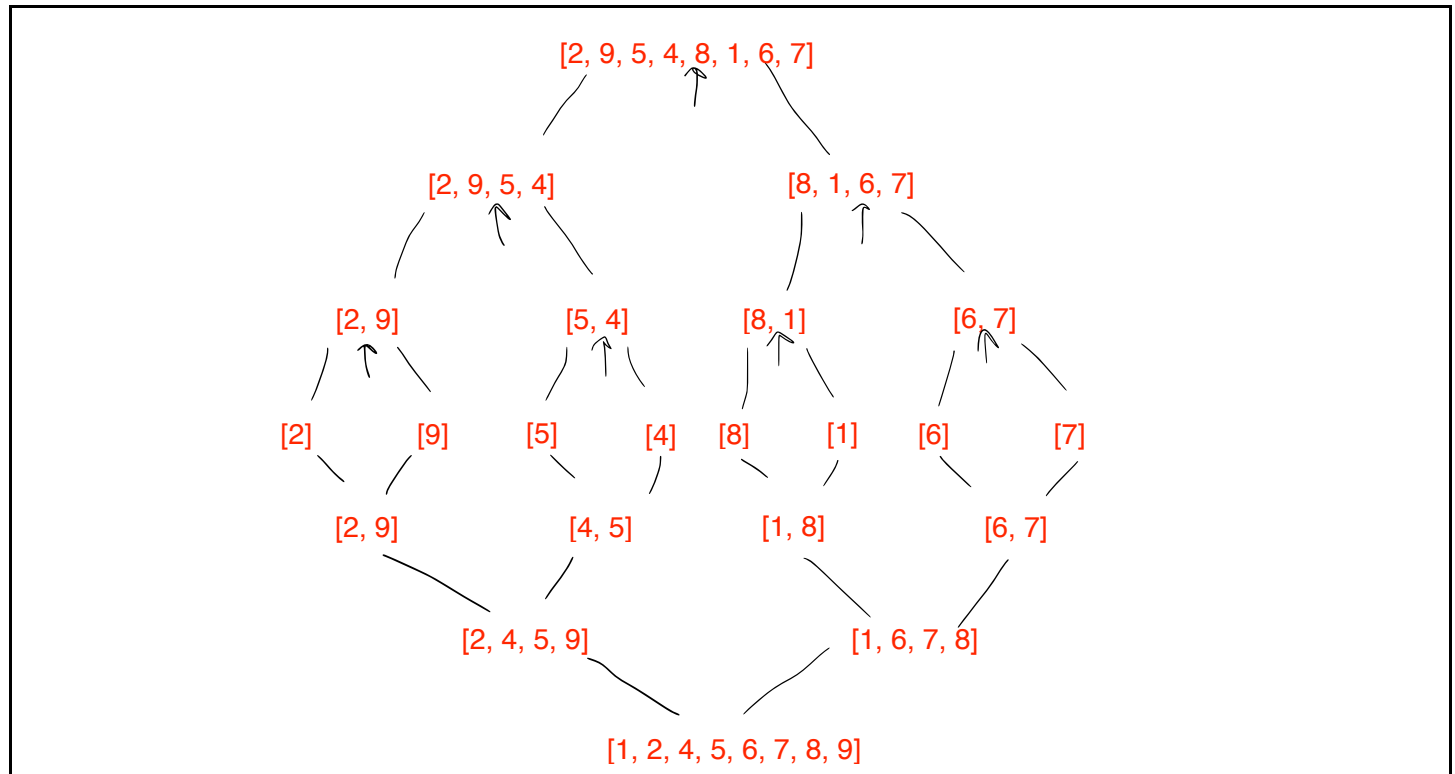**Q1 Using the merge sort algorithm, draw a diagram showing the divide and conquer strategy used by the algorithm. Use the following list :**
[2, 9, 5, 4, 8, 1, 6, 7]
Draw the diagram here:

[2, 9, 5, 4, 8, 1, 6, 7]

[2, 9, 5, 4]   [8, 1, 6, 7]

[2, 9]   [5, 4]   [8, 1]   [6, 7]

[2]   [9]   [5]   [4]   [8]   [1]   [6]   [7]

[2, 9]   [4, 5]   [1, 8]   [6, 7]

[2, 4, 5, 9]   [1, 6, 7, 8]

[1, 2, 4, 5, 6, 7, 8, 9]

Q2 Use the Quick Sort on the following list:
[50 , 20, 90, 30, 80, 40]

Write the index of the pivot and the list after each partition has completed. Use the partition method implemented in Python in the lecture (which is also described in the online textbook).
Original List

50 20	20 30	90 40	30 50	80 80	40 90

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After first partition:
index of pivot :____3____

40	20	30	50	80	90

After second partition:
index of pivot :____2____

30	20	40	50	80	90

After third partition:
index of pivot :____1____

20	30	40	50	80	90