Quick Sort

Revisit Lab 3a part 1 and

    a. Take wall and CPU timing for sorting an array of 10,000,000 random integers.
    b. Take wall and CPU timing for sorting an array of 100,000 pre-sorted integers.

Then optimise your quicksort by implementing the following:

1. Use Tail Recursion by recuring first into the smaller partition side, and then using a tail call to recur into the other partition.
2. Switch to an Insertion Sort when the total number of elements is below 10.

Before you start review the code here: https://www.techiedelight.com/hybrid-quicksort/
Remember your code must keep the original function signatures from Lab 3A part 1.

Using the optimised quick sort take the wall and CPU timing for a and b above. What are the speed/memory differences between quicksort and optimised quick sort?