Tutorial 5 – Sorting

**Question 1.** Many operations can be performed faster on sorted than on unsorted data. For which of the following operations is this the case?
   a) finding an item with a minimum value
   b) computing an average of values
   c) finding the middle value (the median)
   d) finding the value that appears most frequently in the data

**Question 2.** In which case, the following sorting algorithm is fastest/slowest and what is the complexity in that case? Explain.
   a) insertion sort
   b) selection sort
   c) bubble sort
   d) quick sort
   e) merge sort

**Question 3.** Given a list = {16, 2, 9, 10, 21, 15, 30, 24, 65, 53}, show the sorting process step-by-step of the following algorithm. What are the number of comparisons and number of moving elements (an exchange of 2 elements is considered as 3 moves)
   a) insertion sort
   b) selection sort
   c) heap sort
   d) bubble sort
   e) merge sort
   f) quick sort

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1 The pivot is chosen as described in the slides