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mikrosysteme

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Exercise sheet 1

Exercise 1 Insertion Sort (10 points)
Implement the *insertion sort* algorithm. The algorithm takes the first element of the unsorted list and inserts it in the correct place of the sorted list. All elements with a higher index than the inserted element have to be reallocated. For a graphical example look at `https://en.wikipedia.org/wiki/Insertion_sort`. Write at least one unit test for each function, for both expected input as well as unexpected input cases. As for the expected input example, you e.g. can test if your algorithm works with an even and an uneven number of elements. As for the unexpected input case, you could check how the function behaves in case of an empty input list.

Exercise 2 Binary Heap (5 points)
The following binary *min-heap* is stored in a linear array. Draw the heap as a tree diagram and mark the edges where the *heap condition* is not fulfilled.

$$[1, 6, 2, 4, 7, 3, 9, 11, 13, 12, 14, 5, 15, 8, 10, 13, 13]$$