Assignment 2. Felix Wærn, Vendela Andersson, Johan Borg, Erika Lindberg

Comparison.

Differences between the algorithm and a situation where one has an advantage over the others.

Since heapsort is independent of the distribution of the data it will have a best, average, and worst-case time complexity of nlogn. This means that a advantage of heapsort is it's robustness of the algorithm even if you don't know the distribution of the data. Quicksort also has time complexity of nlogn in the average and best case however n^2 in the worst case. This means that insertion sort is better in a sorted array since it will have a linear n time complexity. In a worst-case scenario heapsort becomes the fastest since it has the same time complexity for all cases while the other methods have n^2.
Quicksort is efficient in small cases because the inner loop is small.