

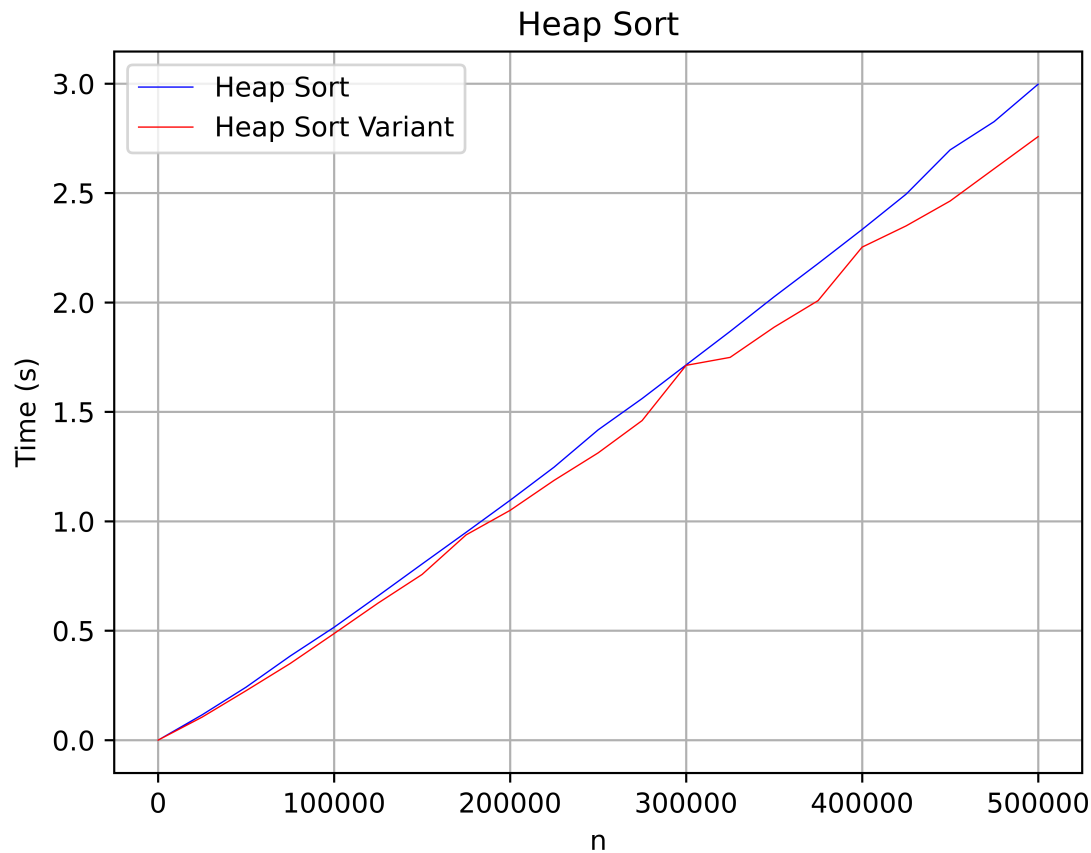
Algorithms and Data Structures: Homework #6

Due on March 16, 2020 at 23:00 PM

Henri Sota

Problem 6.2

- c) Compare the original *Heap Sort* and its variant from subpoint (b) for input sequences of different lengths (including larger input sequences). What can you observe?



The graph shown above has been constructed from the data found in the files `dataHeapSort.txt` and `dataHeapSortVariant.txt`. There is a small difference between the two graphs, because Heap Sort Variant using Bottom Up approach is different from normal Heap Sort implementation by only a constant factor. The constant factor is determined by the lower number of comparisons made on each iteration of the Sift Down procedure. The number of comparisons is approximately half of the number of comparisons made by Max Heapify procedure, because Sift Down only compares the values of the two leaves of the root, while Max Heapify compares the root and the two leaves together.