

CS 350 Project 4, Tree Sorts

Starting with the code in your book, you are asked to create and analyze two new sorting algorithms. The first should be based on Binary Search Trees. You will need to produce code that takes a dataset, builds a BST, and then does an in-order traversal storing the results in an array. The second is based on heaps/priority queues. You should produce code that takes a dataset, build a heap, and then repeatedly removes the root of the tree storing the results in an array. While these two approaches are well documented and can be found in numerous books and on the Internet, for this project, your text should be your only reference material.

For the analysis, you should provide a brief but complete document describing what you believe the complexity of each algorithm is and your justification. This doesn't need to be long, but it should be complete and correct. Be sure to clearly describe the best, average, and worse case datasets. You are not expected to do actual measurements.

You may work individually or in pairs on this project. If you work in pairs, try to work with someone new, if possible. Turn in one printed copy of your code and one complete demonstration of your code per team. You should also send me a copy of the source code as an email attachment. Each individual student should send me a brief email telling how long they worked on the project and describing any problems they encountered. The team project will be given one grade and both members will receive that grade.

As with past projects, this project counts as three routine homework grades.

Due: Monday, November 17 by the start of class.