

Binary Search Functional Specification

Write two programs that use binary search.

- 1 – uses linked list to construct the tree

- 2 – uses an array to construct the tree

Load the data structure with random integers (at least 1,000).

The data will need to be sorted to properly fill the data structure.

Compare the two programs with the following criteria:

- Number of transfers to load the data into the data structure

- How efficient do the two programs run?

- Compare the source code between the programs using simple source code metrics (lines of code, number of conditional statements)

Things to consider:

- Does it matter if there is a 'collision' when inserting data into the data structure?

- Is it more efficient to sort the data before inserting it or as you insert it?

- Does the type of 'item' that you are sorting matter? Will it make a difference if the item is an integer, or a string, or a complex data type?

- What happens if the dataset is already sorted? Does this change the speed of the program?

- What happens if the dataset is sorted in the opposite order? (ascending rather than descending)